

EVERYTHING FAT LOSS

THE DEFINITIVE **NO BULLSH*T** GUIDE

BEN CARPENTER

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Throughout this book, I have made my best attempt to continuously reiterate that human beings are complex, and that dietary and exercise advice needs tailoring to you as the person. Needless to say, the advice and strategies found within this book may not be suitable for everyone and every situation. This book was written for educational purposes only, solely as a self-help tool for your own use, and is sold with the understanding that the author is not held responsible for the results accrued from the advice in this book, and the use of any information provided in this book is solely at your own risk. This book is not intended to substitute or replace individualised advice from a qualified professional. I recommend speaking with a relevant professional where appropriate.

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WHY HAVE I WRITTEN THIS BOOK FOR YOU?

Let's be honest: a lot of the diet industry, in general, is garbage. Weight loss is often marketed by preying on and amplifying people's insecurities: by making you feel like shit, there's always someone around who can offer you a magic solution. Many diets often focus their attention purely on numbers on a scale, with no consideration – and potentially at the expense – of your overall health or psychological well-being. And unsurprisingly, this then leads to an abundance of short-term crash diets and people inflicting horrendously restrictive plans on themselves, where they often feel dreadful in the process – and all because they were told their body isn't slim enough to be attractive for their upcoming beach holiday.

I've worked in the fitness industry for my entire adult life and have spent more than a decade on social media trying to cut through all the weight loss bullshit out there, so trust me when I say there's a lot of it around. As a personal trainer, I am still amazed at the speed the diet industry churns out brand new ways of trying to extract money from you, trying to convince you that their latest offering is the greatest weight loss solution that you absolutely need in your life right now. Over the years, I have dedicated an increasing amount of effort on social media attempting to combat this, trying to guide people in the right direction and away from diets that seem to only work temporarily before backfiring and making you feel like you are in a worse position than when you started. Honestly, I am kind of scared to calculate how much time I have spent on social media. You know that feeling when you look at your phone activity for the day and the amount of time you have been looking at your screen startles you? Well, imagine doing that after a whole decade.

I have a theory that one of the reasons the diet industry spews out so much fucked up weight loss advice is because a lot of it started in

super hardcore fitness culture, which then trickled down to the mainstream audience. When I started in the gym, nervously losing my workout virginity, social media wasn't really a thing. The world of fitness mostly existed inside the glossy magazines that were sitting on the side of the gym I used to train in. If I wanted to learn about anything fitness related, I would turn to one of these – with half-naked shredded fitness models on the front cover smiling and flexing so hard they were probably on the verge of passing out. I'd look at the diet and training plans of whoever was in the magazine at the time and think that was the only way to eat if I wanted to lose a little bit of fat and improve my health. And the common advice at the time was usually based on consuming obscene quantities of chicken and broccoli every day. There I was, a young teenager, new to the gym yet following the same insanely restrictive dietary plans.

My goal for this book is very straightforward. I want to bring together all the facts surrounding the most popular weight loss methods so you can make the best decisions for yourself, while also making sure that you don't fall into the common trap of inadvertently sacrificing your health and well-being in the process.

The fitness industry is disgustingly rife with misinformation and to combat that I want to provide a thorough resource on all things dieting, fully backed up by actual, proper, peer-reviewed scientific research. For people who are interested in weight loss science, I want this to be the all-encompassing guide you are looking for. For people who actively want to lose weight, I want to help you make the best decisions, including how to avoid common pitfalls. And it may come as a surprise that some of those pitfalls may include seeking to lose weight in the first place. Not everyone should strive to lose weight, and I want you to consider why you feel the need to do so before you start on that journey; this isn't something that most diet books ever discuss.

It won't come as a shock that I also think a lot of diet books are garbage. With the goal of becoming bestsellers, it is a common marketing strategy to try to pitch some kind of 'revolutionary' new plan that nobody else has thought of before. By convincing you, as the reader, that there is a problem, they can present the brand new solution, often dishing out a load of misinformation in the process. So many people are led to believe something that isn't true simply because somebody somewhere has a product to sell.

Another problem with the diet and fitness industry is that it is easier to pitch a universal solution than it is to discuss nuance. It is a lot simpler to market one weight loss plan and get everyone to buy into why it is amazing than it is to offer up multiple strategies to suit people's individual circumstances. What works for your friend might not work for you for countless reasons. You can bet your life savings that if you sell the same plan to a large group of people, some people just won't like doing it or won't feel good when they follow it. Should we then be so surprised that lots of people yo-yo diet, hopping from one approach to the next, trying to find something they do like doing? People have different preferences and suggesting there is only one solution is like trying to ram different shaped pegs into one same-shaped hole. Some people just aren't going to fit and will feel miserable in the process.

Why is this book different?

I am going to attempt to do the opposite of what traditional diet books do by giving you an ultimate resource of unbiased information. I am not going to sell you what I like doing; I am going to give you the pros and cons of the most sought after strategies that people ask me about so you can finally figure out what works best for *you*. This is not a book where I pretend to have a sparkly, never-heard-of-before diet plan that you should all follow to lose weight quicker and more effortlessly than you ever have previously; instead, I am going to talk you through the whole menu of options and let you pick and choose anything that appeals to you, which may be totally different to what appeals to your friend who reads the book at the same time. Anyone can achieve great results, but the best path will differ considerably for each of you.

I am also going to discuss the pros, cons and misconceptions of weight loss itself. While the diet industry often makes it seem like you need to lose weight to be attractive, feel more confident and be healthier, these are not necessarily true, at least not in such black-and-white terms. I don't think it is a good idea to promote weight loss as a cure-all solution without discussing some possible side effects of dieting. If you set out to lose weight and, in the process, ruin your relationship with food and miss out on fun social events because you were too scared to let loose at dinner, are you really improving your life?

Think about it like this: how many people try and lose weight under the guise of improving their health, but follow a diet plan that you definitely wouldn't view as healthy? How many people follow a diet to improve their health but absolutely destroy their relationship with food? How many people lose weight to try and feel more confident with the way they look but end up feeling more insecure than ever? Not only is weight loss not a universal solution, but some of you would also do best by not trying to lose weight in the first place.

What I hear a lot is that many people feel trapped. Trapped in a cycle of bouncing between diets, wanting to try the latest thing and never being sure what route is the best for them. I would love to take away that feeling by giving you an unbiased, balanced perspective on the available options.

My aim for this book is much like my aim as a personal trainer: to help you, as the client. And that looks different for everyone. For some people, it is explaining why they don't have to follow the fad diet plan they are on, and instead providing them with an easier, better or less risky solution. For other people, it is about taking their already advanced level of knowledge about weight loss and fine-tuning it so they can achieve the results they want. And for some people, it is helping them realise that striving for weight loss actually isn't a good idea, or even necessary, at all for them at the moment.

I have lost count of the times people have asked me if I'm going to write a book to explain the ideas I've shared on social media in more detail. So that's what this is. It is an all-encompassing resource that I want you to use so you can make the best decisions for yourself. It is based on tens of thousands of hours of working with a very diverse range of clients and researching topics down to the finest details, all summarised for your convenience. At times it is going to get a bit nerdy because I want to give you the full explanations behind some of the information (and misinformation) we see plastered all over social media and inside diet books, but I will simplify it as we go, giving easy-to-read summaries at the end of each chapter so none of you ever feel left behind. It genuinely makes me feel warm and fuzzy knowing that I can help steer you away from scams and dangerous weight loss lies, saving you time, effort and money while you are pursuing your goals.

The global weight loss industry is estimated to be worth hundreds of billions of dollars annually and continues to grow, indicating how many people are interested in this topic. Unfortunately, as a lucrative industry, there are plenty of companies fighting for your hard-earned cash by trying to convince you that they have the revolutionary answer to all your problems. In a space that sometimes feels like trying to navigate through a minefield of misinformation, this is my

best attempt to hold your hand and keep you safe while helping you get to your destination, wherever that may be. That's a diplomatic way of saying a lot of scamming shitmonkeys are prepared to lie to you and I plan to arm you with the tools to stop this happening.

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1.

WHY DO YOU WANT TO LOSE BODY FAT?

This is one of the first questions I ask all my clients who want to lose fat. Each person's journey is as unique as they are and it's fundamental to your success that you identify what your motivation is from the start. Unlike a lot of weight loss books, I am not trying to sell you anything specific. I am not attempting to convince you that my brand new, revolutionary-sounding diet is the most amazing thing in the world and that everyone should follow it. I am trying to give you unbiased information so you can make the best decisions for *yourself*.

Let me make one thing crystal clear up front: I am fascinated by the science of body composition (fat loss and muscle growth), but there's a lot about the diet industry that causes me great concern. I think the way weight loss is commonly marketed is toxic, promotes insecurities and can actually be dangerous. You may be led to believe that you need to lose weight to be happy, healthy, confident and more attractive, but I want to state bluntly right at the beginning of this book that this is total misleading bullshit.

By painting weight loss as the answer to all your problems, the diet industry promotes a culture in which cigarettes were once marketed as weight loss aids, corsets are (still!) sold as waist slimmers and dodgy diet pills are commonplace, despite very questionable efficacy. Having barely any body fat is one of the unrealistic beauty standards reinforced by over-the-top airbrushing in magazine photos and by social media fitness models who only post photos of themselves at their absolute lowest percentage body fat. On top of this, the diet industry often uses fears around the health risks associated with high body fat levels as a free pass to push whatever diets and weight loss

products onto consumers they like, irrespective of how terrible, unhealthy or ineffective some of those may be. Fat loss is a goal that can, unfortunately, open the floodgates to many unethical sales practices operating under the guise of improving your health.

If losing body fat is genuinely about health, why are diet products more commonly sold with images of half-naked people on them than anything focusing on the purported health benefits? We are bombarded with marketing messages implying we need to lose body fat if we want to be ‘beach body ready’ (newsflash: you are allowed to go to the beach irrespective of how much you weigh and anyone who tells you otherwise can fuck off), while weight loss before-and-after photos often depict someone looking sad in the first picture and smiling in the second, not-so-subtly implying that you need to diet to feel happier.

We must untangle this relationship between health and aesthetics because the market is saturated with diets that make people feel like shit. Let’s not pretend weight loss is always about health promotion. Even without the terrible crash diets, a lot of dieting practices come with potential psychological risks. If you lost body fat but you developed an obsession with tracking your calorie intake or standing on the scales multiple times per day, your mental health will have been sacrificed in the process and that is a major component of your overall well-being, despite it being frequently ignored in most diet plans.

My goal as a personal trainer is always to use my expertise to customise my advice to each client. Just because two people both tell me they want to lose body fat doesn’t mean their underlying motives are the same and because of that, the dietary and training approaches they adopt may also be different, despite having the same fat loss goal on paper. For example, if someone believes they need to diet to improve their health, it may be possible to implement health-promoting behaviours that are entirely separate from intentionally trying to modify their body fat percentage – in other words, they may not actually need to lose any body fat at all to improve their health.

On the flip side, if someone is already in good health and wants to lose a little bit of body fat before their upcoming holiday, their motives are aesthetically driven, not health driven. Some people want

to lose body fat because they believe it is necessary to feel more confident; in which case, I would not consider fat loss a guaranteed vehicle to help reach that destination. Sure, you can find countless people who say, 'I lost weight and felt more confident,' but there are also plenty of people who lost weight and didn't feel more confident at all. There are people with higher body fat levels who are happy with themselves just how they are and there are people with shredded six packs who are insecure and miserable. If dieting was guaranteed to make someone happy, this just wouldn't be the case. Not everyone who loses weight is healthier, happier and more confident than they were. The relationships between these are much more complicated than people think.

There have also been many times when a client has been seeking fat loss and I have actively advised against it. For example, people going through high-stress life situations may need to put in a disproportionate amount of effort to get back relatively little. If someone told me they wanted to lose fat and also mentioned they had previously been diagnosed with an eating disorder or medical condition, I would refer them to someone else for appropriate treatment if necessary. Some people would do better not striving to achieve fat loss at all, yet you rarely hear anyone talk about this.

Everyone has different needs and expectations. I think any weight loss book that steers every reader in the same direction is inevitably going to be doing some of you a huge disservice. Contrary to what many people think, the science around fat loss is not limited to what diet plan works best. It includes the psychology of what is sustainable in the long term, the factors that influence how much food someone wants to eat, the possible physical and psychological side effects of haphazard dieting and many other complex topics.

Consider this first chapter of this book the equivalent of sitting down with me as your personal trainer and discussing what your goals are before deciding what the best action plan is, tailored to you. If you don't establish your goals, going straight in with a programme is like aiming at a dartboard while blindfolded. If you don't know what your destination is, how can you decide which way to aim?

- Do you want to lose fat because you want to change the way you look or change the way you feel?
- What habits are you willing to adopt to get there?
- Are those habits going to be sustainable for you?
- Are they going to improve your overall quality of life?

Let's use an analogy. People often chase money because they believe that more money will make them happier. However, having more money does not always guarantee increased happiness. Sure, it is nice to get a pay rise, but that feeling probably won't last forever. Some people could drive a fancy sports car that makes them the envy of the neighbourhood, but they still might look at a friend who has an even more expensive car and feel shit by comparison. Also, as someone earns more, they might recalibrate their expectations, constantly chasing the next income bracket and never being content with what they have.¹ For example, if you received a 10% salary increase today, you would probably celebrate, but after a while, you may increase how much you spend and realise you are chasing the next 10% and the 10% after that. There are people with loads of money who are miserable and people with less money who are far happier. Money doesn't automatically equal happiness.

It is important to understand that the method you pick to get to the destination also plays a crucial role. If having more money is your goal, does it mean you will be happy with a high-paying job that you hate, working all hours under the sun and never seeing your family or friends? Likewise, many people go on diets to 'feel healthier' but embark on crash diets that leave them feeling like shit or adopt an exercise routine so extensive it takes over other areas of their life. Yes, they may have lost body fat, but maybe they didn't actually succeed in feeling any better.

So, I will ask again: why do you want to lose body fat? I would genuinely encourage you to consider your answer right now.

In my experience, the answers most commonly fall into two main categories: to 'look better' or to 'feel healthier'.

I want to look ‘better’

If your goal is to ‘look better’, let us have a quick heart-to-heart on this, friend to friend. Looking ‘better’ is a subjective term. There is no yardstick on what looking ‘better’ actually means and I am uncomfortable with the idea of referring to someone’s body as ‘better’ than someone else’s. It is not better; it is simply different.

Like the money analogy, if you constantly strive for ‘better’, will you ever be content with where you are at? As ‘looking better’ is entirely opinion-based, some people may find themselves going into a tunnel of body dissatisfaction, always feeling unhappy because they think they constantly need to diet to look better, never actually getting to that elusive point of happiness. Unlike a lot of other books discussing fat loss, I don’t want to make you feel like you need to lose fat to look more attractive. I would prefer you to decide what your underlying motivation is and then ask yourself if losing body fat will genuinely help you get there.

Some of you might be thinking, ‘Yes, but losing weight does make someone look better.’ OK, let us question that for a moment. What you personally view as ‘better’ or ‘worse’ is shaped by the culture in which you live, among many other things. At this present moment in time, in the geographic areas where most of you are probably reading this book, thinness is idealised in women and some level of muscularity is idealised in men. Historically, though, this has not always been the case. Having more body fat was once seen as a sign of wealth and prosperity;² socially desirable body shapes have changed over time.³

An obvious example of this is the extreme use of the corset, worn by women in the nineteenth century to narrow their waists, sometimes to a dangerous degree. In recent years, there have also been mini shifts of emphasis onto areas of women’s bodies that a lot of people hadn’t previously given much consideration to. For the first time ever, some people were suddenly striving to achieve a ‘thigh gap’ and workouts were being promoted to target your ‘hip dips’, stigmatising perfectly normal parts of human anatomy solely to keep up with constantly evolving beauty standards.

For men, there is an ever-increasing ‘drive for muscularity’ and this growing desire to build muscle mass has been linked to higher levels of body dissatisfaction and muscle dysmorphia (an obsession with becoming more muscular).^{4,5} If aspiring towards having a muscular body is causing men to feel dissatisfied with how they look, there is a risk that more will turn towards unhealthy behaviours to achieve that, like the use of anabolic steroids. When you really think about it, you will probably realise that a large part of the weight loss industry relies on preying on and amplifying people’s insecurities that they do not look attractive as they are and they need to change.

There is also a geographical component affecting the body shapes we aspire to achieve. If you grew up in a Westernised country surrounded by mainstream media news outlets, there is a strong possibility that your thoughts about body image are very different from those of people living in other parts of the world. One study asked people from 26 different countries to identify the female body weight that they find most attractive.⁶ Responses varied across countries, especially when comparing people from different socioeconomic-status sites, as regions with Westernised media appear to favour thinner bodies. This appears to be similar with men too. One study surveyed American, Ukrainian and Ghanaian males and found that 90% of American males wanted to be more muscular in contrast with only 49% of Ghanaian males.⁷ Although this could reflect the body types of the participants, it could also be influenced by the widespread perception in the US that muscularity is a sign of masculinity and dominance, which may make men with visible muscles more attractive.

That so many people want to lose body fat for aesthetic purposes is largely down to societal pressure: we have been conditioned to believe that having a leaner physique makes us better looking, so that’s what we want to pursue. Whether we are aware of it or not, there is a good likelihood that any preferences for how your body looks are shaped by media-influenced ideals.⁸ If you are surrounded by highly air-brushed photos in magazines, heavily filtered images on social media and TV programmes featuring wealthy celebrities who

can afford cosmetic surgery procedures to keep them looking as slim and youthful as possible, it can make you feel a bit shit about yourself by comparison, you know?

When most people think of their ‘ideal body’ there is a decent possibility they will pick someone who is widely known in mainstream celebrity culture. The image you have in your head is likely a by-product of the age you are living in. Perhaps you are a woman who wants to be thin and strong, but if you’d lived in a different era, you may have wanted a fuller, slimmer or more hourglass figure. If you are a man who is striving to be muscular, at a different point in time you might have aspired to have more body fat as a sign of wealth or idealised a much more slender physique like you would have seen on many rockstars in the 1960s and 1970s. I think it gives some perspective to reflect that if you had lived in a previous generation, your perception of the ‘ideal body’ might well have been entirely different. This shows that how you feel about how you look is being shaped by changeable, external factors.

The problem with striving to simply ‘look better’, as opposed to working towards clearer and more focused goals, is that it has the potential to negatively impact the way you feel about yourself and, in turn, nudge you towards weight loss strategies that aren’t a good idea. Guilt and shame are not emotions that I think should be the driving force for change. In one study, some participants who read a weight-stigmatising article subsequently went on to consume *more* calories, not fewer, suggesting that feelings of shame can have negative physical and psychological consequences, potentially impeding weight loss.⁹ On top of that, people who are made to feel worse about their weight may actually have a decreased motivation to exercise, not increased.¹⁰ Just as schoolchildren being teased about their weight can be deterred from exercising, those same feelings of shame and embarrassment can apply to us during adulthood. We will discuss these in more detail in the next chapter.

Just for a change of pace to a lot of diet culture messages, consider now that there is nothing wrong with how you

look. It is more that you are experiencing subconscious pressure to look a certain way.

I want to feel healthier

If your goal is to ‘feel healthier’, let’s first consider exactly how much weight loss actually equates to being healthy. To clarify, losing weight and losing body fat specifically are not necessarily the same thing. If you start lifting weights and gain a couple of pounds of muscle mass and lose a couple of pounds of body fat, your weight will not have actually decreased (although a lot of the time, body fat and weight do tend to reduce simultaneously). It is true that many people reduce their body weight and feel that their overall quality of life improves, but it may also be possible to achieve this without reducing your weight or body fat percentage. For example, if you increase your aerobic fitness level and physical strength so that day-to-day tasks are easier, you may feel health benefits without ever intentionally dieting. If someone is sedentary and starts exercising, they could obviously improve their health – which may or may not be accompanied by weight loss. If someone stopped smoking, reduced their alcohol intake, improved their sleep quality, started exercising and improved their diet quality *without* significantly changing the number of calories they consumed, you would still expect improved health markers, right? It is worth being aware that health and weight don’t necessarily overlap as much as people think. You can pursue health improvements without worrying about your body weight at all, if you want to.

Weight loss advice shouldn’t be a one size fits all

Weight loss is a very broadly applied goal and while it may be considered as health-promoting for someone with a high body weight or a benign endeavour for other people, there are risks

involved which may be amplified if someone tries to lose weight via any means necessary.

Let's use a side-by-side comparison to highlight how people's weight loss motives can differ hugely:

Person A: doesn't have much nutrition knowledge, has a sedentary lifestyle and wants to lose a little bit of fat because they think they will feel healthier. They have tried a few different fad diets because that's what they thought was needed. They inevitably hated them all and now they just want some no-bullshit advice on what works and what doesn't.

They can likely achieve this with health-promoting habits that don't have to be extreme. Health is their main concern; a reduction in body weight is a secondary consideration that they may consider a pleasant by-product.

Person B: knows a lot about the foods they are consuming, already has an active lifestyle, doesn't fall into an 'overweight' bracket and isn't striving to lose fat for health purposes. They have an event coming up that they want to diet for, like a wedding, holiday, photoshoot or a sporting competition where they compete in a specific weight class. They know that this may only be a temporary goal, they might not care about long-term sustainability at all.

While both of these people may be seeking fat loss, they have very different motives that can be approached from completely different directions. Person A is looking to improve their health and thinks that losing weight may help contribute to this. Person B is seeking an exclusively aesthetic goal that may actually come with sacrificing their health, at least temporarily.

Person B, who already has good nutrition knowledge and a lower baseline level of body fat, might want to meticulously track their calorie intake to get the best fat loss results possible in the shortest period of time. Person A might not have the prior knowledge, willingness or even the need to do that. Even worse, Person A might find that calorie tracking messes with their psychology towards food and nudges them towards disordered eating, so following the same advice that works well for Person B could have catastrophic results. Person B might want to step on the scales every single day to keep an

accurate account of what their body weight is doing and may even get weekly body fat analysis measurements recorded to take this one step further. Person A might find that weighing themselves is uncomfortable to begin with so the idea of doing it repeatedly is not just an unappealing idea but one that could come with adverse psychological consequences.

Put simply, a plan that works really well for one person could be disastrous for another person.

I don't want Person A trying to follow the same advice as Person B. If I don't make that abundantly clear in this book, I have done you a disservice. I also don't want Person A thinking that they even *have* to lose weight to be healthier or feel more confident in their own skin. If you read this book and think, 'Actually, I've realised I don't want to strive for weight loss at all, I just want to focus on my health without worrying about how much I weigh,' then that is fucking brilliant. Likewise, if someone wants to lose a little bit of body fat for a holiday, wedding or just because they want to change the way they look, I want them to be aware of the best methods for them and the risks associated so they can do it in the healthiest and most efficient way possible.

So, does losing weight actually make you healthier?

There is a high probability that every single person reading this book has heard about the health risks associated with obesity. This is a hotly debated and emotionally charged topic, which I believe needs navigating delicately.

As soon as someone's body weight creeps over a certain threshold on their doctor's graph, they are classified as 'obese' which, as many people will attest, can mean they are treated differently. Immediate, sometimes abrupt, conversations about body weight can occur even when that wasn't the initial purpose of the appointment.

Even the language around discussing obesity is a point of contention. As the word ‘obese’ is often used in a discriminatory fashion, some people prefer to use other terms.¹¹ For example, while people in size-acceptance groups may prefer to use the term ‘fat’, it is considered offensive to others. At the moment, there is no definitive consensus on this as people have different preferences. So the terms I’m going to use will reflect what’s known as ‘person first’ language (e.g., ‘someone with obesity’ rather than ‘obese person’)^{12,13} or simply more neutral terms like ‘higher weight’.¹¹

Measuring the health impact of body weight is very difficult. A lot of illnesses and diseases take years or decades to manifest and that makes it hard to study because you can’t really follow a group of people around for a few decades, periodically measuring their health markers and cross-referencing them against their body weight. An alternative is to look at the records of a really large number of people and do some statistical analyses on whatever body measurements you have (a lot of the time, this is just weight and height because doctors don’t tend to take your body fat percentage when you go in for a visit and most of us don’t measure it at home) to make some best guesses at how body weight impacts the risk of death. For example, a review paper that looked at more than 3 million deaths and over 30 million participants concluded that having a higher BMI (body mass index, which is a calculation based on height and weight only) was associated with an increased risk of all-cause mortality, simply meaning death from any cause.¹⁴ You can look at other measurements of body composition but they also tend to be relatively crude. For example, ‘central obesity’, which is classified by using things like waist-to-height ratio and waist-to-hip ratio, has also been linked to higher all-cause mortality risk, independently of how much body fat someone has.¹⁵ In short, when you look at data across a huge number of people, having a very high body mass index is linked with an increased risk of death, but having a low body mass index is also linked with an increased risk of death, often because some diseases are associated with weight loss.

If you are armed with this knowledge, you may have a very weight-centric solution: tell everybody to get into the ‘normal’ BMI bracket, right? While that sounds super-straightforward on paper, it isn’t very easy for everyone to achieve and some health markers show improvements in response to more modest weight loss, like reducing 5–10% of someone’s initial body weight, if their starting point is high enough to be cause for concern.¹⁶

Here is where things get a little trickier. If someone told you that losing a certain percentage of your body weight would make you healthier, what would you do? Would you try to lose that weight in weeks, months or years? Would you try to lose it by following a low-carb plan or a low-fat plan? Would you follow an intermittent fasting diet or a traditional calorie restriction strategy? Would you follow the meal replacement protocol that your friend used recently and noticed rapid weight loss? Would you incorporate exercise or just eat less food?

We shouldn’t pretend that all these methods have identical impacts on health. If your only goal is to lose weight, thinking that this will improve your health, does that mean that the method of getting there is entirely irrelevant? If someone loses weight without any exercise, follows a crash diet and by taking some questionable weight loss supplements their friend acquired for them, would we anticipate this to lead to the same health improvements as if they had consumed a nutrient-dense diet and added in some exercise? People often seek health improvements with a weight-centric approach and assume that any weight loss is healthy, irrespective of what they did to achieve it.

Assumption: Weight loss comes first.

Improved health follows.

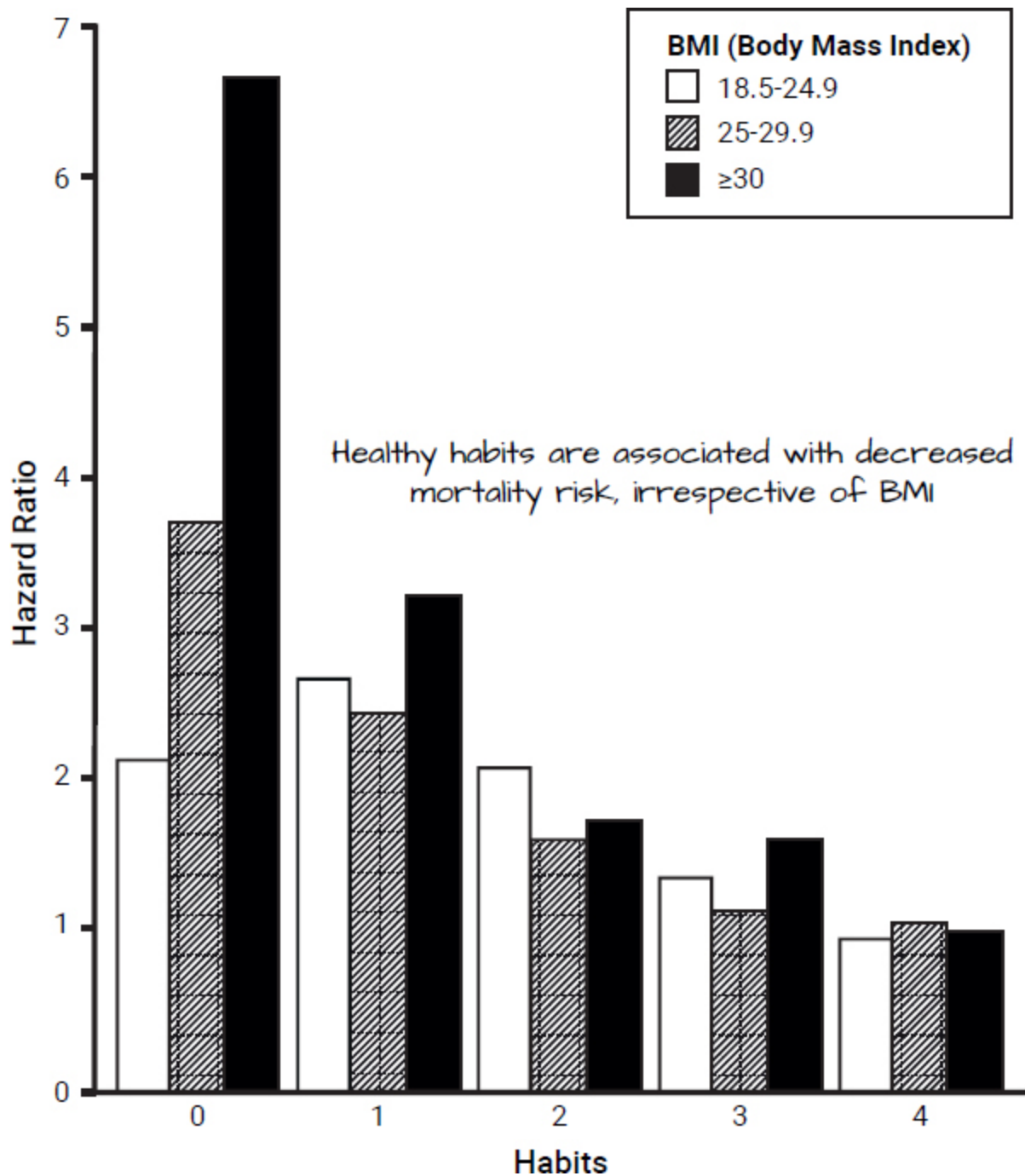
Now, some of you reading this who aren’t convinced by what I have just said might be thinking, ‘Yes, but if my health markers can be improved simply by losing weight, does the method really matter?’ Well, one of the questions that some researchers have

proposed is: are the risks associated with obesity exclusively due to body weight or do other lifestyle factors contribute to that risk? For example, if you have a higher body fat percentage, can you improve your health independently of losing weight?

The answer is yes – depending on your starting point, at least. For example, one study looked at four healthy habits:^{[17](#)}

- consuming more than five servings of fruits and vegetables per day
- exercising regularly
- only consuming alcohol in moderation
- not smoking

It found that adherence to these habits was associated with a decrease in mortality regardless of body weight, suggesting you can indeed improve your health without actually changing how much you weigh.



Hazard Ratio for All-Cause Mortality by Body Mass Index (kg/m^2) and Number of Healthy Habits (i.e., Fruit and Vegetable Intake, Tobacco, Exercise, Alcohol). Adapted from [17](#).

This study raises some valuable questions. Rather than focusing on weight loss and assuming your health will improve, you could focus

on increasing healthy behaviours that don't necessarily have to cross over with altering your body composition. Yes, of course exercising regularly, moderating your alcohol intake and increasing how many fruits and vegetables you eat may result in some weight loss, but you can implement those healthy changes without striving to lose weight.

The way a lot of people approach weight loss goals doesn't really indicate that health is at the forefront of their minds, does it? In fact, given the prevalence of crash diets, yo-yoing body weights, trash supplements and fad 'cleanses', stopping to consider if you should just focus on healthy behaviours could be a really valuable step. Rather than trying to lose weight at any cost and potentially causing yourself damage, you could strive for improved health and let any body composition changes come as a secondary result.

Reality: Although numerous trials have shown improved health markers when someone loses weight, you can also improve your health without weight loss being your primary goal.

Saying that it can be a good idea to focus on healthy behaviours is not saying that there are never health risks that come with heavier body weights, it is simply saying that healthy behaviours are a good idea irrespective of how much someone weighs. It is also worth considering whether the risks people commonly associate with obesity are strictly related to body weight rather than simultaneous lifestyle factors. This is the debate between 'fitness or fatness' and which has the greatest ability to impact health markers.¹⁸ For example, one meta-analysis (think of this as a statistical analysis of multiple research studies pooled together) concluded that compared to 'normal weight-fit' individuals, those with low levels of cardiorespiratory fitness had twice the mortality risk regardless of their BMI. Those who were classed as fit but having obesity appeared to have a similar risk of death as people who were fit but with a 'normal' body weight.¹⁹ Put simply, having good cardiorespiratory fitness levels may mitigate some

of the risks associated with having a higher body weight even if we aren't super-sure to what degree specifically.

While it is beyond the scope of this book to dive into detail on everything that can impact your risk of dying, I would like this section to essentially serve one purpose. I want you to understand that the relationship between health and body weight is complicated and a desire to improve your health should not automatically mean you need to lose weight. Although it is commonly assumed that losing weight can improve health markers, it would be silly to act like all weight loss interventions have the same impact. With this in mind, there is something else that a lot of people don't consider when it comes to weight loss, which is our psychological health.

What about mental health?

When it comes to our overall well-being, physical health is only one factor. We can probably all agree that lots of crash diets are not best for our physical health, so let's extend our consideration to any potential psychological risks that may be associated with dieting, especially when it is taken to the extreme. In my opinion, this is one of the most criminally overlooked aspects of weight loss books and if our industry genuinely cared about your well-being, we would discuss it more.

Even seemingly innocuous advice can have adverse effects, which are amplified when it is presented in the wrong manner. Let me give you some examples.

Low-carbohydrate diets are very popular for fat loss purposes, but some people who follow them become genuinely scared to eat any form of carbohydrates because they have been taught that carbs are 'bad' and that eating them will cause weight gain. If I told everyone reading this book to go on a low-carb diet (avoiding bread, pasta, rice, potatoes, fruit, etc. We will talk more about low-carb diets in chapter eight) at least some of you would get good results, in that if you stood on the scales one month from now, you would have lost weight. Does that mean my advice was successful? Sure, but what if this caused

collateral damage and some of you became unnecessarily petrified of eating a single slice of bread or a solitary banana? Would my advice still be considered a net positive? Perhaps not.

If I told you all that you had to weigh yourself every single day and track your body weight because this would help ensure you are on the right weight loss path, many of you would likely get faster results (we will discuss self-monitoring in more detail in chapter 13) but a subset of you might develop problematic relationships with the scales and freak out every time the number you see goes up (which is totally normal, since your body weight will fluctuate based on things like what you have eaten and whether you have had a bowel movement that day). So, on the whole, would we consider my advice helpful if it worked well for some of you but also caused damage to others?

If I recommended a super-strict diet that resulted in you losing body fat faster than ever before but you started avoiding social events because you were worried about deviating from your prescribed diet plan, would it still be deemed successful? What if you followed a rigid diet plan and found yourself uncontrollably binge eating at weekends?

In the same way that some people become so focused on earning more money that they work themselves into the ground, sacrifice quality time with their loved ones and feel miserable, being fixated on dieting comes with risks. I want to discuss them so we can navigate the safest journey from point A to point B, without your mental health being unnecessarily harmed in the process. To discuss these risks in more detail, let's turn our attention to the extreme end of the fat loss spectrum and see what lessons we can learn from those whose entire professions hinge on being as lean as possible: bodybuilders.

Despite dedicating a huge amount of time and effort into 'improving' their physiques (subjectively speaking, of course), paradoxically, bodybuilders may actually be less happy with the way they look than your average person. It probably doesn't come as a massive surprise that there are psychological ramifications for people who dedicate their lives to a profession which revolves entirely around the way they look. If getting leaner was a sure-fire way to improve how you feel about yourself, you would expect those who push this

endeavour to the limit to be the happiest people around, but that isn't likely to be the case.

For example, one study looked at females engaging in weightlifting, including those who competed in bodybuilding events, and found that a higher percentage of them were 'terrified of becoming fat', were 'obsessed with food' and were more likely to use laxatives for weight control than the females in a control group.^{[20](#)} Another study looked at competitive female bodybuilders and found that they had high levels of body dissatisfaction and binge eating.^{[21](#)} These are examples of how being in a sport that revolves entirely around how you look can potentially fuck with how you view your body and nudge you into following extreme weight management practices.

Male bodybuilders also show high levels of body dissatisfaction, a greater likelihood of binge eating and may also be more likely to engage in harmful health practices.^{[22,23](#)} One review paper concluded that male and female bodybuilders experience high levels of muscle dysmorphia, associated with anxiety, depression, neuroticism and perfectionism, and negatively associated with self-esteem.^{[24](#)} In short, competitive bodybuilders, who are some of the leanest people on the planet, tend to be more critical of the way they look and as a result, may be more likely to suffer psychological ill-health.

Although many of you reading this book will have no interest in bodybuilding itself, I think there are important lessons we can learn from this.

Your happiness is not guaranteed to go up when your body fat levels go down, and obsessing over the way you look can come with its own psychological risks.

Of course, this is where some people will chime in and say, 'But I felt happier when I lost weight.' I am absolutely not denying this is the case for some people. Rather, I am simply saying that:

1. Increased happiness is not a reliable outcome of losing weight; some people may not feel happier in themselves.
2. There may be risks involved when putting an extreme focus on your weight loss efforts, which may be especially pertinent when people over-prioritise the way they look.
3. Unless your career revolves around looking a certain way – and therefore you may be happy to accept some sacrifices – I would strongly suggest that you consider your physical health and mental health when embarking on any weight loss endeavour.

If your only goal is to lose body fat, it is possible you will inadvertently sacrifice your own quality of life to get there. As I talk you through weight loss research in this book, I will be making a considered effort to discuss any potential pitfalls with you. Dieting is often idealised as a solution for you to improve your health, happiness and confidence but in reality, a lot of diet books are not designed to prioritise these at all, they are just hyper-focusing on your body composition in isolation and conveniently disregarding everything else. My goal is to help you navigate your own journey as safely as possible.

HOW CAN YOU PUT THIS INTO ACTION?

- If you are reading this book, you are already interested in fat loss so it's important to understand that dieting is frequently oversold, by making you think you need to lose fat to improve your health and happiness, which isn't true.
- If your goal is to improve your health, losing weight can sometimes contribute to that but it can also come with risks. Many people lose weight at the expense of their health, like being trapped in a yo-yo cycle of hopping between overly restrictive crash diets. Please make sure that you aren't trying to lose body fat in a way that is unknowingly sacrificing your

health in the process. What else could you do to improve your health, aside from weight loss?

- If your goal is simply to 'look better', please understand that dieting is essentially just trying to change your body to match your expectations, which can be ever-changing and subconsciously shaped by societal pressure. It is possible to spend your entire life trying to change your body only to find you never reached that elusive point of happiness. I am not deterring you if your goal is fat loss, just making sure you aren't chasing the wrong thing.
- By pausing to consider what your underlying motives are, you can pick and choose any information I present in this book to suit your personal preferences, as no dietary strategies are equally suitable for everyone. My goal is not to persuade you all into doing anything, it is to inform you of the pros and cons surrounding popular fat loss topics so you can make the best decisions for yourself, whatever they may be.

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2.

DON'T PEOPLE JUST NEED MORE WILLPOWER?

If you consistently consume more calories than you burn, you will gain weight. Conversely, if you consistently consume fewer calories than you burn, you will lose weight.

You may see energy balance referred to as the first law of thermodynamics, which states that energy can be transformed from one form to another but cannot be created or destroyed. Put into the context of human biology, it simply means your body weight changes if you consume more or less energy than you are burning.

- If you consistently ingest more calories than you burn, you will gain weight.
- If you consistently ingest fewer calories than you burn, you will lose weight.
- If you consistently ingest the same number of calories as you burn, you will maintain a similar weight.

Things get a little bit more complicated when it comes to fat loss, specifically because you can lose body fat and gain muscle tissue simultaneously, which means your weight doesn't necessarily change, but for now we will focus on total body weight.

As weight loss hinges on maintaining a negative energy balance or 'calorie deficit', the common advice is 'eat less, move more'. After all, if your body weight reduces by burning more calories than you consume, eating less and moving more will work, right?

Yes, technically.

However, if you think that this easy-sounding advice means that weight loss is simple for everyone, you are sorely mistaken. This

instruction has been compared to telling a drowning person to ‘drown less and swim more’. It is technically correct but the person on the receiving end of the advice isn’t always likely to be grateful for pointing out the obvious. ‘Eat less, move more’ may be enlightening to people who are genuinely unaware of what calorie balance is – and trust me, that is a lot of people – but there are many people who know they need to reduce their calorie intake if they want to lose weight but find it extraordinarily difficult to do so. This basic rule of ‘calories in vs calories out’ sounds so simple but should not be underestimated in terms of real-life complexity.

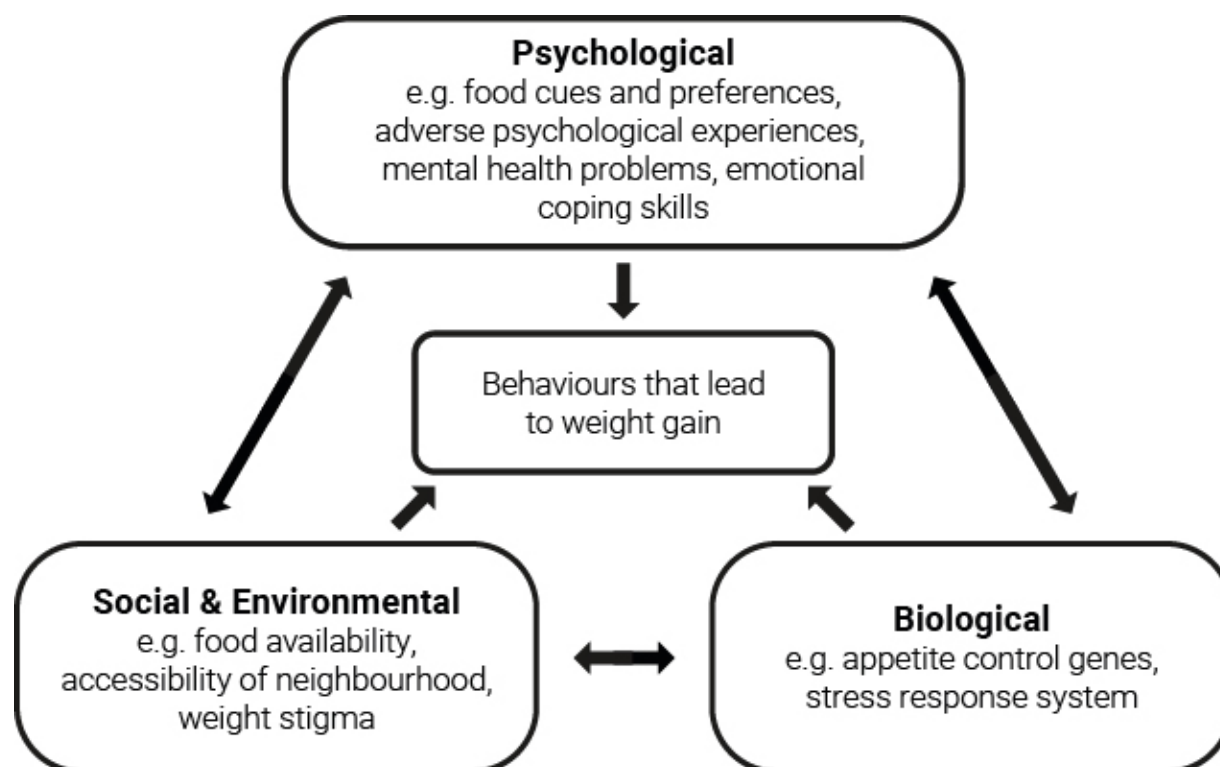
Why it’s not just about wanting it more

Losing a significant amount of weight and keeping it off long-term is notoriously difficult.¹ Despite this, a lot of people describe obesity as entirely self-inflicted and unequivocally within your own individual control. If the laws of thermodynamics are a fundamental truth and you are guaranteed to lose weight by being in a calorie deficit, surely someone struggling to lose weight just needs to ‘want it more’? Like climbing your way up the career ladder, it takes effort and people who gain weight just don’t have that level of commitment, right? I strongly believe that this isn’t the case because it overlooks many genuine reasons why one person might find it much harder than another.

Some people could progress in their career path much faster than you with the same level of effort. Perhaps they inherited a more fortunate starting position, like being able to afford the best private education or having a parent that owns the company you both work for. Yes, both of you need to work hard to reach the top of the career ladder, but if they find it easier than you do, it doesn’t necessarily mean that they just ‘wanted it more’. Likewise, some people will go through life without ever feeling like they struggle to manage their weight and it doesn’t automatically indicate that they have an inherent level of superior willpower.

So what else is there to consider? Rather than viewing ‘eating too many calories’ as the whole story behind why people gain weight, let’s take a step back and ask ourselves what factors influence how much

food someone eats. Think of these as the puppet masters behind the scenes that are controlling everything, even though you can't see them. For reasons I will explain in the chapter on exercise, changing what you eat tends to be a more powerful weight loss catalyst than adjusting your exercise habits, so that is where we will focus most of our attention.



A Bio-Psycho-Social Approach to Obesity. Adapted from [2](#).

The influence of your food environment

Body weights are trending upwards. It has been estimated that the global prevalence of obesity has almost tripled since 1975.^{[3](#)} What exactly happened in 1975 – was there a simultaneous decrease in willpower across the world? Did a large percentage of the population get together and think, ‘Yeah, we are just going to stop trying as hard now’? Obviously not and that idea is absurd, so blaming ‘willpower’ is short-sighted at best.

One of the largest contributors is thought to be our changing food environment. We have a rapidly increasing availability of high-calorie,

ultra-processed foods that make us more likely to eat. Before doughnuts, chocolate, cookies, ice cream and all the other delicious treats we now have access to, imagine how much more difficult overeating was. A medium-sized apple has somewhere in the ballpark of 100 calories and a single doughnut can contain anything up to a few hundred calories. Which one do you think is easier to consume in large quantities? Exactly. I don't know many people who eat several apples consecutively, but doughnuts are delicious little buggers which are pretty hard to put down, given they are literally created to be as tasty as possible. It's actually fairly difficult to overeat meat, fish, vegetables and fruit compared to doughnuts, cakes and pastries, so from that perspective alone, we shouldn't really be surprised to find more people feel like they are struggling to regulate their weight than there were 100 years ago. On top of this, we also have a growing selection of restaurants, fast-food outlets and food delivery apps which reduce or eliminate the work involved in food purchasing and preparation. Food is all around us and it is more delicious, harder to stop overeating and higher in calories than ever.

If you grew up in a period where all of this didn't exist, would you find it easier to stay slim? Yes. If you grew up in an area of the world where high-calorie, ultra-processed foods weren't as easily accessible, would you find it easier to stay slim? Yes.

I grew up in a rural area and I spent most of my life living in a small village that had one single shop. There were no restaurants, there was no pub, club or anywhere else to sit down and eat food or drink alcohol. It was so quiet that I spent most of my time playing on the road kicking a ball around with friends. When I was old enough to leave home, I moved to a much busier area. I needed to drive to and from work, and suddenly I was surrounded by food options that I didn't have before. Prior to the age of 25, I didn't order a single takeaway because I was outside of the radius of any restaurant that delivered.

Do you know what happened as soon as I changed where I lived? I ordered them all the time. Fuck, the novelty of having food at your house in half an hour without you even having to get off the sofa to make it was a drastic change which shifted my dietary habits instantly. I was the same person with the same amount of genetic willpower but my

physical activity levels plummeted and my diet shifted away from home-cooked meals towards takeaway options.

Same person, same basic level of willpower, but a very different outcome.

What is the food availability like in the area you live? How easy is it for you to find and afford fresh and nutritious food? If I plonked you down in a neighbourhood surrounded by fast-food outlets and a scarcity of healthier options, would you find it harder to maintain the physique and level of health you have now? What if you lived in an area where food was more expensive, so it forced you to change what you ate?

Thinking more about your immediate environment, where are you right now reading this book? I would hazard a guess and say most of you are sitting on the couch or lying down in bed. Maybe some of you are in the bath or sitting on the train.

Are you eating right now? I would guess most people aren't, solely because when I see people reading, it is quite rare that I see them eating at the same time.

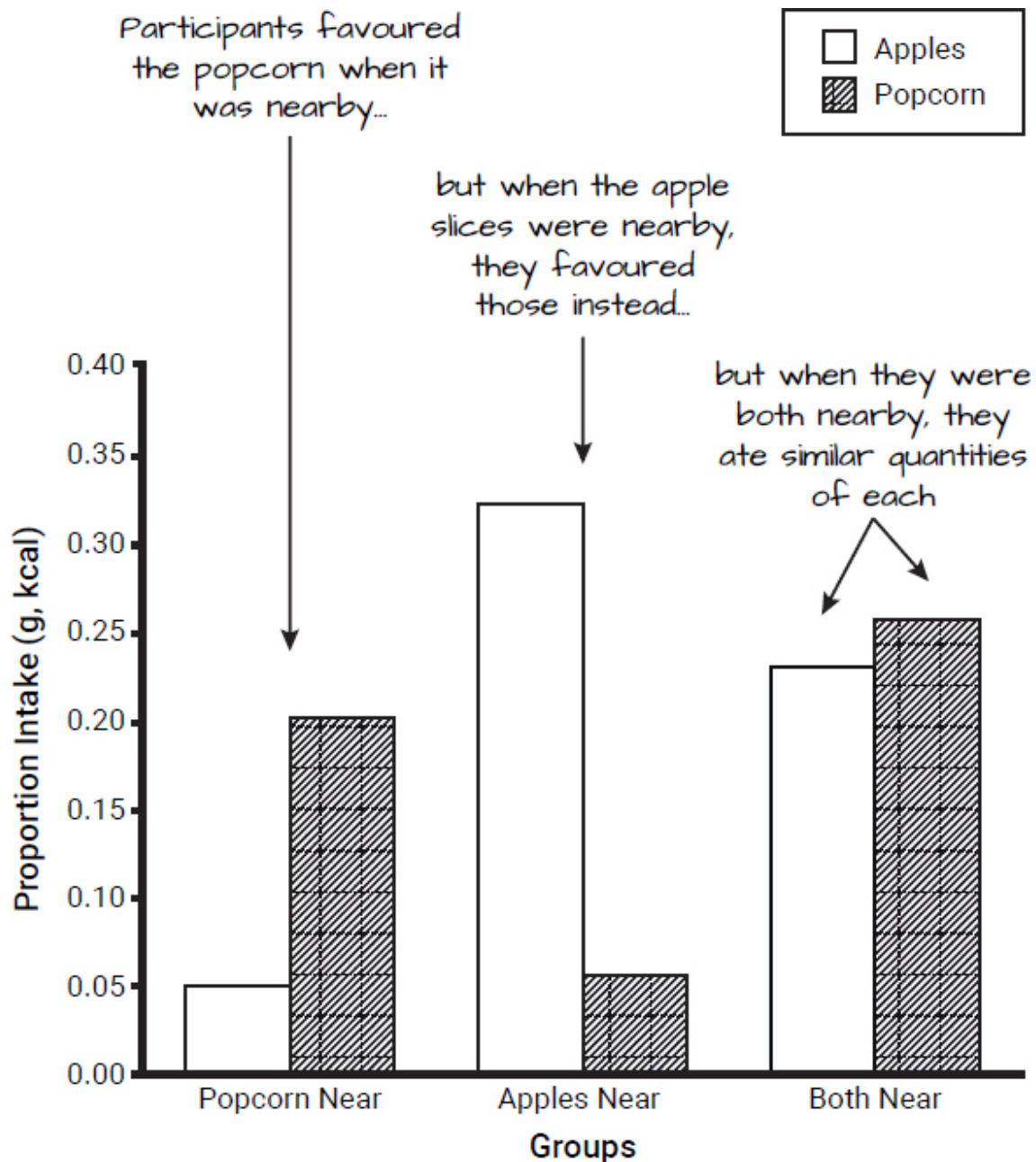
What is your favourite snack? Something super easy that you can eat with one hand, no preparation required. Let's say it is a bar of chocolate or a bag of candy. What would happen if someone put one down next to you? It is convenient and within arm's reach, you don't have to get up to grab the food, it is right there if you want it. Chances are, you are more likely to eat it now than you were five minutes ago when you weren't even thinking about it, right? That is the impact food proximity can have on your eating behaviour. Some people would say that whether you eat something or not simply depends on willpower, whereas I am saying there are a shitload of factors that subconsciously influence this, most of which people just don't know about.

Research has shown that you can reliably influence how people eat simply by manipulating the choices they have available. While this is difficult to study in the long term, as it would involve changing how many fast-food outlets someone has in their near proximity, you can test it by examining immediate food choice. For example, if you give people two different foods, the one that is closest often tends to get eaten first, even if it is the least tasty of the two.

In one study, participants were given the option of eating from a bowl of apple slices or a bowl of popcorn.⁴ There were three conditions to this experiment.

1. Apple slices were placed near the participant (within arm's reach) and popcorn was placed two metres away
2. Popcorn was placed within arm's reach and the apple slices were placed two metres away
3. Both the popcorn and the apple slices were placed within arm's reach

The participants were sat in a room and told by one of the researchers, 'I will be right back with some questionnaires. By the way, there are foods in the bowls if you would like something to eat.' This was to make sure that they consumed whatever foods they wanted without being influenced. As it turns out, they were inclined to eat more of whichever food was closest to them, even though they considered popcorn as the tastier of the two options.



Consumption of Apple Slices or Popcorn Depending on Proximity to Participant. Adapted from [4](#).

Another study gave participants the same bowl of M&Ms but simply placed it next to them or on the other side of the table.[5](#) It found that by placing the bowl 20cm away instead of 70cm away, more people were encouraged to eat them. This can be translated to the food choices we make every day too: multiple research studies suggest that people

who live in closer proximity to a higher number of fast-food outlets are at greater risk of having heavier body weights than those who don't.^{6,7,8}

The easier it is to eat something, the more likely it is that someone will eat it.

This probably extends to a wide array of scenarios. For example, if you come home from a long day at work feeling exhausted and you have the option of spending an hour in the kitchen preparing something fresh from scratch or throwing something in the microwave quickly, the latter option may be more appealing. You may prefer the taste of the freshly cooked food, but when it requires more effort, the easiest option will often win by default.

Knowing this, you can actually use it to your advantage by making preferred options more convenient. It has been shown that if you serve boring healthier foods like vegetables in isolation you are more inclined to eat them than when they are competing with more delicious options. This can work even for children who are notorious for being vegetable-phobic – when they were served portions of carrots at the table while they were waiting to be called to the cafeteria line, they ate them and it didn't come at the expense of the vegetables included in their main course.⁹

If you are at a buffet faced with a wide selection of incredibly delicious food options, the more boring, nutrient-dense foods like vegetables might not make it onto your plate because they are outranked by those that have a higher mouthgasm rating. However, if those vegetables are more convenient, either because they are closer or not competing with all the other foods, suddenly you might find yourself more inclined to chomp on them.

The same research paper also tested this in adults by serving them carrots prior to clearly tastier M&Ms. There were three different scenarios:

1. Both foods were served simultaneously
2. Carrots were served first and participants were told, 'Here are the carrots, and we also have M&Ms. I still have to get them

for you. I'll be back in about five minutes'

3. M&Ms were served first and carrots were served five minutes later

Much like we have seen before, when the carrots were served first, participants ate more of them, despite them being the lesser-preferred food, demonstrating that we are more inclined to eat what is in front of us, even if we know tastier snacks are on the way.

Have you ever been lying on the sofa watching TV and wanted to change channel, but the remote was somewhere else in the room and you couldn't be bothered to get up and get it? Think of food choices like that: we will often eat things if they are right in front of us but when more effort is involved, it is much easier to skip them. If you have snacks on your office desk within arm's reach you are more likely to eat them than if you had to get them from a table across the room, and you are far more likely to do either than walk to the kitchen and spend time preparing something.

These studies demonstrate something termed as a 'nudge' theory strategy, where you can influence decisions without the need of very restrictive methods. Rather than telling people that they can or can't eat a certain food, you can nudge their food selection simply by making it more or less convenient. If you were sitting at work and a colleague placed some cookies on your desk, how likely are you to eat them? What if your colleague put some healthier snacks on your desk and also some money to get some cookies from the shop, if you decided to go? You can eat cookies in both scenarios, but the convenience factor will nudge your decision making.

On a population level, think of what our environment is like compared to 50 years ago. With a growing selection of restaurants, fast-food outlets, food delivery apps and convenience food options, is it surprising that people are gaining weight? If humans were studying another animal and gave them easier access to more high-calorie food options, we would surely expect them to gain weight. Well, that is what is happening to us and it is thought to be a primary driver for rising body weights across the globe. Although it is often touted that what we eat simply depends on willpower and free choice, many factors influence

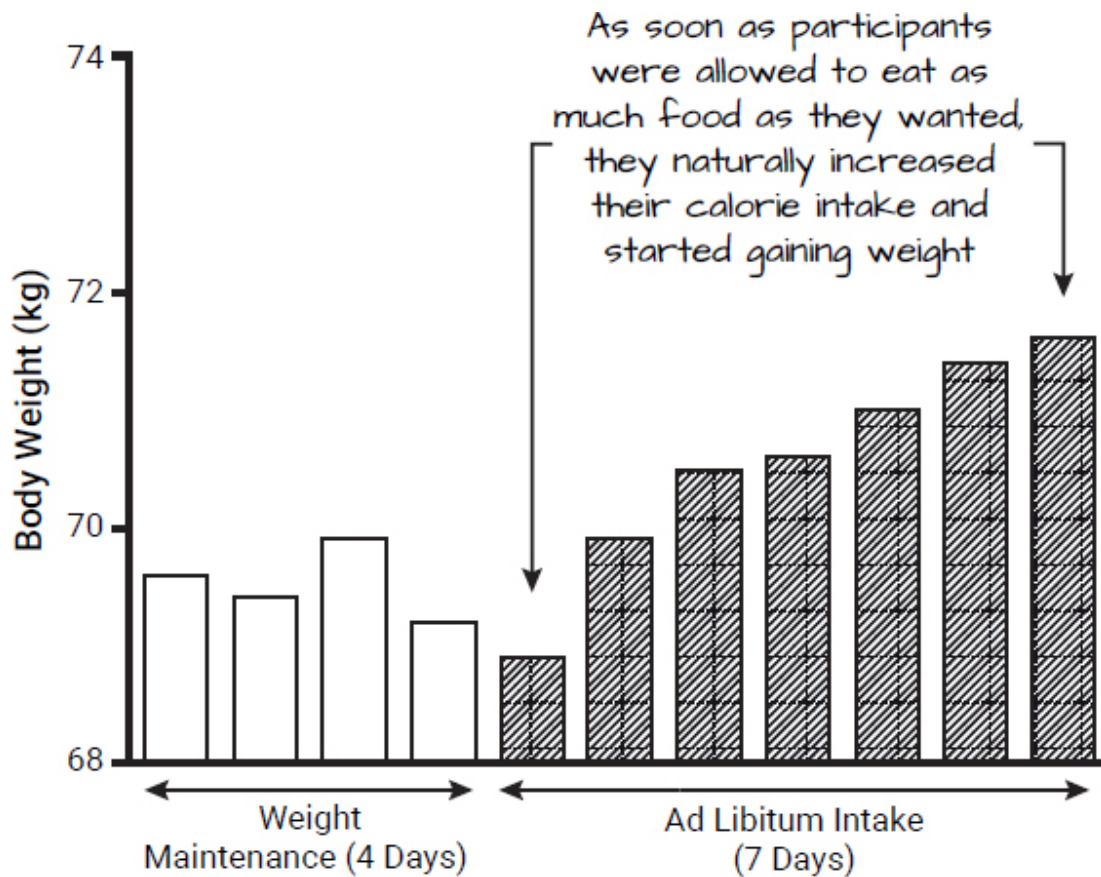
us subconsciously and aren't always easy to change. Someone on a low income who works long hours, doesn't own a car, can't afford a gym membership and lives in an area with few grocery stores within walking distance may face barriers that other people may never even consider. Some people must exert significantly more effort than others in order to achieve an equal outcome.

The abundance of food choice

Let's zoom in on what happens when you have a wider selection of foods available to you. If you go to a buffet with a huge variety of delicious foods, do you eat the same single item until you are full? No, chances are you will load up your plate with as many tasty foods as possible so you can try them all. This is an example of what happens when lots of food options are available – you will probably eat more.

In 1992, a study accidentally stumbled onto how potent this tendency can be. By giving people unlimited access to a vending machine with a lot of choices, their food intake increased dramatically.¹⁰ This wasn't the goal of the researchers; they were just trying to figure out a way of precisely measuring how much food people eat. In research trials where participants record their food intake, it's likely that the accuracy will be terrible (we will discuss something called calorie underreporting later in the book in chapter 13), so by giving people access to a vending machine, researchers could monitor exactly what they were eating. That was the original goal, anyway.

For the first four days, participants were prescribed a weight-maintaining diet and then after that, they were given 'ad libitum' access to the vending machines for seven days when they could eat as much food as they wanted. At this point, their food intake went up significantly, leading to an average 2.3kg (5.1lbs) of body weight gain.



Average Weight of Participants During 4-Day Weight Maintenance and 7-Day Ad Libitum Intake Phases. Adapted from [10](#).

It was suspected that participants consumed a greater quantity of food in part due to the large selection of food items that were available, many of which were ultra-processed and high in calories. Just by having so many options right there for no more effort than a few button-clicks, their calorie intake flew up and they gained weight over just seven days. What would have happened if this experiment had been extended for a month or a year?

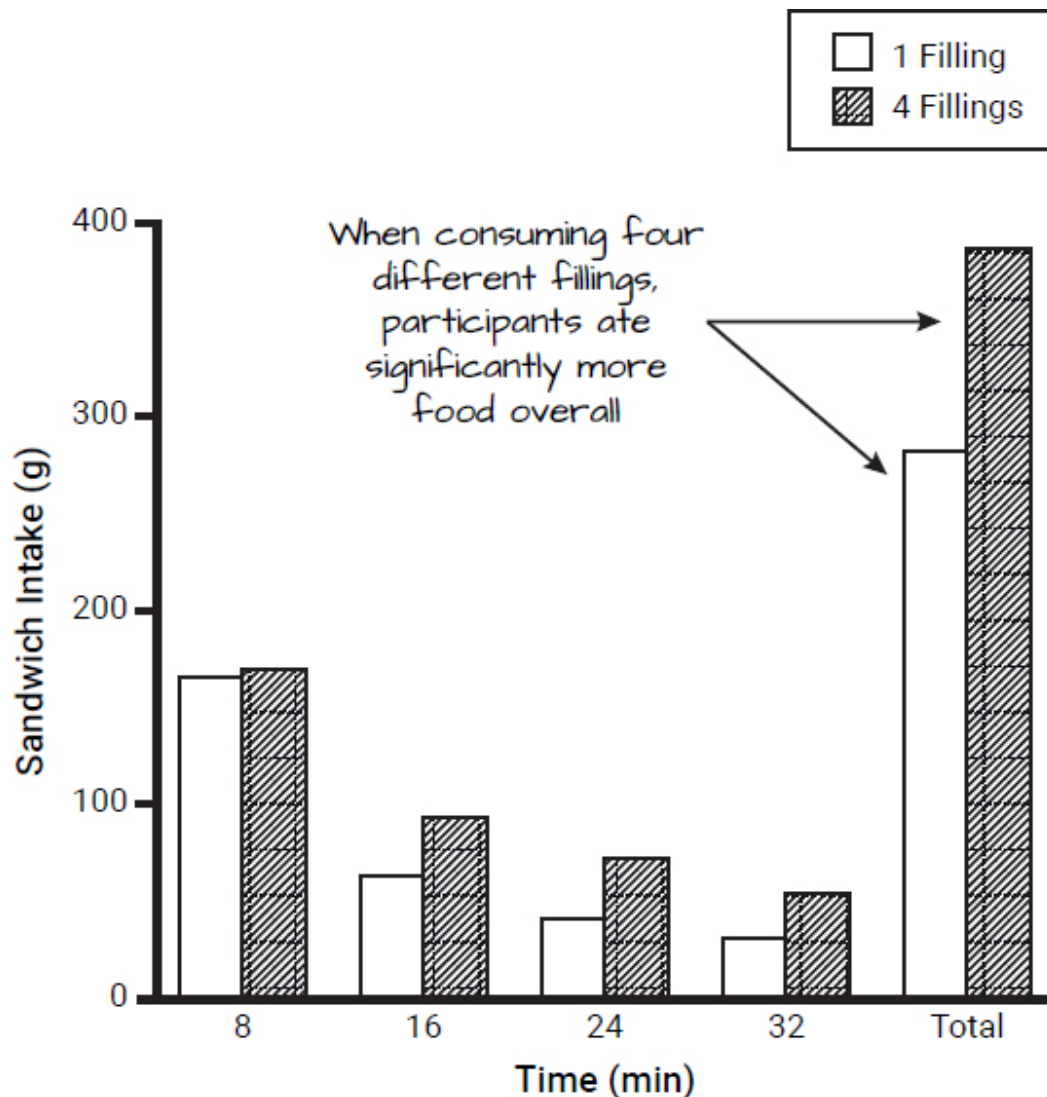
A thought experiment for this: imagine your typical serving of dinner placed in front of you now. You normally consume that quantity of food and then finish eating, feeling perfectly content. Now, what would happen if your dinner was served in front of you in exactly the same way, but alongside it were several other plates of very tasty looking snacks, like chocolate, cakes, cookies and potato chips? Would you eat the same amount you normally would or would you want to eat some

food from all of the plates, probably resulting in an increase in calorie intake?

This kind of concept is known as the ‘cafeteria’ diet; if you give rodents a wide selection of stereotypically unhealthy, highly palatable foods and let them eat as much as they want, it is a reliable method of promoting weight gain.¹¹ This effect has also been shown in humans. If you give people free access to a lot of tasty food, it is very likely that they will naturally eat more and gain weight.^{12,13}

A mechanism that could explain this revolves around something called ‘sensory-specific satiety’, which essentially means the feeling of fullness is food-specific. In the same way you might stop eating your main course when you feel full but still somehow have room for dessert, it is possible that one of the reasons some people simply stop eating is because they are tired of eating the same food.¹⁴ Eating a lot of one food may induce taste fatigue, but if you have lots of delicious foods available in front of you it is easier to keep going. This has been tested in research studies. One paper gave participants sandwiches to eat with either the same filling repeatedly or with four different fillings. When served four different fillings, they ate approximately one third more food.¹⁵

This means we have direct research showing that when a selection of foods is placed in front of you, you will probably eat more than when only one food is in front of you, and when given free access to a wide range of foods, there is a strong possibility that people will overeat and gain weight even in a short space of time, such as one week.



Sandwich Intake over Allotted Meal Time Period When Served Plates with Either One Filling or Four Separate Fillings. Adapted from [15](#).

So, in a society where we have a wider selection of high-calorie, ultra-processed foods available to us, should we be surprised that people are gaining weight? A hundred years ago, a lot of the popular ‘junk’ food items we have today were simply not available and now there are supermarket aisles full of different variations of them. Have you ever heard the saying ‘don’t go food shopping when you are hungry’? When you are faced with a shitload of different tasty things to eat, it is more tempting to load up your basket with a selection you wouldn’t have purchased normally. This is an example of how food variety can impact your choices when they are all equally convenient to acquire. It is

human nature to consume more food when you are surrounded by lots of options, unless one of them is significantly more convenient than the others, so you can apply this concept to your regular surroundings, like how many snacks you keep in the house or what food you take to the office.

Portion sizes

If I told you that reducing portion sizes can help you eat less, you would probably think that I am stating the blatantly obvious, right? Of course, smaller portions have fewer calories in them, so this is kind of a ‘yeah, no shit, Sherlock’ point to make. However, it’s actually a bit more complicated than that.

Let me paint a hypothetical scenario. A group of you are together at your friend’s house and you decide to share a pizza. It works out that you all get one big slice each. You eat your slice as you are chatting away and don’t have the option of eating more. Now, if the slice was 10% bigger, would you have still eaten it all? What about 20% or 30%? Have you ever had a single slice of pizza and eaten 90% of it and decided you were full? The portion sizes you are served subconsciously influence how much you eat.

Let’s try an alternative scenario. It is Friday night; you have finished a long day at work and you go to the store to buy yourself a ready-made dinner because you can’t be bothered to cook. It comes in packaging ready for the oven, so you just cook the whole thing. When you get the meal out of the oven, you realise that it is actually way more than you would normally eat, but it is there and it is cooked. How much of it do you eat? Would you eat more than you would normally because it is there in front of you?

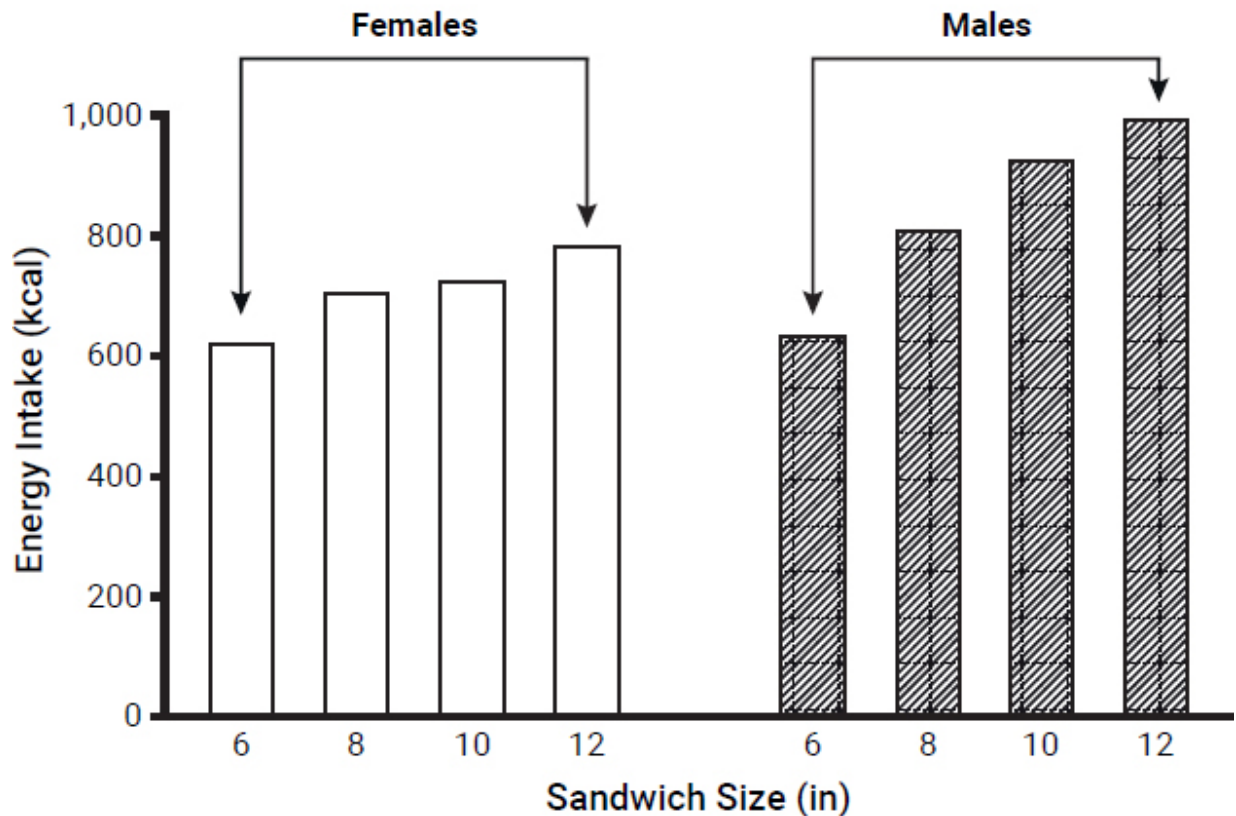
It’s not just how much you put on your plate that influences how much you eat. There are other factors that nudge you into helping yourself to a larger portion in the first place. For example, research has shown that portion sizes of many products have increased over time, and this has been shown in various countries, including but not limited to, America, the Netherlands, Australia and Denmark.[16,17,18,19](#) Although you cannot examine the portion-size trends of all foods for

many reasons, you can look at some specific food items. For example, if a popular American soda brand has been around for decades, it is easier to look at the sizes of the bottles and cans they have been serving in than looking at hundreds of different soda brands across dozens of different countries.

Multiple research trials have confirmed that when larger portions are offered, people tend to consume more food.

For example, one study had participants eating in a lab once per week for four weeks. On each occasion, they were served a different sized sandwich – 6, 8, 10 or 12 inches.²⁰ Each time, they were told they could eat as much or as little as they wanted. Both males and females rated the 6-inch sandwich as being close to their usual portion, yet when given larger sandwiches their calorie intake went up. When served the 12-inch sandwich, males consumed 56% and females consumed 31% more calories than when they were served the 6-inch sandwich. On top of that, despite the higher calorie intake, ratings of hunger and fullness were not significantly different, suggesting that participants ‘were able to override or adjust their level of hunger and satiety to accommodate greater energy intakes’. Discrete portion size manipulation can encourage you to eat more food without you realising it and without even making you feel fuller afterwards.

Even though participants rated the 6" sandwich as close to their usual serving size, when they were discretely served larger sizes, they increased how much they ate



Calorie Consumption When Served Sandwiches of Different Sizes.
Adapted from [20](#).

This has been described as the ‘unit-bias mechanism’,^{[21](#)} where people see one serving and consider it appropriate to consume it all at once, irrespective of size. In your mind, if you consider a slice of cake as one serving that cake slice could vary in size dramatically but it wouldn’t stop you viewing it as one serving.

But what happens if you get to select your portion size rather than being given one? One study tested this by giving participants different-sized portions of macaroni and cheese once per week for three weeks.^{[22](#)} Unlike in the previous study, they could choose between three differently sized portions at each mealtime. Female participants were given the choice of 300g/375g/450g at one sitting, 375g/450g/525g at another and

450g/525g/600g at the other. Males were given 400g/500g/600g at one sitting, 500g/600g/700g at another and 600g/700g/800g at the other. A simple way to describe this is being asked to select either a small, medium or large portion every time you go to lunch, but this set of sizes was manipulated behind the scenes to see how it would impact food selection. As you might have guessed, as the presented portion sizes were increased, the amount of food that people consumed also went up. On top of that, changing the size of the portions didn't significantly influence the size option that people selected. What this means is, if you are the type of person to select a 'medium' when you order a burger or a soda, you are probably still going to order the 'medium', even when those portions are made significantly bigger and even if you can see the size of the portion, rather than selecting it blindly off a menu. Now imagine how this translates to a fast-food restaurant where the portion size options are growing to the point that we have sizes that just weren't available even a decade or two ago. Let's look at a couple of examples to show you how the evolution of portion size plays a role.

One study looked at the sizes of some popular brand items when they were first introduced in the US and compared them to what was available at the time of publication.²³ It reported that in a near 50-year period, 2.4oz went from being the 'regular' option to the 'small' option for McDonalds fries. The 5.3oz, 6.3oz and 7.1oz options were launched as medium, large, and 'Super Size' respectively, although Super Size has since been discontinued. In other words, what started out as a regular option became the small and the medium option grew to over twice the size of the original regular.

The Burger King sandwich was originally 3.9oz but within 50 years became available in 4.4oz (hamburger), 6.0oz (Whopper Jr.), 6.1oz (double hamburger), 9.9oz (Whopper) and 12.6oz (Double Whopper). That means that the largest available option is four times larger than the original version.

You can see similar evolutionary tales from other companies with a lot of chocolate, soda and beer brands offering a range of increasingly larger sizes. Sometimes the original 'regular' size is kept but is now described as the 'small' size. This research paper stated that fast-food chain items are often two-to-five times larger than they were originally.

It's a subtle marketplace shift that happens over time and is hard to pinpoint, though some of us may recall fast food chains launching new larger sized items, like McDonalds Super Size or 7-Eleven Double Gulp.

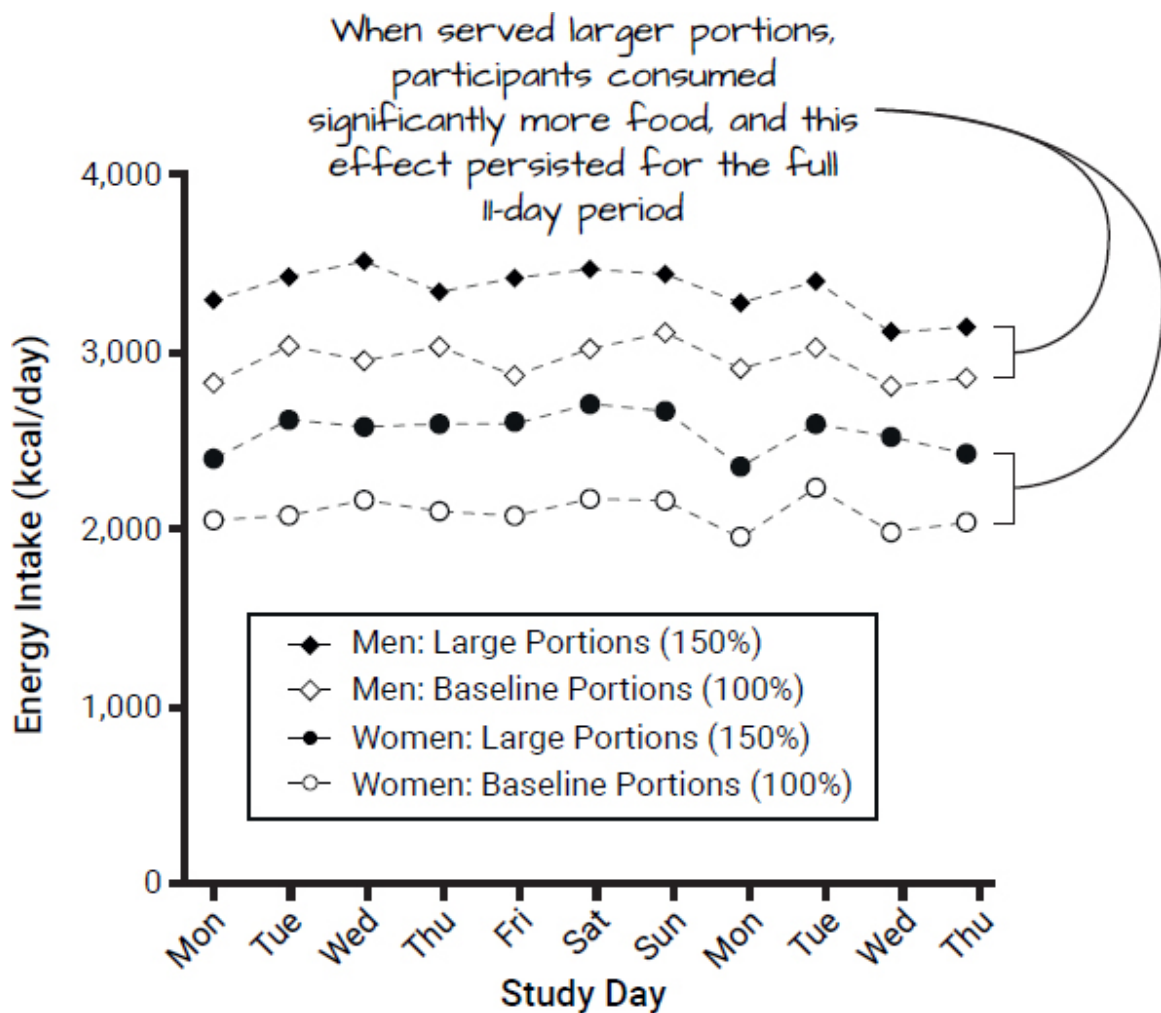
Even if you are not a fast-food eater, these standardised examples at some of the largest food outlets in the world show you how portion sizes have grown over time and are reflective of a wider issue. Portion sizes have continued to grow to the point that you will sometimes see governments stepping in, like implementing sugar taxes to try and curb rising obesity rates. Although food companies will often manoeuvre around these, like shaving some weight off their smallest chocolate bars and selling them for the same price, the general trend is that serving size options are growing and this idea of 'portion distortion' continues where we become more and more accustomed to eating larger amounts of food.

One study took a group of participants and asked them to serve themselves a typical portion of eight foods at breakfast and six foods at lunch or dinner to assess how similar they were to recommended serving sizes. When compared to a similar study a couple of decades previously, there appeared to be a growing discrepancy in the amount of food they tended to serve themselves relative to what a standard portion size is considered to be.²⁴ This suggests that over time, as the marketplace offers a growing selection of larger sized products, our idea of what a 'normal' portion is will likely skew. There is a good chance that what would have been a standard meal 50 years ago would look small compared to what you typically serve yourself now. If you have travelled to other countries, you may have noticed how different some foods look elsewhere. For example, a lot of people who travel to America comment that portion sizes there can be huge compared to what they are used to. The first time I visited, many of the starters genuinely looked like what I would consider a main course.

It is extremely difficult to precisely measure how much portion size availability really changes what we eat in the long term because you obviously can't lock people into a research facility for years or decades at a time. The studies we have to refer to looked at individual meals, like a lunch under test conditions once per week for four weeks, so we can only take a guess at how this changes what we eat in the long run.

For example, just because you eat a bigger lunch when presented with larger portion options doesn't mean you will increase your calorie intake over the course of an entire day; it is possible you would eat less at dinner to compensate for eating more at lunch.

One trial did in fact test this idea by giving participants meal options for 11 consecutive days rather than just a single meal.²⁵ There were two separate 11-day feeding periods and in one of the two all serving sizes were increased by 50%. Participants were allowed to eat as much or as little as they liked but could not consume anything outside of the foods provided. Perhaps people who eat more food than usual for a couple of days would then cut back to how much they ate normally, like an appetite regulation mechanism?



Mean Energy Intake When Served Baseline and Larger Portions for 11 Days. Adapted from [25](#).

Apparently not. When given the larger 150% size options for 11 days consecutively, the average increase in calorie intake was approximately 423kcal per day, which is in the ballpark of 20% more food. No compensatory mechanisms were noticed and the increased calorie intake persisted for the full 11-day period, resulting in a cumulative energy increase of 4,636kcal.

‘The increased consumption associated with large portions was associated with decreased hunger and increased satiety, but these sensations were not sufficient to adjust intake. This study adds support to the suggestion that environmental influences such as portion size can cause dysregulation of energy intake that may contribute to the development of obesity.’[25](#)

Although this was still a relatively short period over which to test portion sizes and energy intake, doing it in a lab scenario is expensive and difficult. Not that many people want to sign up to live in a lab for several months at a time. One way around this is to conduct a ‘free-living’ trial where you don’t keep people in a lab but provide them with meals to consume on their own. One study gave participants lunches of different sizes over a six-month period.[26](#) They were split into three groups and given a lunch box of either 400, 800 or 1,600 calories. The idea was that the 800-calorie meal was a typical lunch portion and the 400-calorie and 1,600-calorie meals would reflect a decreased and increased sized lunch respectively. The study found that the participants given the 1,600-calorie lunch ate more, which persisted for the entire six-month intervention, resulting in weight gain, unlike with the 800kcal and 400kcal lunch conditions. This suggests eating more at lunch does not result in people compensating by eating less at dinner and over time, being served larger portions contributes towards weight gain.

There's a lot of research to show that available portion options can influence your food intake subconsciously so in a world with seemingly ever-growing portion sizes, should we be surprised that people are eating more food? I propose not. It takes more effort than ever to consume portion sizes that we once considered 'normal', making maintaining your body weight more difficult than it used to be. Being aware of this can allow you to make educated decisions to combat it if you would like. For example, if you are the type of person who feels compelled to finish your serving of food irrespective of how large it is (sometimes referred to as 'clean your plate' syndrome), it might be a good idea to get away from the psychological need to do this, as it may naturally override your appetite signals and result in you eating more food than you originally wanted. It may also be helpful to become at least somewhat familiar with how much food you want to prepare, which is one reason why calorie counting can be a useful practice for weight loss. You don't have to become someone who meticulously weighs and records everything you eat to achieve this, though. For example, if you know that when you make dinner you often make much more than you originally intended but you eat it all anyway to avoid leaving leftovers, a little bit of portion guidance might help. I know that if I pour rice straight out of a bag and into the pan, I will often end up with two or three times my regular serving, so just using a measuring spoon is a simple way to prevent me cooking more than I need.

Factors that influence your physical activity levels

Our food environment isn't the only thing that has seen a significant shift in recent times. Another factor which is thought to be a large contributor to body weights trending upwards is the development of transport options and labour-saving devices. Basically, compared to 50 years ago, we have a lot of shit that makes our lives easier, reducing our need to expend energy. Greater access to cars and public transport means we walk less. We have escalators and elevators that save us having to take the stairs. We have computers and the internet increasing

the number of desk jobs. We have televisions, streaming services, game consoles and advanced mobile phone technology which all contribute to sedentary leisure time activities. We have online shopping and food delivery apps that save us the hassle of walking to the shops. We have washing machines and dishwashers that save us cleaning things by hand. All of these together can amount to a large saving in the calories we expend and over the course of months or years have an impact on our health and body composition.

To give you an idea of trends over time, one study showed that the percentage of schoolchildren that walked or cycled to school fell from around 40% to less than 13% in a 32-year period, from 1969 to 2001.^{[27](#)} Another study in 2015 found that average television viewing for 8–18 year olds was 4–4.5 hours per day, and increased viewing time correlated with higher body weights.^{[28](#)} Given that children now have access to a plethora of fun electronic devices, we probably shouldn't be surprised to find out that outdoor playtime has also declined.^{[29](#)} If children and adolescents are spending more time indoors and less time being physically active, it is reasonable to expect that these habits may be difficult to break once we reach adulthood, an extra barrier to exercise that is a relatively new phenomenon.

We all know that physical activity is good for our health; even low intensity movement like walking is associated with a decreased mortality risk.^{[30,31](#)} Of course, it also plays a role in body weight regulation. One study found that people who successfully lost a significant amount of weight and maintained their lower weight tended to walk more per day,^{[32](#)} and when looking across the research literature, physical activity is the behaviour that most consistently correlates with successful weight loss maintenance.^{[33](#)} It is glaringly evident that on a population level, our overall lifestyles are trending towards physical inactivity, which is thought to be another primary contributor to why body weights have been increasing over the past few decades.

On an individual level, there are also factors that may be applicable to you specifically. For example, what is the weather like where you live? People tend to get outside and exercise more when it is sunny and stay inside if it's cold. When winter arrives in England it is rare to see people running because it is less fun and nobody really loves the idea of

hypothermia, obviously! If you live on your own in an area with a high crime rate you may be less inclined to go outside full stop, let alone when it is dark after you return home from work. The point is, while it is easy for one person to say ‘just go outside for a run’, there are other factors that can get in the way of someone making that decision.

Time, money and other variables

People don't tend to give much attention to these topics when it comes to our ability to make consistently healthy lifestyle choices, partly because there isn't necessarily an easy solution and partly because some people just don't realise the role that they can play. Unlike the changing food environment, these are not topics that are applicable across the world, but they are relevant for certain groups of people and may impact you specifically. There is actually a lot of research that discusses the links between socioeconomic status, health and obesity.^{[34](#),[35](#),[36](#)} and although it is very hard to precisely measure the impact of specific factors like income and education, there are certain things we can absolutely acknowledge.

For example, if you have a lower income relative to how much food costs, this impacts what you are able to purchase. People who have the time, money and means to go to the shops regularly can buy fresher produce more often, whereas people who can only go infrequently may prefer to buy things that won't perish before their next visit. If someone doesn't own a car, they are limited to public transport and shops that are near them, which in turn influences what foods are available. It is far easier to buy a wide array of fresh produce if someone can afford it, has a big fridge and freezer to store it and can drive to and from the shop multiple times per week or order online.

Likewise, time commitments play a huge role in your nutrition and exercise habits. Most parents will probably tell you how much their ‘free time’ changed when they had their first child. Suddenly, as priorities rightfully shift, the amount of time they can reserve per day for exercise, food shopping and preparation can drop rapidly. Technically, we all have the same 24 hours per day on paper, but in the real world, it definitely doesn't feel like that to everyone. A single parent

juggling jobs and looking after multiple children probably doesn't feel like they have as much time as I did as a young, self-employed personal trainer who worked in a gym and didn't have any big life responsibilities to worry about.

There are a huge number of factors that can impact how difficult it is to follow certain exercise or nutrition plans. The type of job you have can dictate your activity levels and what food is available to you, like cafeteria lunches, constant travel schedules or a diary full of social business events. How much free time you have may be limited due to your other obligations, such as caring for family members or working long hours. Whether you have any pre-existing health conditions or injuries can hinder or completely incapacitate you, at least temporarily, and anyone who has suffered with severe mental health issues will attest how these have the power to supersede your original willingness to do anything.

Hopefully at this point, we can acknowledge that it is, at the very least, more difficult for some people to lose weight than others on account of a multitude of factors that might not be obvious at first glance. I would like to take this one step further and talk about something else:

The influence of weight stigma

Weight stigma has been defined as 'social rejection and devaluation that accrues to those who do not comply with prevailing social norms of adequate body weight and shape',^{[37](#)} which, in far fewer words, can be simplified as weight discrimination. The most common form of it that you are probably aware of is 'fat shaming'.

It's highly likely that people who have always had a body weight that society deems as 'normal' simply don't understand how profound an impact weight discrimination can have. Many children at school will avoid physical activity lessons out of fear of being teased for their weight. If someone avoids exercising at a young age because they are scared of being judged and made to feel embarrassed, do we expect them to find exercising in adulthood as easy as someone who has always been highly active? I played many sports as a child so continuing these

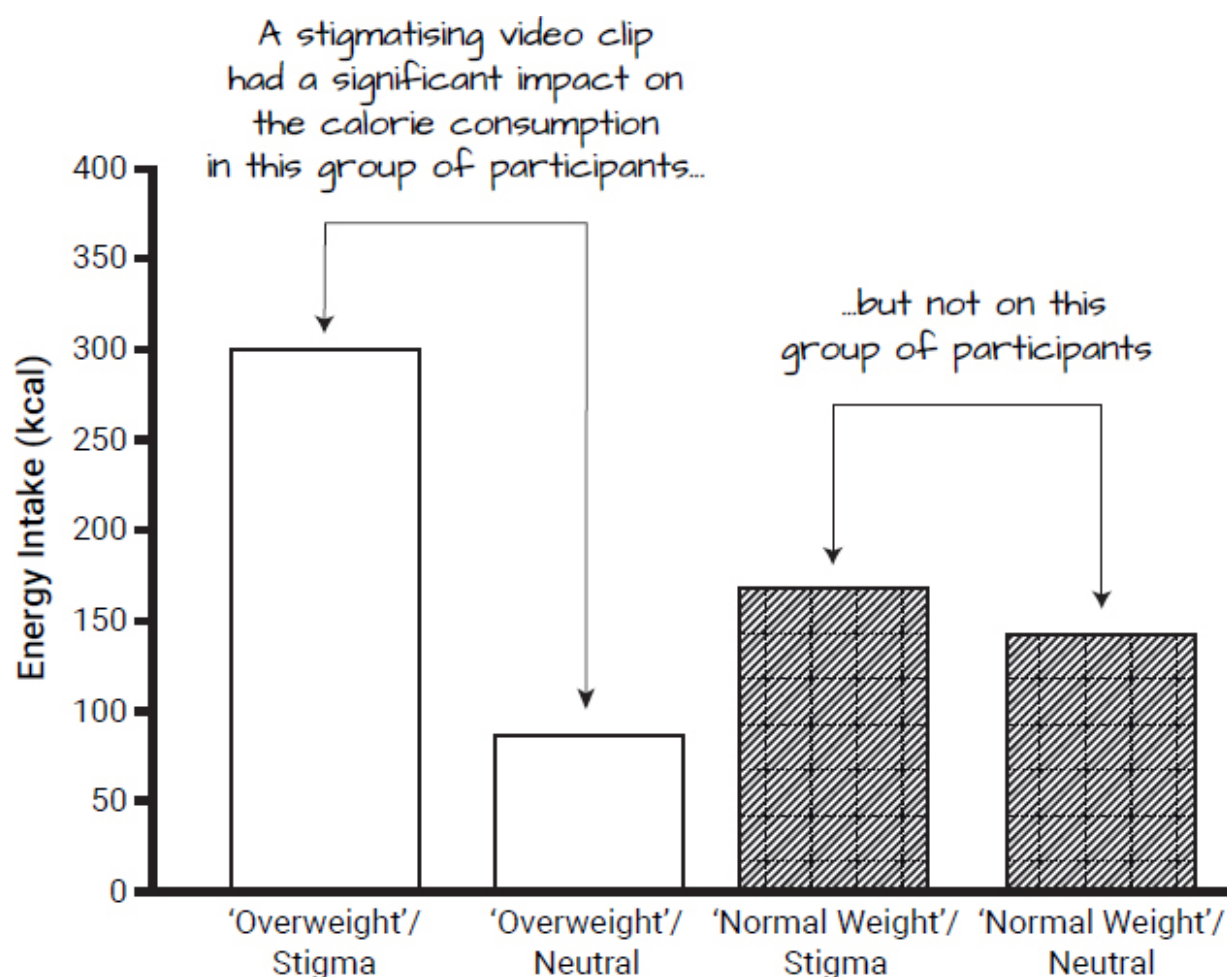
into adulthood felt like second nature. Would it be fair to say it is equally easy for me to join a gym versus someone who is terrified that people will laugh at them?

It is common for people to think that they need to exert pressure on those who are heavier, as if this has some kind of positive impact. If weight loss advice starts and stops with ‘eat less, move more’, just imagine that the higher someone’s body weight is, the louder this is shouted at them, as if saying it louder and more aggressively is the key to helping them. But why do people think this is helpful? Do you ever change someone’s behaviour by trying to make them feel like shit? If someone has depression, making them feel bad about themselves isn’t the first thing that pops into my mind as a useful course of action. I would hazard a guess that Alcoholics Anonymous groups don’t involve the counsellor just telling people that they are lazy and need to try harder, right? (I am not comparing obesity, depression and alcoholism as such, simply using them as different examples of when shouting louder probably won’t help people.)

This is the thing: most research in this area not only suggests that exerting weight stigma doesn’t help, but that it is directly harmful. Rather than making someone want to exercise more, people who have experienced weight stigma are more likely to want to avoid exercise than participate in it.³⁸ Therefore, those people who make fat jokes at their friend’s expense are probably making them feel less inclined to work out rather than exerting some form of positive influence.

On top of that, research studies have shown that exposing people to weight stigmatising material can actually encourage them to eat more rather than less. In one study, participants read either an article called ‘Quit Smoking or Lose Your Job’ or one called ‘Lose Weight or Lose Your Job’ to test whether reading articles about weight discrimination would impact how they felt afterwards.³⁹ After reading these articles, they were left alone in a room with some snack bowls, entirely unaware of the true purpose of the study. Contrary to what some people may think, participants who perceived themselves as overweight actually consumed more calories and felt less capable of controlling their weight after reading a weight stigmatising article.

This was tested again in another study where participants were exposed to either a control video or clips from popular TV shows and movies where people with obesity were victims of teasing or were depicted in the common stereotypes of clumsiness and laziness.⁴⁰ Once again, those who were classified as overweight consumed significantly more food after being exposed to the weight-stigmatising content.



Total Calories Consumed After Being Exposed to a Stigmatising or Neutral Video. Adapted from ⁴⁰.

All of this information strongly indicates that people who are victims of weight discrimination are more likely to avoid exercise than engage in it and eat more food rather than less, therefore making themselves more susceptible to weight gain, not weight loss.⁴¹ Let's also not forget that someone's well-being isn't just related to their body composition; there

can also be a significant negative effect on long-term mental health.⁴² Even if fat shaming people did encourage them to exercise more or eat less, are we just going to overlook the possible psychological impact of this? While I do know people who have openly said that being a victim of bullying did encourage them to start exercising, they also tend to attest that it really fucking hurt them inside. We shouldn't act like mental health is not an important component of overall well-being.

There is a strong possibility that while some of you are nodding your head in agreement, others either disagree or don't feel the magnitude of how powerful this can be. I would like to share a story that someone told me.

As a child, they were told they were overweight and needed to start eating less. Prior to this experience, they had no recollection of even being aware of what body weight really was, but suddenly this obligation of needing to be thinner was thrust upon them. Their family started making comments about their weight and they got bullied in school. They felt so much shame and embarrassment because of how other people made them feel they avoided any physical activity classes and changed the way they ate. When they ate in school or at home, they would receive comments on what they were eating, which made them feel extra self-conscious, so they starved themselves by not eating around other people and then would eat snack food in private where nobody would comment. It didn't encourage them to effortlessly reduce their calorie intake, it just nudged them towards something they described as 'secret binge eating'.

This shit sticks with people. I have had middle-aged clients who have told me stories about how they were made to feel as children, recalled with vivid, traumatising detail. I have worked with people who asked if there was somewhere that they could exercise without anybody else watching because they have memories of people laughing at them and making them feel embarrassed. The ramifications of being mocked for how much you weigh can negatively impact your behaviour around food and willingness to exercise with long-term consequences.

Emotional eating

Think of anyone you spend a lot of time with – perhaps someone you are paying for their time. Maybe it is a hairdresser or beauty therapist you have seen for years. Although you might only have short windows of time with them, you might find yourself talking about things that are more and more personal. For example, the guy who cut my hair for years knows a lot about my life. Those 30-minute periods of chit-chat really tally up over the course of several years.

That is what happens a lot of the time in personal training. It can be a very trusting relationship. When clients see you every week – sometimes for multiple sessions – the type of information they choose to divulge is often extremely private. When you have the honour of having that kind of relationship with a lot of clients, you will learn a few things very quickly. When I was studying to become a personal trainer, at no point was I taught or encouraged to learn about the reasons behind people's eating behaviours. It was only through real-life interactions with my clients that I learned that rather than simply telling people to eat less food, pausing to question what motivates them to eat more in the first place can be very valuable.

Some clients have told me stories that made my heart hurt.

A young girl wanted to lose weight because her boyfriend taunted her by repeatedly calling her 'fatty'.

A parent wanted to lose weight because they had lost a child and described themselves as someone who was severely depressed and comforted themselves with food.

Now, these may not apply to you, but I want to illustrate that telling someone to 'eat less, move more' and assuming they will find this simple to follow is painfully ignorant. If someone tells you that they eat when they are depressed would you tell them just to 'cry less, smile more' and think that it would work? Of course not. Consider 'eat less, move more' as that kind of advice. In some ways, overeating can simply be a consequence of what is happening emotionally. Lots of people feel like they struggle to regulate their emotions and then eat in response to that – do we really think putting people on a low-calorie diet is the best plan of action here?

Does stress change the way you eat?

Many people respond to life stresses by 'comfort eating'. In one study, 73% of participants reported an increase in snacking behaviour when stressed.⁴³ On top of that, it found that they were more inclined to eat foods like chocolate, sweets, cakes and biscuits and less inclined to eat foods like meat, fish, fruit and vegetables. This shows that many people are aware that their attitude towards food changes when they feel stressed. The question is, how much does it change?

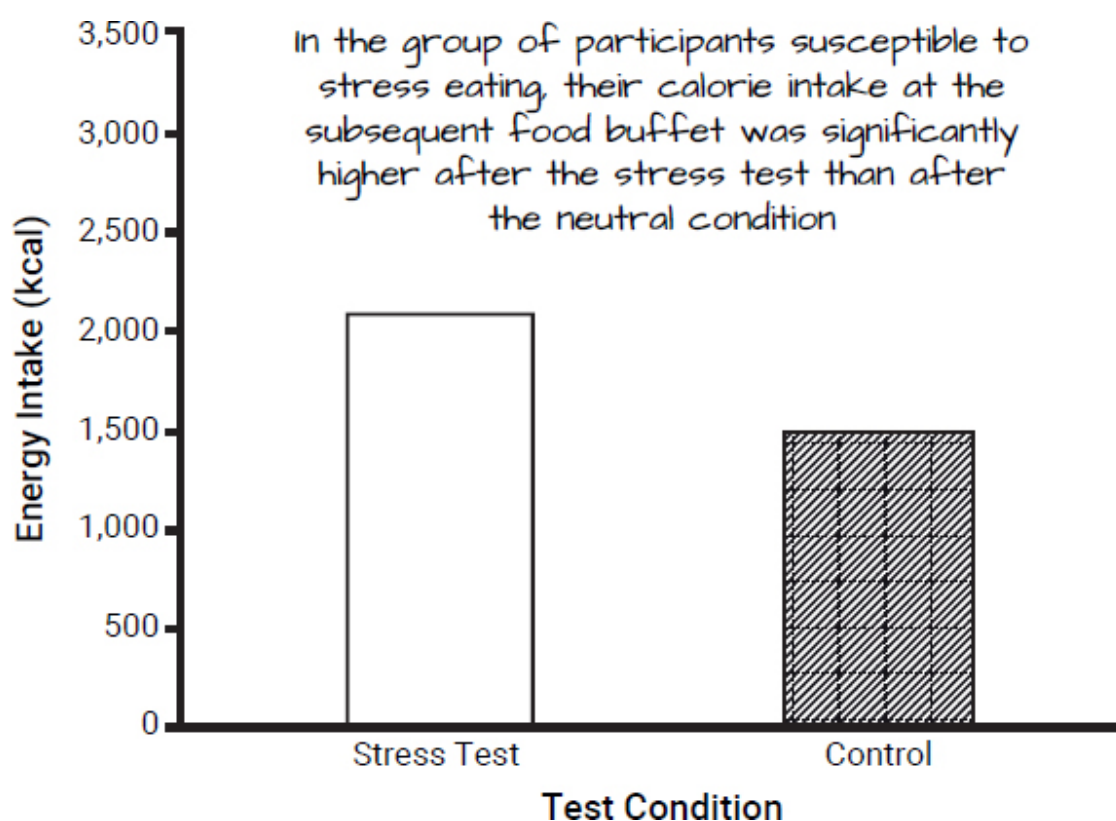
Studying the effects of emotions on food intake is not the easiest thing to do. If the stress of something like a relationship break-up is a common catalyst for emotional eating, you can't really take a group of participants, make their significant others break up with them simultaneously and see what happens for the next year. What you can do, however, is expose a group of them to a mildly stressful situation and see if it changes how much they eat. This is useful because it helps ensure that the conditions are the same for all participants but it in no way reflects how significantly severe life stress can impact eating behaviour in the long-term.

To assess whether anxiety impacts food intake, one study took a small group of 12 people who were scheduled for hernia surgery and measured how much food they ate at lunch the day before surgery and again one month later.⁴⁴ On average, the anxiety prior to surgery didn't seem to influence the group's food intake; however, the study noted that some participants responded in completely opposite directions, with four men increasing what they ate by 25% on the day before surgery and two men eating over 25% less. The paper proposed the idea that some people are 'stress eaters' and some people are 'stress fasters'. Although it was only a small study, it highlights a key biological difference, suggesting that in the real world, there are people who gravitate towards eating more during anxious periods of their life and others who might eat less.

Another study also utilised a stressful life event by studying food intake in a group of students on the day of an exam and then again on a separate day one week later to see whether the stress of the exam would influence eating behaviour.⁴⁵ On average, there was an approximate increase of 150 calories per day and, once again, there were large differences between individuals, with some students eating 686 calories

fewer and some eating 888 calories more on the stressful exam day than they did on the control day one week later.

Both of these studies indicate that responses to stress can vary wildly. Some people may be inclined to 'comfort eat' whereas other people may be more inclined to 'stress fast'. This has been seen in other research as well; a further study put participants through a stress test prior to letting them eat from a buffet and once again, stress appeared to stimulate an increase in food intake in some people, but not all.⁴⁶ 'Stress eaters' increased their calorie intake by over 40% but 20% of the participants ate less food, not more.



Mean Calorie Consumption in Stress Eaters Following a Stress Test or Control Condition. Adapted from ⁴⁶.

By now, I think you can probably see a common theme emerging. Stress has the ability to be a powerful catalyst in changing your eating behaviour. On average, it appears that it has a tendency to promote greater food consumption, but there are people who find they do the opposite. If two people went through similar difficult life situations one

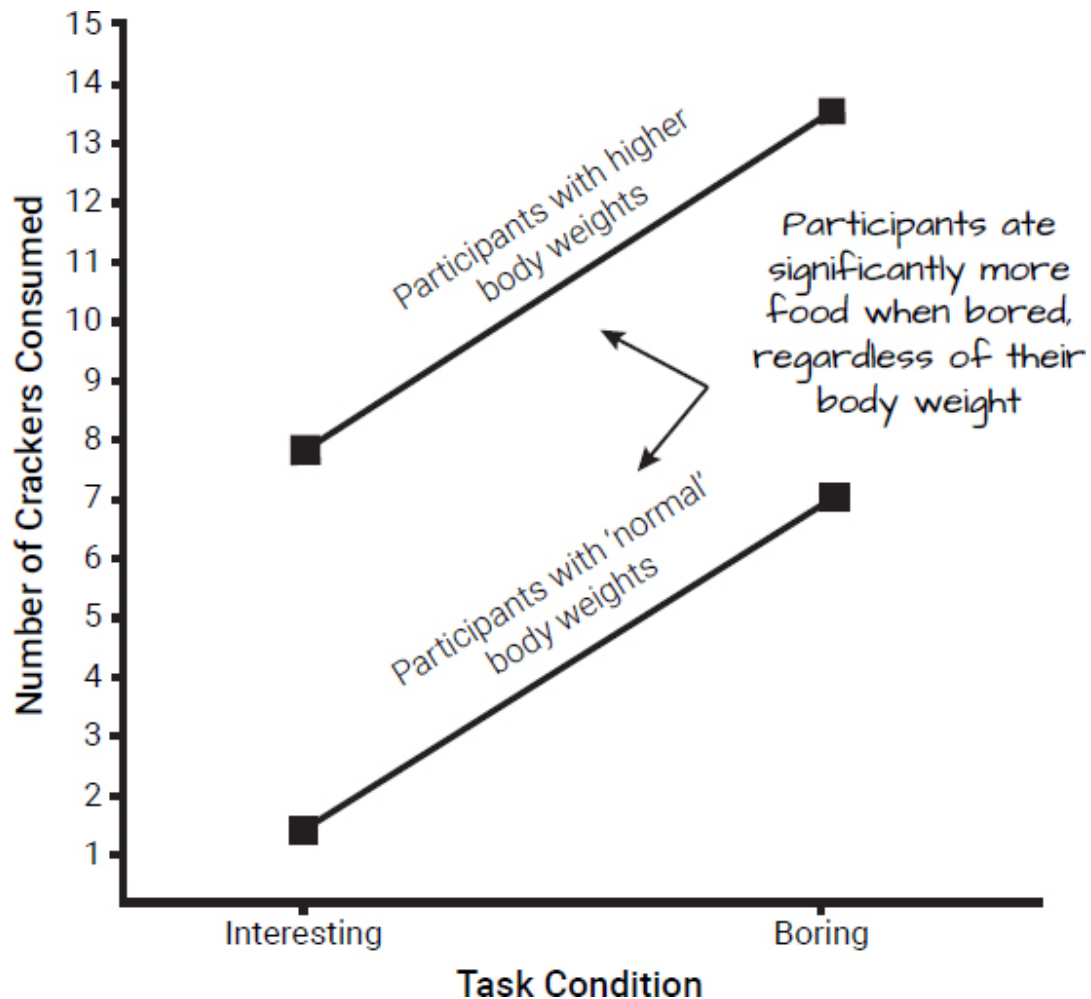
of them might notice that they gained weight whereas the other person might be more inclined to lose weight.

What about boredom?

Of course, stress is not the only emotion that can impact eating behaviour. Many people will be familiar with eating when bored. One research study hypothesised that there may be a link between boredom and obesity so it tested whether participants consumed more food while doing a boring task versus an interesting one.⁴⁷ The research assistant left the room for each task but casually said to the participants on the way out, 'Feel free to help yourself to some crackers if you would like,' while emptying a fresh bag into a bowl. When participants were following the boring task, they ate more.

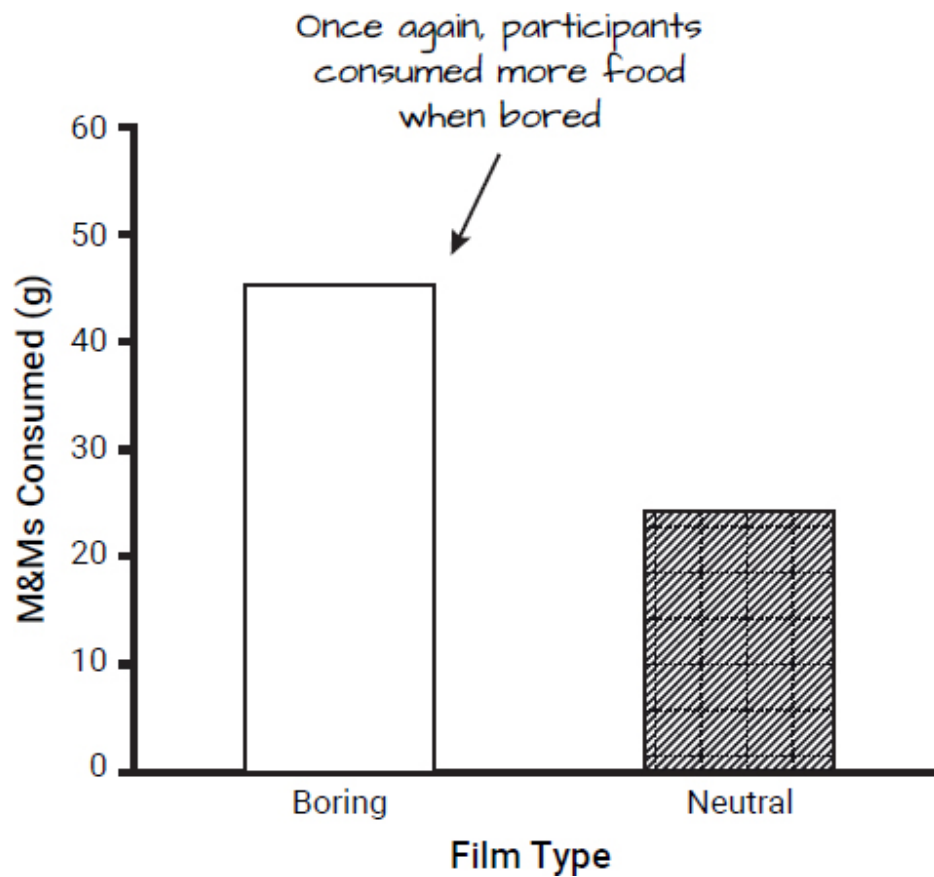
The paper suggested that, 'It may be helpful for dieters, regardless of their weight, to remove food from areas where boredom regularly occurs.' For example, if you work in an office doing a job you find tedious, having snacks on your desk may nudge you towards eating more food than it would normally.

One three-part study asked participants to fill out a food diary for a week, along with short questionnaires relating to mood. It not only found that boredom was associated with higher calorie intakes but feeling bored promoted the desire to snack on healthier food options specifically.⁴⁸



Cracker Consumption Following Boring and Interesting Tasks, with Participants Split into Two Weight Categories. Adapted from [47](#).

What is it about boredom that promotes food intake? What is it that actually makes you want to eat food? One study investigated whether it is an increased desire for a rewarding stimulation or the drive to escape boredom itself by conducting two experiments under the same conditions, one with tasty food on offer and the other with the option of self-administered pain.^{[49](#)} In the first experiment, participants were given access to a dispenser filled with M&Ms and watched either a neutral TV documentary or the same monotonous short clip played on repeat. As we would probably expect, when watching the boring clip, consumption of M&Ms was significantly higher.



Mean Consumption of M&Ms During a Boring and Neutral Film Segment. Adapted from [49](#).

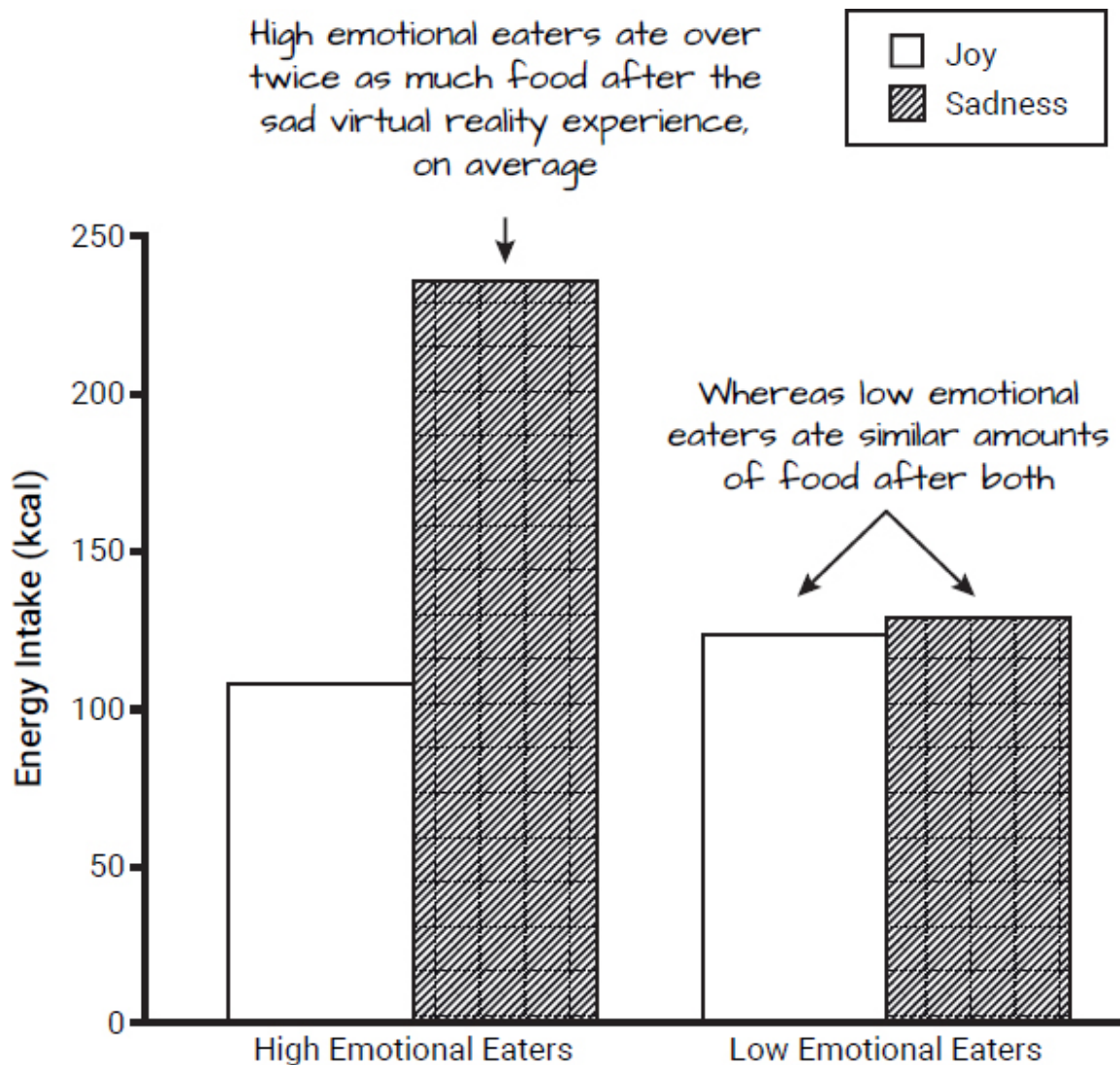
In the second experiment, they swapped M&Ms with the option of self-administering electrical stimulation. It turns out that when people are bored, they are also more inclined to electrocute themselves. I bet that isn't something you thought you would read in a book about fat loss, right? This suggests that people might eat when they are bored simply to escape the monotony. This is another example of why telling people to eat less isn't always super-successful; overeating can be a consequence of an emotional state rather than a problem in itself, so changing your environment may be the better strategy, if it's possible. Think of it like addressing a root cause versus a symptom. If you are lying on the sofa at home in the dark mindlessly scrolling social media or watching the TV, you are probably going to feel a lot more snack-curious than if you were outside going for a walk. If you are sitting at your desk in a mind-numbingly boring job, the temptation to eat

something delicious to add some spark to your day is bound to be higher than if you are doing something really interesting that is taking all of your focus.

What about sadness?

The effect sadness can have on altering food behaviour is well recognised, even if people don't feel that they do it themselves. As discussed above, invoking an emotion like sadness in an experimental condition to see how it might impact food behaviour is not going to be representative of real-world sadness. Watching a short emotional video clip might make someone feel sad temporarily, but this obviously doesn't compare to significant life events which can have the power to make you feel upset for days, weeks, months, years or even decades. However, there are obvious ethical limitations to research like this. As we can't sacrifice a beloved family pet for the sake of research, we just have to rely on studies that don't quite capture the intense sadness that life occasionally throws at us.

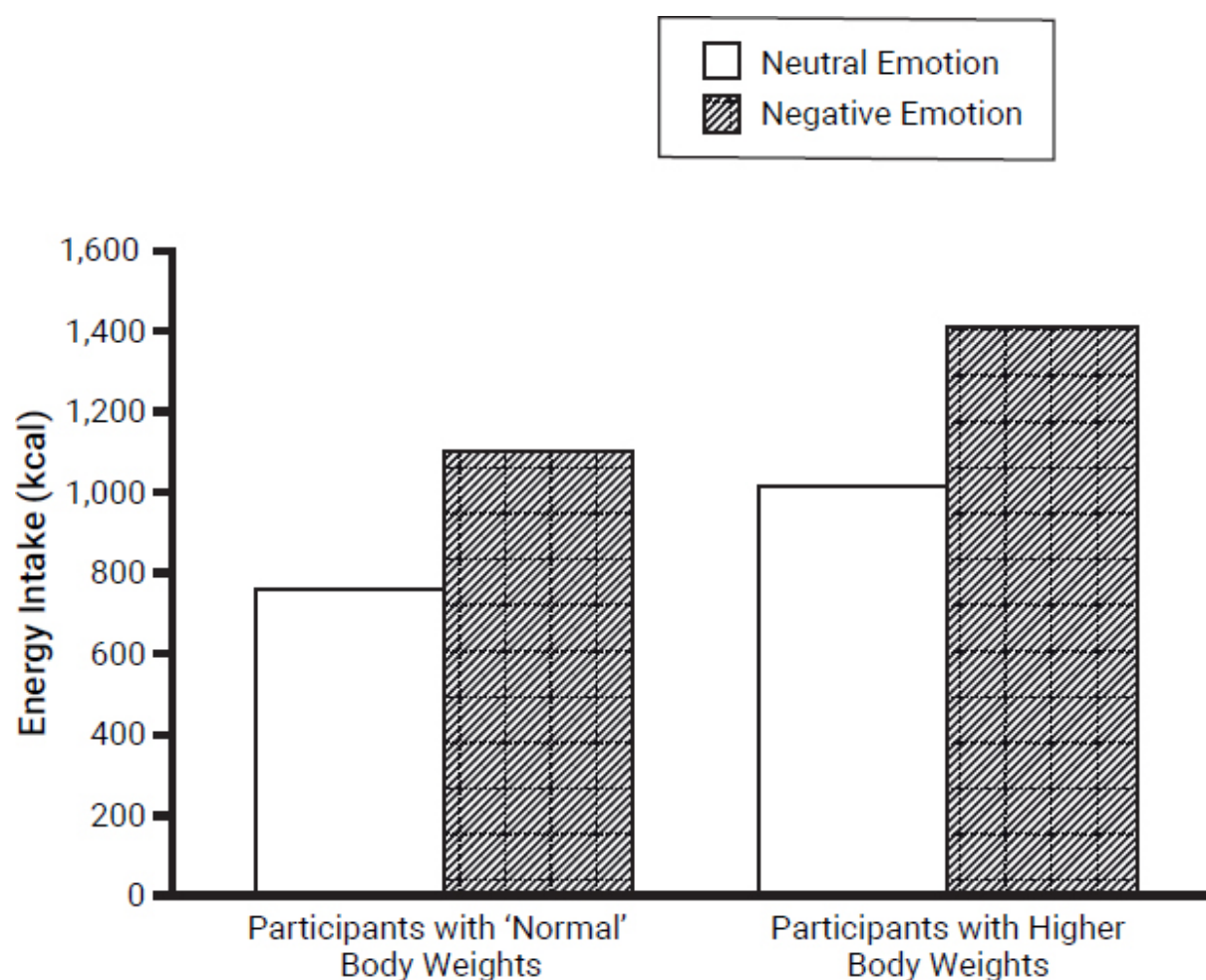
One study utilised a virtual-reality experience to invoke emotions of sadness and joy and then compared subsequent food intake in both the conditions.^{[50](#)} After watching their designated video clip, participants were given a selection of foods including high- and low-calorie options and were told they could eat as much as they wanted. Results showed that participants susceptible to emotional eating consumed significantly more food after watching the sad video clip, whereas low emotional eaters ate similar amounts after both.



Average Calorie Intake Following Virtual Reality Experiences Designed to Evoke Sadness or Joy. Adapted from [50](#).

Another study didn't specifically examine 'sadness' but used a 40-minute video clip designed to stimulate an array of negative emotions. It featured clips of real-world issues, including scenes of domestic violence, sexual harassment, an argument between spouses, healthcare issues, alcohol abuse by a family member, financial hardship, an exhausting job routine and traffic jams.^{[51](#)} Based on the content of this video, I think it is fair to say sadness and stress would have probably been the prevailing emotions. Following the video clips, participants were allowed to eat as much food as they wanted from a buffet containing sweet food in the

form of grapes and chocolate and salty food in the form of baked and fried cheese breads. In line with previous research, food consumption was higher following the negative emotions clip than it was for the neutral control clip. However, participants didn't tend to eat more grapes following the negative video clip, supporting the idea that people may seek out different types of food in response to negative emotions. We are probably all aware of this to some degree. I don't think I have ever seen someone really upset decide to take several bites out of a cucumber to make themselves feel better.



Calorie Intake During Neutral and Negative Emotion Conditions, Divided into Two Weight Categories. Adapted from [51](#).

Based on the research we have discussed so far, we know that stress, boredom and sadness can all impact food intake. However, it is actually

a little bit more complicated than this because it isn't just negative emotions that can alter food consumption, positive emotions can as well.

What about happiness?

While most studies are dedicated towards understanding why we eat more food if we are feeling sad, stressed or anxious, there is at least a tiny bit of research that suggests we may also change how we eat when we are happy. In one study looking at the motivation to eat, participants watched video clips from popular films designed to evoke either anger, fear, sadness or joy.⁵² As these are clips that you might be aware of, I can list them, so you have an idea of how they conduct research like this.

1. To induce anger, a sequence from *Cry Freedom*, that featured white policemen abusing young black protestors
2. To induce fear, a clip from *Silence of the Lambs*, where a man chases a woman into a dark basement, trying to kill her
3. To induce sadness, a sequence from *The Champ*, where a boy cries at the death of his father
4. To induce joy, a funny clip from *When Harry Met Sally*, where a man and a woman have a discussion about orgasms

Each of these clips were two to four minutes long and as soon as participants had watched them, they were given a piece of chocolate and then asked questions relating to their mood and motivation to eat. Appetite levels were highest after the happiest movie clip as was the tendency to eat more chocolate, which they also viewed as tasting more pleasant. In this instance, actual food intake wasn't measured but other studies have tested for this. For example, another paper used three video clips and results showed participants who were classified as 'emotional eaters' ate more food after the positive clip.⁵³ So, if you are someone who feels more susceptible to emotional eating, this may not be limited to typical negative emotions like stress, boredom and sadness but may apply to happiness too.

Emotional eating is complicated

Now, this all sounds a bit confusing, right? After all, some people eat more if they are sad, but they might also eat more if they are happy. Some people abstain from food if they are stressed, whereas others gravitate towards eating more. Perhaps you are the type of person who feels the urge to curl up on the sofa with a tub of ice cream when you are having a shit day or maybe you prefer to simply avoid food altogether because you don't fancy making yourself dinner. People's natural reactions to life events vary wildly because psychology is a complicated little bugger. There are lots of reasons why some people may find themselves subconsciously wanting more (or less) food and, given how difficult it is to change your emotional state, it makes sense that it is also difficult to consciously change how much food you eat.

When there is a complicated and intertwined relationship between emotional state and food intake, it is shockingly ignorant to think it will be easy for everyone just to eat less and move more.

A lot of weight loss books place extraordinary emphasis on telling you to eat fewer calories but often don't pay much attention to discussing the bazillion reasons you may find yourself wanting more food in the first place. Even though you may not have read about these research papers before, the link between how you feel and how much food you want to eat is well observed. A meta-analysis of 33 different studies concluded that there is a causal role between negative emotions and greater food intake, especially in restrained eaters and binge eaters.⁵⁴ This helps highlight something that I believe very strongly: we can consider our emotional state as a driving force behind how much food we eat as well as the types of food we lean towards eating. Rather than focusing solely on dietary restriction, it is important to turn our heads towards what may be provoking those higher food intakes in the first place.

According to two review papers, some people may be particularly susceptible to emotional eating,^{55,56} and if you are one of those people,

it may be more fruitful to focus on emotion regulation skills rather than going straight into low-calorie diets. In other words, if there is an emotional reason that is subconsciously nudging you towards consuming more food, perhaps you would be better served working on that rather than jumping into yet another diet. It is proposed that depression and obesity have a significant bidirectional relationship, essentially meaning that having obesity can increase the risk of depression but depression itself can also predict the likelihood of developing obesity.⁵⁷ For some people, that can be a vicious cycle that we can't really expect dieting to reliably tackle on its own.

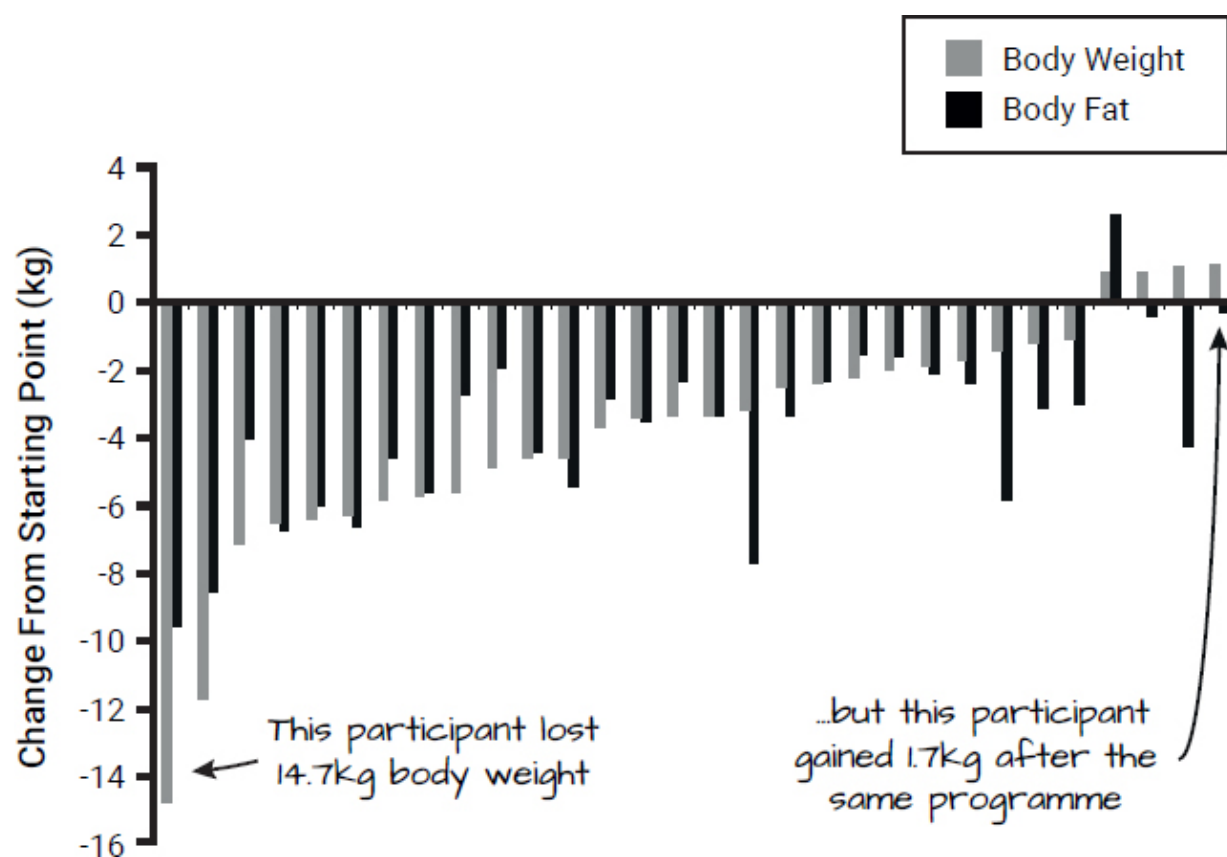
This is why I strongly believe that there are people who would be best served by not focusing on traditional dieting at all. I also believe that even for people who find dieting easy, there are times in their life where it might be a good decision not to embark on that. If you are going through a particularly difficult and stressful time in your life, adding dietary restriction into the mix could backfire severely.

Do some people lose fat more easily than others?

So far, we have discussed factors that drive your behaviours around eating and exercise, but there are other biological differences that are worth knowing about too. Let's turn our attention to what happens when a group of people follow the same dietary intervention or exercise programme. If you take 100 people who all embark on exactly the same routine, it is inevitable that some will see better results than others.

One research trial prescribed an intense aerobic exercise programme where participants trained five times per week for 12 weeks.⁵⁸ By most people's standards this is quite a rigorous training routine, right? Well, this regime resulted in an average weight loss of 3.7kg (8.2lbs) by the end of the trial, but when you look at the individual results of different participants, some of them lost much more weight, right up to 14.7kg (32.4lbs) for one person, and some of them not only didn't lose weight but they actually gained weight. That's right, one participant trained five

times per week for 12 weeks and gained 1.7kg (3.7lbs) by the end of the trial.



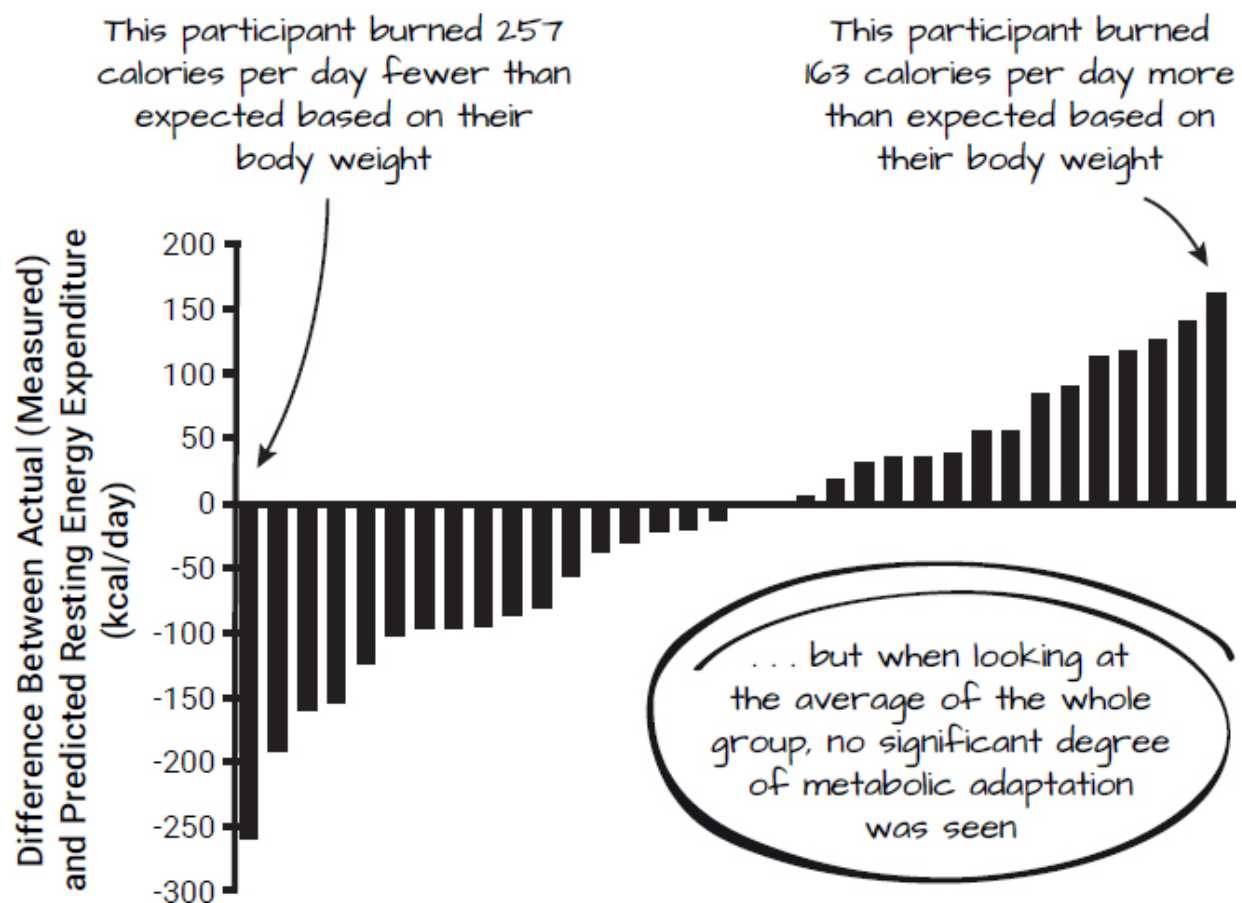
Individual Changes After 12 Weeks of Exercise. Each Participant Has a Bar for Body Weight and Body Fat. Adapted from [58](#).

Follow-up research papers also tested this and noticed the same thing: some people can start an aerobic exercise programme and actually gain weight.[59](#) This sounds totally illogical, but it is true. Some people are informally classed as ‘compensators’ or ‘non-compensators’, which basically means some people will get much hungrier when they start exercising and compensate by eating more food. For some people, it is going to be much harder to follow a reduced-calorie diet than it would for those whose appetite remains unchanged.

That is not where individual differences start and stop, though. One research trial overfed its participants by 1,000 calories per day to see why some people gain body fat more easily than others. It found that some people respond to the influx of calories by cranking up their

physical activity levels.⁶⁰ They didn't deliberately do more exercise; this was literally just a change in how much they moved around in their day-to-day activities – the types of activity that we don't tend to make intentional decisions over, like walking and fidgeting. In this study, there was a ten-fold difference in fat accumulation for the same calorie intake, indicating one reason why some people are more susceptible to gaining body fat than others: they don't offset the increase in calorie intake with an increase in physical activity.

There may also be metabolic differences in response to weight loss. One study measured the number of calories burned by participants who had lost a significant amount of weight (13.6kg (30lbs) or more).⁶¹ Once again, there were very large differences between individuals, with one person burning 257 calories per day fewer and one person burning 163 calories per day more than expected based on their body weight. Naturally, that would make maintaining weight loss a little bit more difficult because eating less food is never going to be easier than eating more food. I doubt anyone would dispute that. We will discuss this concept known as metabolic adaptation more in chapter seven.



Resting Energy Expenditure in People Who Have Maintained Significant Weight Loss. Each Bar Represents a Single Participant.
Adapted from [61](#).

All of us humans vary a little bit, right? Some of us are naturally taller or shorter and some of us are inclined to carry more muscle mass than others. On that same note, it shouldn't be surprising that some of us burn slightly more or less energy than others, even if we are the same height and weight. Likewise, some of us are naturally hungrier than others, are more emotional than others, have more energy than others or a bazillion other biological variations that may influence how difficult it is to adhere to a reduced-calorie diet.

So yes, weight loss boils down to calories in versus calories out, but there are a multitude of factors that influence how easy that is for someone to achieve and we must be cognisant of that so we keep our expectations realistic and develop strategies to overcome these hurdles where necessary. Just because someone else appears to regulate their

body weight effortlessly doesn't mean it will be equally simple for everyone. I hope this chapter has explained why weight loss methods need customising to *you as the individual*, and why I discuss research in this book in a way that will allow you to pick and choose what you think will work best for you personally.

HOW CAN YOU PUT THIS INTO ACTION?

- Although all weight loss diets hinge on the simple sounding 'eat fewer calories than you burn', there are a shitload of reasons why you may find that easier or harder to implement than other people – and some of them are outside of your conscious control. By understanding these, you can begin to identify things that you might be able to change or just be more accepting of the things you can't.
- For example, from a food environment perspective, how much influence do you have over the things you eat? If you are the primary shopper in your household, are there ways you can make your preferred foods more convenient? If you are someone that works long hours, what are the quickest options available to you when you get home? Is it worth taking your own snacks to work rather than relying on whatever is being provided? Your surroundings influence your behaviours, so if you have the power to change them you can make your life easier.
- From a psychological perspective, are there any factors that you think contribute to your eating and exercise habits that are modifiable? For example, if you are terrified of going to the gym, are there ways of increasing your physical activity that you are comfortable with? If you found a way to exercise in your home, or you had a friend that wanted to train with you, would those help? Are there any prominent emotional drivers that make you want to eat more food and if so, is there anything you can do

about them? If you are someone who eats more when they are stressed or bored, can you make preferable options more convenient? If you are suffering from depression or any other mental health issue, are you able to seek professional help?

- From a biological perspective, how do you feel when you start losing weight? If you notice your appetite levels increasing quickly, this could be a sign that the dietary and training approaches you are trying don't suit you. It could also be a sign that your appetite levels are higher than other people's, in which case you may find losing weight more difficult, something that we will discuss in more detail in chapter seven.
- Your individual circumstances are highly personal so it makes no sense to think you should all follow the same diet and training plan and expect any reasonable level of success. By understanding your own unique behind-the-scenes factors that influence your behaviours, you can personalise the upcoming information in the rest of this book.

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3.

THE FUNDAMENTAL CONCEPTS OF WEIGHT LOSS

Before we get cracking on the chapters discussing weight loss research, let's have a look at some of the basic concepts up front to make sure we are all on the same page. Some of this might get a bit nerdy but I've done my best to keep it simple.

Calories

What are 'calories'? People talk about them all the time, but what are they?

Calories, with a capital C, were originally defined as the quantity of heat required to raise 1kg of water by 1°C.¹ There is some confusion because small calories with a lower-case c aren't the same thing as Calories with a capital C. When spelled with a lower-case c, a calorie is the amount of heat required to raise 1g of water by 1°C between 14.5°C and 15.5°C.

By these definitions, one large-C Calorie equals 1,000 small calories. Having the same word with two different meanings, solely depending on whether the first letter is capitalised or not, is not the easiest thing to understand, right? To avoid confusion, a large-C Calorie is also referred to as a kilocalorie or kcal, like the energy equivalent of 1,000 grams equalling a kilogram or 1,000 metres equalling a kilometre.

However, small-c calories are not frequently used, and people usually refer to kilocalories simply as 'calories'. Thus, throughout this book, when I mention calories, I am referring to kilocalories or kcals that you will see on food labels. Depending on the country you are in,

you may see kilojoules (kJ) instead of kilocalories (kcal). 1 kcal is 4.18 kJ.

OK, so calories are like units of energy. The foods you eat have labels on the back that show you their calorie, or energy, content. Activity trackers may guess at how much energy you have burned in the gym, in the form of calories. Simple.

Your metabolism

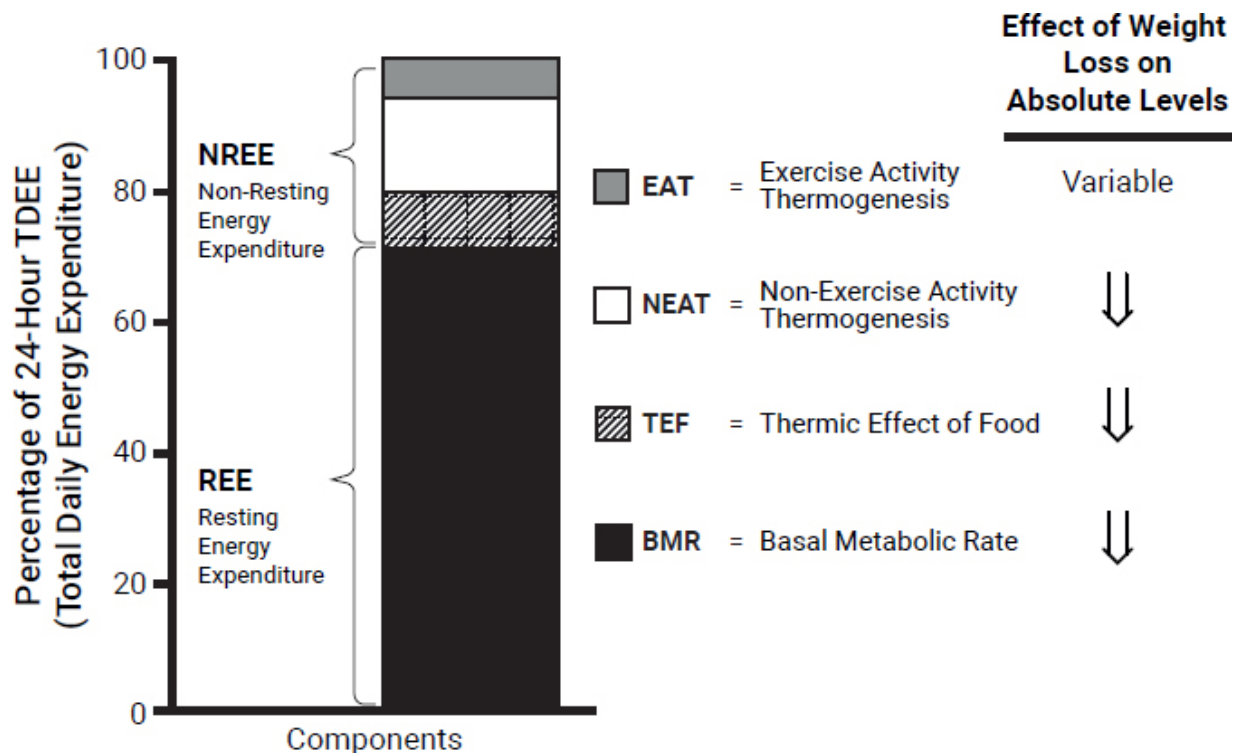
Let us get the technical definition of metabolism out of the way first: ‘metabolism can be defined as the complete set of chemical reactions that occur in living organisms in order to maintain life’.²

In weight loss conversations, when people refer to your ‘metabolism’ or ‘metabolic rate’, they are simply describing the amount of energy your body burns. For example, if someone considers themselves to have a ‘fast metabolism’, they believe they burn more calories per day than someone who has a ‘slow metabolism’. The amount of energy you burn over the course of the day is broken down into several components. This section has a lot of acronyms which may seem complicated, but I will give a simple summary afterwards.

Total daily energy expenditure (TDEE), also known as total energy expenditure (TEE). This is the total number of calories you burn over the course of the day. This is the umbrella that everything else falls under.

Resting energy expenditure (REE), also referred to as resting metabolic rate (RMR) or basal metabolic rate (BMR). RMR and BMR aren’t technically the same thing, but the terms are used interchangeably. To measure resting metabolic rate, you would typically sit or lie down after a minimum of 15 minutes rest, in a thermoneutral room (cold rooms or hot rooms may skew the results) and in a fasted state with no food, alcohol or caffeine, so your body is not expending additional energy while the measurements are taken.⁴ Basal metabolic rate is similar but measured under more strict conditions. You would be fully rested before and during the

measurements, must have fasted for a minimum of 10 hours and be free from emotional stress and familiar with the apparatus being used.⁵ Long story short: they basically refer to the number of calories your body burns at rest, but one is a slightly stricter measurement than the other. As a comparison, if you measure your resting heart rate after sitting still for just 60 seconds, it may be slightly different than if you measured it after sitting still for at least 60 minutes. They measure the same thing, but one is stricter than the other.



Impact of Weight Loss on the Components of Total Daily Energy Expenditure. Adapted from ³.

When you are lying down, not consuming any food and staying perfectly still, your body is still burning energy. Your heart is still beating, you are still breathing and your organs are still operating – all of which come at an energy cost. This is primarily dictated by your body composition, i.e., your body weight and how much lean body mass (everything on your body that isn't fat mass, such as muscle tissue, water, skin, bone, connective tissue, etc.) you have.⁶ It is

expected that if you lose weight, your REE will decrease, as a lighter version of you requires fewer calories to function than a heavier version of you.⁷ Likewise, when you gain weight, it is expected to increase. REE is typically the largest contributor to the total number of calories you burn daily, estimated to be at around 60% of your total daily energy expenditure, for an average person.

Non-resting energy expenditure (NREE) is the amount of energy used above and beyond what is required when resting – what you burn in addition to your REE. For example, whenever you move, your body burns energy, and when you eat, your body burns additional energy digesting that food.

The total number of calories you burn per day is your REE plus NREE. If your body burns 1,200 calories when resting and an additional 800 calories per day through all additional activities, you will burn a total of 2,000 calories per day and this is what you would aim to consume to keep your body at the same weight.

NREE is further split into the following subcategories:

Thermic effect of food (TEF), also known as specific dynamic action (SDA) or diet induced thermogenesis (DIT). This is the increase in metabolism that occurs after you eat, i.e., the energy cost of processing and storing food.⁸ It is estimated that for most people, it will be approximately 5–15% of the total number of calories you burn daily.⁹ If you burn 2,000 calories per day, roughly 100–300 calories will come from TEF. As this is an increase in energy burned after consuming food or drink, if you significantly reduce the amount of food that you are consuming, the number of calories you burn via TEF will also decrease. Likewise, if you significantly increase the amount of food you are eating, you will burn more calories via TEF. It is most frequently expressed as a percentage – the increase in metabolic rate above baseline relative to the amount of food you have just eaten. If you eat 200 calories and your metabolic rate increased 20 calories above baseline, that represents a TEF value of 10%.

The type of food you eat also influences the amount of energy you burn via TEF. For example, protein, which is the predominant ‘macronutrient’ (we will discuss these in more detail in chapter eight), in foods like meat and fish has the highest thermic effect (20–30%), meaning your body burns more energy digesting it. This is followed by carbohydrates, which are found in grains like rice, wheat and oats as well as vegetables like potatoes (5–10%), and then fats, which are found in foods like oils, butter, red meat and oily fish (0–3%). Alcohol also has a high thermic effect of 10–20%,⁹ although it obviously isn’t a dietary staple. This means that eating a high-protein diet may burn more calories than lower protein diets,¹⁰ but it is worth keeping in mind that all of this is still within the context of only 5–15% of total daily energy expenditure, so any manipulations within that window are pretty small.

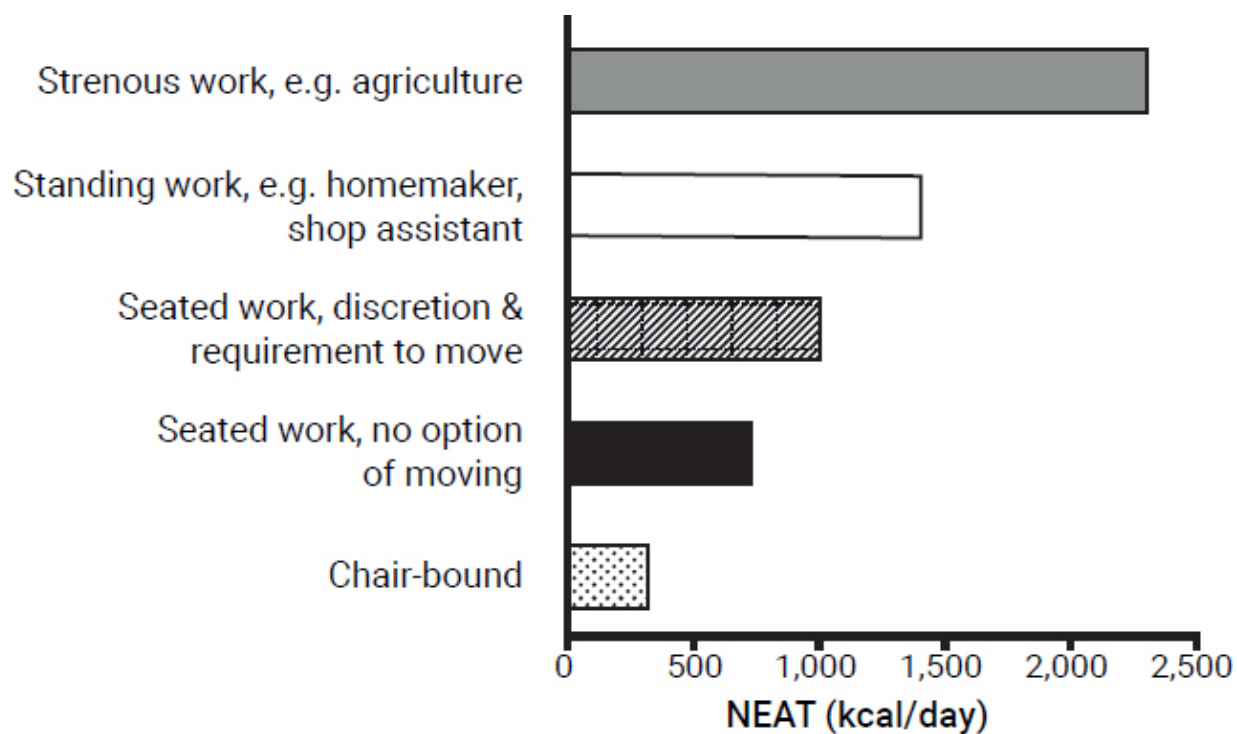
Different food sources may also impact the overall TEF value of a meal, such as how processed or unprocessed it is, but there isn’t a lot of literature in this area. Unless you perhaps compare an entirely unprocessed diet to an entirely ultra-processed diet, any differences here are likely to be small and relatively inconsequential.

Exercise activity thermogenesis (EAT) is the number of calories you burn via exercise. If you go for a run or hit the gym (metaphorically, not literally), these calories burned are considered EAT, unlike calories burned through all other movement. Given a sample plan of someone exercising three times per week for 60 minutes at a time, it contributes surprisingly little to how many calories you burn over the course of the week. As there are 168 hours in a week, doing three hours of training is only a tiny snippet of time in the grand scheme of things. There are some people who burn many calories due to intense workout schedules, but these people are a minority in the overall population.

Non-exercise activity thermogenesis (NEAT) is all movement outside of formal activity. You are moving around all the time, from getting out of bed, walking to the bathroom, maintaining posture as you are sitting, moving around your house, fidgeting, etc. It tends to be

neglected as people who want to lose weight normally focus immediately on a formal exercise programme. Surprisingly, NEAT is a much larger contributor to total calories burned over the course of the day than formal exercise is, for most individuals. As we have discussed already, it is believed that decreases in NEAT are a large component of what is driving increasing obesity rates today. There has been a huge increase in transport options that replace walking and there are now many more sedentary jobs, with machinery having replaced many manual labour jobs. Technology is making us progressively less and less active. Restaurants offer food delivery options to save us having to cook ourselves. Supermarkets deliver to us, saving us having to shop for ourselves. Once we have eaten the food, some of us dispose of the rubbish in bins (or trash cans for our American friends) with automatic sensor lids to save us even the trouble of having to lift it ourselves and we put the plates in a dishwasher so we don't have to wash them up. Over time, we are gradually drifting towards having to move less and less on a daily basis, and these little things can really add up.

It is common for people to take up running or cycling as the default weight loss stimulus without stopping to think about their overall lifestyle. For example, it has been shown that if someone has a highly physical job, they could burn around 1,500 calories more per day than someone who has a sedentary job, which is a far bigger calorie cost than having a sedentary lifestyle and sprinkling in a couple of workouts per week.^{[11](#)}



The data rely on an assumed basal metabolic rate of 1600 kcal/day.

The Effect of Occupation Intensity on Non-Exercise Activity Thermogenesis. Adapted from [11](#).

Calorie balance

As we discussed in chapter two, to lose body weight consistently, you need to be in a calorie deficit, also known as an energy deficit or negative energy balance, which simply means consuming fewer calories than you burn. If you eat 2,000 calories of food every single day but you burn 2,500 calories of energy every single day, you are in a calorie deficit and you will lose weight. This is seen very reliably in all trials in which food is meticulously provided to participants. It is also seen in the real-world in places where food is genuinely scarce.

A calorie deficit sounds very simple on paper because it only has two components: calories in versus calories out, which paints the illusion of a very straightforward seesaw with 'calories in' at one end and 'calories out' at the other. However, just like the behind-the-scenes factors influencing your personal calorie intake and calorie

expenditure (see chapter two), the energy balance equation is much more complicated than that.

Let's use a running example:

It is frequently estimated that you need to reduce your calorie intake by 500 calories per day to lose 1lb per week. These mathematics stem from the idea that adipose tissue (body fat) is approximately 87% actual fat with the remaining percentage coming from water and proteins,¹² so every 1lb (around 454g) of adipose tissue lost equates to around 14oz (or 395g) of fat, which is approximately 3,500-calories worth.¹³ It is not perfect maths by any means, but this is the simple explanation, and you can consider it a decent yardstick.

If your body weight is staying roughly static, you know that you are consuming a similar amount of energy to what you are burning. It might not be exact, but it's pretty close. If you reduce your calorie intake by 500 calories per day, you should lose approximately 1lb of body fat per week. This sounds straightforward, so what could go wrong?

Firstly, as we touched on above when we discussed our TDEE, as you lose weight, your body will start to burn less energy because a lighter version of you requires less energy than a heavier version of you. Your calorie intake goalposts will start shifting slightly over time. You may not notice it right away, but after a while, it becomes more apparent. What started out on day one as a 500-calorie deficit won't be a 500-calorie deficit anymore. Over time, it may become the new total amount you need to maintain your body weight.

As a working example, if you require approximately 2,500 calories per day to maintain your body weight and you reduce this so you are eating 2,000 calories every day, you will start off in a 500-calorie deficit and lose weight. However, as your body weight decreases, so does the number of calories you burn. The number of calories you burn through movement will decrease – both via exercise as well as non-exercise activity thermogenesis.¹⁴ Also, because you are consuming smaller quantities of food, the number of calories you burn via TEF will decrease. At some point, 2,000 calories per day may no

longer be a deficit to your smaller body size and your weight loss could plateau.

It is misleading to assume ‘calories in’ and ‘calories out’ are static and independent of each other. Believing this can significantly overestimate the amount of weight someone will lose from a dietary intervention.¹⁵ In the real world, weight loss is often a lot slower than most people initially predict because they haven’t factored in what adaptations can occur over time.¹⁶ This explains why factors that influence energy balance should be viewed as dynamic and intertwined, because if you change one, like how much food you eat, you will often inadvertently change another, like how many calories you burn.

Likewise, if you add one extra mouthful of food to your everyday diet to put you into a teeny tiny calorie surplus, you wouldn’t expect to gain weight continuously for the rest of your life. As your body weight goes up, the number of calories you burn also goes up so your food intake would need to consistently trend upwards for your body weight to do the same.

If there is only one thing you remember from this, let it be: when you change how many calories you consume, you will also change the number of calories you expend, which makes the speed you gain weight or lose weight somewhat unpredictable.

Macronutrients

The dictionary definition of a macronutrient is: ‘a chemical element or substance that is essential in relatively large amounts’. They are proteins, carbohydrates and fats, and are often expressed as percentages or ratios of your total calorie intake. For example, a diet that is 40% carbohydrates, 30% fats and 30% protein may be referred to as a 40:30:30 macronutrient ratio. Although someone’s target ranges may vary based on individual factors like age, body weight and training regime, the ‘acceptable macronutrient distribution range’ (AMDR) for adults tends to be 45–65% carbohydrates, 20–35% dietary fat, and 10–35% protein. These are not precise targets;

they are windows recommended to the general population as guidelines.

While people argue about what the ‘best’ macronutrient split is from a health perspective, this question can be misleading because the macronutrient split tells you almost nothing about the foods being consumed within that. You could create two diets with exactly the same breakdown of carbohydrates, proteins and fats but very different food choices. There is no ‘perfect’ macronutrient ratio from a health standpoint and from an evolutionary perspective, what humans used to eat varied depending on what food sources were available to people in the area of the world and the period of time that they lived in. From a fat loss perspective, there is no perfect macronutrient split either. Weight loss diets can vary considerably, including some that predominantly emphasise protein, carbohydrates or fat.

Protein

Foods that are rich in protein include meat, fish, eggs, dairy and soy products. You might see the terms ‘complete protein’ or ‘incomplete protein’ used. This refers to whether a product is considered to contain all the essential amino acids (the ones that your body cannot make and requires you to obtain from your diet) in adequate amounts. If a ‘complete protein’ is a metaphorical wall, amino acids are the individual bricks that make that wall. Other sources of protein include nuts, legumes, seeds and grains, although, on average, they tend to be lower in protein relative to the other macronutrients they contain. White meat like chicken breast or white fish like cod will be leaner, meaning it is high in protein, low in carbohydrates and low in fat. Red meats like beef will likely have a higher fat content than white meat and nuts have some protein and some carbohydrate but also tend to be much higher in fat.

Protein is a major component of every cell in your body. In the dietary world, protein receives the most attention for growth and repair. The amount you are recommended to consume daily, referred to as the ‘recommended dietary allowance’ (RDA) is 0.8 grams per

kilogram of body weight, which would be 80g per day for a 100kg (or 220lbs) person. There is some debate about whether intakes higher than this would be better, especially for people who exercise.^{[17](#),[18](#)} For example, if your goal is to increase muscle mass and you are already hitting the gym and lifting weights, consuming more than the standard recommendation would help you get there faster – like consuming 1.6 grams per kilogram of body weight per day, or 160g for a 100kg (or 220lbs) person.^{[19](#)} We will discuss this in more detail in chapter eight, ‘What Diet Will Work for Me?’.

Carbohydrates

These can be broken down into a few subcategories. Foods that are rich in starches (also known as ‘complex carbohydrates’) include grains like rice and wheat and vegetables like potatoes. Fruits tend to be rich in naturally occurring sugars, which are also referred to as ‘simple carbohydrates’. Then you will find a whole host of other simple carbohydrates in the form of added sugars in many ultra-processed foods like cookies, cakes, doughnuts and ice cream.

Carbohydrates are commonly described as your primary energy source, although they are not technically ‘essential’ in that you can still survive on a zero-carb diet. Whether you would want to or not is a different question. Lots of people argue about whether carbohydrates are ‘good’ or ‘bad’, but it is an umbrella term for a very diverse group of foods. The health effects of different carbohydrate sources depend on the nutrient content of those particular foods, among other things. For example, if you consume a diet that is high in fruits and vegetables, you will probably be ingesting many more vitamins and minerals than if you were consuming a diet where the carbohydrate sources are highly processed foods like cookies, jellybeans and ice cream. Even describing sugar or simple carbohydrates as universally ‘bad’ is misleading, given that fruits and gummy bears both contain sugar, yet the former inevitably contains more vitamins and minerals than the latter.

You may see the term ‘glycaemic index’ or ‘glycemic index’, depending on where you are in the world, used to help classify carbohydrates. Terms like ‘low GI’, ‘medium GI’ and ‘high GI’ indicate a score from 0–100 based on a food’s ability to impact your blood glucose when consumed on its own.²⁰ There are some ongoing arguments about the relevance of this for people without any medical conditions because it can cause people to steer away from foods that are nutrient-dense, like fruits. Also, if you eat a high GI food in combination with another food the glycaemic response of the overall meal will be changed – if you consume one high GI food in combination with a low GI food that meal may not be considered high GI anymore. Just because a food ranks higher doesn’t automatically mean it is less healthy, but the general idea of low-GI diets tends to involve steering people away from highly processed carbohydrates.

On food labels under the carbohydrate quantity, you will also see fibre listed. This may be naturally occurring, like the fibre content within grains, or it might be added to the product, like some ‘functional fibres’ that you may see in high-fibre or reduced-calorie products. Fibre has been defined as the edible parts of plants or carbohydrates that are ‘resistant to digestion and absorption in the human small intestine with complete or partial fermentation in the large intestine’,²¹ basically meaning your body doesn’t absorb fibre like other carbohydrates, hence it being well known for relieving constipation, although there are many different forms of fibre with different functions. To be as accurate as possible, the definition would need customising based on different sub classes of fibre.²²

Although it is difficult to study the health effects of foods over the course of many years, higher fibre intakes have been associated with decreased risk of several chronic diseases, indicating it is likely an important factor of a health-promoting diet.²³ High fibre intakes can increase the amount of energy you excrete and therefore lower the number of calories you absorb, known as ‘metabolisable energy’.²⁴ Long story short, when you eat a lot of fibre, you poop more out and the total number of calories you absorb decreases, nudging you towards a calorie deficit.

Fats

Notable sources of dietary fats include butter, oils, whole milk, visible fat on meat, oily fish like salmon and mackerel, and some plant products like nuts and seeds. Fat can be used for energy but also plays other roles, including aiding the absorption of certain vitamins. Fats can be split up into several subgroups:

Saturated fat is solid at room temperature and can be found in foods like butter, coconut oil and the visible bits you can see on meat, like the white marbling on beef.

Isolated unsaturated fats are liquid at room temperature, and include olive oil, avocado oil, sunflower oil, etc.

Unsaturated fats can then be broken down into two main categories: polyunsaturated fats and monounsaturated fats, which are found in foods including nuts, seeds, fish and avocados, with most foods containing a blend of the two rather than one exclusively.

From a health perspective, dietary fat is a very big topic and is complicated for many reasons. When we talk about protein being good for lean body mass growth, researchers can give one group of people a high protein intake and one group of people a low protein intake and see what happens after a couple of months. But when looking at overall health risks associated with different types of dietary fat, you can't study people quite like this because some health risks will manifest over years or decades. For this reason, it is more common to look at trends over a long period of time, like whether consuming a higher fat diet is associated with an increased or decreased risk of certain diseases.

One of the issues with this type of research is it tends to revolve around looking at food diaries of large numbers of people and you can never be 100% sure of how people actually ate, so there has to be a degree of trust with how they report their diet. For example, if you

look at dietary records from thousands of people and identify certain correlations between high dietary fat intake and the risk of X, Y or Z disease, how confident can you be that everyone has been reporting their diet accurately? On top of that, categories of dietary fats are not always clear cut. Many food sources have multiple types of dietary fat and therefore isolating the health effects of one specific type is not always a simple feat.²⁵ So, if you surveyed a shitload of people to find out about their red meat intake, you will have a lot of guesses about how much red meat they consume, but you can't accurately quantify what types of red meat they are eating. One person might be eating cuts of steak that are very fatty and fried in butter and another might be eating cuts of steak that are much leaner and grilling them without any additional oils. While estimating whether someone consumes a higher or lower protein diet is relatively straightforward, trying to assess what types of dietary fat someone has been eating is a lot trickier.

In addition to all of this, food sources themselves are not necessarily equal in terms of their health effects (e.g., monounsaturated fat intake from animal sources may have a different impact on health markers compared to monounsaturated fat intake from plant sources).²⁶ When you combine all these factors together, you can understand why there are so many conflicting views around dietary fats and delving into this literature from a health perspective is outside the scope of this book, and most people's patience.

Macronutrients and their role in energy balance

The general rule of thumb is that 1g of protein contains four calories, 1g of carbohydrate contains four calories and 1g of fat contains nine calories.²⁷

As stated earlier, protein is believed to have the highest thermic effect (20–30%) followed by carbohydrates (5–10%) and then fat (0–3%).⁹ This means that on a calorie-for-calorie basis, your body will burn more energy when you consume protein than either

carbohydrate or fat. Due to this, it is believed that high-protein diets may offer a weight loss advantage over lower protein diets.^{[10](#)}

But it is worth keeping in mind that this accounts for a pretty low number of calories burned, so tweaking the macronutrient composition of your diet to try to keep your metabolic rate as high as possible isn't likely to lead to groundbreaking results. If you increase your protein intake a smidge, the number of additional calories you will burn is a little bit like getting a few extra miles out of your car's fuel tank – you just aren't really going to notice it.

If you compared the thermic effect of a diet of pure dietary fat to pure dietary protein, the number of calories burned between the two would be more of a contrast. But when someone nudges their protein intake up a little bit strictly for the purpose of burning more calories, the difference is probably too small for anyone to notice – at least in the short-term – although it may pan out to some additional weight loss in the long term.^{[10](#)}

Micronutrients

If macronutrients are the substances your body requires in large quantities, micronutrients are the things your body needs in smaller quantities, most often referred to as vitamins and minerals. These often don't get a lot of love in books discussing weight loss.

While we all understand that vitamins and minerals are important from a health perspective, their role in altering your body composition is far less clear. For example, you could consume a diet that isn't nutrient rich, yet if you were consuming fewer calories than you expend, you would still lose weight. It doesn't necessarily mean that vitamins and minerals aren't important, but whether they are important for losing body fat specifically is a different question.

Some research has concluded that there is an association between certain nutrient deficiencies and obesity. However, this doesn't necessarily mean that they cause obesity directly.^{[28](#)} What I mean by this is if you study a group of people and notice that those who have a higher body fat percentage also have lower levels of a specific vitamin,

it doesn't mean that the deficiency came first. It may be a consequence of having a higher body fat percentage or it may not actually be related at all.

Rather than coming at this from the angle of 'what vitamins and minerals do I need to consume more of to promote fat loss?' I suggest looking at it from the other angle of trying to ensure you are not deficient. As one example, there are some research papers that look at zinc deficiency in people with higher body weights²⁹ and whether correcting these deficiencies could help promote weight loss.³⁰ Also, when someone is reducing their food intake to lose weight, it makes logical sense that the quantity of micronutrients they are consuming will also decrease. After all, if you kept all of your food sources the same but reduced all your portion sizes by 10%, you are now also reducing your vitamin and mineral intake by 10%, unless you are supplementing elsewhere, of course.

Further, given the plethora of extreme diets out there, it shouldn't be surprising that some of them may increase your risk of deficiencies. After all, it is common for people to completely avoid a long list of foods or entire food groups, as encouraged by some of the most popular diets around, which we will discuss in chapter eight. One study looked at the suggested menus of four popular diet plans and found that none provided the reference daily intake for all micronutrients at the calorie intakes that were being prescribed.³¹ Another study looked at three different commercially available weight loss plans and again found consistent deficiencies, therefore recommending that micronutrient status may require special attention when dieting.³² It is perhaps especially pertinent for people who are on very aggressive calorie deficits or want to achieve very low levels of body fat.^{33,34,35}

This helps drive home the important message that health and weight loss do not always go hand in hand. Although you can lose body fat on a diet that is low in micronutrients, it makes sense to prioritise nutrient dense foods, especially as your calorie intake drops.

HOW CAN YOU PUT THIS INTO ACTION?

- This chapter was primarily included to bring you up to speed on topics we will be discussing in more detail throughout the book, so refer back to it as and when you need to.
- When you increase or decrease the amount of food you are eating, you will inadvertently influence how much energy you are burning, which means you might get results at a different speed to what you expect. By being aware of this you can modify your behaviours accordingly. For example, when you reduce how much you are eating you may subconsciously start moving a little bit less; a behavioural goal to bypass this could be monitoring your approximate step count. If you have a phone or smart watch that tells you how many steps you have taken daily, you can aim to keep that number the same, rather than letting it decline.
- Also, as non-exercise activity thermogenesis is the largest contributor to total daily energy expenditure that you are in control of, this means that maintaining an active lifestyle can be a great idea both from a health and weight management perspective. Think of ways you can maintain physical activity in day-to-day life. Perhaps you could take the stairs instead of the elevator or escalator, perhaps you don't need to get the closest parking space to the shop you are visiting or perhaps you can go for longer walks with your dog. They may all be small on their own, but cumulatively they can tally up to make a significant difference in a world that is nudging most of us towards physical inactivity.

4.

FOOD QUALITY VS FOOD QUANTITY

We already know that health and fat loss goals do not always neatly overlap. You can focus on improving your health without necessarily trying to lose fat and it is possible to crash diet via the unhealthiest and least recommended methods. As the most important thing for weight loss is to consume fewer calories than you burn, this creates some confusion over how important food quality actually is. If we pretend that food quality and quantity are two completely independent options and you can only pick one of them, which one would you choose as being the most important when it comes to achieving fat loss?

Obviously, it has to be quantity because if you consistently consume more calories than your body burns you will gain weight, but that doesn't mean that quality is completely irrelevant. Picking just one of the two options is a false dichotomy of course because you don't have to choose one or the other, you can combine both, but for explanation purposes let's pretend you can only make one choice.

If food quality was the most important thing to focus on, you could eat a diet composed entirely of nutrient-dense, unprocessed foods and expect to lose body fat. However, would you still expect to lose the same amount of body fat if you doubled the quantity you consumed? What if you tripled it? Of course, food quantity needs to come into play somewhere, right? Knowing that calorie balance is the most important aspect to whether you lose weight or not is very important because a lot of people focus on diet quality and neglect quantity entirely. Let me give you a couple of examples.

Paleo Pat loves unprocessed foods. They only eat what cavemen ate because they consider that to be as natural as possible. They have a very short list of foods they consider acceptable and anything that

doesn't fall on that list is disregarded. If a food isn't completely unprocessed, Paleo Pat scoffs at it because it isn't good enough for their optimal body, which is a temple of health. Paleo Pat doesn't consider calories at all, eats large bags of nuts per day and lots of red meat and struggles to lose body fat because they are eating more energy than their body burns, irrespective of how nutrient-rich their diet is.

Organic Octavio is a very wealthy individual and is privileged enough financially to be able to only buy organic foods, with the belief that these are healthiest. Non-organic foods? Absolutely not. They believe that non-organic foods come with a whole array of toxins and pesticides that are terrible for the body and will stop it losing body fat. In fact, the more that a food brags about how high quality and expensive it is, the more Octavio wants to buy it. All their food is organic, their juices are also cold pressed, everything has to come in packaging that won't leach dangerous toxins into their food and every fruit and vegetable they eat has to be locally sourced, seasonal and only picked by beautiful people who sing lullabies to the produce as they pick it. Does Octavio lose weight if they consume more calories than they burn? The answer is still no.

Diet quality cannot trump diet quantity. It just can't.

Honestly, I wish it could. Nobody really wants to reduce their food intake to lose weight, right? It isn't the most exciting thing in the world to do, so if there was a diet that was so super-duper high quality that you could literally eat as much as you want and still lose weight, we would all love to know. I think that is the reason so many people gravitate towards diets with sets of rules that don't come with calorie restrictions. There is absolutely no shortage of plans that are sold with taglines like 'eat as much as you want and still lose weight'. It is no surprise that consumers are often pulled into the allure of these diet plans because the idea of restricting how much you eat just isn't a fun prospect.

On the flip side of this, you could have a diet that is entirely composed of the unhealthiest foods imaginable and still lose weight. Pick any food you want and take it to the logical limit. Do you like chocolate? If you ate one chocolate bar a day and nothing else, of

course you would lose weight. No single food is so inherently fattening that consuming it in any quantity will halt fat loss. Pizza? Sure, not the healthiest food in the world to consume in very large quantities, but if you ate a small slice per day and nothing else, you would still lose body fat, assuming that slice contains fewer calories than you are burning. Don't get me wrong, nobody is saying that only eating a tiny amount of pizza is a good idea or anything, this is just an example to get the point across.

So, if you could only pick quality or quantity and the only goal was weight loss, you pick quantity. The most nutritious diet won't let you lose fat if you consistently consume too many calories, but you could lose weight on a diet of pure 'junk' food if you were in a calorie deficit.

Does this mean that calories are the only thing that matters? Of course not. Food quality is important for many things, including health, but it is not the primary driver for whether you gain weight or not.

There are two main reasons I think this is really important to understand.

1. If you think food quality, and whatever your interpretation of that is, is more important for fat loss than calorie balance, and fat loss is what you want, you could waste time and money going down the wrong path.
2. Believing that food quality is of paramount importance can create additional barriers for people.

The fitness industry is often an elitist place where people who don't follow a certain plan are scoffed at. Hardcore organic people telling everyone that they shouldn't eat non-organic foods because the quality is poor. Hardcore paleo folk looking down on anyone who touches 'junk' food. Ready meals? Bad. Processed foods? Bad. Foods with added preservatives of any kind? Bad. People who can follow these diet plans often don't understand the battles that a lot of people face. Imagine if you took a celebrity with their \$200-a-day superfood diet

and asked someone in a lower socioeconomic bracket to follow that plan. Take someone who is adamant that every single meal needs to be home cooked using the freshest ingredients and let them try and implement it as a single parent trying to juggle a career who barely feels like they have time to take a shit. Some people preach food quality so much they can do a disservice to others who would struggle to follow those rules for whatever reason.

Now that we are hopefully in agreement that food quantity is the most important of the two, whether we like it or not, let's discuss the role that food quality plays.

What actually are 'junk' foods?

This probably doesn't need clarifying, but I am going to do so anyway. Having a diet that is very high in 'junk' food is probably not great from a health perspective. Raise your hand if this came as a surprise to you. Nobody? I assume nobody.

I do want to point out though that putting all 'junk' foods under the same umbrella is probably not a super-smart idea. For example, is a fast-food burger something you consider 'junk' food? What if it was from the same establishment but it was organic? What if you made the same burger at home? Where is the line between 'junk' and everything else? If fries (chips for most people not in America) are 'junk' food, what about homemade fries that are just slices of potato, a splash of olive oil and some salt? While there are some foods most people would unanimously describe as 'junk' foods, it isn't actually an easy thing to classify and this is important from a health perspective because lumping a huge and diverse group of foods together is doing you a disservice. If you tell 1,000 people to avoid 'junk' food you are going to get some wildly different interpretations of that.

'Processed' foods are not particularly easy to categorise either. Everyone would agree that chocolate cereal is processed, but what about foods that are commonly viewed as health-promoting like olive oil, green tea and protein powder, for example? All of these are processed in different ways, like a lot of things we eat. Processing is

not necessarily a bad thing and viewing processed foods as universally unhealthy is not a sensible thing to do.

While this may seem like semantics, I think it is important to clarify because if you have a more comprehensive understanding of nutrition, you are less likely to fall into the trap of using overly simplistic, black-and-white labels around foods.

One review paper looked at different food group classifications from a large number of studies in an attempt to propose a more agreed upon classification system.¹ Below is an outline of something that was termed the ‘NOVA’ system:

1. Unprocessed and minimally processed foods. This includes things like fruits, vegetables, grains, legumes, meat and seafood, unsalted nuts, eggs, and minimally processed dairy products.
2. Processed culinary ingredients. This includes foods like plant oils, animal fats, sugars and flours.
3. Processed food products. This includes foods that have added sugar, salt or oil to prolong shelf-life and make them more palatable, like canned vegetables, fruits preserved in syrup, tinned fish, processed meats, and cheese.
4. Ultra-processed food products. These are foods which are formulated, contain little to no whole foods and are often ‘hyperpalatable’ (a fancy word for fucking delicious), like chips (crisps), ice cream, chocolate, candy, hot dogs, breakfast cereals, sodas and a long list of products which were not available to us in the past.

The NOVA system is by no means perfect, and it has already faced revisions,² but the point is that there are review papers dedicated to categorising what the best food classification groups are, which indicates why the term ‘junk’ food is a bit simplistic – it paints a lot of foods with the same, often derogatory brush, despite many of them being very different. Even if you pick a specific category like

‘processed foods’, the health effects of eating a lot of cheese are not necessarily the same as eating a lot of canned fish, canned vegetables or bacon. Even on a simplistic level, the macronutrient profiles would be entirely different so using the same categorisation isn’t particularly helpful.

What we do know is that a high consumption of ultra-processed foods, which is how I will refer to them from now on, has been linked with an increased risk of mortality and many other diseases.³ So, it isn’t surprising that a lot of people view ultra-processed foods as pure evil. However, I do feel it is important to add some context. It is very difficult to study the long-term health effects of ultra-processed foods. You can’t follow 10,000 people around for 20 years, monitor everything they eat and see what is happening to their health. At best, you can survey people, ask them about their food habits and see if you can identify some trends. This kind of research makes it difficult to prove specific causations as there are many variables that are difficult to isolate. For example, people who consume a lot of ultra-processed foods may be displacing unprocessed foods out of their diet. On top of that, they are also more likely to be consuming a higher intake of fat, sugar, salt and calories. Although prioritising a diet low in ultra-processed foods makes perfect sense, we can’t necessarily conclude that people need to eliminate all of them completely. In the same way as there are health risks associated with very high sugar intakes, it doesn’t mean a single teaspoon in your coffee is just as bad as a very high sugar diet – the dose makes the poison. Also, we know the categorisation of ultra-processed foods is very diverse. Are we just going to tell people they are all equally unhealthy to consume in any quantity? That would be an intellectually lazy way of giving advice.

At the other end of the spectrum, we know that many unprocessed foods are commonly viewed as health-promoting. For example, fruits and vegetables have been shown to have an inverse relationship with obesity⁴ and all-cause mortality.⁵ There is also evidence to support that there is an association between whole grain consumption and lower body weights,⁶ as well as pulses like chickpeas and lentils.⁷ So, if we took a super-simplistic approach, we could view all ultra-

processed foods as bad and then view fruits, vegetables, whole grains and pulses as good. It isn't necessarily bad advice, but it isn't particularly detailed, is it?

Are processed foods more fattening than unprocessed foods?

Putting health aside and looking strictly from a body composition standpoint, what do we actually know about food quality? Do ultra-processed foods need to be avoided?

It has been suggested that processed foods may have a lower energy cost of digestion (TEF) than unprocessed foods, i.e., your body would burn more calories if you ate unprocessed foods than if you ate a processed equivalent. One research paper tested what would happen if participants ate two different kinds of sandwich.^{[8](#)}

1. The 'whole food' sandwich was made with deli cheese and multigrain bread.
2. The 'processed food' sandwich was made with cheese slices and white bread.

This study measured postprandial energy expenditure which, in simple terms, is a fancy way of saying the number of calories your body burns after a meal. It found that the processed sandwich made with white bread and those weirdly vibrantly coloured cheese slices resulted in 50% less energy burned after eating. This study didn't measure body composition changes over time, but if you eat an entirely processed diet and burn 50% fewer calories after every single meal that might add up to something noticeable in the long term, right? It is hard to say how much of that 50% difference is because one was more processed than the other; the multigrain bread and deli cheese version also had a higher fibre content and a higher protein content, which we already know will impact the number of calories your body burns after a meal.

This study didn't tell us if someone consuming a diet high in ultra-processed foods would gain weight but it did at least show us a plausible mechanism for why ultra-processed foods could be more fattening on a calorie-for-calorie basis. The authors proposed that because processed breads are normally refined to remove the bran and the germ, they are frequently lower in protein and fibre, which makes the energy content more readily digestible and in turn, your body would use less energy when you eat it.

This is one clear example of why food quality does matter within the context of a calorie-controlled diet. If you consumed 2,000 calories from pure table sugar every day or 2,000 calories from whole grains that also contain fibre, the net result would be different, both in terms of body composition and in terms of health.

As we have already discussed, it has been shown that higher fibre intakes can impact the amount of 'metabolisable energy' in your diet, which, as you'll remember, is a fancy term for energy left after you have been to the bathroom. One study tested a low versus high-fibre diet and found that during the higher fibre diet, energy losses in faecal matter (poop) were higher.⁹ This was shown again in a comparison of nine diets which differed in fat and fibre content; as the amount of fibre went up, the digestibility of fat and protein went down.¹⁰ This is why the authors of the processed sandwich study said that a higher fibre content in the unprocessed sandwich would impact energy digestibility. And this is a very good reason why diet quality *does* matter. For the same calorie intake, higher fibre intakes could possibly be beneficial from a body composition perspective as well as for health.¹¹

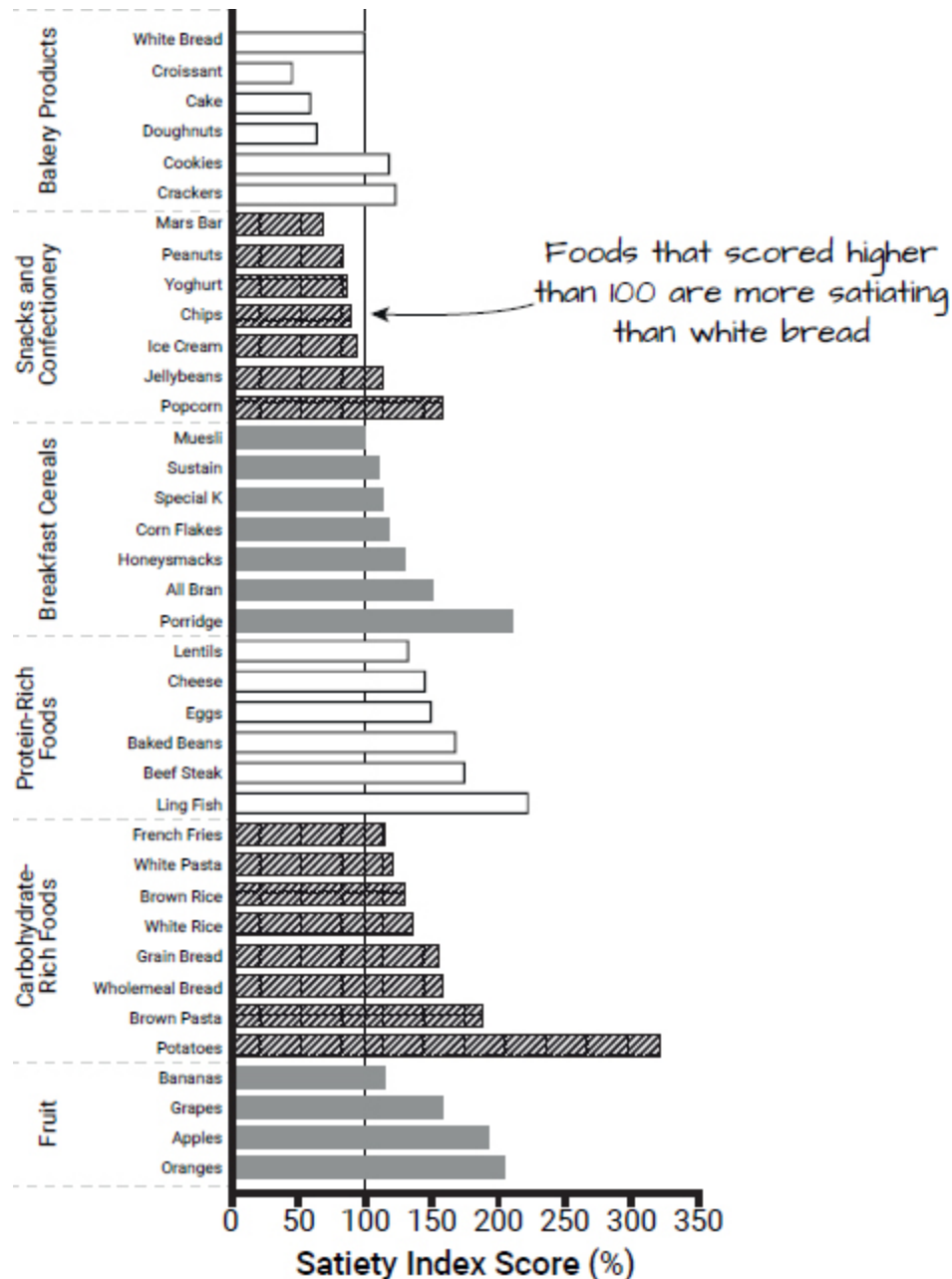
So far, based on the research we have, this looks like there is a very clear win for unprocessed foods. If your body burns more calories eating them, that must be a good thing in the long term, right? The problem is that cheese sandwich study was just a single test meal so we can only guess what would happen over a longer period. We also don't know what would happen with other foods. For example, if eating an unprocessed cheese sandwich has a higher thermic effect than a processed cheese sandwich, do we just assume that this is the

case for all other processed and unprocessed food comparisons? That wouldn't be a sensible thing to conclude.

Are unprocessed foods better for appetite regulation?

There are other things to consider when looking at food quality than just the thermic effect of what you eat. For example, how filling specific foods are is good to know from an adherence perspective. It makes logical sense that if you are trying to lose fat on a reduced-calorie diet, you probably don't want to be really hungry all the time. Think of dieting as balancing on a tightrope. Some people may find it difficult anyway but eating foods that don't fill you up is like having a few alcoholic drinks before you stand on it – you are probably making things more difficult for yourself.

One study created something called the 'satiety index', where researchers gave people the same 240-calorie portion of 38 different foods, recorded how hungry they felt every 15 minutes afterwards and after two hours, let them eat from a food buffet.^{[12](#)} The idea here was if the initial 240-calorie portion of food wasn't very filling, they would eat a lot at the subsequent buffet. By doing this with a wide selection of different items, you can see trends, like which food groups are most likely to fill you up, and which aren't.



Satiety Index Score of Common Foods. White Bread Is the Reference Food (Satiety Index Score of 100%). Adapted from [12](#).

Foods that were the most filling tended to be ones that were high in protein, fibre and water, as well as those that had a higher serving weight. Foods that had a high fat content and had a high palatability score tended to have lower satiety index ratings. Basically, foods that were calorie-dense and fucking delicious tended to score worse, with

croissants, cake and doughnuts taking the three bottom spots. All three of these are ultra-processed, have a high fat content, a small serving size for the 240-calorie portion and taste incredible (obviously taste is subjective). The foods that were most satiating were plain boiled potatoes, ling fish (a white fish, like cod) and porridge, all of which have a minimal amount of processing and a much larger serving size for the same number of calories. This concept is referred to as 'energy density'. An easy way to explain energy density is the calorie value of a particular weight of food, normally expressed as calories per gram. At opposite ends of the spectrum, 100g of a vegetable with a high water content like cucumber has very few calories relative to 100g of something like olive oil, because oils are fats which have 9 calories per gram. As cucumber has a lower energy density, the volume of food on your plate is significantly higher for the same number of calories.

Lots of things can impact the energy density of a food, but the two biggest factors are the dietary fat and water content, hence cucumber and olive oil being two polar opposite examples. From the carbohydrate family, both watermelon and jellybeans are low in fat and protein relative to their sugar content, but 100-calories worth of watermelon is a lot bigger in your bowl than 100 calories of jellybeans, which looks like a very measly handful. To compare similar foods, white meat with a minimal fat content has a lower energy density than red meat with a high fat content. Likewise, 100g of white fish has fewer calories than 100g of oily fish. Individual food items can also vary, like comparing a fatty cut and a lean cut of steak, or how you cook something: deep frying will increase the fat content of food items when you compare it to grilling without additional oils.

Picture 100g of entirely plain mashed potato, as bland and boring as it sounds. If you wanted to make an equal-calorie portion of mashed potato with added butter, the more butter you add, the smaller the serving size would have to be because the energy density of that serving has increased.

One of the theories behind why low energy density foods are good for weight management purposes is that your hunger signals are influenced by the weight and volume of what you are eating, so large

platefuls of food that fill more space in your stomach may be more satiating than small platefuls of food even when the calorie content and the type of foods are the same. As an obscure example of this, one study gave participants two versions of cheese puffs that differed by how much they were aerated.¹³ Because one version of those brightly coloured cheesy snacks contained more air each one was bigger, despite the fact its calorie content did not change. Although participants were allowed to eat as many of them as they would like, they naturally ate fewer of the snacks that contained more air, meaning their calorie intake was lower. Despite ingesting fewer calories, participants did not feel hungrier, implying that manipulating food volume can nudge people towards eating less energy without necessarily impacting their appetite, which could be very beneficial. Other research has tested this hypothesis by serving people yogurt-based milkshakes with different amounts of air shortly before lunch; it was shown that the highest volume option reduced how much food they ate afterwards.¹⁴

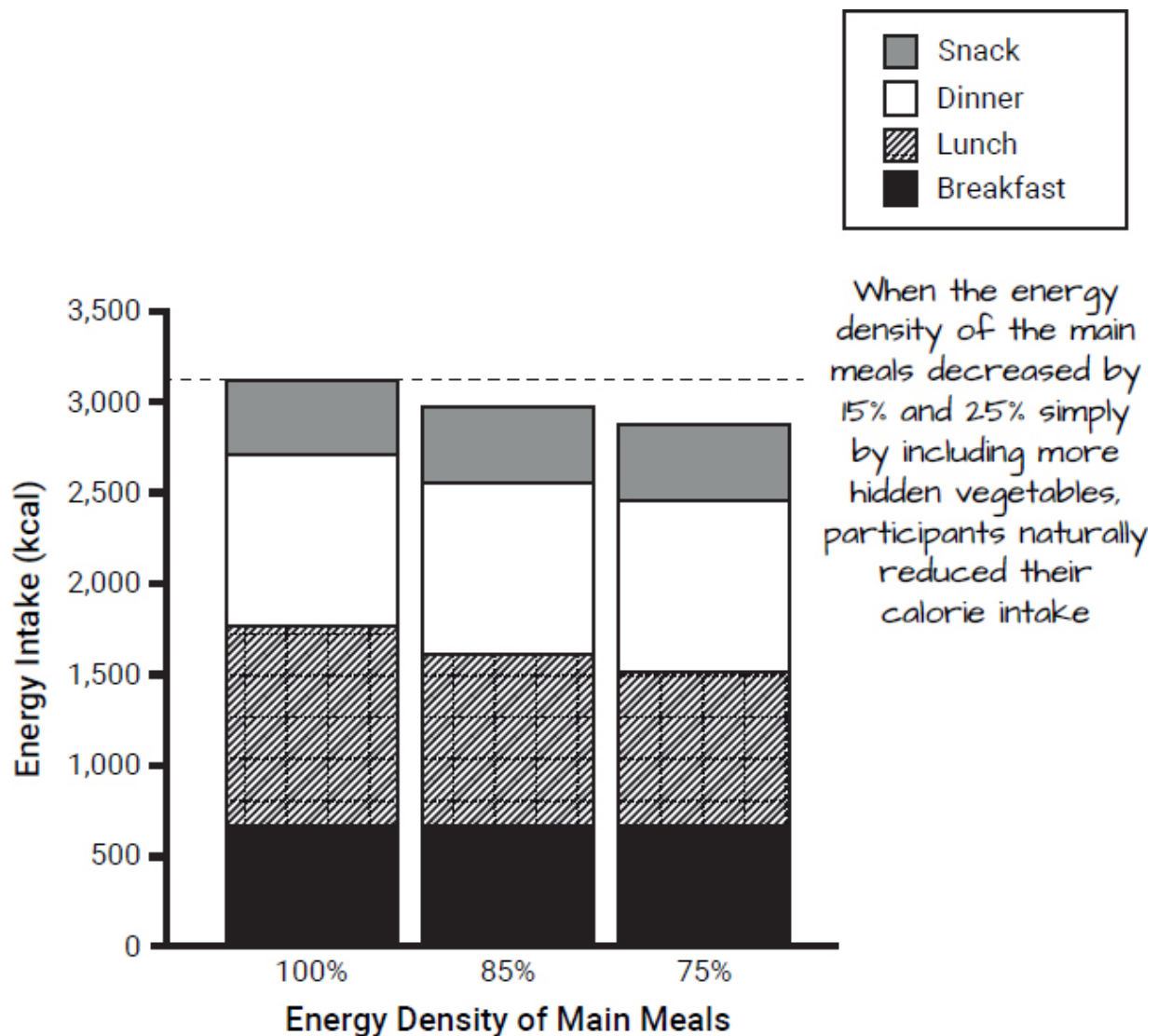
Other research has tested the same concept but with fluids rather than air. In a similarly designed trial, participants drank one of three different milkshakes prior to eating lunch; all had the same calorie content and macronutrient breakdown, but this time were diluted with different quantities of water.¹⁵ Just as before, as the volume increased, the amount of food that was eaten afterwards decreased. If you pour some sugary fruit juice into a glass and then dilute it with water, the calorie content in the glass doesn't change with the extra water, but as the volume of liquid increases, it may have a more pronounced effect on lowering your hunger.

These examples of changing the amount of air in a cheese snack or the amount of air and water in a milkshake may sound strange but we need to use specific foods in order to test the mechanisms of why something works. Then we can start to understand the practical implications. As a real-world example that you can implement straight away, you can significantly increase the volume of a meal simply by replacing foods that have a high calorie density with foods that are less energy dense. In a series of different test conditions, it was shown

that if you increase the ratio of vegetables in a mixed meal also containing meat and grains, people tend to eat less food overall.¹⁶ If you have a plateful of food which contains beef, rice and broccoli, simply adding more of the broccoli probably won't influence how many calories you eat, but if broccoli takes up a larger percentage of the plate by substituting some of the beef and the rice it may nudge you towards eating fewer calories without you feeling hungrier. The same researchers also tested two different energy densities of the same vegetable by cooking broccoli with either higher or lower fat butter. Even though both tasted similar, participants consumed more calories with the full-fat version, once again reiterating that higher fat foods can increase energy intake even when the taste is the same. This is one reason why minimising added dietary fats is common weight loss advice; cooking with large quantities of butter and oil is an easy way to increase the calorie content of your diet because their impact on appetite regulation is minimal. You can turn a serving of naturally low-calorie vegetables into a much higher calorie serving of vegetables just by cooking them with enough oil.

As vegetables are nutrient-rich and eating them is a healthy dietary recommendation that also has the added bonus of helping regulate appetite and body weight, some studies have tried to find ways to make them easier to eat, given they are not the tastiest food in the world. Let's face it, if most people wrote down a list of their top 20 favourite foods, veggies aren't going to be taking many top spots, are they? In a world full of ultra-tasty highly processed foods, broccoli, kale and spinach are never going to be the absolute mouthgasms that we can obtain elsewhere. To overcome this barrier, follow-up research papers tested whether you could increase people's vegetable intake by providing them covertly. In one study, adults were given meals where puréed vegetables were added in: carrot bread for breakfast, macaroni and cheese at lunch, finishing off with chicken and rice casserole for dinner.¹⁷ These foods were chosen because adding in extra carrots, squash and cauliflower in varying quantities could be achieved with minimal impact to the taste and texture. Just like we have seen before, as the energy density of the food decreased, participants still ate

similar quantities of food by weight, which meant that their calorie intake decreased.



Average Total Daily Energy Intake with Diets of Varying Energy Density. Adapted from [17](#).

This effect has also been shown in children.[18](#) For example, if you make a pasta with additional tomatoes, broccoli, cauliflower, zucchini or squash hidden inside it, kids may still eat the same amount of green beans that are served on the side, meaning the veggies chopped up finely and incorporated into their main course are additional and don't come at the expense of any served next to it.

Eating more nutrient-rich vegetables without even realising it *and* reducing your calorie intake without an increase in hunger? That sounds like a really big win to me.

The ‘preload’ strategy that was studied by drinking milkshakes prior to eating¹⁵ has also been tested with foods. In one study, participants ate variously designed salads prior to eating as much of a pasta main course as they wanted. When the salads were bigger, subsequent food intake was reduced.¹⁹ However, this effect was not seen when the salads were smaller and contained higher calorie cheese with a dressing added on top. Similarly, this preload method was tested by having a starter of soup prior to eating a meal²⁰ and even preceding your main course with eating apple segments,²¹ both of which were able to reduce how much food was consumed overall.

There is a surprising amount of research showing us that lowering the energy density of a meal can result in a spontaneous reduction in calorie intake. This is great news because a lot of dietary advice is the opposite of this, focusing on which foods or macronutrients to reduce. This is a dietary principle that can apply to any diet irrespective of methodology. Whether someone is low carb or low fat, plant based or omnivorous, eating six meals per day or intermittent fasting, food volume will have a separate influence on satiety and how much you eat, whether it has been intentionally manipulated or not.

While these single-meal and short-term studies are helpful to understand the mechanisms, there is also some long-term research that overlaps. Weight loss programmes that prioritise low calorie, higher volume foods have been around for decades,²² and some newer studies prescribe low energy-density strategies like reducing dietary fat and increasing fruit and vegetable intake, either with a reduced-calorie diet²³ or without any calorie targets at all and weight loss is still achieved.²⁴ There are also multiple review papers that conclude that low energy-density diets are associated with lower body weights.^{25,26,27}

The point I really want to drive home is that although being in a calorie deficit is mandatory for weight loss and in some ways food quality is irrelevant to that fact, it is also true that we have a massive

amount of research showing how different food attributes help regulate your appetite, so food quality absolutely is important as well. Prioritising unprocessed foods with a low-energy density is a very well-studied strategy to keep your hunger levels in check during periods of reduced-calorie dieting.

So, in answer to the original question: yes, we have reason to believe processed foods may be more fattening on a calorie-for-calorie basis than unprocessed foods because unprocessed foods may have a higher thermic effect and processed foods may also be more likely to leave you hungry. It doesn't look like great news for processed foods, does it? Unfortunately, it gets worse.

Are processed foods more addictive?

Highly processed, calorie-dense foods have been associated with 'addictive-like' behaviours,^{[28](#)} like the feeling of losing control when consuming them and an inability to reduce intake despite negative consequences.^{[29](#)} One study proposed a theory that addictive substances rarely occur in meaningful concentrations naturally and their abuse potential is increased when they are processed, a bit like using grapes to make alcohol or poppy seeds to produce opium.^{[30](#)} If someone wants sugar, it makes logical sense that something ultra-processed which is very high in sugar, like jellybeans, may be more appealing than eating an apple. In this study, participants were given 35 different food options and selected which ones they were most likely to 'experience problems' with. The top-rated foods all appeared to have something in common: they were ultra-processed with the addition of refined carbohydrates and/or refined fats – with pizza, chocolate, potato chips/crisps, cookies and ice cream taking the top spots. The combination of high carbs and high fats is not really found in nature. Fruits are high in sugars but not high in fats; red meat, oily fish and avocados are higher in fat but not high in sugar. It is worth keeping in mind that this was done via survey and just because 'chocolate' ranks high, this doesn't mean that all chocolate would be equal. Like the research on the satiety index, this just gives us some

foundation knowledge and between this and other research,^{[31](#)} we can conclude that ultra-processed foods are more likely to have addictive-like properties than unprocessed foods.

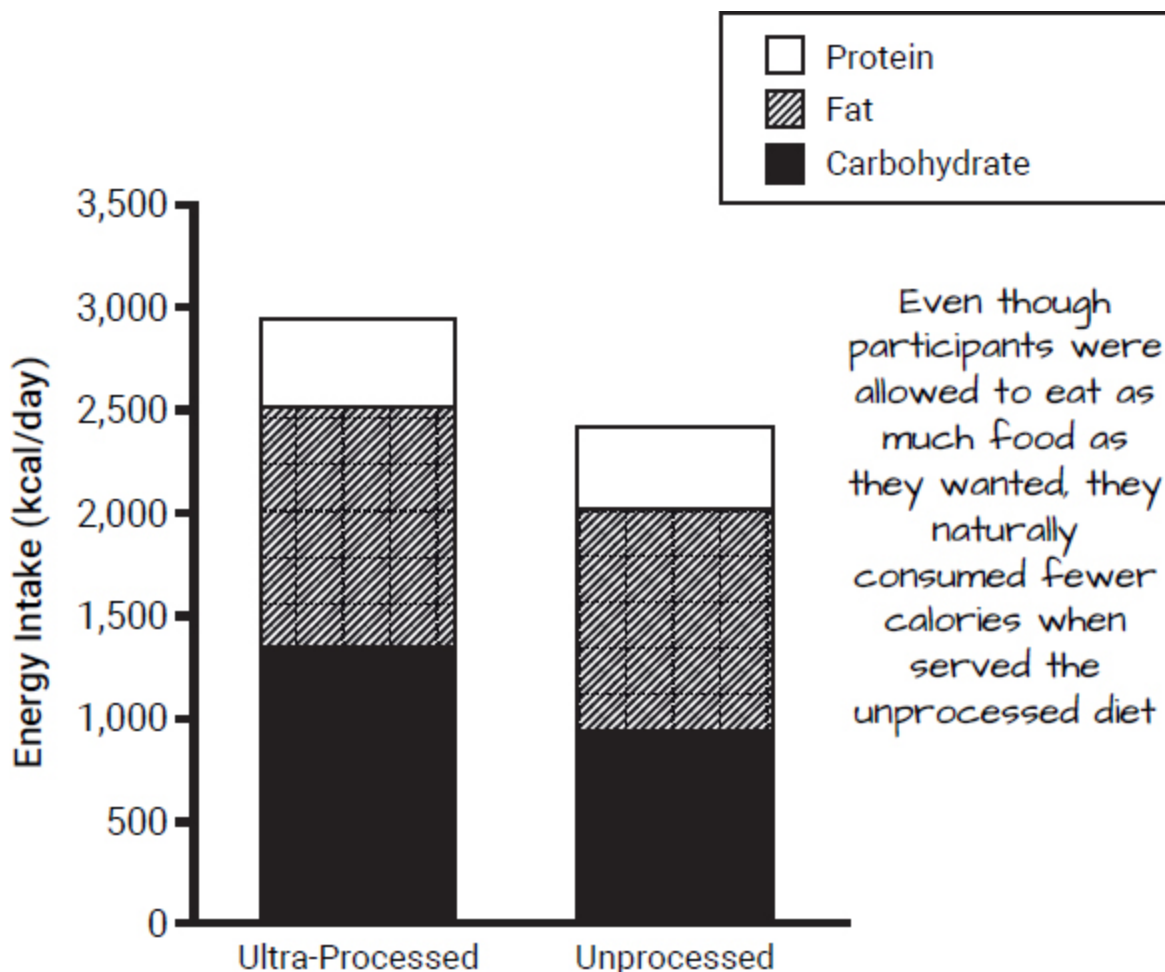
If processed foods are worse than unprocessed foods, why should we eat them at all?

At this point, we know that highly processed foods can take fewer calories for our body to process via TEF, are probably less filling and are more likely to be described as addictive-like than unprocessed foods.

I am not going to lie to you, that isn't a great list at the moment, is it? I mean, if someone told you all of these things, I wouldn't blame you if you decided to look at all ultra-processed food as something that needed avoiding. After all the research we have seen so far, why would you want to include ultra-processed foods in your diet? Apart from the fact they are often delicious, obviously. Some food-phobia-promoting type of people will use all of the aforementioned reasons to make a case why you should avoid delicious ultra-processed foods forever, but I like presenting things in a way that tries to be unbiased and there is something we are leaving out.

At the moment, although we think that processed foods might be more fattening, we haven't yet seen any research that actually measures body composition changes in people eating ultra-processed foods compared to those eating unprocessed foods – that was one of the pieces of the puzzle that was missing. Well, a study was published in 2019 which was extremely tightly controlled, where participants were kept in a metabolic ward and given precisely calculated meal plans, either consuming an entirely unprocessed or entirely ultra-processed diet. Although participants were given carefully prepared foods, they could eat as much or as little of those as they wanted.^{[32](#)} This is not an easy thing to achieve because it isn't just a case of putting out a buffet for people to feed from every day. Entire meal

plans were designed to be matched for presented calories, energy density, macronutrients, sugar, sodium and fibre. Participants were randomised to go through either the unprocessed or ultra-processed phase for 14 days before crossing over into the other condition. When they consumed the ultra-processed diet, they ate 508 more calories per day, on average. Even though this was only a very short study, the difference was substantial enough to result in fat gain on the ultra-processed diet and fat loss on the unprocessed diet.



Average Daily Energy Intake from the Ultra-Processed and Unprocessed Diets. Adapted from [32](#).

A big question is, why did people eat more on the ultra-processed diet? One interesting observation from this study was that participants ate the ultra-processed foods approximately 50% faster than

unprocessed foods in terms of calories consumed per minute. A follow-up study compared the eating rate of unprocessed, processed and ultra-processed foods and again found that the more processed a food is, the faster people tend to eat it.³³ This is worth noting because faster eating rates have been shown across a wide range of studies to promote higher energy intakes,³⁴ which we will discuss more in chapter 14. Perhaps we have a tendency to chow down ultra-processed foods much faster, which inadvertently allows us to eat more food before our satiety signals eventually tell us that we are full.

This all still looks terrible for ultra-processed foods but there is something that is very much worth considering and that is the fact that changes in body fat were highly correlated to calorie intake. Although ultra-processed foods are easier to overeat when someone is left to their own devices, it doesn't look like they are inherently more fattening, at least to any huge magnitude, just that they are easier to consume more of. With this knowledge, and looking strictly from a body composition standpoint, is it fair to say that ultra-processed foods absolutely need to be avoided if you want to lose body fat? No. Sure, they may be less nutrient-dense on average, they may be less satiating, they may be more likely to be associated with addictive-like behaviours and they may be easier to consume in excess when portion sizes aren't controlled, but it doesn't mean that you can't still eat them if you want. We don't have any real data to suggest that you need to avoid them at all costs and doing this is actually trickier than it sounds from a psychological perspective. Abstaining from eating certain foods often backfires when it comes to long-term adherence, which we will discuss in detail in the last section of chapter eight. It is also worth considering that food processing can actually have a lot of benefits when it comes to food accessibility, by improving convenience and lengthening shelf-life, which can be extremely helpful for people in lower income brackets or who have limited time. So, while it sounds easy on paper to say 'we should only ever eat unprocessed foods', it is worth recognising that it is easier said than done for a lot of people and not actually essential from a fat-loss perspective.

HOW CAN YOU PUT THIS INTO ACTION?

- If you want to lose weight it is crucial to understand that energy balance cannot be bypassed. You could eat a diet comprised exclusively of ultra-processed foods and you would still lose weight if you were consuming less energy than you burned. From this perspective, food quality is less important than food quantity.
- However, ultra-processed foods are less nutritious, worse for appetite regulation and are easier to overeat, on average. It doesn't take a genius to know that eating lots of fruits and vegetables is healthier than eating lots of doughnuts and ice cream. In an ideal world, your diet will always prioritise nutrient-dense foods.
- If your diet primarily revolves around minimally processed foods like meat, fish, whole grains, legumes, fruits and vegetables you will probably consume fewer calories automatically as these foods are better for appetite regulation, which is why food quality and food quantity are actually intertwined. Many diets claim to help you lose weight without calorie counting, and these simply revolve around dietary choices that naturally nudge you towards eating fewer calories.
- In an ideal world, we would all be eating lots of nutrient-dense minimally processed foods, however, our food environment is changing, and our decisions are influenced by lots of other factors like convenience, shelf life and cost. It takes more time and effort to prepare every single meal from scratch than it does to turn to ready meals and fastfood options. It's also important to understand that just because something is processed doesn't automatically mean it is less nutritious by

default. Food processing can actually improve some people's diet quality by reducing the cost, increasing the convenience or prolonging the shelf life of items that were previously prohibitively expensive. Not everyone has the money, time, knowledge or inclination to prepare every single meal from freshly sourced ingredients.

- Although we know diets high in ultra-processed foods are less healthy on average, the notion that everyone should avoid them for the rest of their lives is absurdly optimistic. Are you going to turn down dessert every time you go for dinner? If your friends order pizza, are you happy eating something else? If a colleague passes around free doughnuts at work, are you going to decline every single time?
- We need to reconcile where the happy medium is between prioritising a nutritious diet and acknowledging that strictly avoiding all of life's tasty treats forever is just not realistic, or even desirable for most people. If you can happily go through life eating nothing but the most nutritious minimally processed foods, feel free to crack on. On the other hand, if you are someone who doesn't think this is realistic, know that ultra-processed foods do not need to be avoided at all costs for you to still make progress towards your goals. A good diet that you can follow consistently will be better than a perfect diet that you can't stick with because it is too strict. Your goal is to find a balance that works for you.

5.

HOW QUICKLY WILL I LOSE WEIGHT?

As a personal trainer, one of the most common questions I get asked by new clients is, ‘So, how fast do you think I can lose weight?’ After all, weight loss goals are frequently nothing more than a mathematical ambition, right? If someone wants to get from A to B, it is human nature to want to know how quickly they can make the journey, often without considering anything else. If someone decides they want to lose 10lbs, there is a strong likelihood that they will want to achieve it as fast as possible. And if they don’t understand there are other factors worth contemplating, I don’t think we can blame them for opting for the super-exciting rapid solution. Nobody really wants to achieve things slowly when fast is also a viable option. Email is more popular than sending letters by post, online retailers promise to get your orders delivered faster than ever and rapid weight loss is always going to be a more appealing proposition than gradual weight loss.

If I type ‘how to lose weight’ into a search engine, the popular searches include:

- ‘How to lose weight fast’
- ‘How to lose weight in a day’
- ‘How to lose weight in a week’
- ‘How to lose weight in a month’
- ‘How to lose weight without exercising’

This gives you an insight into the general thought processes of most people when it comes to dieting. I am not saying this from a place of judgement but rather from a position of understanding, because what else would we expect? After all, the diet industry in general is guilty of selling people hopes and dreams, with magazines

using catchy headlines like ‘how to lose 5kg in a week’ and online training programmes advertised with taglines like ‘get your dream body in one month’. With all the emphasis being placed on timelines, what else would people consider? It is like earning money: if someone decides to shoot for the goal of doubling their income, their immediate second question is probably ‘when can I earn that by?’ You have the number already, all that is left is to figure out how fast you can get there.

Do you know what questions don’t appear to be as popular? Ones like ‘how can I lose weight and keep it off?’ and ‘how can I lose weight healthily?’.

Long-term weight loss maintenance appears to be a distant afterthought for a lot of people. In fact, during all my client consultations, do you know how many people have said, ‘I want to lose weight and keep it off forever’? Zero. In over a decade of one-to-one coaching, I genuinely do not remember a single instance where someone stipulated that they actually wanted to maintain whatever goal they achieved. On the flipside, I have lost count of how many clients said something like ‘I want to lose weight as quickly as possible because I have an event coming up.’

I want this to serve as an important introduction to this section because I think the way most people view weight loss could do with a significant reframing. Unrealistic expectations can cause a lot of people to approach their goals with unsustainable and even unhealthy behaviours.

Let’s go back to the hypothetical goal of wanting to lose 10lbs. If someone’s only question is how they can achieve it as quickly as possible, what habits are they going to adopt? If someone only cares about the number on the scales going down, starving themselves and abstaining from food completely would work. Taking laxatives and diuretics would also work, even though neither of these result in losing actual body fat. And, of course, no one is ever going to recommend any of these methods. They are fucking terrible ideas.

Rather than wondering how fast you can lose weight in an initial diet phase, perhaps it is worth pausing to also factor in things like long-term sustainability, how your diet might be impacting your

performance in the gym, and your physical and mental health. You are a unique human being, so it is important that you apply this information to your own individual circumstances. If you are considering weight loss as something that may help improve your quality of life, contemplating how fast you can lose weight may be largely redundant. After all, long-term weight loss success rates are notoriously low (see more on this in chapter seven), so why do we place a disproportionately high emphasis on what happens in the early stages? Your body weight will decrease in response to any reduced calorie programme, but it doesn't mean they are all equally healthy and a lot of them won't necessarily teach you anything about behaviours to help weight maintenance in the long term. Rapid dieting might get you to your initial goal faster, like being given a lot of money might get you to your financial goal faster, but a lot of lottery winners spend all the millions they won and end up back at the starting point, demonstrating why short-term outcomes shouldn't be prioritised at the expense of long-term results.

If you are planning a long car journey, the fastest route normally wins by default, but reducing your body weight is not like that for several reasons:

- Reaching the final destination is not guaranteed. Many people set unrealistic weight loss goals or repeat stop-and-start weight loss attempts without ever hitting their initial target.
- Even if you do get there, actually staying there is not effortless, as evidenced by many people regaining the weight they have lost.
- If you choose a faster route to your weight loss goal, you may be more susceptible to risks, like sacrificing lean body mass, health or quality of life.

Part of the reason people focus so much on how fast they can lose weight is probably because they have an unrealistic belief that it is going to be an effortless journey. This misguided thought process provides a false sense of security and there is a tendency for people to

set extremely ambitious weight loss goals. One research study explained this issue in detail and discussed the need for a ‘dramatic paradigm shift’, where people move towards more reasonable body weight targets.¹ As they explained, traditional ‘obesity treatment’ was always viewed as simple: to reduce someone’s body weight to whatever was considered ideal based on their BMI chart. To achieve this goal, the treatment options often needed to be drastic and while these often worked initially, long-term success rates were of course far lower than what anyone would consider ideal.

Let’s say Person A walks into a medical appointment. They are shown a chart and told that they need to lose X percentage of their body weight, before being kicked out the door and waved on their way. Perhaps they are given more detailed advice, perhaps they are not, but the main point is: their goal is to get their body weight to fall in the ‘normal weight’ category for their height as soon as possible. Super simple, right? The thing is, it’s never quite that simple, is it? If you tell 1,000 people that they need to diet, what methods are they going to pick? Some people might start exercising (yay) whereas other people may feel the need to resort to less healthy methods (boo), and this is especially pertinent for people who are further away from their ‘ideal weight’ goal, who may feel an extra sense of desperation. But before we talk about differences in rapid versus gradual dieting, we need to discuss the initial goal itself as this often determines the speed at which people want to lose weight.

In this study, 60 women with higher body weights were asked to define different weight loss goals:¹

1. Dream weight (‘a weight you would choose if you could weigh whatever you wanted’)
2. Happy weight (‘this weight is not as ideal as the first one. It is a weight, however, that you would be happy to achieve’)
3. Acceptable weight (‘a weight that you would not be particularly happy with, but one that you could accept, since it is less than your current weight’)

4. Disappointed weight ('a weight that is less than your current weight, but one that you could not view as successful in any way. You would be disappointed if this were your final weight after the program')

These targets were set prior to a ridiculously aggressive diet of just 925 calories per day, coming from portion-controlled meals and liquid meal replacements for the first 16 weeks, before transitioning upwards to a 1,500-calorie-per-day intake, and then a final phase where food intake was adjusted based on their progress. Let's be honest, although we know that participants would lose weight when following this plan, this kind of diet would not be an exciting prospect for most people. Despite its very aggressive nature, how many do you think achieved their 'goal weight', which averaged a 32% body weight reduction? Just 4 of the original 60 participants. None of them achieved their 'dream weight' and nearly half of them didn't even hit their 'disappointed weight' target, which was set at around a lofty 17% reduction in body weight, on average. Think about it like this: if someone weighed 100kg (220lbs) and they described losing 17kg (37.5lbs) in a mere 48 weeks as 'disappointing', just where are their expectations at?

Losing a quarter of their body weight was described as 'acceptable'.

Losing a third of their body weight was the 'goal'.

To achieve their 'dream weight', they needed to lose nearly 40% of their body weight.

This should serve as a useful lesson because it closely resembles a very common process: Person A wants to lose weight, so they pick a hugely ambitious goal based solely on numerical values. They follow an aggressive plan and, not surprisingly, they don't achieve their original goal. At that point, it is a bit of a coin flip as to what they do afterwards. Are they able to maintain what they have achieved so far? Do they feel disheartened and just go back to what they were doing before? Does this process sound familiar? I imagine it will, given the prevalence of yo-yo dieting. There is a huge chasm between a lot of

people's weight loss expectations and what is considered realistic, which is why the 'dramatic paradigm shift' was proposed.

The idea was, rather than aiming for goals that appear to be very hard to achieve, why not set a more realistic target, given that many health conditions can show considerable improvement even with a far more modest reduction of 5–10% of someone's initial body weight?^{2,3} Rather than thinking, 'I need to lose a lot of weight to be considered normal based on this BMI chart on the wall,' perhaps aiming for a gentler change in body weight would help increase the likelihood of long-term sustainability, given that drastic approaches are generally more difficult to maintain.⁴

If a low percentage of people can achieve, let alone sustain the 'ideal weight' targets that are typically set, but we know you can see improvements in health with less severe interventions, are the ambitious targets actually helping? This is why there has been a transition away from telling everyone what they 'should' weigh simply based on a BMI chart and a leaning towards encouraging smaller changes that may be more sustainable. This avoids steering everyone towards a possible cycle of ambitious weight loss targets, failed attempts and yo-yo dieting.

I don't blame people for wanting rapid results. I think the fault partly lies with the overall narrative around dieting. For example, one study surveyed a group of physicians, providing them with a hypothetical patient and asking what they would recommend for them and, just like we saw previously, expectations were unrealistically high.⁵ Based on this hypothetical example, they reported that an 'acceptable' level of weight loss for this individual would be 21% of their body weight and 10% would be 'disappointing'. If even some medical professionals have lofty goals, should we be surprised that many members of the general public share them?

The tortoise versus the hare

Before we discuss the research comparing rapid versus gradual weight loss, it is important to understand a couple of things. First, we need to untangle losing weight fast from losing a lot of weight, as

even though they are often intertwined they aren't the same. The rate of weight loss refers to the speed of getting from A to B, even if that isn't a long journey. However, a lot of the time, fast weight loss is viewed as synonymous with crash dieting and therefore losing a lot of weight at the same time. Speed is one thing and distance travelled is another.

Second, there are other factors to consider than just body composition. If you strive to lose body fat as quickly as possible, you can succeed when your only metric by which to judge success is the number on the scales, but why would we encourage people to focus on that so much in isolation? There are other things that are harder to measure, but that doesn't mean that we should neglect them. For example, what if losing weight quickly makes you insatiably hungry and causes you to constantly think about food? What if your dietary choices are so restrictive that you feel a growing tendency to lose control around food and binge eat, or you start avoiding social occasions because your friends eat at places you have decided are off limits? What if your performance in the gym plummets and you start feeling weak and lightheaded because you are eating so few calories? What if you try to follow a plan that is too ambitious and you keep feeling like you're 'falling off the wagon', putting you in a persistent state of yo-yo dieting habits? Remember, if you want to create lasting change, whether it is from a health or body composition perspective, being consistently good will beat being sporadically perfect. Too many people jump into the most extreme methods of dieting only to then feel like it backfired. Simple, healthy behaviours you can maintain for the rest of your life are a great thing to focus on, despite it being less appealing than the quick results promised by the marketing machines behind aggressive diets. For example, if you consistently consumed more fruit and vegetables, fewer ultra-processed foods, less alcohol and consistently hit your physical activity goals, you know you are implementing some identifiable behavioural steps that can improve your health – even if you aren't setting ambitious weight loss goals.

While these aforementioned studies paint an idea of general weight loss expectations, they don't actually compare different dieting speeds. What they do demonstrate is that both individuals and physicians can

have wildly ambitious goals and anything less can be considered disappointing, even when it really should not be viewed like that. If people are approaching their goals with hard-and-fast mentalities, they may well be setting themselves up for failure. The statistical probability that someone can crash diet their way to rapid weight loss and then manage to sustain that weight loss for the rest of their life is extremely slim. Despite this, the weight loss industry is rife with false promises, so it isn't hugely surprising that people continue to strive for the fastest results without considering the potential ramifications.

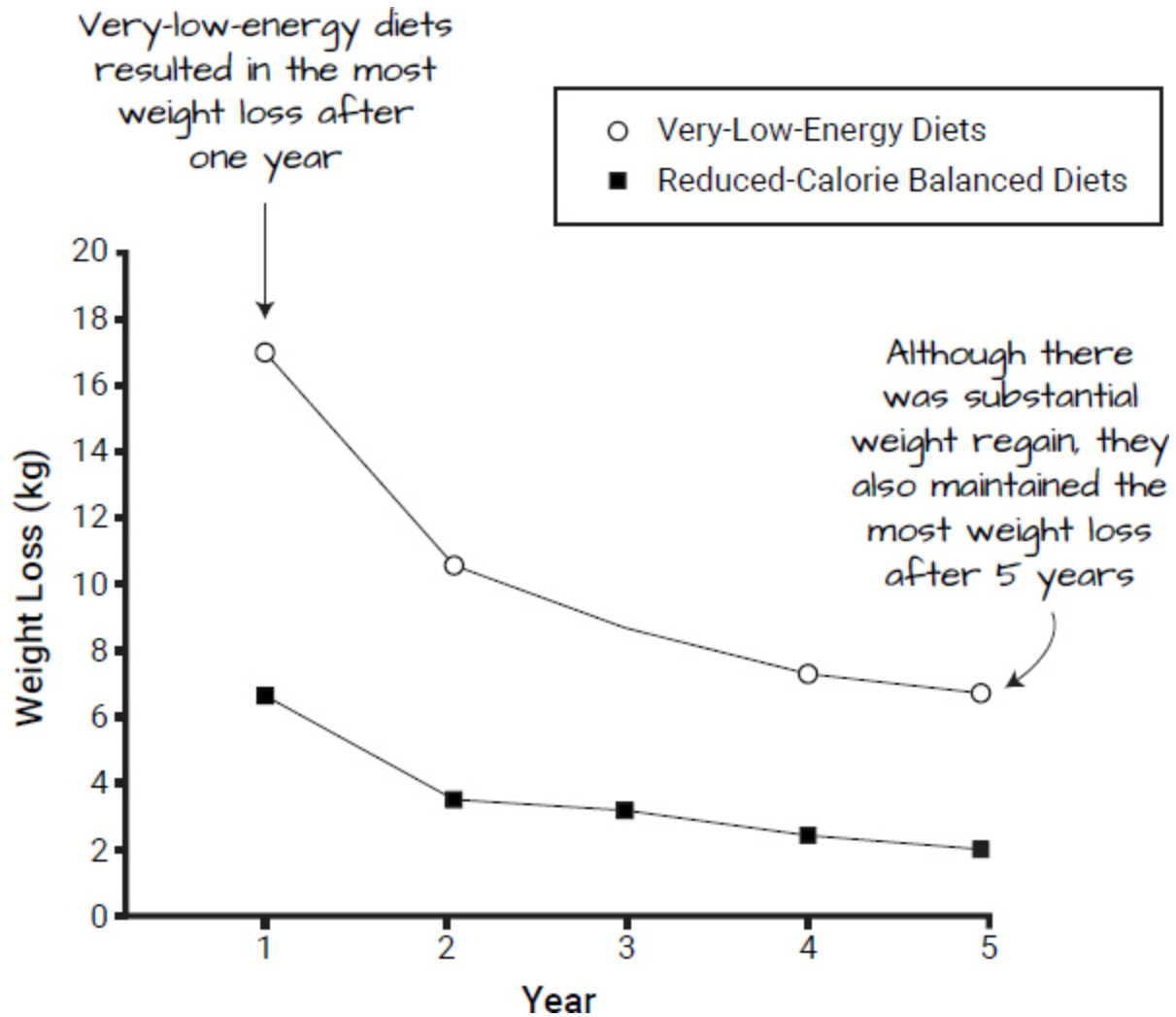
Rapid weight loss is a more common goal than gradual weight loss, which is understandable – we want to see results quickly to feel like we're succeeding. But let's discuss some of the pitfalls.

Is faster weight loss harder to maintain?

I don't think it would be a surprise to anyone that someone embarking on an extreme crash diet who loses weight rapidly may struggle to keep it off in the long term. Aggressive weight loss programmes and fad diets often don't tend to teach you anything about sustainable behaviours; you can't continue with habits you adopted to lose the weight, which is possibly one reason why they can result in weight rebound.⁶ However, this doesn't necessarily mean that all rapid programmes result in faster weight regain.

A review paper pooled together 29 studies which looked at weight loss maintenance rates and concluded that participants who started with more aggressive calorie deficits (therefore resulting in rapid initial weight loss) actually maintained more weight loss in the long-term.⁷ This means that if you lose more weight at the beginning, there may actually be a greater chance of keeping more of it off than if you had used a gentler approach, which sounds like it completely contradicts the 'go slow and be realistic with expectations' kind of advice. This meta-analysis compared long-term success rates of many different research studies, but it doesn't necessarily tell us the best way of doing things, it just confirms that rapid, very low calorie diets perhaps shouldn't be discarded as swiftly as some people would like to. Of course, we also need to acknowledge that some weight regain was

seen regardless of dietary methodology, which helps cement the notion that more focus should be placed on sustainability, not just initial change.



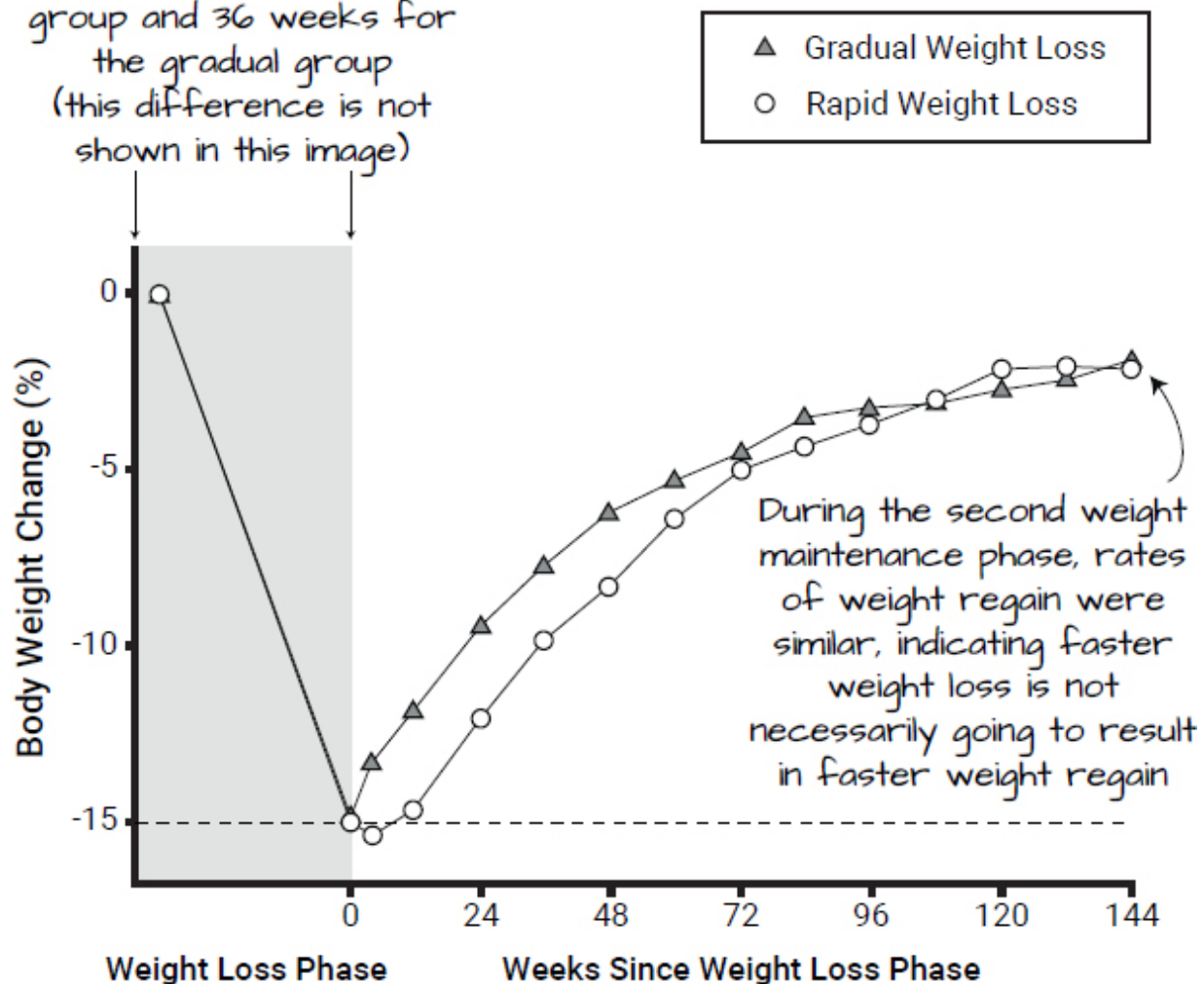
Average Body Weight Reduction Maintained over Time. Adapted from [7](#).

Rather than looking at some studies that used very low calorie diets and other studies that used less aggressive deficits, what we really need is research that directly compares them, head-to-head. Although people commonly gravitate towards wanting the fastest rate of weight loss possible, general industry diet advice defaults to the opposite position. If we promote slow and steady changes, perhaps it gives you

a chance to focus on sustainable behaviours rather than overhauling your diet to try and lose weight as quickly as possible, and perhaps this would be easier to maintain in the long run. To test whether this was actually the case, one study set a standardised weight reduction goal of 15% of participants' body weight. They either dieted gradually, aiming to get there in 36 weeks, or they dieted rapidly and aimed to get there in 12 weeks.⁸ After this, both groups transitioned into a weight maintenance phase that lasted 144 weeks.

Interestingly, the rate of weight regain in the maintenance phase was the same in both groups, indicating that dieting at a faster speed won't necessarily lead to faster weight regain. On top of that, more people dropped out of the gradual weight loss group in phase one, suggesting that it was difficult for some people to stick to. The researchers proposed that fast weight loss may actually be more motivating for some people, as they noticed participants in that group ramped up their physical activity levels, whereas those in the slow dieting group did not. This suggests that people may prefer instant gratification and that seeing the number on the scales going down is a reward for their work, which may encourage them to stick with the plan. The researchers also pointed out that dietary prescription for rapid weight loss is sometimes simpler – in this instance, participants were given commercially prepared meal replacements – as it takes the guesswork out of knowing what to do. Sometimes, giving people really simple advice to follow works better, even if the intervention seems much more extreme.

This initial dieting phase was 12 weeks for the rapid group and 36 weeks for the gradual group (this difference is not shown in this image)

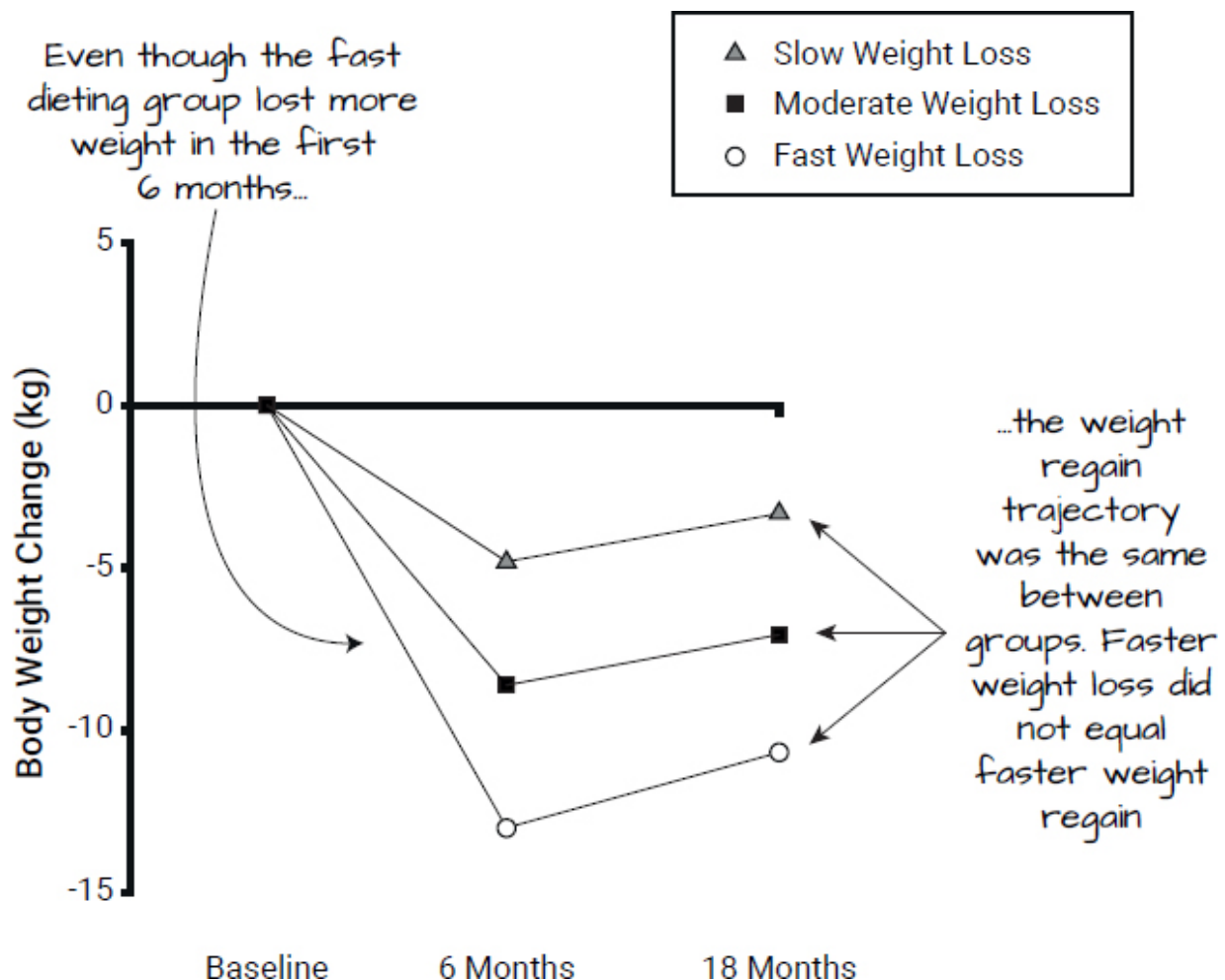


Average Weight Change During the Follow-Up Weight Maintenance Phase. Adapted from [8](#).

This is one big reason why so many people have opted for liquid meal replacement diets over the years – they are often sold as the most straightforward way to diet. Swapping your breakfast for a shake might not sound appealing to most people, but it is impossible to be confused by those instructions. Compare that to more complicated nutritional advice, like ‘calculate the number of calories you burn per day, put yourself in a calorie deficit by reducing that by a certain percentage based on how fast you want to lose weight, then aim to hit these specific macronutrient targets’ and you can suddenly understand

why simple has its place. A large percentage of the population won't even understand what the previous sentence means, let alone how to implement it.

This study isn't the only example of where slow-and-steady didn't beat speedy weight loss from a maintenance perspective. Another compared slow, moderate and fast rates of weight loss over a 6-month period followed by a 12-month extended care plan and once again, rates of weight regain were similar.⁹ Unlike the previous study where two groups had to lose the same amount of weight in different time periods, this one used the same duration for all three diets, meaning the 'fast' group lost more weight in the same time period.



Average Body Weight Change During a Weight Loss Period and Extended Care Plan. Adapted from ⁹.

These two studies show that if you diet more aggressively, you are not necessarily more susceptible to weight regain than if you diet gradually, which is contrary to what a lot of people would recommend. It is also possible that dieting faster actually promotes better outcomes because it could be more motivating, which may increase the likelihood someone sticks with it. Both of these studies also reiterate the importance of weight maintenance because irrespective of what happens in the initial phase, some weight regain appears to be pretty much inevitable. There is no dieting speed which guarantees zero regain afterwards, unfortunately.

Does dieting slowly help preserve lean body mass?

Another reason that gradual dieting is more commonly recommended is the idea that it may be better for holding onto precious muscle tissue. A lot of weight loss studies only measure total body weight and not actual body composition (i.e., how much fat mass and lean body mass someone has). On top of that, an overwhelming majority of studies do not incorporate any form of resistance training, so if you have the goal to preserve as much muscle as possible, the aforementioned studies don't really tell you the best way to achieve that. It is also important to consider gym performance; for example, some sportspeople need to diet periodically to compete in certain weight categories and, of course, they would want to maintain as much strength as they can in the process. Although there is a temptation for some people to approach it rapidly to get it over and done with, if they notice that all their lifts in the gym crash and burn, perhaps they would prefer to extend the dieting phase to minimise the chance of that happening.

One study looked at a group of elite athletes to test whether losing 0.5kg (1.1lbs) per week is better for retaining muscle tissue and gym performance than losing 1.0kg (2.2lbs) per week.¹⁰ This included both male and female athletes from a variety of sporting disciplines, but as it was in the off season, all of them followed the same resistance training programme four times per week and, on top of that, everyone was prescribed a daily protein intake of 1.2–1.8g per kilogram of

bodyweight – which is great, as consuming enough protein helps your body hold onto muscle tissue, which we will discuss in more detail in chapter eight. By combining a standardised weight training programme and a target protein intake, the researchers could help isolate the specific effect of dieting speed on body composition and performance.

What were the results? Participants in the slow weight loss group actually increased their lean body mass by an average of 2.1% (yay), whereas those in the fast weight loss group didn't. In addition, athletes who were dieting slowly had greater improvements in performance. Essentially, the researchers conducting this study suggest that if you want to maximise your muscle mass, strength and overall performance, dieting slowly is the preferred option. So, if you want to keep making progress in the gym, a gentler reduction in calories will work better, but it will take longer. Some of you, though, might prefer to just rip the band-aid off quickly, diet more aggressively and know that you aren't likely to set any personal bests during the weight loss phase.

Some later published trials compared rapid and gradual weight loss in other groups. For example, one study recruited a small group of postmenopausal women and put them on a reduced calorie diet with the goal of losing at least 5% of their body weight.¹¹ The theory behind this was that weight loss can help improve health risk factors associated with obesity, but little is known about whether the speed of weight loss would alter this, so perhaps dieting gradually would be healthier than dieting quickly. When comparing the results of participants who lost weight at different speeds, they found those who did it gradually preserved more lean body mass and had greater improvements in metabolic risk markers like blood pressure and lipid profiles – a double win for slow and steady.

Another study followed a very similar design where participants were prescribed a body weight reduction of 5%, but this time they were set specific calorie guidelines to get there, either a 500–750 calorie reduction per day in the slow group or a 1,000–1,500 calorie reduction per day in the rapid group.¹² Once again, despite the same

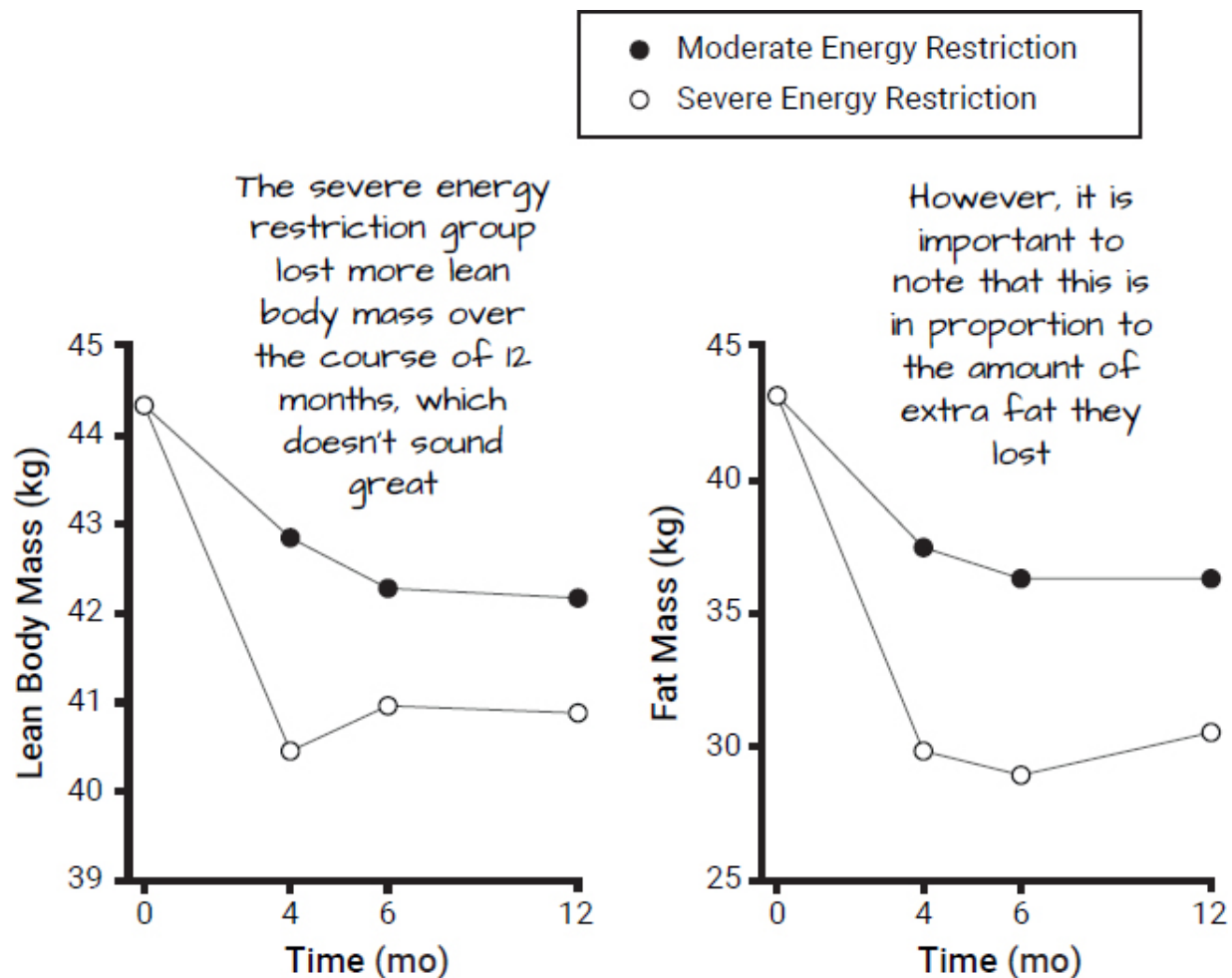
decreases in body weight, those who achieved it at a slower pace lost more body fat and less lean body mass than those who were more aggressive.

Although this may feel like a bit of a running theme, not all research points in the same direction.

Another study on postmenopausal women utilised a different approach and compared:[13](#)

1. 12 months of a 25–35% energy deficit, i.e., the ‘moderate’ group
2. 4 months of an extreme 65–75% energy deficit via meal replacement products, followed by 8 months of the same moderate energy restriction as group 1. This was the ‘severe’ energy restriction group

Unlike some of the previous studies, the goal was not for both groups to lose the same amount of weight, it was for them both to diet for the same period of time but with different calorie intakes. Obviously, the severe group lost more weight and, like we have seen before, they also lost more lean body mass, but the amount of lean body mass they lost was actually fairly in proportion to the overall change in body weight. The biggest difference between the two groups was that participants in the severe energy restriction group had a far greater decrease in hip bone mineral density, so the authors advised that although severe energy restriction is viable from a fat loss perspective, caution is necessary, especially if someone suffers from or is at risk of osteopenia or osteoporosis.



Changes to Body Composition in Postmenopausal Women with a Body Mass Index Between 30 and 40. Adapted from [13](#).

For a long time, rapid weight loss was discouraged because it was believed that the results would definitely be less sustainable and people would inevitably regain the weight faster, but now we have research showing that this isn't necessarily true. More aggressive calorie reductions can sometimes actually result in better outcomes, from a long-term weight maintenance perspective at least.

You could say that the evidence is inconclusive, which is why one study tried to find out what the underlying mechanisms of fast and slow weight loss might be by also incorporating metabolic rate and appetite-regulating hormone measurements.^{[14](#)} To do this, they divided participants into two groups. Both were going to lose the same amount of weight but one group would do it faster, in four weeks, and

the other group would do it slower, in eight weeks. After the initial weight loss phase, both groups would go through an additional weight maintenance phase. At the end of the weight loss phase, in contrast to a lot of other research, it was found that those who lost weight fastest did not lose more lean body mass. Also, strangely, participants who lost weight gradually actually felt hungrier than those who lost it quickly, which is the opposite of what you might expect. Resting metabolic rate (see chapter three) was better preserved when losing weight slowly, though, so both speeds had pros and cons. However, when both groups finished the dieting phase and went into the weight maintenance phase, all these differences were washed away. That's right, at the end of the trial, everything was basically the same between groups: body composition, hunger, appetite hormones and resting metabolic rate. As neither fast nor slow weight loss emerged as conclusively better than the other, the authors proposed that people could pick whatever dieting speed is easier for them to stick with, because it probably doesn't matter much.

The best way to summarise all this information is to turn to a meta-analysis that pools multiple studies together to try to give us an overall conclusion. One review paper included seven controlled trials and concluded that although there was a lack of good quality long-term studies, slower rates of weight loss appeared to be slightly better for fat loss and preservation of metabolic rate.^{[15](#)}

HOW CAN YOU PUT THIS INTO ACTION?

- There are several common pitfalls that many people stumble into when embarking on a weight loss journey. They start by setting hugely ambitious weight loss goals, then try to hit them as quickly as possible by adopting unsustainable behaviours, often sacrificing their health and wellbeing in the process. After a while, they feel that they can't keep it up forever, get disheartened and go back to what they were doing before, and the yo-yo dieting cycle begins. You are not going to fall into the same traps.

- If you already have an idea of how much weight you want to lose, it is tempting to debate whether you should try and lose this gradually or rapidly. However, please don't overlook other important considerations, like how you feel, whether your appetite is manageable, whether you are losing strength in the gym, etc. Don't charge headfirst into losing weight only to find you feel terrible and have no energy for doing anything enjoyable.
- Unless you have a requirement to lose a specific amount of weight in a specific timeframe, zooming out to the bigger picture and making changes you can sustain in the long term is a sensible idea. If your goal is to change your health or weight for the rest of your life, don't embark on habits that you can only sustain for a few weeks. It is quite possible to improve your health without ambitious weight loss goals, and it may be smarter for people to aim for a more modest 5–10% of their body weight if that's more sustainable than overly ambitious goals.
- Most people who lose weight don't remain at that lower weight long term, and this is regardless of how aggressively they diet. This is why it is crucial to look past the excitement of the initial dieting phase and focus on habits that are sustainable in the long run. Increasing your physical activity levels, improving the quality of your diet by prioritising minimally processed nutrient-dense foods, reducing your alcohol intake, improving your sleep quality and managing your stress levels are always good ideas. If your sole focus is on how much weight you want to lose, you may embark on unhealthy behaviours to achieve that goal, whereas healthy behaviours are always a good idea irrespective of how much you weigh.

- If you are determined to lose weight, dieting gradually is probably better for maximising how much fat you lose relative to lean body mass, as aggressive dieting is more likely to nudge you towards losing muscle tissue and strength. So if your performance in the gym is crucial, gradual dieting is what you want to opt for. There may also be other risks to aggressive dieting like nutrient deficiencies and bone mineral losses in susceptible populations.
- One of the biggest appeals of losing weight rapidly is motivation. If you see the numbers on the scales going down this can reinforce that what you are doing is working and that's always a nice feeling. I would strongly suggest not making the scales your only yardstick of success, or your yardstick of success at all, because nobody is ever going to lose weight forever. Everyone's weight loss will inevitably slow down at some point and if you only care about the number on the scales, this can be demotivating. If you can enjoy striving for other goals, like how strong you are in the gym, how far you can run outside or how many steps you take per week, these could help reinforce the health-promoting behaviour of physical activity, rather than letting the scales be your sole arbiter of success.

6.

WHAT DIFFERENCE DOES EXERCISE MAKE?

Solely from a health perspective, being physically inactive is associated with an increased risk of conditions like cardiovascular disease and type 2 diabetes as well as all-cause mortality.^{1,2} Therefore, we shouldn't be surprised that the potential health benefits of exercise are vast and diverse, including decreased risk of all-cause mortality³ and decreased risk of over 25 chronic medical conditions, including cardiovascular disease, type 2 diabetes, ischemic heart disease and hypertension⁴ as well as slowing down the decline of health and functioning associated with age.⁵ In short, when you look at overall trends across lots and lots of people, being physically active in some capacity is a really fucking good idea.

However, as our environment slowly nudges us more and more towards sedentary lifestyles, fewer of us are meeting general physical activity guidelines. For example, one study looked at the data of nearly 2 million participants across 168 countries and estimated that globally, more than a quarter of all adults were insufficiently active.⁶ Another estimated that for adolescents aged 11–17 this was even higher, coming in at over 80%.⁷ These studies used specific criteria, like performing at least 150–300 minutes of moderate intensity or 75–150 minutes of vigorous intensity physical activity per week, in line with recommendations from the World Health Organization.

For the purposes of this chapter, let's simplify the main types of exercise and divide them into the two broad categories most commonly studied for their role in changing body composition.

Aerobic exercise, also referred to as cardiovascular exercise. Think of movements that raise your heart rate that you can do for extended

periods of time. These can vary in intensity. If brisk walking raises your heart rate a little bit, as you increase the speed towards a jog or run, the amount of time you can maintain that faster speed will decrease. Think of intensity as a percentage of maximal effort, not necessarily how difficult something feels. Running as fast as your legs can carry you is extremely intense and you can only do it for a matter of seconds before you start slowing down, whereas a brisk walk or gentle jog that you can maintain for minutes, or hours, is less intense. Aerobic exercise can be anything from cycling, swimming and rowing to various sports like football, tennis or basketball.

Resistance training, also referred to as strength training or weight training. This can involve an external load like free weights, resistance training machines you would find in a gym and resistance bands, or it can be based on bodyweight exercises like push ups, pull ups and sit ups, etc. Generally, resistance training involves short durations of muscle strengthening work interspersed with rest periods, like doing a set of push ups, resting and repeating.

These two types of exercise are not necessarily binary choices though, they do sometimes overlap. For example, if you perform resistance training with multiple exercises and short rest periods in between them, it can feel increasingly similar to aerobic training. Similarly, if you crank up the intensity of your aerobic training really high, like sprinting at maximal effort for a short period of time, it starts to more closely resemble the energy systems used during resistance training – i.e. shorter bouts of work with subsequent rest periods.

Although the health benefits of each are not entirely separate, aerobic exercise tends to be the primary choice for improving cardiorespiratory fitness, while resistance training tends to be the primary choice when someone's goal is to increase muscle mass and strength. Historically, resistance training has been associated with gym bros obtaining vanity goals but it also has a role to play within health as well, like preserving bone mineral density and preventing sarcopenia, which is a loss of muscle mass and function commonly associated with ageing but also seen in certain diseases.[8,9,10](#)

Importantly, although there are general exercise recommendations, like aiming for at least 150–300 minutes of moderate intensity or 75–150 minutes of vigorous intensity exercise per week, you do not necessarily have to hit that target to improve your health. For a lot of people, that would be a very hefty increase relative to what they are doing currently. Those specific targets could inadvertently discourage people from doing anything because they could be taken to imply that they are the minimum required to receive any benefit at all.¹¹ If you wanted to increase your flexibility and someone said, ‘You should aim for 30 minutes of yoga per day, every day,’ would you be able to hit that comfortably? Some of you would, others would not. For those of you who would not, are you discouraged from doing any yoga because of the specified goal? Doing ten minutes a day would be better than nothing, so we need to be careful not to reinforce the idea that you need to cross a certain threshold to achieve any benefits whatsoever. Higher intensities of activity are also less feasible for some people, like those of us with injuries or disabilities.

A safe recommendation is that physical activity is good and doing something is better than nothing. It makes sense to aim for something manageable for you as an individual rather than immediately thinking you need to go from zero to hero overnight. Even walking more is associated with a reduced mortality risk, so just doing that would be a great start for lots of people.^{12,13,14}

Many factors will determine which type of exercise routine is ‘best’ for you, including your basic personal preferences. For example, I love weight training but having to drive a long way to get to and from the gym isn’t conducive for maximum convenience and frictionless behaviour change, plus not everyone can afford the membership at the gym that’s local to them. I have also trained clients who just hated the gym for various reasons, like not knowing how to use the equipment, feeling nervous that they are being looked at and judged by other people or simply not loving the whole idea of driving to a place to then train indoors. Likewise, some people love running outside and are able to do so easily, while other people might only have the option of doing this around their work hours when it is dark, wet, cold or

unsafe in the area they live. Going for a casual jog in the countryside on a designated running route on a pleasant summer's day isn't the same experience as jogging through a busy inner-city area on a winter's night, especially for someone who feels vulnerable jogging alone.

This is why it's a smart idea to have some flexibility when it comes to what workout recommendations you choose to follow. An exercise routine that looks perfect on paper means jack shit if you hate it so much you just won't keep on doing it. It's worth saying again: in a world that is becoming increasingly conducive to physical inactivity doing something is always better than nothing, so if you are brand new to exercise there is no need to overthink it.

The role of exercise in fat loss

From a body composition perspective, exercise is always going to play a role in weight management because, of course, moving more means we are also burning more energy, nudging us towards a calorie deficit (consuming fewer calories than we burn). That being said, it actually isn't a reliably powerful stimulus for losing weight in isolation. Although that surprises a lot of people, the explanation actually makes a lot of sense.

Do you remember when we discussed exercise activity thermogenesis (EAT) in chapter three? Most periods of exercise tend to be short. Someone going for a 30-minute jog three times per week is doing around 90 minutes of total exercise weekly. Let's say for easy maths they burn a couple of hundred calories each time. It is much easier to consume those calories from food than it is to burn them via exercise. You could grab a chocolate bar, energy drink or even a fruit smoothie from the gym on the way out and the energy content may be higher than the amount you expended during your workout. This is why even aerobic training – the common exercise of choice for fat loss – often delivers underwhelming weight loss results in isolation and needs to be paired with dietary changes.^{[15](#),[16](#)}

That's the simple explanation. The more in-depth explanation involves additional compensatory mechanisms that make weight loss

via exercise even harder than that. We already know from chapter two that if you prescribe aerobic training programmes to people without dietary advice, not only will many of them not lose much weight, but some will actually gain weight.^{17,18} It appears that exercise can increase hunger in some people, causing them to gravitate towards consuming more calories than they burned in the first place. In addition, when someone increases their calorie expenditure via exercise, it is possible that they may slightly decrease the amount they move for the rest of the day.^{19,20,21}

Cardio Cameron wants to lose some body fat, so they decide to start jogging three times per week. Over the course of a few weeks, they realise their weight hasn't changed much. This seems odd given they are definitely exercising more than they were before. If changing your body weight relies on consuming fewer calories than you burn, how can exercising more not result in weight loss? What they didn't realise was that when they started running their appetite levels crept up and they gradually started eating a little bit more than they did before. On top of that, after each running session they felt pretty tired, so when they got home, they lay on the couch and watched TV for the rest of the evening whereas normally they would spend more time on their feet. Yes, they burned more calories via exercise, but this was mitigated because their non-exercise activity thermogenesis (the amount they move around in regular life outside of exercise, see chapter three) decreased a little bit and then they consumed a little more food which wiped out the rest of the calorie deficit completely.

This is why aerobic exercise programmes in isolation don't reliably work. Although these compensatory mechanisms don't happen to everyone – some people find that when they start exercising, their appetite stays the same or even decreases – it's something for you to be aware of so you can mitigate some of these. For example, a step counter app that I forgot I had on my phone inadvertently showed me that if I train really fucking hard in the gym in the morning, I can sometimes spend the rest of the day barely moving, which from a calorie burn perspective is a bit like pushing and pulling at the same time. You may also notice that some forms of exercise make you

hungrier than others or more lethargic afterwards than others. If running makes you insatiably hungry, cranking up your running volume might not be the most efficient exercise tool in your toolbox if you want to lose body fat.

We must also remember that total body weight is not indicative of body composition, particularly if you diet aggressively, as some of the weight you lose will simply be water, stored glycogen and maybe even lean body mass. It is possible to simultaneously increase lean body mass as you are losing body fat²² and this is best achieved via resistance training, as it tends to be more effective for building muscle tissue than aerobic training.²³ This is one of many reasons why lifting weights is recommended when dieting because although weight loss effects of resistance training are minimal, it can preserve or even increase lean body mass at the same time.²⁴ Also, as muscle tissue uses a little bit more energy than fat tissue does,²⁵ retaining as much of it as possible when dieting is likely a sensible strategy to help preserve your metabolic rate. So, although aerobic training is most frequently recommended as the best tool for weight loss, if you want to make sure any weight you lose is primarily coming from fat tissue, resistance training is a great addition to your exercise routine.

Solely from a body composition perspective, exercise will never be more powerful than dietary changes when it comes to reducing your body weight. It takes far more time and effort to expend energy relative to how easy it is to consume it. Aerobic-only exercise trials do tend to promote weight loss, but this is primarily seen when doing much higher workloads than most people will easily achieve and even then, without accompanying dietary advice, there are still some people who do not lose weight or even gain it.^{17,18} However, being physically active is a fucking brilliant, unanimously agreed upon practice for health purposes, and it can have the power to influence your body composition even when your body weight doesn't change.

In an ideal world, a great goal would be to have an exercise routine that involves both aerobic and resistance training, like aiming for at least 150 minutes of moderate cardiovascular exercise per week plus at least a couple of resistance training workouts.²⁶ However, we

know that some health benefits of being physically active are obtainable at much lower doses, so it is a good idea to be realistic with your expectations and not beat yourself up if those targets seem totally out of reach.

Now you know the basic principles of different exercise modalities, let's dive into some of the deeper details.

Does aerobic exercise intensity matter?

At one end of the aerobic exercise intensity spectrum is low intensity steady state, also referred to as LISS, and at the other end is high intensity interval training, also referred to as HIIT. One involves plodding along at a gentle pace for extended periods of time and the other involves going flat out for brief periods and then slowing down or resting completely to recover. There is also moderate intensity, which obviously sits in the middle of the spectrum, and, depending on how people define it, it involves working at a higher heart rate or aerobic capacity than low intensity. To make it easy, sprinting for ten seconds at maximal pace and then resting for two minutes is high intensity interval training; maintaining a brisk walk is low intensity steady state and jogging is medium intensity steady state.

Which of these is better for fat loss is hotly debated. Those who favour steady state training may claim that training at lower exercise intensities uses more fat for fuel. This is kind of true because as you start exercising at higher intensities your body will switch away from using fat for fuel towards using carbohydrates, something known as the 'crossover point'.^{[27](#)}

In super-simplified terms, this means that if you are walking, a higher percentage of the energy you burn will be coming from fat, if you began jogging you would start switching towards carbohydrates, and if you ran really fast you would start relying on carbohydrates. This is the main reason why many people train in specific 'heart rate zones' for maximal fat loss. Although it sounds exciting, there is a major drawback to this because although you are burning more fat percentage wise when you are training at lower intensities, you are also burning less energy in general, making the difference pretty

insignificant. Also, the fuel source you use during your workouts doesn't necessarily have an impact on how much body fat you burn over the course of several weeks or months. Think of it like this: you could consistently exercise at a specific training intensity to try to burn as much fat as possible, a zone known as 'maximal fat oxidation',^{[28](#)} but if you also consumed more energy than you burned, you would not expect to lose fat in the long term, making it redundant.

One of the arguments in favour of high intensity interval training is that it increases the amount of energy you continue to burn post workout, known as 'excess post-exercise oxygen consumption' (EPOC), also informally referred to as the 'afterburn effect'. It has been shown that doing shorter bursts of high intensity work could increase EPOC more than continuously training at lower intensities.^{[29](#)} If you continue to burn more energy after each workout and you do this several times per week, perhaps over time it will tally up to a difference large enough to result in more fat loss, which makes perfect sense.

Basically, there are people who think low intensities are best for fat loss and other people who think high intensities are best for fat loss, and both have some sound rationale to base their opinion on. Ultimately, to know whether aerobic training intensity plays a significant role in how much body fat you lose, it is best to look at research trials that actually measure that and not just the source of energy someone burns during or after their workout. One meta-analysis pooled together dozens of research studies that all compared different training intensities and guess what it found? From a fat loss perspective, it doesn't actually seem to matter much at all.^{[30](#)}

Practically, there are reasons you may prefer one type of training to another. For example, if you are short on time, you may prefer cranking out some higher intensity work because it is more time efficient, or perhaps you just enjoy training harder and faster. Alternatively, if you are brand new to exercise you may prefer easing yourself in gently to allow yourself to feel more comfortable working out before you decide to see how your body feels when you push it harder. From a body composition perspective, it isn't a make-or-break

situation, so it makes sense to do whatever you prefer, as finding a form of exercise you enjoy enough to actually stick with is far more important.

Does it matter if you train fasted?

There is a common theory that if you train first thing in the morning on an empty stomach you will burn more body fat than if you train after a meal. The basic idea is that by not having any food to utilise for energy, you will switch to using stored energy instead, as if body fat is behind a locked door and fasted exercise is the magic key to open the door and set it free. On paper, this sounds like it makes sense because consuming food prior to exercise can blunt the breakdown of fatty acids, which is a key fat loss process.

This has been measured in the short term by getting people to exercise after an overnight fast. It was found that if they drank something sugary it raised a hormone called insulin and this resulted in decreased fat oxidation compared to training on an empty stomach.³¹ In simple terms, eating food prior to working out may be worse for fat loss, especially if that food is high in carbohydrates, so that is where the fasted cardio hype stems from.

The rationale seems sound but as we already know, measuring things in the short term isn't necessarily predictive of what happens in the long term, and this appears to be another one of those instances. Let's think about this logically: if you had a small sugary drink prior to exercise but then ate nothing else for the rest of the day, is that teeny tiny carbohydrate intake really enough to stop you losing fat? This implies carbohydrates have some absolutely profound anti-starvation properties, which real-world evidence doesn't support. Ultra-endurance athletes need to smash back a metric shitload of carbohydrates to fuel their races and the high workloads still make them susceptible to rapid weight loss unless they are very diligent, so the idea that a single meal prior to exercising is enough to halt all fat loss processes in their tracks sounds a little silly.

Whether you are using fat as a fuel source during your workout specifically is like looking at a jigsaw through a straw: you are only

looking at part of the puzzle and missing the rest. We know that you can lose fat without exercising, so whether you are burning the absolute highest percentage of fat during your workout window seems somewhat redundant because fat loss happens over an extended period of time and doesn't even hinge on whether you exercise or not, let alone what fuel source you are predominantly burning during your workout.

If someone thinks they *need* to train fasted to burn body fat, they are wrong, unequivocally, but is it possible that fasted cardio might give a little bit of an extra edge, like the cherry on top of a cake? To know whether it is superior, you need a head-to-head trial that actually measures body composition at the end of it, not just the fuel source being used during the workout. For example, in one trial, two groups followed the same weight loss plan by reducing their calorie intake and completing three aerobic workouts per week over the course of four weeks, but one group trained first thing in the morning on an empty stomach and the other trained after eating.^{[32](#)} At the end of the trial, there were no significant differences between the groups, discrediting the idea that fasted cardio is a shortcut to faster fat loss. Other research has come to the same conclusion; when testing high intensity interval training in either a fasted or fed state for six weeks, body composition changed but this was regardless of whether participants ate prior to training.^{[33](#)}

Long story short, based on the limited research that is available now, there is no really strong evidence that training fasted will have a pronounced fat loss effect compared with eating before working out, so it is a sensible idea to pick based on personal preference.^{[34](#)} This is influenced by loads of things including lifestyle factors, like your work schedule, your sleeping patterns and maybe even what time your gym is open but may also depend on what type of training you are doing. For example, going for a morning walk when you wake up might feel super lovely and refreshing to some of you, but if you try doing a hard weight training workout immediately after dragging yourself out of bed, there is a strong possibility that your performance will take a

nosedive if you aren't used to training at that time, until you get used to it at least.³⁵

Is it easier to slot exercise into your daily routine if you train first thing in the morning? If so, whether it is 'better' or not doesn't necessarily matter because doing something beneficial consistently will beat doing something great inconsistently. If you are crunched for time, do you feel and perform better if you eat something first, even if it is small? If you enjoy your exercise more when you have food in your stomach and it allows you to train harder, that's bound to be a winning choice. For most people, trying to stick with an exercise regime for a long time is half the battle and worrying about finer details is arguably more stress than it is worth, so I would strongly suggest not overanalysing it unless you are a highly advanced trainee already.

What are the most important things to consider?

You may notice a bit of a theme emerging, some things that sound super exciting on paper probably aren't worth stressing about, in my opinion. That is not to say that none of these make any difference at all, it is simply that the difference they make is probably small enough that most people shouldn't panic over whether they do them or not. If you are a fitness model trying to temporarily take as much fat off your body as possible for a lucrative photo shoot, by all means you may want to stack every single odd in your favour in the hope that they all combine to make a teeny tiny difference, but given that a large percentage of people don't do a lot of exercise, I don't want to add unnecessarily complicated advice which sometimes does nothing other than create extra barriers to behaviour change.

There is one basic principle though that I would be remiss not to discuss and that is a concept known as 'progressive overload'. Although it is not necessarily specific to fat loss (which we know can be achieved even without exercise) it can play an integral role in

maintaining or increasing lean body mass, which is a sensible idea when dieting. Progressive overload means giving your body additional stimulus to adapt to, which basically means just doing more over time. For example, if you can do ten push ups and you want to get stronger or increase your muscle mass, it makes sense that over time you try and do 11, then 12, etc. If you are training with weights, gradually increasing the load so you are lifting with progressively heavier weights will yield more strength and lean body mass gains than repeating exactly the same thing over and over again. If you want to increase your aerobic fitness levels, doing the same 30-minute walk you have always done isn't going to have the same effect as gradually increasing the speed, duration, or incline. On the totem pole of importance, this is something I would place near the top. In fact, if I could pick any fitness advice to announce over a megaphone to the world, it would simply be to find a form of exercise you enjoy enough to actually stick with and then try to improve on it over time. A lot of the other details, like worrying about the best time of the day to train, whether you should train fasted, whether you should do weights before aerobic work or vice versa, are like worrying about what colour to paint your house before it is even built yet.

HOW CAN YOU PUT THIS INTO ACTION?

- If you want to lose weight, exercising more on its own actually isn't a very reliable tool. This is because most workout programmes don't have a very high energy cost and your body can compensate by craving more food or it can result in you being less active during the rest of your day, wiping out the small calorie deficit that your workout helped create. This is why dietary changes are always going to be more important and you should prioritise your attention there. From a weight loss perspective, consider dietary changes as your main course and exercise more like a side dish.

- However, exercising has a bazillion other benefits that are more important. Even if exercising more doesn't cause you to lose a lot of weight without any accompanying dietary changes, it can still help promote fat loss and lean body mass growth. Most importantly, being physically active is one of the most universally agreed-upon behaviours for health purposes.
- You do not want me to attempt to write you a workout programme in this book. You all have different circumstances, abilities and preferences so there is zero chance I can write a programme template that is suitable for all of you reading this. Trust me when I say it just isn't in your best interests.
- Generally speaking, our overall environment is nudging us all towards physical inactivity. Just like dietary interventions, adherence is absolutely crucial. What looks best on paper is irrelevant if you hate it and don't stick to it in the long run. Unless you are already sufficiently active, the first priority is finding literally any form of physical activity that you enjoy, no matter how small. It's probably a good idea to start with smaller goals that are achievable and scale up, rather than jumping in at the deep end with something unrealistic. If you can find a form of exercise you stick with long enough to turn it into an engrained habit, you have done really well.
- Ideally, exercise should be progressive. Your body adapts to the stimulus you impose on it. If you want to get stronger at push-ups, over time, you'll need to increase the number or difficulty. If you want to progressively increase your running stamina, you will want to run further or faster. You can't always see the benefits of exercising, so having other yardsticks to let you know you are making progress can be helpful. If you notice yourself getting stronger or feeling fitter in everyday life,

these are positive rewards that can encourage you to keep going.

- To make things more enjoyable, try and play to your own psychology. Do you prefer working out alone or with someone else? Do you feel more motivated if you track your workouts so you can see what progress you have made? Do you prefer working out in the morning before work, or squeezing in a short workout on your lunch break? Do you prefer being outside or inside? Do you prefer lifting weights or doing body weight exercises? There are many variables you can choose to suit your circumstances and preferences.

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7.

HOW DIFFICULT IS MAINTAINING LONG-TERM WEIGHT LOSS?

Here is the secret that most weight loss books rarely discuss: while short-term weight loss is relatively simple, long-term weight loss success rates are notoriously low. Although it is a well-established fact in the research literature, people don't like talking about it because it removes some of the magic of whatever diet they are twisting your arm into believing will change your life. Most people would never agree to follow a plan if the person selling it said, 'This will work really well, but only for a few weeks,' because it ruins the illusion of it being the revolutionary key that unpicks a difficult lock. The weight loss industry finds desperation extremely easy to sell to. I suspect that the more someone is struggling to lose weight, the easier it is to convince them you have the coveted solution.

Most people do not want to lose weight temporarily, unless they have a one-off specific goal like stepping on stage for a bodybuilding contest, cutting to compete in a weight-mandated sport or perhaps losing weight for a big occasion, such as a wedding or holiday. The majority of people reading this will probably have 'dieted' at some point in their life and noticed they get slimmer, even if for a mere few weeks. You could follow the most ludicrously restrictive plan in the world – like drinking nothing but celery juice smoothies for a week – and, of course, you will lose weight. Though needless to say nobody would ever condone this as a sensible idea. One of the problems is that people rarely consider what is going to happen afterwards. You will often see article headlines in glossy fitness magazines like, 'how to lose 10kg in a month' or some shit similar to that. They sell people the dream of rapid results, while sustainability is rarely even acknowledged, let alone discussed in detail.

If you surveyed 1,000 people at weight loss clubs and said, ‘On diet A, you will lose 10kg in a month and on diet B, you will lose 1kg in a month,’ which one do you think people would pick? Diet A, of course. How many people would even ask what happens after month one? Probably not many – and therein lies a major problem. If people don’t even realise that long-term weight maintenance is difficult, why would they care what route they pick in the initial weight loss phase?

So, what does happen after the diet is over? Oftentimes, people revert back towards how they were eating before. And unsurprisingly, they regain at least some of the weight they lost. However, that is definitely not the only reason that long-term weight loss is difficult, so let’s dive in.

The difference between weight loss and weight maintenance

Back in 1959, a research paper was published that openly criticised how obesity was typically treated. We all know that body weight changes hinge on energy balance: if you consistently consume more calories than your body burns you will gain weight, and if you consistently consume fewer calories than your body burns you will lose weight. We also know that it isn’t that simple; you cannot just tell people to eat less food, send them on their way and expect to see successful life-long changes. But that was exactly what was happening. Physicians were to ‘explain that semi-starvation reduces fat stores, to prescribe a diet for this purpose and to sit by’.^{[1](#)}

Let me paint you a picture. Imagine you come to me as your personal trainer and say, ‘Hey Ben, I have been struggling to lose weight, can you help me?’ In response, I hand you a piece of paper with a diet on it and tell you I will see you in a few months. How would you feel? Have I actually taught you anything new? Is there a reason to believe that out of all the failed dieting attempts in the past, this one is going to be magic? Probably not, because, as we already

know, the factors that drive eating and exercise behaviours are multifaceted and complicated.

When these researchers looked back at previous dietary interventions, they noticed several really big problems with how ‘success’ rates were recorded. Here are some examples.

- Some studies reported the number of participants and the amount of weight loss as a total group, not everyone’s individual results.
- In instances where some participants dropped out of the trial, their data was simply excluded from the final report.
- Some trials reported the rate of weight loss in very short duration trials and sometimes without even specifying the length.

To give a hypothetical example, imagine I took 100 of you reading this book and prescribed you all a diet so low in calories and restrictive in nature it made you feel like shit and also so ravenous that you wanted to chew your own arm off. A lot of you would rightfully say, ‘No, thank you, fuck this,’ and go back to how you were eating before, but instead of that being a mark against my dietary prescription I could just label you as ‘uncooperative’ and exclude your data completely. This is super-convenient for me because I don’t have to admit that the diet I gave you was terrible; I can just point the finger at you for failing to adhere to it. I can then take the small number of people who managed to make it through month one and report how ‘successful’ the drastic weight loss programme was, despite the fact that one month is just a tiny snippet of the timeline of life.

We know that weight loss in the short term is fairly simple and can be achieved with any calorie restricted diet, but this doesn’t automatically mean that any diet is a good idea because lots of people lose weight temporarily only to gain it all back again. We also know that losing weight via any means necessary can sometimes cause collateral damage to our mental health and well-being.

Here is something really crucial that I want you to be aware of: a lot of weight loss trials only last a few weeks or months. It is rare for them to measure people over the course of a year or more because it is a lot more difficult to organise and also costs more money. For example, if we want to know if low-carbohydrate diets are better than low-fat diets or intermittent fasting diets are better than traditional diets, you might get two groups of people and compare the diets head-to-head over a few months, but then we don't know what happens after that period.

This research paper in 1959 proposed the revolutionary idea of not only prescribing an initial diet but actually checking in later on to see the success rates down the line.¹ To do this, they took 100 patients from the New York hospital who were referred to their nutrition clinic because of their high body weights, put them through an aggressive dietary intervention of just 800–1,500 calories per day, then their charts were looked at over two years later to see how they were doing. Here is what they found:

- Of the initial 100 patients, 39 did not return to the nutrition clinic after the very first visit – the sign of a very high early dropout rate.
- 28 did not return to any clinic of the original hospital that referred them.
- Of the patients that continued in the study, 12 of the original 100 succeeded in losing 20lbs or more at any point in the trial (20lbs was one of the two yardsticks for success).
- Only one patient was able to lose 40lbs or more at any point during the trial (40lbs was their other yardstick for success).
- By the end of year two, only two of the original 100 patients were classed as 'successful', managing to maintain a weight loss of at least 20lbs.

When the researchers in the above study were looking to set their yardsticks for weight loss 'success', they reviewed the results from several previous studies and found that only 5% of patients were

considered ‘successful’ when the yardstick was set at losing 40lbs or more. This is the origin of the now commonly used phrase ‘95% of diets fail’. While this is horribly misleading – because you cannot conclude ‘95% of all diets fail’ just because only 5% of participants in studies from over 60 years ago achieved the arbitrarily set goal of a massive 40lbs of weight loss – it does show us that typical obesity treatment had many flaws, and many of them still exist today.

For example, is anyone else uncomfortable with the use of the categorisations of ‘success’ and ‘failure’ in this trial? Just to clarify, losing 20lb was considered the lowest yardstick of ‘success’. Therefore, anyone who was within 19lbs of their starting weight was deemed a ‘failure’. Imagine going on a low-calorie diet, losing weight and keeping off 19lbs for two years only to be classed as a failure. I don’t know about you, but I think that would fucking suck. They picked the numbers 20lbs and 40lbs as the black-and-white yardsticks of how to measure success, but nothing else really gets considered. If someone lost 10lbs, significantly improved their health markers and felt healthier and happier in the process they would still have been viewed as a ‘failure’ by weight loss standards. Personally, I would rather prioritise health and aim for modest and sustainable weight loss than strive for a rapid, often temporary change on the scales without considering anything else.

The percentage of people who ‘succeed’ at long-term weight loss, however, largely depends on what group of people you look at, because some results are much more optimistic than this early research paper from 1959. For example, one review paper discussed the perception that people rarely succeed at long-term weight loss and countered it with findings from the National Weight Control Registry, where the ‘success’ rate was a more optimistic 20%.² In this instance, ‘success’ was defined as losing 10% or more of your body weight and maintaining it for at least one year. It is important to point this out, because if the definition of ‘success’ is different, of course the percentage success rate will also be different. This certainly sounds more positive than the 1959 conclusion that only 5% of people are successful, but once again, it is worth considering why. In this

instance, people self-select whether they enrolled in the registry, so perhaps the figures represent 4,000 people who were highly motivated. We can't assume the same numbers would be seen in other groups of people.

Whatever study you look at, however, the fact is some degree of weight regain after that initial period of weight loss is pretty much inevitable, regardless of the initial diet someone started with.³ That being said, just because some weight regain is common, lots of people are still able to maintain a reduced body weight in the long term.⁴ Personally, I don't love describing weight regain as 'failing' for various reasons, but one outcome that lots of people don't consider is what would have happened if someone hadn't participated in the weight loss programme at all? If someone's weight trajectory has been trending upwards throughout their adult life and then they intervene and hold it steady for five years, is it fair or accurate to call that a 'failure'? I don't think so.

Why is long-term weight loss so difficult?

While it is impossible to accurately conclude what percentage of people are 'successful' in the long term, we can at least acknowledge that the success rate is much lower than we would want it to be. Nobody can deny the prevalence of yo-yo dieting, so it shouldn't be surprising to hear that a lot of people who lose weight do eventually gain most or all of it back.

The big question is, why? Well, there are a huge number of factors that could come into play and it is difficult to fully understand them all. But starting at a very basic level, a likely contributing reason is that some people are adopting a protocol they simply don't enjoy. For example, if you were participating in a low-carbohydrate trial and you lost weight on a 12-week diet but you actually love potatoes and rice, it is very likely that at some point you would fall off the low-carb wagon and revert towards how you were eating before.

Another likely factor that impacts weight maintenance success is whether there is any follow-up treatment. One systematic review looked at trials that did not have any continued interventions after the

initial diet phase and concluded that a majority of studies show ‘individuals with obesity are not successful in maintaining weight loss over time’.⁵ This is a very damning conclusion. But they specifically looked at studies that had no continued support. They also noted, however, that several studies they didn’t include actually did report that the majority of participants achieved a satisfactory level of weight loss, and especially in those studies with ongoing interventions.

Hypothetically, if you were given a diet plan and waved on your way, what do you think might impact your ability or inclination to stick to it? Perhaps you don’t enjoy it. Perhaps you have questions about it but nobody to ask. Perhaps you think you are sticking to it, but your adherence slowly dwindles over time. Perhaps having nobody to check in with at all reduces your accountability, in the same way that handing in your homework at school on a Monday might nudge you to do more work over the weekend, but being left entirely to your own devices might result in you not doing any work at all.

This is where more comprehensive approaches to weight loss might have merit. The study with the highest weight regain rate on the last review paper simply contacted participants five years after they completed a previous weight loss study. There was no ongoing support or communication of any kind during that five-year period.⁶ If you followed a diet for a while and were then contacted five years later out of the blue, do you think you would still be following the diet? No right or wrong answer here, just something to think about.

However, if we look at one of the papers that the previous review didn’t include because the study had ongoing support, five years after the initial diet period, 20% of participants maintained all the weight they lost, and 25.5% of the participants maintained an additional 10% weight loss on top of that, despite all of them previously reporting several failed diet attempts.⁷ One of the biggest differences here was that it was a ‘multidisciplinary’ approach, which not only prescribed a low-calorie diet, but also physical activity, nutritional education and cognitive-behavioural techniques based around issues like self-control and relapse prevention. On top of that, participants revisited the hospital for one day every four months for motivational

purposes, saw a psychologist for a minimum of ten sessions and received regular diet reviews.

All of which seems to have worked for nearly half of participants. But what about the rest? What were the reasons that some people regained the lost weight, even while on this comprehensive plan? One of the main culprits was overeating outside of hunger, such as loneliness, depression and anxiety, all of which can be potent influences on the desire to eat, as we have talked about in the section on emotional eating (chapter two). Perhaps individuals who eat in response to negative emotions may be better suited focusing on emotional regulation skills rather than simply being prescribed a low-calorie diet.⁸

If we look at a study with even higher success rates, one paper found that ‘clinically meaningful’ weight loss of more than 5% of their body weight was seen in 50% of participants and 25% achieved greater than 10% weight loss even eight years later.⁹ So why did this study result in much more optimistic figures? Like the previous study,⁷ they also utilised an intensive lifestyle intervention, which not only included dietary advice but also meetings with dietitians, psychologists and exercise specialists. The reduced-calorie diet was also multi-phased and multifaceted, starting off with specific calorie targets that were adjusted over time; participants had the option of meal replacement shakes if they wanted them and the plan prioritised food with a low energy density, which we discussed in chapter four. Taken altogether, this level of support is very comprehensive and is probably why participants did so well.

Here are some examples of what was included:

- Participants were set physical activity targets, starting low to assess tolerance and then increasing over time (the benefits of which we discussed in chapter six)
- They were also encouraged to increase lifestyle activity (NEAT, see chapter three) by using stairs rather than elevators, walking instead of using transport and reducing the use of labour-saving

devices. At times, they were set targets based on daily step count, like aiming for 10,000 steps a day

- They were taught behavioural modification techniques, including self-monitoring food intake and exercise habits, eating at regular mealtimes and coping with negative thoughts related to overeating. The researchers considered self-monitoring techniques to be the most important, and we will be discussing these in detail later in the book (chapter 13).
- They also included problem-solving strategies. For example, if someone's adherence to their exercise programme was low, they might advise working out with a friend or make a referral to an exercise class or a personal trainer to help with accountability. If anyone started seeing significant weight regain, they could go back towards the initial weight loss phase of the plan.

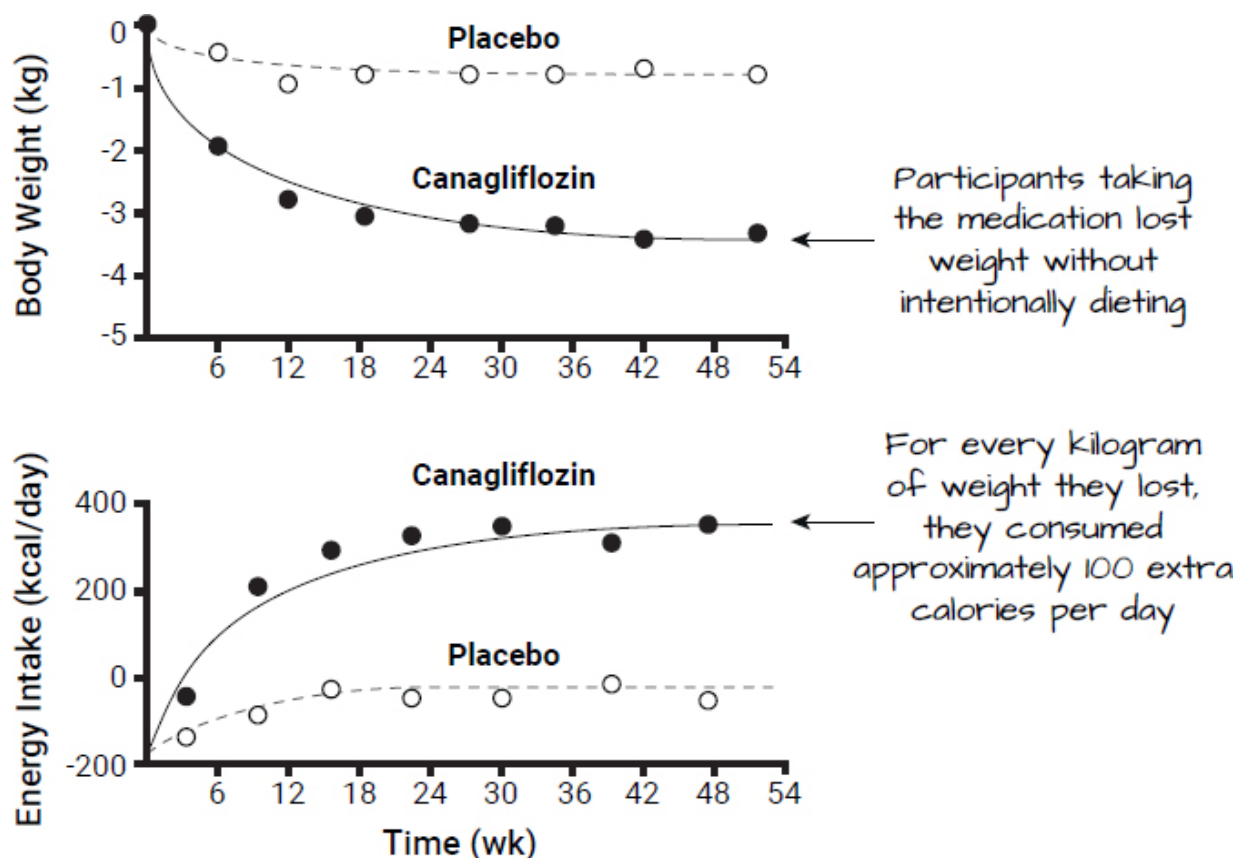
You will notice that this is in stark contrast to the idea of handing someone a piece of paper with a diet plan on it and waving them on their way, right? So let's categorically say goodbye to the belief that you can just prescribe any random low-calorie or fad diet and expect everyone to stick with it. Instead, let's say hello to more empathetic, comprehensive weight loss strategies that focus on long-term outcomes instead.

Are there biological changes that make weight maintenance harder?

If you speak to people who have lost a lot of weight, chances are you will hear a recurring theme that they feel hungrier than they did before. Appetite is extremely multifaceted and just the idea of being on a restrictive diet can change people's views towards food intake. For example, if you tell someone that they absolutely cannot eat their favourite foods for a certain amount of time, there is a possibility that they may suddenly start thinking about that specific food more than ever. This makes it difficult to quantify if weight loss itself impacts

appetite because the psychological impact of restricting your food intake is intertwined with it.

If you want to separate the process of losing weight from the psychology behind intentionally restricting what you eat, you somehow need to create weight loss without people knowing that it is happening, but how do you do this? One study gave participants a pharmaceutical intervention that covertly put them into an energy deficit, so they slowly lost weight without knowing they were 'dieting'. It was estimated that for every 1kg of body weight the subjects lost, their appetite increased by about 100 calories per day.¹⁰



Average Body Weight and Energy Intake Changes During Placebo and Pharmaceutical Intervention. Adapted from ¹⁰.

If we use this ballpark estimate and calculate it upwards, if you lost 5kg and your hunger levels were nudging you towards wanting to consume 500 calories more per day, that absolutely would make

weight maintenance harder. If someone lost 10kg and their appetite levels increased to the point where their body craved an additional 1,000 calories per day, that would make things harder again. This is just an estimate so it wouldn't translate perfectly for everyone – some people may notice that their hunger levels change a lot and other people might not. Also, it wouldn't necessarily be linear irrespective of how much weight someone loses. But it does show you one of the mechanisms where it may feel like your body is fighting back, especially if you reduce your body weight by a lot. So it is no surprise that people's calorie intake often creeps up over time. However, on top of that, it is also possible for certain metabolic changes to occur, known as 'metabolic adaptation' or 'adaptive thermogenesis'.

What is metabolic adaptation?

As we have already discussed in chapter three, when you lose weight, it is expected that your total daily energy expenditure (TDEE) will decrease because the number of calories you burn on a daily basis will go down as your body requires fewer calories to maintain a lighter version of you.

Some people panic about this, claiming that reducing your calorie intake 'crashes your metabolism'. If you hear people talking about 'starvation mode', this is often what they are referring to – the idea that your body slows down and gains body fat even in a calorie deficit. That isn't even a little bit true. If you put people on low-calorie diets, they will lose weight reliably. However, it is true that the number of calories you burn per day goes down in tandem, so it may feel like losing weight becomes harder over time – even if the idea of gaining body fat in a calorie deficit is nonsense.

One of the reasons people tend to put weight back on after dieting for a while is they don't realise they need to adjust their food intake over time. If you reduce your calorie intake a little bit and increase your physical activity a little bit you will lose some weight, but at some point your body won't need as many calories per day as it did when it was at a higher weight and you will therefore no longer be in a calorie deficit. Hitting weight loss plateaus is not only normal but

pretty much inevitable; however, many people become discouraged and revert to what they were doing before they embarked on their diet. They jump off the metaphorical diet wagon when it seems like it isn't working anymore.

If someone goes on a diet plan for a few weeks and then swaps back to what they were eating before, they will regain the weight they lost because their total daily energy requirements are now lower than they used to be. This is another reason not to follow super-restrictive diet plans you can only stick to temporarily as it's likely you will then revert back to whatever you were doing before when the overly restrictive diet inevitably loses its appeal.

Metabolic adaptation or adaptive thermogenesis is where the number of calories your body requires changes disproportionately to how much your body weight changes. Basically, your body weight goes down but your metabolic rate goes down a little bit more than anticipated. In practical terms, this means that if you lose weight you might then require fewer calories than someone who has always been at your new weight. Which could make weight loss maintenance harder as you would have to eat even fewer calories than if that had always been how much you weighed.

To what degree does metabolic adaptation occur?

The most extreme reports of metabolic adaptation seem to only occur in the most extreme weight loss trials.

THE MINNESOTA STARVATION EXPERIMENT

During the Second World War, the Minnesota Starvation Experiment, also known as the Biology of Human Starvation, used male volunteers who objected to war but agreed to subject themselves to semi-starvation in order to better understand the effects of severe food deprivation and subsequent refeeding.^{[11](#)} In one of the most brutal weight loss trials ever, participants had their calorie intake cut by nearly half and primarily only ate foods available in war-torn areas like potatoes, turnips, rutabagas/swedes, bread and macaroni. If you

think this doesn't sound like much fun, just to make it extra bad, the average starting weight of the participants was only around 70kg (154lbs), so it wasn't like they had a lot of body mass to play with. To make it even worse, they had to follow this diet for six months. By the end, most participants had lost more than 25% of their body weight and experienced severe side effects, including fatigue, anaemia, irritability, extreme weakness and lower extremity edema (swelling). Keep in mind that these participants started out lean, they were not classified as 'overweight' prior to embarking upon this trial. They showed signs of starvation, such as sunken faces, protruding ribs and fluid retention in their legs.

In this trial, their resting metabolic rates appeared to decrease by around 39%, the equivalent of approximately 600 calories per day.¹² If I told you that you had to consume 600 fewer calories per day to maintain your body weight, you probably wouldn't be thrilled with me, right? While this isn't great news, some of that 600-calorie decrease is to be expected simply because they lost so much weight. The actual degree of metabolic adaptation was estimated to be around 200 calories per day. In other words, their metabolic rate declined by an additional 200 calories per day in addition to what you would expect from the amount of weight they lost.

Though, once again, we should remember that this was a semi-starvation trial and not a 'diet'. Participants started at a 'healthy' weight, went into an extreme calorie deficit straight away, were not resistance training and lost a quarter of their body weight.

THE BIGGEST LOSER

The other most extreme example of metabolic adaptation comes from a US programme called *The Biggest Loser*, broadcast and remade around the world, which challenged participants to lose weight as rapidly as possibly to try to win a cash prize. Naturally, when they are being featured on a TV show and have a large financial incentive, it is inevitable that people will push themselves fucking hard. On average, contestants lost nearly 40% of their body weight in just 30 weeks, totalling around 58kg (128lbs) each.¹³ It was estimated that the

average decrease in resting metabolic rate was 664 calories per day and 370 calories of that was in the form of metabolic adaptation.¹⁴ To make this worse, a follow-up study six years later showed participants' metabolic rates were even lower than anticipated and the degree of metabolic adaptation now hit 499 calories per day despite them regaining 41kg (90lbs) of the initial 58kg (128lbs) weight loss, on average.¹⁵ In simple terms, this means contestants weighed on average 17kg (37lbs) less than when they started, but their metabolic rate was over 700 calories per day lower than it was originally, around 500 more than expected.

These studies together paint a pretty bleak picture. It is no wonder that so many people think that dieting causes some kind of 'metabolic damage' or induces 'starvation mode'. But before you decide that weight loss is a futile effort because of this, I would like to show you the other side of the coin.

The high degree of metabolic adaptation seen in *The Biggest Loser* participants has been noted as something of an anomaly, as this paper describes:

'Indeed, the persistent metabolic adaptation in *The Biggest Loser* contestants remains somewhat mysterious. The decline in [resting energy expenditure] experienced by *The Biggest Loser* contestants may have been a unique response to the extreme weight loss intervention.'¹⁶

Simplified version? Maybe their metabolisms changed so much because the weight loss intervention was fucking absurd. It probably isn't the best recommendation to shoot for losing nearly 40% of your body weight in 30 weeks.

Significant metabolic adaptation is not a guaranteed phenomenon when you lose weight but even if it does occur, metabolic adaptation doesn't automatically mean that you won't be able to sustain weight loss in the long term. Participants in *The Biggest Loser* follow-up study with the highest degree of metabolic adaptation were actually the ones who sustained the most weight loss, not those who regained

the most weight. Counterintuitively, metabolic adaptation doesn't seem to predict weight regain.

Yes, the idea that your metabolic rate may drop in response to losing weight sounds scary. However, let's not forget that these are two of the most extreme weight loss trials ever published. It is literally looking at a wartime starvation protocol and an internationally televised weight loss contest. Telling someone that all diets will 'crash your metabolism' based on those two examples is a bit like me telling you that caffeine is bad because some people accidentally overdose on pure caffeine powder. It doesn't mean people need to be equally scared of drinking a single coffee.

Also, there are other research trials that have concluded there is 'no consistent evidence' of metabolic adaptation at all: while some people did have lower metabolic rates than expected after dieting, others also had higher metabolic rates, so the average of the group balanced out to no significant differences.¹⁷ But how can some studies show huge degrees of metabolic adaptation and other studies show zero? Here is where things get complicated, so I am going to give you the simplified version.

If you want to track changes to your body weight it is super easy, you could hop on the scales once a week and it would take no more than a few seconds for you to have a precise measurement. You could even do it once a day or multiple times per day if you really fancied tracking trends over time. But measuring metabolic rate is not like this. Studies often test it only twice, once before the diet and once afterwards, because it is a much more complicated and expensive procedure. It is also a delicate process where the accuracy can be skewed by whether you are losing or gaining weight at the time of the measurement. For example, if you are still in a dieting phase when you get your metabolic rate tested, it can come back as looking artificially low, and if you are gaining weight, it can come back artificially high. A bit like your doctor taking your resting heart rate but you just had to run to their office because you were late; the number they measure isn't a true value. There are ways to combat this. For example, you can make sure that participants are weight stable when you take their

measurements, and in some research trials that have implemented this additional step, the phenomenon of metabolic adaptation seems to decrease substantially or disappear completely.^{18,19}

One research paper decided to crank up the meticulousness of the measurement process by having participants temporarily live in a clinical research centre and consume a perfectly controlled liquid-only diet to guarantee they were as weight stable as physically possible.²⁰ Additionally, this also allowed them to measure different components of energy expenditure to really pinpoint what causes metabolic adaptation, if anything.

It found that metabolic rates were slightly lower in people who were maintaining significant weight loss, but that this actually came primarily from non-resting energy expenditure – basically suggesting that people who have lost weight may tend to burn fewer calories from movement on a day-to-day basis. The good news is this means we could offset these declines simply by making sure we keep our physical activity levels high. This might be why people who have lost a significant amount of weight and successfully maintained it tend to walk more than other people.²¹ Keeping activity levels high is a behaviour strongly associated with improved long-term weight maintenance outcomes.²²

‘In conclusion, metabolic adaptation at the level of [resting metabolic rate] is minor when measurements are taken under weight stability and is not sustained in the long term with weight regain. More importantly, metabolic adaptation does not predict relapse in the long term.’¹⁹

How to change your psychology around weight loss

This is arguably the bit that people most overlook. Yes, in some ways, maintaining weight loss in the long term is no different to

the short term: if someone doesn't consume more calories relative to how many they burn, they will not regain weight. However, we know that adherence to a reduced calorie diet tends to decrease over time, so the big question is, what can we do to improve that? Let's turn our focus to the psychology of weight maintenance.

Dylan the Dieter decides that they want to lose some body fat, so they hop on whatever calorie-controlled diet is in fashion at the time. Things go well for a few weeks like we typically expect but over time, progress slows down, Dylan feels disheartened and eventually thinks, 'Fuck this, I am going back to what I was doing before.' They regain some weight over the next few months before eventually going on another diet later down the line.

First, the diet that Dylan picked was probably very different to what they eat normally. Perhaps they suddenly decided to cut out all carbohydrates, sugar or 'junk' food, or maybe they immediately refused any food after 6pm. Dylan may not have really considered that they wanted to achieve results that last for years but they are implementing habits that they can only sustain for weeks. Think of everyone you know who has hopped on an extreme diet with rigid all-or-nothing rules – did any of them ever last forever? If you start off with unrealistic ambitions, you are probably creating a recipe for failure and frustration because nobody ever sticks to that diet plan forever. When someone has a set of rigid dieting rules, it is inevitable that at some point they will break those rules. If the idea of 'ruining' your diet sends your brain into a spiral, I would like to introduce you to the term 'cognitive flexibility'.

I am yet to meet a single person who thinks they have maintained a 'perfect' diet forever. Shit happens and you need to be comfortable knowing that because there will be times when you have had a stressful week at work and find yourself eating chocolate, pizza or whatever else in front of a film. These are foods that most people would consider off limits when on a diet, but unless you plan to keep them off limits for the rest of your life, it is a great idea to accept that you are going to eat them occasionally and that doing so shouldn't make you feel like you have failed. If you have a bad week at work, you don't automatically think you have failed and quit your job until

next January when you set yourself a new year's resolution to try again. You know that you will have weeks that feel better and weeks that feel worse and that's OK because you keep showing up. Cognitive flexibility is simply the ability to be psychologically adaptable enough to take things in your stride when things don't go according to plan, rather than viewing any slight deviation from the plan as a failure, feeling disheartened and then quitting completely.

Do you know what is alluring about the initial weight loss phase, what tempts people into following extreme diet plans? It is exciting. Many people go into them super aggressively because they have the external reward of seeing the number on the scales decreasing and this reinforces that what they are doing is working. But long-term weight maintenance does not have this, does it? When the number on the scales or the size of the jeans you are wearing is your only yardstick of success, how do you feel when progress slows down? Are you actually content with maintaining where you are or does the goal become less exciting? If you start your own business, sales go well and you see your weekly income increasing over time, it can have a snowball effect because you have the positive reinforcement of seeing your profits go up, so it motivates you to keep going. At a certain point, if you know that those profits have hit a ceiling, are you happy to keep working at the same pace or do you lose interest? Nobody expects to continually lose weight forevermore because you would literally die and yet maintaining that weight loss you achieved is often viewed negatively, like you aren't making progress anymore, and that can be enough to derail someone's efforts completely.

To bypass this, it can be a great idea to have other goals and sources of motivation. For example, if you see your fitness levels improving in response to exercise or you are getting stronger in the gym and this motivates you to keep going, you have inadvertently increased your adherence to a goal that helps regulate your body weight anyway. If your dieting phase feels like it has hit a plateau, but you are absolutely loving the fact you are stronger and fitter than you have ever been, you would want to continue with that, right? If, on the other hand, your weight loss plateaued and it was literally the only

way you judged progress, the feeling of hitting a wall can be enough to turn back, especially if you don't see a way around it.

I strongly recommend considering what it is that drives you in the first place, revisiting the questions you asked yourself in chapter one and then thinking about how you can make the process more motivating. Maybe you enjoy numbers so you would like to make what you do measurable, like recording your workouts and aiming to get a little bit better every time. Maybe you enjoy exercising on your own or perhaps you prefer to do it with a friend, partner, family member or in a group class. Maybe exercising at a certain time of the day fits in best with your schedule, even if it isn't 'optimal' and this feels better and therefore more motivating.

If you reluctantly started running because you were told that you should but you absolutely hate it, what is the likelihood you will want to continue with that for weeks, months or years? Probably slim. On the other hand, if you find a form of physical activity that you actually enjoy and want to keep repeating, it is suddenly a different psychology completely. Some people love walking because it is much-needed time to themselves when they can listen to music or put on an audiobook. Other people enjoy jogging with a friend because it gives them an excuse to socialise at the same time, or weightlifting because they like the feeling of getting stronger, or boxing because it feels nice to let off some steam after a stressful day at work.

Nutrition-wise, you are going to want to find a balance between any healthy behaviours you are adopting and sustainability, because diets that suck all the joy out of your life just aren't going to work in the long run. Many people can stick to strict diets when there is deep motivation, like vegan diets for ethical reasons or halal diets for religious reasons. Contrast that with those who impose overly restrictive dietary plans upon themselves that they hate simply because they want to lose some body fat and you can see why so many people feel like they 'fall off the wagon'.

Some of the more successful long-term interventions also include problem solving and relapse prevention strategies. For example, if you are finding exercise difficult, are you able to pinpoint why and is there a way of solving that? Some people don't inherently hate exercising in

the gym itself but they dislike feeling self-conscious that they don't know what to do when they are there. In this case, there might be ways around it, like training when the gym is quieter, or training at home, or getting some help so you don't feel so uncertain. If you have just jumped into a punishing workout regime that leaves you extremely sore and unable to walk properly for a week you're hardly going to want to get back to it the next day. So you might be better served starting off with something that eases you into it over time. Some people's overeating may be in response to emotional stimulus, in which case are there any other coping mechanisms that would work instead, like hobbies or mindfulness activities? Or in more extreme cases, could it be helpful to speak to a qualified professional to discuss the source of emotional distress?

Relapse prevention is often implemented in tandem with self-monitoring your body weight; for example, some research trials will track body weight changes and if someone regains a specific percentage of what they lost initially they can go back to the behaviours implemented in the initial weight loss phase. Think of it like checking your bank account: if you are in a good financial place but over time you gradually start spending more than you earn, checking your account regularly may alert you that you need to adjust your spending. We will discuss this in more detail in the self-monitoring sections towards the end of the book.

HOW CAN YOU PUT THIS INTO ACTION?

- Most people who attempt dieting are not hugely successful, and I want to help you avoid the same pitfalls. Unless you have a one-off temporary weight loss goal, it makes sense for you to shift your focus away from what happens over the next few weeks and towards healthy behaviours you can sustain for years. Don't seek long-term changes by adopting habits you know you can only maintain for short periods of time.

- It is a good idea for you to be aware of biological compensatory mechanisms that can make weight loss difficult. For example, you may feel hungrier, which is why picking dietary strategies that help regulate your appetite is a very smart idea (we will discuss different diets in the next chapter), and the number of calories your body needs will decrease, meaning you may need to adjust what you are doing over time if you want to keep losing weight.
- If we look at the smaller minority of people who maintain a significant degree of weight loss, there are some behaviours that lots of them seem to have in common, so we can use these as some best practices to maximise your chances of success. These include eating a reduced calorie diet (obviously) and often a reduced fat diet, [2,22,23,24,25,26](#) likely because of its low energy density properties (as discussed in chapter four), increased consumption of fruits and vegetables, [24](#) high levels of physical activity, [2,22,23,25,26](#) and regular self-monitoring of body weight and often food intake [2,22,23,25,26](#) which we will discuss in chapter 13.
- Although they are harder to measure, some psychological components are a very good idea for you to be aware of, like the importance of motivation, [25,26,27](#) goal setting [26](#) and prioritising enjoyment. [27](#) Some studies also discuss ‘relapse prevention’ strategies, [26,27](#) like addressing emotional eating, which we discussed in chapter two.
- Rather than overhauling everything you are doing to follow a brand-new diet and then feeling like you have failed if you can’t stick with it, know that implementing healthy behaviours is always going to be a smart idea. If your diet quality and physical activity levels have improved, you have succeeded regardless of whether you lose weight or not.

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8.

WHAT DIET WILL WORK FOR ME?

We know that if you want to lose weight in the long term, you need to create a negative energy balance, otherwise referred to as a calorie deficit. I must reiterate that I specify ‘in the long term’ because, of course, there are ways to impact your body weight in a short window which are separate to reducing calories, like sweating a lot or going to the bathroom, neither of which indicate actual fat loss.

If your goal is to lose body weight consistently, you must be in a calorie deficit. It is non-negotiable.

As we have also already discussed, technically, someone can also lose body fat without their body weight changing at all. You can lose 1lb of body fat and gain 1lb of lean body mass and the number on the scales would not change, even if your body composition has. This is why ‘losing weight’ and ‘losing fat’ are not technically the same thing, even though they do often happen in tandem. If your goal is to lose body fat and build muscle tissue, it is sometimes possible to achieve these simultaneously and that does not necessarily require a calorie deficit. This process is often referred to as ‘recomping’. It happens more easily for some people than others. Specifically, if someone is new to resistance training and has a higher body fat percentage it would be easier for them to achieve than someone who already has an extensive history of resistance training and a low body fat percentage.^{[1](#)}

Let’s start by looking at some of the most common misconceptions people have when it comes to calorie control:

‘I WENT ON A DIET BEFORE AND DIDN’T COUNT CALORIES BUT STILL LOST WEIGHT’

OK, but calories still matter even if you didn't count them. You can save money without counting every dollar, but of course that doesn't mean dollars don't matter. The act of counting calories is separate to whether calories matter. Think of it like this: one person may save money by tracking everything they earn and everything they spend, and another person may save money simply by deciding not to spend money on certain items. One person counted and the other person didn't, but the underlying result was still the same: they spent less money than they earned.

Some diets market themselves as not requiring calorie counting but this is probably because 1) their system coaxes people into reducing their food intake without them having to actually count anything and/or 2) they want it to sound revolutionary and an exception to energy balance laws, in which case they would be incorrect. No diet is exempt.

'I WENT ON DIET X, Y OR Z AND ATE MORE FOOD BUT STILL LOST WEIGHT'

There could be many reasons for this. Maybe you ate more food by volume but didn't actually eat more calories. For example, if someone is eating a lot of energy-dense ultra-processed foods like cakes, doughnuts and ice cream and they switch to a diet of unprocessed food, they may eat a lot more food in terms of volume but the overall number of calories could still decrease, as we saw in the section on energy density in chapter four.

Perhaps you did eat more calories, but your physical activity was higher than expected. If you eat an extra 500 calories per day but your lifestyle is more active than it was before, you may be burning more than the 500 extra calories you consumed. Lots of people start an exercise regime in tandem with new dietary advice and it's hard to pinpoint the contribution of each.

Maybe you consumed more total calories but you switched to consuming more protein and fibre. We know that eating protein has a higher thermic effect than eating carbohydrates and fats (see chapter

three) so you will burn more calories consuming a high protein diet, nudging you towards a calorie deficit. We also know that high fibre intakes can increase the amount of energy you excrete and therefore lower the number of calories you absorb (see chapter three). Two diets can have the same amount of energy when you eat them but behave differently in the body. Once again, this doesn't mean calories don't matter, it just means some diets have a different impact on the 'calories in vs calories out' equation, because more energy is burned or excreted.

'MY FRIEND SAID THAT THE DIET THEY ARE ON ALLOWS THEM TO EAT AS MUCH AS THEY WANT AND NOT GAIN WEIGHT'

Your friend is misinformed. Alternatively, they have discovered a magical diet that defies physics and statues should be erected in their honour. Some diet plans claim that you can eat as much as you want but they are often limited on food selection, meaning people will struggle to consume more. For example, you could tell someone to eat 'as much salad as they want' and if they were sticking to leafy greens, it would take a fuckload of effort to consume a high-calorie diet. This doesn't mean calories don't matter; it just means that the food selection makes it harder for people to overconsume.

The reason it is absolutely crucial to emphasise that all weight loss plans work via calorie restriction is because many people are selling overhyped diet plans with exaggerated claims. Think of it like this: if two books were sitting next to each other and one said, 'You can lose weight forever, but you have to reduce how much you eat' and the other book said 'Revolutionary new diet plan where you can eat as much as you want and still lose weight' which one would you pick? Nobody ever picks the first one unless they know the second one is lying. The diet industry is absolutely rife with people lying about how their diet plan works to try to sound miraculous, all so you are more likely to part with your hard-earned money.

You won't find any exaggerated claims in this book because, unlike most, I am not trying to sell you a specific plan. Instead, I am giving you an honest review of the most common diets and principles so you can pick and choose whatever sounds best for you. In this chapter, I will discuss some of the scientific rationale behind the most popular dietary interventions, including some pros and cons, and then give a simplified summary to help you decide if they appeal to you personally.

While the idea that no weight loss diet is magical might piss on some people's bonfires, I don't view it as a negative thing at all. On the contrary, I think it could be seen as a positive that there is no one-size-fits-all diet that people should follow. Instead, you have the luxury of opting for whatever style of eating suits your personal preference, and you can also change and adapt that at any time. I have no intention of steering you towards something other than simply whatever is best for you.

The 'best' diet is irrelevant if you don't like it

As a single example of this, a review paper looked at answering the age-old question of which weight loss diet was superior, examining the results from 48 different controlled studies involving a total of 7,286 individuals.² This comprehensive review included studies that had looked at the following diets: Atkins, South Beach, Zone, Jenny Craig, Nutrisystem, LEARN, Volumetrics, The Biggest Loser Club, Weight Watchers, Ornish and Rosemary Conley.

Do you know which of them came out as clearly superior? None of them. The differences between them were too small for any of them to be considered a real winner.

'Weight loss differences between individual named diets were small. This supports the practice of recommending any diet that a patient will adhere to in order to lose weight.'²

Sorry, no miracles around here. Although some people might like the idea of me saying ‘this is definitely the best plan, you should follow it for amazing results!’ it is kind of liberating that you have a choice, right? Say goodbye to the idea you have to try to stick to something you hate. Instead, you can make educated decisions to make your nutrition plan as pain-free as possible.

What’s the difference between dietary approaches?

Methods of calorie restriction can be roughly broken up into three different categories:^{[3](#)}

- Diets based on macronutrient manipulation (low carbohydrate, low fat, high protein, etc.)
- Diets based on meal timing (intermittent fasting, time-restricted feeding, etc.)
- Diets based on food selection (plant-based, paleolithic diet, Mediterranean, etc.)

These categories are sometimes a little bit blurry; for example, some studies use a different definition of what qualifies as a ‘low-carbohydrate diet’ and some people’s definitions of plant-based are different to other’s, like whether they are vegetarian or vegan. Also, these categories aren’t necessarily mutually exclusive. Some people may implement something like intermittent fasting alongside a low-carb diet and, of course, there are likely many different variations of each diet plan. But these are the most common ones so let’s use these umbrella terms as our foundation before moving onto discussing dietary flexibility.

Diets based on macronutrient manipulation

When you manipulate macronutrients, it is important to understand that when you change one thing you will also change something else. For example, if you reduce the amount of fat

you are eating, you will also reduce the number of calories you are consuming. If your goal is to reduce the amount of fat you are eating but keep your calorie intake the same, you will have to increase the number of calories you are consuming elsewhere.

The importance of protein

Protein needs to be discussed on its own because of its unique role when it comes to lean body mass growth and retention.

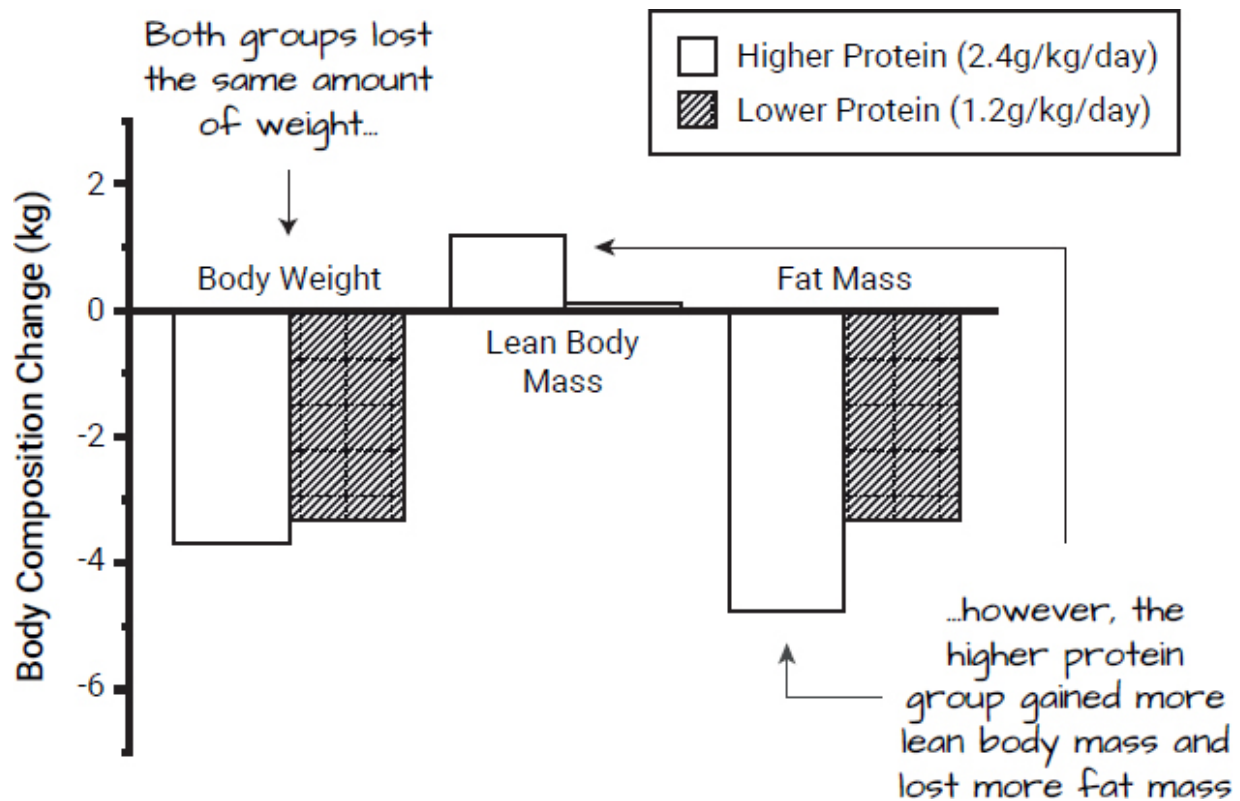
As we know, protein has the highest thermic effect of any macronutrient, estimated at 20–30%.⁴ As a reminder, this means that your body uses more energy digesting protein than it does for carbohydrates and fats. This is one of the reasons high protein diets are often recommended because they appear to have a slight weight loss advantage. For example, one meta-analysis comparing high protein to moderate protein diets found that high protein diets resulted in a little bit more weight loss, even when the number of calories were the same.⁵ (See chapter three for more on the thermic effect of protein.)

However, this is not the only thing that higher protein diets may be able to help with. Perhaps higher protein diets are better than lower protein diets for appetite regulation. We also know that losing weight and losing body fat are not the same thing, and protein is unique in that it is able to help people hold onto lean body mass when they are dieting. This is particularly important for us gym geeks to pay attention to because some diet studies only measure changes to body weight, they don't assess fat mass and lean body mass specifically. In addition, a lot of studies do not include exercise, and most do not include resistance training specifically.⁶ This isn't surprising; it takes a lot more effort to run a research trial where all of the participants also follow a specific weight training programme versus just following a diet plan. It just means that if you are working out and want to maximise how much precious lean body mass you are holding onto, you have less research that accurately reflects your real-world scenario to draw on.

As it is common for people to lose some lean body mass while they are dieting,⁷ one study investigated whether a high-protein diet would help mitigate some of this when combined with resistance training.⁸ Group one were in a 40% calorie deficit (e.g. if someone's maintenance requirement was 2,500 calories per day, they would consume 1,500 calories per day), they followed a resistance combined with interval training programme six days per week and they consumed 1.2g of protein per kilogram of body weight per day (120g of protein per day for a 100kg or 220lb person). Even though this was the lower protein group, they were still consuming 50% above the RDA, which is only 0.8g/kg/day.

Group two were in the same 40% calorie deficit. They followed the same training programme, but they consumed double the protein content, 2.4g/kg/day (240g per day for a 100kg or 220lb person).

Although both groups lost similar amounts of body weight, those on the higher protein diet gained more lean body mass and lost more body fat. This shows us that if your goal is to hold onto muscle tissue, 1.2g/kg/day may be sufficient when it is in tandem with resistance training and 2.4g/kg/day may even allow you to increase it while losing body fat. Great news.



Body Composition Changes in Higher and Lower Protein Groups.
Adapted from [8](#).

This study only included male participants, but a later study was published that followed a similar design but with female participants.⁹ Group one consumed 2.5g of protein per kilogram of body weight per day (250g for a 100kg or 220lb person) in combination with an exercise routine that included resistance training.

Group two followed the same exercise programme but this time consumed far less protein, just 0.9g/kg/day.

Just like we saw before, the higher protein group achieved greater decreases in fat mass and greater increases in lean body mass. This reinforces the idea that although you can reduce your body weight with a low-protein diet, higher intakes are a good idea if you want to maximise the amount of body fat you lose and the amount of muscle tissue you want to hold onto. From a body composition perspective, high-protein diets win. That is the simplified message here.

One thing that is important to point out is that both of these studies only compared two protein intakes, a single lower protein intake to a single higher protein intake. This doesn't necessarily mean that the higher protein dose is what you should aim for; it is possible that a protein intake somewhere in the middle would achieve the same results, we just don't have a lot of research to form that conclusion yet. Think of it like this: if your goal is to get good at push ups and one study showed that doing 20 sets per day was better than doing one set per day, it doesn't mean 20 sets is the best number. For all we know, 10 sets might yield the same results as 20 but for half the effort. All we know is that 20 works better than one, not how it compares to every other number.

The question then becomes: exactly how much protein should you aim for? There isn't one precise number that is perfect for all of us. For example, we have seen that higher intakes can outperform lower intakes, but what happens if you are older? As people age, it is possible that they require a higher amount of protein to stimulate the muscle building process.^{[10](#)} What about if you are in a more aggressive or less aggressive calorie deficit? It has been proposed that if you are in a more extreme calorie deficit, you may require extra protein to hold onto the lean body mass you have.^{[11](#)} It is also possible that you would require more or less protein depending on what type of exercise you are doing and how much of it.

The most concise answer I can give is that when someone is resistance training and isn't dieting, 1.6g/kg per day appears to be sufficient for muscle building purposes; intakes above and beyond that don't appear to offer much additional advantage.^{[12](#)} Some research in competitive bodybuilders propose intakes as high as 2.2g/kg/day.^{[13,14](#)} This basically shows us where the ceiling is for people who have the highest protein demands. If you want to maximise lean body mass alongside your weight training regime, think of the recommended protein intake as a spectrum: the lower you go the more likely you are to lose lean body mass when dieting. Other research papers looking at weight loss specifically propose protein target windows like 1.2g–1.6g/kg/day for body weight management.^{[15](#)}

For easy maths, a 100kg (or 220lb) individual who wants to hold onto as much lean body mass as possible will likely get significantly better results if they consume 160g of protein per day than if they only consumed 90g or less per day, but it is possible they may get a little bit of extra benefit with an intake up to 220g per day. Though this might simply be like adding a cherry on top of an already well-made cake.

It is also possible that consuming too little protein could have an adverse impact on satiety,^{[16](#)} and given that most people probably don't want to feel hungry when they are dieting, this is something prudent to consider. It is worth noting that there is likely a ceiling effect on this as well. Although inadequate protein may be worse for hunger, it doesn't mean cranking up your protein intake super high will result in even better appetite regulation.^{[17](#)}

The spectrum of low fat vs low carb

As protein has a unique importance for lean body mass preservation, we can lock down a ballpark figure for what our ideal intake is from a body composition standpoint and then turn our focus onto the other macronutrients. As I have mentioned previously, if you change your intake of one you will likely also change the other. Lower carb diets tend to be higher in fat and vice versa, which is why I think they need discussing simultaneously. At one end of the spectrum, we have ultra-low-carb ketogenic diets, while at the other end of the spectrum, we have ultra-low-fat diets, and in the middle, we have mixed macronutrient diets.

One theory behind reduced-fat diets is that because fat is the most calorie-dense macronutrient, aiming for a low fat intake would be the best way to reduce the overall energy content of your diet. This idea is not without merit. Some studies have shown that if you covertly reduce the fat content of people's diets, it nudges them towards eating fewer calories. For example, one early study in 1987 created diets which involved foods similar in appearance and taste but with different fat content, either 15–20%, 30–35% or 45–50% of the total calorie value of the food.^{[18](#)} The participants in this study were allowed to serve themselves as much or as little as they wanted so the

researchers could see whether they would increase or decrease how much food they ate. When they were served the lower fat diet they spontaneously reduced their calorie intake, putting themselves into an 11.3% energy deficit, and when served the higher fat diet they consumed a calorie surplus to the tune of 15.4%. Even though each dietary period was only two weeks long, it was still enough time to see weight gain on the higher fat diet and weight loss on the lower fat diet.

A similarly designed protocol compared a low-fat diet (20–25% of calorie intake) to a control diet (35–40% fat) over an 11-week period and again found that those on the low-fat diet consumed fewer calories and subsequently lost more weight.^{[19](#)}

This brings us back to what we already know about energy density in food. If you compare 100g of plain potato to 100g of mashed potato mixed with lots of butter, the second has a higher calorie value for the same weight (see chapter four for more on this). On top of that, telling people to reduce their dietary fats can also impact their food selection. In the real world, if you tell someone to reduce their fat intake, their food selection choices will likely change. A lot of super-delicious ultra-processed foods will no longer appear on the menu, given that most cakes, doughnuts, ice creams and chocolate have a pretty hefty fat content.

This is all great news. Low-fat diets allow you to eat fewer calories even when those foods look and taste similar. This means that some weight loss can be relatively effortless, which sounds perfect – but before we get excited, let's stop the bus for a moment and discuss the other end of the macronutrient spectrum.

Low-carb diets

What actually is a low-carb diet? Do you need to avoid all carbohydrates completely? A common point of contention is that there is no strict definition of what constitutes a 'low-carb' diet. Some studies may give a specific number, like less than 70g per day, whereas other studies give percentages, like less than 20% of your calorie intake from carbohydrates.^{[20](#)} The actual threshold for what is 'low'

can vary wildly as well, ranging from less than 10% for very-low-carbohydrate or ‘ketogenic’ diets to anything up to 45% of your calorie intake.^{[21](#),[22](#)} This creates some arguments in the low-carb world because if someone doesn’t get good results it is easy for the hardcore fans to scream ‘Well, you weren’t low-carb enough!’, implying that the answer is always a more extreme degree of carb avoidance.

One of the main theories behind low-carb diets being better for weight loss is that carbohydrates stimulate production of the hormone insulin. Insulin is known as a storage hormone, so eating carbohydrates may be uniquely fattening.^{[23](#)} Carbohydrates stimulate insulin production and insulin increases fat storage. That is the super-duper simplified explanation.

Is this true? Is avoiding carbohydrates the key to unlocking the mysterious fat-loss strategy that so many people yearn for? Well, there actually is a lot of research showing that low-carb diets do achieve a greater degree of weight loss than low-fat diets. There is so much research in fact that there are meta-analysis papers that pool studies together and conclude the same thing. For example, in one meta-analysis of 11 different studies, low-carb diets resulted in more weight loss at the six-month mark than low-fat diets^{[24](#)} and another meta-analysis showed very-low-carbohydrate diets resulted in greater weight loss than low-fat diets at the 12-month mark.^{[25](#)}

That sounds like an absolute slam dunk, right? Before we get too excited and throw away all the bread, rice and pasta in our cupboards, let’s take a closer look at some of the details. The first meta-analysis concluded that low-carbohydrate diets resulted in a little over 2kg (4.4lbs) more weight loss on average at the six-month mark than low-fat diets, but the second one that looked at 12-month data concluded only 0.91kg (2lbs) more weight loss, which isn’t exactly a groundbreaking difference. Would you want to cut out all major sources of carbohydrates for less than a kilogram of extra weight loss over a 12-month period?

What are the pros and cons of low-carb diets?

Rather than the constant arguments about which diet is ‘best’ on paper, let me present you some of the pros and cons of low-carb diets, so you can make the best decision for you. Let’s start with an earlier study that showed low-carb diets resulted in more weight loss for the first few months but no significant difference at the end of the year.

This research paper divided participants into two groups:^{[26](#)}

1. A ketogenic group where participants had to consume less than 20g of carbohydrates per day for the first two weeks and then gradually increase over time.
2. A conventional diet group where they were prescribed a reduced-calorie diet (1,200–1,500 kcal/day for women; 1,500–1,800 kcal/day for men), with a pretty standard macronutrient split – 60% coming from carbohydrates, 25% from fat and 15% from protein.

The ketogenic diet did not come with calorie recommendations. One of the selling points of low-carb diets is that people do not necessarily have to count how much they eat. They were just told they had to limit carbohydrates, but no restrictions were given on protein or fat. This sounds great, right? Why would someone pick calorie counting if they had the option not to; surely it is just more stress?

The thing here is the ketogenic diet is extremely restrictive in other ways. If you tell someone they can only consume 20g of carbohydrates per day, they will have to change their food selection significantly. All sugary junk food is obviously out of the window but so is all pasta, bread, rice, cereal and likely even some starchier vegetables. What foods are left? Foods like meat, fish and dairy, so it’s likely they shift the emphasis towards eating more protein, which we know can influence body composition in itself. This raises a valuable question: how much of the low-carb diet power is because ‘carbs are fattening’ and how much of it is down to other factors like an increased protein intake?

To answer this question, one study utilised four different diet conditions, rather than just two.^{[27](#)} The groups were divided as

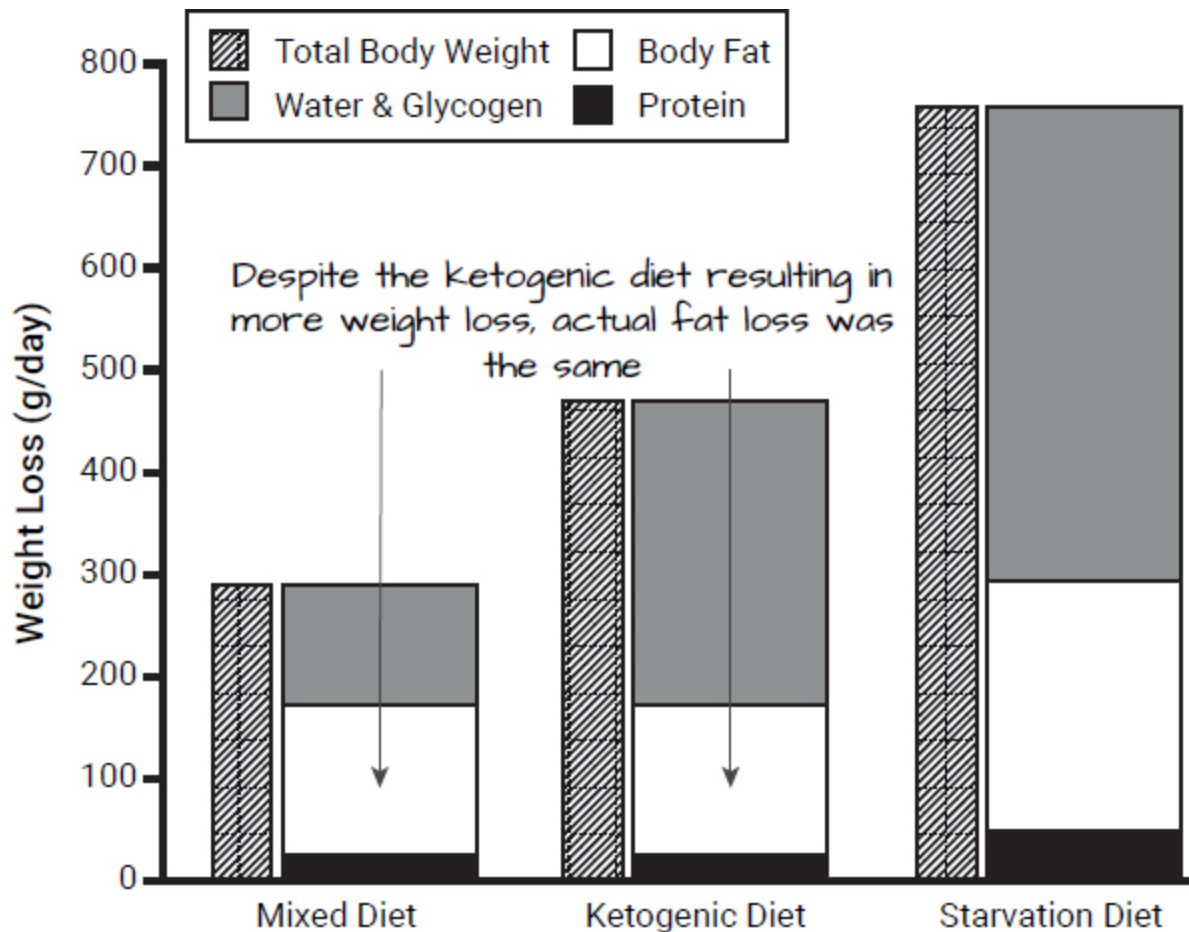
follows:

1. Normal protein, normal carbohydrate
2. Normal protein, low carbohydrate
3. High protein, normal carbohydrate
4. High protein, low carbohydrate

All four groups followed the same calorie deficit over a 12-month period, allowing us to see the relative contributions of carbohydrate reduction or a high-protein intake. The study found that more body fat was lost in both high-protein diets; carbohydrate content didn't appear to have the same relevance. This means that a big chunk of any fat loss magic comes simply from people's tendency to crank up their protein intake once they remove carbohydrates.

There is something else to consider: a lot of weight loss trials only look at body weight changes, they don't measure changes in body fat. Both of the review papers we looked at earlier reported changes in body weight, not changes in fat mass.^{[24](#),[25](#)} As we know, weight loss and fat loss often trend in the same direction but they do not hold hands everywhere they go, and that is particularly pronounced when talking about low-carbohydrate diets because while they are synonymous with people losing a shitload of weight rapidly, this isn't actually indicative of a change in body fat.

This has been known for bloody ages. Even back in the 1970s, one study had a small group of participants living in a metabolic ward for 50 days so their food intake could be precisely controlled and the effects of three different diets could be tested.^{[28](#)} When they were given an aggressive 800 calorie-per-day ketogenic diet, they lost significantly more body weight than they did on a mixed-macronutrient diet with the same number of calories. However, they actually lost the same amount of body fat. It turns out, you can reduce the amount of stored carbohydrate and water your body holds by restricting your carb intake, which leads to sudden weight drops, irrespective of changes to body fat.



Average Daily Rate and Composition of Weight Change During Different Diets. Adapted from [28](#).

This isn't necessarily good or bad. Perhaps someone wants to reduce their weight really fucking quickly, like a fighter who has an impending weigh-in, knowing that when they eat carbs again, their weight will probably bounce back to where it was before very quickly. Perhaps some people are motivated by quick changes to their body weight and are more likely to stick with that diet. On the flip side, some people may notice that their gym performance turns to trash very quickly and while the initial weight drop can be motivating, it can also skew people's perceptions of how many calories they are eating. After all, if the scales move really quickly on weeks one and two but plateau at week three, do they realise that they may not have lost any actual body fat and do they know how to change their diet or do they just keep avoiding carbohydrates and hoping for the best?

When so many research trials compare low-carb diets to another diet when calories are not matched, the protein intake is not the same, or they only measure body weight and not changes to actual fat mass, it isn't surprising that low-carb diets look so favourable. However, to answer the question whether you need to reduce your carbohydrate intake specifically if you want to maximise how much body fat you lose, we need to look at research where the calories and the protein intake are the same and they measure actual fat loss.

As it turns out, a meta-analysis of 32 controlled feeding trials where food was precisely measured to ensure accuracy showed that low-carb diets result in almost identical body fat changes to low-fat diets.^{[29](#)}

‘For all practical purposes “a calorie is a calorie” when it comes to body fat and energy expenditure differences between controlled isocaloric diets varying in the ratio of carbohydrate to fat.’^{[29](#)}

Just to reiterate this: if you keep your calorie intake the same and your protein intake the same, you can manipulate the ratio of carbohydrates to fats in your diet and the difference in body fat changes will only be a smidge or two above fuck all. This is great news because it basically means you can pick whatever macronutrient preference you want, as long as you reduce your calories and prioritise protein intake.

From all this, we can conclude that low-carb diets win for weight loss, especially in the early stages, but for actual fat loss, it looks like a draw. Therefore, it makes sense to choose based on personal preference. If you naturally gravitate towards high-carb foods, a low-carb diet might be a disaster for you, and vice versa. Consider what foods you enjoy and how you feel when you're following that nutritional approach. For example, what is best for your energy levels, workout performance and appetite regulation? Some research suggests low-carb diets are better for regulating hunger^{[30](#)} but not all studies

point in the same direction,^{[31](#),[32](#)} which is why it is important to let your own preferences guide you, in the absence of any firm guidelines.

Regardless of which macronutrient split you lean towards, there are some solid nutritional recommendations that you can apply. For example, one study tested a ‘healthy low-fat’ diet against a ‘healthy low-carb’ diet, where participants in each group started with equally extreme instructions to reduce their fat or carb intake to less than 20g per day respectively, then to slowly increase it over time until they were at a level that they believed they could maintain indefinitely.^{[33](#)} Neither group were given explicit calorie intake instructions but were given guidance on improving their diet quality by:

1. Maximising their vegetable intake
2. Minimising their intake of added sugars, refined flours and trans fats
3. Focusing on whole foods that were minimally processed, nutrient dense and prepared at home where possible.

As calorie instructions were not specifically given, this study basically tested how this kind of dietary advice impacts how much people eat. At the end of the 12-month period, both of them resulted in similar amounts of weight loss, suggesting that healthy nutritional habits can be effective for reducing fat mass and that the macronutrient split isn’t of paramount importance.

HOW CAN YOU PUT THIS INTO ACTION?

- If you want to maximise fat loss and lean body mass preservation, consuming adequate protein is a well agreed-upon recommendation. Once that is in place, the remaining ratio of carbohydrates to dietary fats can be based on your own personal preference. For example, if you really love pasta, rice, bread and potatoes, the likelihood of adhering to a low-carb diet sounds slim.

- Your personal preferences don't just depend on food choice but also on appetite regulation and how you feel. Some people might like low-carbohydrate diets but notice that their performance in the gym decreases if they go to an extreme. Let your body guide your choice rather than picking a predetermined ratio and trying to stick with it at all costs.
- Both ends of the low fat and low carb spectrum can reduce calorie intake without you actually tracking calories, probably because they reduce food selection. Making a conscious effort to adhere to a low-fat or low-carb diet would involve minimising a lot of ultra-processed foods like cakes, chocolate, pizza, etc. If you are the type of person who doesn't want to track your calories, either of these can be successful options.
- Keep in mind that the macronutrient ratio of your diet doesn't mean much from a health perspective. You can have low-carb and low-fat diets which are more healthy or less healthy depending on which foods you pick. Prioritising nutrient-dense unprocessed foods as much as possible is always a sensible decision for your health, appetite regulation and body composition.
- Some dietary recommendations, therefore, make sense irrespective of what macronutrient ratio you prefer. Consuming plenty of fruits and vegetables, moderating your intake of added sugars, refined flour and unnecessary quantities of added fats will independently help reduce the energy density of your diet which helps with appetite regulation.
- There is no reason why you have to strive for a specific macronutrient ratio at all. You can let your food preferences guide you and be flexible enough to allow this to fluctuate.

There will be days when you want to eat more carbohydrates and days you want to eat more fat. Rigidly sticking to the exact same macronutrient ratio every single day adds an additional dietary restriction rule which is unnecessary for most people.

- Any dietary success that you achieve relies heavily on adherence and any rules that sacrifice your ability to actually stick with a plan are possibly causing more issues than they are solving. If rigidly following a low-carb or low-fat diet doesn't sound like something you want to do, focus your attention on healthy dietary habits that you feel are more realistic.

Diets based on meal timing

Diets based around fasting – also known as intermittent energy restriction (IER) – have been surging in popularity recently. These diets involve altering the timing window of when you eat. This is completely separate to changing the foods you are consuming, and you could use either or both simultaneously. IER comes in various forms, split into two main categories: intermittent fasting and time-restricted feeding. Although these each have varying definitions, I'll give you an outline to make sure we are all on the same page.

INTERMITTENT FASTING (IF)

A weekly cyclical pattern that includes 'fasting' days interspersed with 'feeding days'. There is no fixed definition of how many days per week are 'fasting' days and although fasting is associated with eating no food, it is common for these days to include a small amount of food to increase tolerability.

ALTERNATE-DAY FASTING (ADF)

A weekly cyclical pattern that alternates zero-calorie 'fasting' days and 'feeding' days on a 1:1 ratio.

MODIFIED ALTERNATE-DAY FASTING

A weekly cyclical pattern that alternates very-low-calorie ‘fasting’ days with ‘feeding’ days.

TIME-RESTRICTED FEEDING (TRF)

A daily fasting pattern where the eating window is shortened, such as abstaining from food for 16 hours and only eating in the remaining 8 hours.

During weekly intermittent fasting (IF) protocols like alternate-day fasting (ADF), where you have fasting and feeding days, and modified alternate-day fasting, the fasting days can be either zero calorie or a significantly reduced calorie intake, like 25% of your calorie requirements. Most of the time, the feeding days are known as ‘ad libitum’, meaning people are allowed to eat as much food as they want without any calorie restrictions being placed on them. As conventional diets have notoriously low success rates, fasting protocols have been proposed as an alternative solution, because they encourage you to reduce your calorie intake across the week without having to count calories and without having to ‘diet’ every single day. Almost like part-time dieting, where you don’t have to restrict your food intake every single day.

Intermittent fasting: alternate-day fasting (ADF)

Alternate-day fasting is pretty self-explanatory: you fast and feed on alternate days of the week. So, you may either mostly (modified alternate-day fasting) or entirely abstain from food on Monday, Wednesday, Friday and Sunday and eat on Tuesday, Thursday and Saturday, and continue with that 1:1 ratio.

Let’s not beat around the bush here, to a lot of people this will sound like a really extreme way of dieting. Completely avoiding food or significantly reducing what you eat every other day of the week is not something that is going to appeal to everyone. One of the reasons some people like alternate-day fasting is that you are not in a calorie

deficit every single day and therefore the diet may *feel* restrictive only half the time. To use a financial analogy, rather than telling someone to count how much they spend every single day, perhaps you tell them that they must spend absolutely nothing on some days but then they can buy what they want on others – the idea being that the restrictive days are powerful enough to tip the scales towards saving money or, in the case of alternate-day fasting, reducing weekly calorie intake. For example, if you ask people to reduce their intake by 500 calories per day, most will not be able to do it with a high degree of precision and consistency. But give people the very simple instruction to avoid food on alternate days and, so the theory goes, they will probably eat less overall throughout the course of the week.

To examine whether this premise has any merit, an early study tested the feasibility of alternate-day fasting with a super-simple plan: participants would not consume any calories on every other day for a total period of 22 days.¹ Is this easy prescription enough to promote weight loss? As it turns out, yes. At the end of this short period, they lost an average of 2.5% of their body weight, showing that participants were ‘unable to consume enough food on the feasting days to maintain their weight’.

This shows that ADF has potential as a weight loss intervention. However, in this study, there was no control group to compare it to so it doesn’t show that it was *superior* to daily calorie restriction, it just shows that it can work. Also, although it worked for weight loss, the authors noted that it wasn’t exactly a pain-free plan to follow. Some people noticed side effects like constipation and light-headedness. On top of this, when monitoring hunger levels, the researchers believed that people may struggle to stick with it for a longer period, which could obviously limit its application, given that long-term adherence is absolutely crucial for success.

The solution? Maybe instead of telling people to eat nothing on their fasting days, they could give them something to eat, if it was small. This is one of the reasons why many later studies didn’t utilise zero-calorie fast days; instead, they gave people an aggressive calorie deficit but still let them consume some food. Even when allowing

participants 20%, 25% or up to 30% of their calorie needs on fasting days, it was still a powerful enough prescription to result in weight loss.^{2,3,4} This is where ‘modified’ fasting came in: it helped people reduce their food intake over the course of the week but appeared easier to stick to than going absolutely zero calorie.

We know that ADF can work but the big question is does it work better than traditional dieting, which is essentially just eating a bit less every day, otherwise known as ‘continuous energy restriction’ (CER)? None of these trials compared ADF to an alternative approach, they just tested it in isolation on a single group of people. That’s like telling one group of people to avoid carbohydrates and then noticing they lose weight. Of course it works but it doesn’t tell you whether that diet is better than an alternative. To know whether it is better, we need head-to-head research, which came a little later. In this study, one group of people were put on a full zero-calorie ADF protocol where they weren’t allowed to eat anything on fasting days but were not given a calorie limit on feeding days; the other group followed a traditional approach, with a daily restriction of 400 calories per day below their maintenance requirements.⁵

The moment of truth. Compared to daily calorie restriction, which one comes out victorious? Taking a weekly average, participants following the ADF protocol consumed a whopping 376 calories less per day than the other group, who were already restricting by 400 calories per day.

Obviously, this meant they lost more weight, right? Wrong.

Despite having a far greater energy deficit, the body composition changes were similar between groups. On the surface, this might not make sense but let’s not forget that when you change people’s food intake, their physical activity is also likely to change consequently (refer back to chapter three for the explanation on why energy balance is dynamic and not static). The authors stated that it was possible that people following the fasting protocol reduced their physical activity levels to a greater degree, mitigating the extra calorie deficit. All else being equal, a large deficit will result in more weight loss than a small deficit but if a large deficit makes you feel lethargic as fuck and you

spend all day lying on the sofa, it isn't large anymore. Not that I am saying fasting protocols will make you feel disproportionately tired necessarily, just explaining a possibility.

At this point, we can conclude that telling people to avoid food entirely on alternate days will probably get them to reduce their overall calorie intake over the course of the week. So, rather than giving them a free pass to eat as much as they want on their feeding days, what happens if you give them specific calorie targets?

One study compared daily calorie restriction, where participants ate 75% of their calorie needs per day (a 25% reduction), to an ADF protocol where they ate 25% of their calorie needs on fasting days and 125% on feeding days.⁶ This was a longer trial that consisted of a six-month weight loss period and a six-month maintenance period, rather than the short eight-week trial we looked at previously. The conclusion?

‘Alternate-day fasting did not produce superior adherence, weight loss, weight maintenance, or cardioprotection vs daily calorie restriction.’⁶

While there is a growing number of studies showing that ADF results in weight loss or improved health markers, a lot of them don't actually compare it to an equivalent daily calorie restriction protocol.⁷ That's a bit like comparing running to sitting down – of course you'll get better results but it doesn't necessarily mean running is better than cycling, rowing or swimming. A more detailed study that tackled this roadblock compared traditional calorie restriction to ADF but this time there was a twist: there were two ADF groups, one that restricted their calories on non-fasting days and one that did not.⁸ This allowed the researchers to isolate whether the fasting protocol itself was inherently beneficial or just the calorie restriction that normally comes with it. They assessed a lot more than just body weight, including body composition, components of energy balance, cardiometabolic health markers and gut hormones. Rather underwhelmingly, they concluded that there was no evidence of any health effects that were

specific to fasting, and fasting itself was worse for fat loss and lean body mass preservation. This is not to say that fasting definitely doesn't have any additional health benefits, but we need more research to separate whether changing someone's feeding window is the primary driver of those rather than just the calorie restriction that tends to come with fasting.

While ADF appears to be effective at getting people to reduce their calorie intake, we can't conclude that it is better for body composition changes than other methods of calorie restriction, it may simply be a different way of reducing how much food someone eats.

What about other intermittent fasting protocols?

Intermittent fasting: the 5:2 diet

This is the other most common intermittent fasting approach, in part because it featured in a popular diet book. Much like ADF, the idea is to aggressively restrict calories on some days, which may be easier to stick to than more gentle restriction every single day. Those two days could be consecutive, like doing it on the weekend, or non-consecutive, whatever works best for you. Admittedly, I don't know anyone who would want more dietary restriction at weekends where social plans tend to be more exciting, but you get the idea.

Let's cut straight to the point here: this isn't a million miles removed from alternate-day fasting. If ADF involves three or four days of food restriction per week, depending on how the week falls, this is two days of the same thing – either avoiding calories completely or significantly reducing energy intake. Although 5:2 and ADF have different names, they are very close siblings. Once again, one of the main reasons to research this particular diet is to see if it is a viable alternative to traditional diets. If mild calorie restriction every day isn't fun, maybe just having a couple of aggressive days makes it more bearable. Think of it like cramming your weekly work schedule into just two days per week; those two days might be unpleasant but you get to chill out for the remaining five days. Sure, it will likely result in weight loss but does it have any advantages over traditional dieting or not? Let's shift our emphasis towards longer-term studies that help

shine a light on whether it's actually feasible for most people to stick to for more than a short period.

One trial put two groups of participants head-to-head with the same degree of weekly energy restriction. One group reduced their calorie intake by 25% every day and the other group reduced their calorie intake by 75% on two days of the week, eating at maintenance levels for the other five days.⁹ This was the largest study of its type at the time – as others were more like 12 weeks in length.^{10,11} At the end of six months, weight loss results were similar but only 58% of participants following the 5:2 diet said they planned to continue versus 85% in the more conventional calorie-restriction group. More participants in the 5:2 group also complained of feelings of hunger so, although it may be a viable alternative, we shouldn't pretend it's an easier one. It might tickle the fancy of some people and sound like a nightmare for others.

In the interest of being as unbiased as possible, it is important to present both sides of the coin. A follow-up trial by some of the same authors showed that the 5:2 diet did result in significantly more fat loss; however, this also included other dietary recommendations, like adjusting the amount of carbohydrates they ate and/or restricting what types of food they could eat, which makes it impossible to attribute the results to the fasting protocol specifically.¹² Unfortunately for fasting fans, there are many other trials that show no significant body composition benefits at all when compared to traditional calorie restriction.^{13,14,15,16}

Summarising intermittent fasting

If we look at review papers that pool multiple studies together, we can see which way the research points. Many reviews have arrived at similar conclusions: intermittent fasting is a viable strategy for weight loss but not inherently superior to daily calorie restriction.^{17,18,19}

Another meta-analysis concluded that intermittent fasting resulted in 'marginally' greater weight loss in the short term, but that this came with slightly greater losses of lean body mass.²⁰ Also, when looking at

long-term results, it arrived at a similar conclusion to previous papers, that there wasn't much difference either way. It also stated that there appeared to be a higher risk of side effects with intermittent fasting protocols, including nausea, dizziness, feeling cold, mood swings and decreased energy levels.

Before we wrap up this subsection, I want to insert an important point on the risks associated with eating behaviour. While some research concludes that fasting programmes like ADF don't promote eating disorder symptoms,^{[21](#)} other papers suggest that for people who are at risk of an eating disorder, intermittent fasting may not be a good idea.^{[22](#)} Although nothing in this book should be perceived as me giving advice on eating disorders, I wanted to include a note on it here to make sure you are aware of the concerns. As with any dietary approach, please proceed with caution, especially if you have any medical conditions or personal circumstances where abstaining from food for longer periods of time could cause issues.

Time-restricted feeding (TRF)

Much like intermittent fasting, TRF has no single set of rules. The one that has garnered the most attention is the 16:8 diet, where you narrow your daily eating window to an eight-hour period and abstain from eating for the remaining 16 hours. Well, technically the most popular form of time-restricted feeding is the Islamic religious fast, Ramadan, which is practised by over a billion Muslims globally. Although it obviously isn't an intentional weight loss intervention, we will use it as a starting point because it accidentally teaches us some valuable lessons.

Ramadan involves one month of abstaining from eating and drinking from sunrise to sunset, and although this may be an average of 12 hours per day, depending on where someone lives, it could be up to 22 hours.^{[23](#)} Although this is fasting for religious purposes, as so many people follow it, it does shed some light on what can happen to your body composition when narrowing your eating window every day.

One review paper included 70 different publications and concluded that when pooling all the data, people tended to weigh less following Ramadan than they did before, which was seen specifically in those with higher body weights, not those who were classed as being of ‘normal weight’.²⁴ Although the amount of body fat people lost was pretty small, it serves as a useful lesson because these are not people who were following calorie-based dietary advice and it wasn’t an intentional weight loss intervention, it just so happens that when you restrict the number of hours per day that someone can eat, they tend to lose weight. Much like during intermittent fasting protocols, you can coax people into eating fewer calories by telling them which hours of the day to avoid food. That, in itself, is often enough to be a weight loss catalyst without any other dietary advice.

Just like with all fasting protocols, though, it is entirely possible that people can overcompensate in their feeding window and consume enough food to gain weight. We should throw this out there early because a lot of people have overblown ideas about just how powerful time-restricted feeding can be. I personally blame some popular authors who decided to ride the wave of hype by selling books that made it sound like it was a magical dietary approach that meant you would shed shitloads of body fat effortlessly. That simply isn’t the case at all.

When time-restricted feeding was first studied, it was at a point when breakfast was commonly described as ‘the most important meal of the day’ and eating three square meals per day was the go-to dietary advice. The whole rationale behind reducing your meal frequency wasn’t popular like it is today. In a pilot study in humans in 2007, researchers noted that reduced meal frequency had already been shown to improve health in laboratory animals but no human data had yet been published to confirm this.²⁵

This 2007 study was super simple: put a group of people through a period where they eat three meals per day and another period where they only eat one meal per day, consumed in the evening, to see what happens. This was not a weight loss study; both diets were designed to provide the appropriate number of calories for participants to

maintain their body weight. This wasn't even a 'time-restricted feeding' study – at the time it was simply referred to as 'meal-skipping'. At the end of the trial, researchers noticed something funny: despite both diets being designed to be weight maintaining, people lost some body fat – an average of 2.1kg (4.6lbs) over an eight-week period – when they were eating one meal per day but not when they were eating three. Is it really possible that you can eat the same number of calories and still lose body fat, solely by squeezing down your eating window?

Well, the researchers were not quite sure why this happened. Did participants eat slightly less, despite the fact diets were supposed to be equal? Was it because body composition measurements were taken at different times of the day? Was it because they were measuring body composition with a tool called bioelectrical impedance analysis, which is known to be at least somewhat unreliable? Was it because meal skipping provided some kind of metabolic benefit? They didn't know, but it was interesting. They also noted that the one-meal-per-day participants reported a significant increase in hunger levels throughout the day. Although to a lot of people, this probably sounds like it's pointing out the blindingly obvious fact that not eating for long periods of time might make people feel hungrier.

One of the difficulties with studies like this is the inability to precisely measure how much physical activity plays a role. You could feed identical twins exactly the same meal plan but if one of them is more active than the other of course they are going to get completely different results. Some studies try to measure physical activity levels but it is hard to be exact, and that obviously has the power to skew the results.

To account for this possibility, one study decided to test the effects of skipping breakfast using a much more extensive analysis of physical activity levels.²⁶ There were two conditions:

- Breakfast group – who needed to consume at least 700 calories prior to 11am

- Fasting group – who were not allowed to eat anything until midday

The researchers measured the participants' daily activity in much more detail and used more precise tools to measure their body composition at the end of the trial. Unlike the previous study, they did not ask both groups to eat the same amount of food. Instead, they wanted to see what happens when people skip breakfast rather than forcing them to eat a certain number of calories. On average, those who skipped breakfast consumed 539 calories fewer per day than those who ate breakfast. Just like we have seen before, when you reduce people's eating window, they naturally gravitate towards eating less food. Obviously, this would result in weight loss, right? Even though that seems very logical, it actually didn't seem to pan out at all. People who skipped breakfast did eat fewer calories, but it turns out they also had much lower physical activity levels, which was enough to wipe out any significant calorie deficit that skipping breakfast created.

This serves as a timely reminder that focusing so much on what you are eating means you can overlook another important part of the puzzle. Thinking that skipping breakfast will create a calorie deficit makes perfect sense but it only creates that calorie deficit if all else stays equal. If your physical activity plummets to the floor as a compensatory mechanism, you took two steps forward and two steps back again.

What about lean body mass?

A lot of dietary research trials do not incorporate an additional exercise protocol because it makes things more complicated and expensive to study. That is especially true when it comes to weight training. Asking participants to run for a certain number of minutes per week is pretty simple but asking them all to follow the same weight training programme is another thing altogether. Therefore, we shouldn't be surprised that the overwhelming majority of weight loss research does not include resistance training, which I imagine most

people reading this book will be doing in some form. While a dietary intervention may result in greater weight loss, if your gym performance falls to shit, would you stick with the plan?

Also, as already noted, many studies only monitor changes to body weight. They often aren't looking at whether someone is retaining lean body mass or not, just what the number on the scales says. While this may be relevant to some people, a lot of other people couldn't give a shit what the scales say because they know fat loss and weight loss are not necessarily the same thing. They want to decrease their body fat levels but simultaneously retain or gain lean body mass, which means the scales don't move as much as they would for someone who doesn't care about retaining muscle tissue.

Luckily, some later published research on time-restricted feeding did incorporate resistance training, so we can have a better idea of what happens to lean body mass. One trial split the participants into two groups, both following a resistance training programme, one in combination with TRF and one not.^{[27](#)}

1. Time-restricted feeding group: trained three times per week and were allowed to eat as much as they wanted on those training days. On non-training days they were told to consume all their calories within a four-hour evening window. Their total food intake was not regulated; they did not have specific calorie or macronutrient targets.
2. Normal diet group: also trained three times per week with the same programme structure, but they were instructed to follow their normal diet. No calorie or macronutrient targets were prescribed.

Not telling people how many calories and what macronutrients to consume is not an inherently bad thing, it just teaches us different lessons, like how much food they tend to eat when following a TRF programme. What it cannot tell us is if a programme that only allows you to eat in a small window is better for fat loss and muscle retention when people are consuming the same foods. This trial found that the

TRF group consumed around 650 fewer calories on fasting days than they did on their non-fasting days, which is probably what we would expect at this point, especially with such a short four-hour window in which to eat. Although the body composition changes were not noteworthy, the normal diet group gained more lean body mass during this trial, which caused some people to claim that ‘fasting was bad for muscle building’. I don’t think that is a very sensible conclusion because those following the TRF diet consumed fewer calories and they also consumed less protein than the normal diet group. This doesn’t prove that ‘TRF is bad for muscle building’, it just shows us that if you tell someone to narrow their eating window, they may also end up reducing their calorie and protein intake to a level which is suboptimal for muscle building. It also showed us, again, that despite the narrow eating window, participants did not lose significantly more body fat, which could possibly indicate that they reduced their physical activity levels in response to fasting, as we have seen before.

What this study doesn’t tell us is whether narrowing your eating window is inherently better or worse for body composition, as much as it shows how people adjust their food intake when given no further instructions. What would happen if both groups were told to eat the same number of calories and same amount of protein, for example?

One later study did exactly this, prescribing the same calorie intake and macronutrient targets for everyone, but the ‘normal diet’ group consumed three meals at 8am, 1pm and 8pm every single day and the TRF group consumed their three meals within an eight-hour feeding window.²⁸ Both groups ate 100% of their calorie maintenance needs so this wasn’t a weight loss trial, and they both followed the same training programme. The only intentional difference between the two was the timing of their meals. At the end of the eight-week period, what do you think the results were? There were no differences in lean body mass changes between groups. Surprisingly, however, the group who followed the TRF protocol saw 1.6kg (3.5lbs) of fat loss, versus a smaller 0.3kg (0.7lbs) fat loss in the normal diet group. Just as in the first 2007 study we looked at,²⁵ participants were fed 100% of their calorie needs but still appeared to lose fat when fasting. Great news

for fasting fans: it appears that you can eat the same number of calories with the same macronutrient breakdown but if you simply narrow your feeding window, you can lose more fat mass without it coming at the expense of extra lean body mass.

Why is this? Well, it is impossible to know for sure. Perhaps there really is some kind of metabolic advantage to eating all of your meals within a shorter feeding window. Alternatively, maybe the fact that training sessions were completed in the afternoon between 4pm and 6pm somehow favoured the fasting group, who were eating all of their food around their workouts. Perhaps it is simply the case that the food records were not 100% accurate, which is unfortunately a constant obstacle to face in most dietary studies. While both groups were prescribed to eat the same amount of food and they reported doing so, maybe it just wasn't the case. After all, if you interview people at the end of each week and ask them about their eating habits, it is impossible to guarantee a high rate of accuracy. With all that said, this is undoubtedly one of the studies that absolutely favours fasting when it comes to fat-loss goals.

As this research looking at TRF in combination with resistance training used male participants only, another study tested the impacts in female participants and again found that an eight-hour feeding window did not negatively impact lean body mass retention when compared to normal dieting.²⁹ On top of that, those engaging in TRF also lost more body fat, which is another win. Again, it is very difficult to know exactly why this is, but the authors of the study noted that the dietary advice given to participants was minimal – less than ten minutes, during which they were told how much protein to eat (a minimum of 1.4g per kilogram of body weight daily) and also what time they should be eating their meals.

Although the results of these studies suggest TRF has a positive effect on fat loss and does not affect lean muscle growth, it still leaves us somewhat confused as to what mechanisms are at play here. As we know, the accuracy of participants' food records is an issue with a lot of dietary research. On the flip side, you can monitor people for very short windows where you measure what they are eating more

meticulously. One paper put participants through a very short, controlled feeding trial where they were provided with precise food quantities either between 8am and 8pm or 8am and 2pm for four days each.^{[30](#)} This tested the difference between a traditional 12-hour and a restricted six-hour morning feeding window. At the end, it was concluded that early TRF did not raise metabolic rate but did significantly decrease appetite.

While it would be marvellous if we had found a diet that worked via some magical pathway to ramp up the number of calories burned, noting that TRF helps regulate appetite is still a solid accolade. After all, we know that dietary adherence is difficult and anything that helps hunger is probably welcome. Some hardcore fasting fans claim that TRF can promote weight loss entirely independently of calorie balance and that is unfortunately an absurd idea. While some trials do indeed show more weight loss or fat loss with a shorter eating window, this does not bypass the laws of thermodynamics. For example, one trial wanted to investigate whether TRF promoted any health benefits independently of weight loss. They actually provided food for its participants to ensure accuracy and when they did this, body weight levels did indeed stay static.^{[31](#)}

This all sounds a bit confusing – some studies suggest fasting promotes faster fat loss and others don't. So, another study was later published to try and add further evidence to this hot topic.^{[32](#)} Participants were divided into two groups:

1. TRF with an eight-hour eating window – this group was prescribed a specific 25% calorie deficit to promote weight loss and a protein target of 1.8g/kg/day
2. Normal meal pattern – this group followed the same 25% calorie deficit and had the same 1.8g/kg/day protein target

Unlike most previous studies, both groups followed the same resistance training programme with the same calorie and protein intake goals. At the end of the four-week trial, they had their body composition measured much more comprehensively than most studies

do. What were the results when the feeding window was the only variable between the two? Body weight, fat mass and lean body mass changed to a similar degree in both groups. TRF appeared to offer no advantage in terms of body composition, metabolic rate, desire to eat, hunger, energy levels or perceived recovery between training sessions. Results were about as equal as equal could be, which kind of pisses on the excitement from the earlier trials.

You can understand why people have such different views on fasting, right? Some research papers sound really positive and others do not, so depending on which studies they focus on, they could come to completely different conclusions. Quite a lot of trials show that people tend to eat less food when they are prescribed a shortened feeding window, but even that isn't guaranteed without other dietary advice. Some people eat fewer calories and lose weight, and some don't.³³

Now we have navigated our way through some of the older to more recent studies in this area, the best way to round off this topic is to once again turn to review papers, to summarise everything in an unbiased fashion. We know that TRF often promotes weight loss and fat loss, likely because it simply nudges people towards eating less food overall. When you narrow down the window where people can eat, it is common that they naturally gravitate towards eating fewer calories. The big question is, though, is it better than traditional calorie restriction?

One meta-analysis included 11 studies and concluded that in observational trials, like the Ramadan research papers, TRF resulted in a significantly reduced energy intake, between 200 and 350 calories per day.³⁴ This resulted in more weight loss, obviously, but this often comes at the expense of some fat-free mass. While in the controlled trials that compared TRF to traditional calorie restriction, differences in fat mass and fat-free mass tended to be very close.

‘... TRF promotes weight loss in the short term, probably because the caloric intake was overall reduced. Further larger high-quality [randomised controlled trials] with

longer follow-ups are needed to define the impact of mealtime restriction on body composition, metabolic pattern and cardiovascular health.’[34](#)

In fact, several of the most recent review papers that look at all fasting diets simultaneously, essentially conclude that fasting can work for weight loss but the differences when compared to regular calorie restricted diets appear to be small to insignificant.[35,36,37](#) In short, until more research is published, from a fat loss perspective, fasting is just a different vehicle that ultimately takes you to the same destination: calorie restriction. There may be benefits above and beyond this but there isn’t much conclusive data to prove that yet, so you may as well opt for whatever suits your personal preferences.

HOW CAN YOU PUT THIS INTO ACTION?

- Fasting diets are basically very simple ways to nudge you towards consuming fewer calories. By abstaining from food for extended periods, you are probably going to eat less, obviously. If you like the idea of simple instructions versus more complicated advice, like counting your calories and aiming for a daily energy deficit, fasting might be worth trying.
- However, this could be a terrible idea for some people. If fasting protocols make you feel fucking hungry and you want to shovel food into your mouth as soon as your feeding window opens, it is entirely possible to consume just as many calories in a short period of time, which defeats the point from a fat loss perspective. There are also concerns from a disordered eating perspective, as this could encourage binge eating in some people and, of course, you may have personal circumstances that make fasting a bad idea.

- As research tends to show that fasting methods offer similar body composition changes to regular dieting when your total calorie intake is kept the same, it does essentially show you that you have a lot of flexibility on when you consume food and allows you to adjust to suit your personal preferences.
- For example, if you are someone who doesn't feel hungry in the morning, you don't *need* to force breakfast down thinking it helps 'kickstart your metabolism' or anything like that. You can feel safe in the knowledge that eating your breakfast a bit later is a perfectly viable option. If you prefer to skip breakfast altogether and eat a bigger lunch and dinner, this is also an option.
- You also have flexibility from a weekly perspective because although alternate-day fasting sounds like a horrendously restrictive idea to most people, it does show you that you can eat more food on some days and less food on others and still get similar results if your weekly calorie intake is the same.
- In many ways, traditional dieting where you try and maintain the same calorie deficit every single day is kind of unrealistic. There are probably days where you want to consume more food, whether it's because you are going out to dinner, socialising with friends or simply because your appetite naturally feels higher on some days than others. Knowing you have the flexibility to fluctuate how much you eat without feeling like you have broken your dietary rules is a great thing, even if strict fasting protocols don't interest you.
- Keep in mind that there is no reason you need to do any of these consistently. From a weight management perspective, intermittent fasting methods are just tools in the toolbox. If you are following time-restricted feeding, you don't have to avoid

breakfast forever. If you are implementing fasting days into your week, you don't have to do that every single week for several months. Feel empowered knowing you can chop and change any of these options to suit your personal preferences.

Diets based on food selection

There are some dietary approaches that do not focus on macronutrient targets or timing windows but instead revolve around certain food recommendations – either foods to focus on or foods to limit. Often, these are not adopted for reasons related to body weight control at all and may be for health or ethical purposes instead. However, for a couple of reasons I think they have a place in this book.

First, some people do adopt them as a form of weight control. Pretty simple explanation.

Second, there is relevant research available. Studies may have set out to focus on the overall health benefits of a specific diet, but as part of this will incorporate body weight or other physical measurements as one of their metrics. For example, when debating if one country has a healthier diet than another country, body weights will likely be one point of discussion. Therefore, we can discuss the role that dietary patterns may have, even if a lot of research is not about intentionally 'dieting'.

I also want to emphasise, again, that the relationship between health and weight is not particularly straightforward. There are many dietary changes that can influence your body composition that are not necessarily weight-centric. For example, increasing your intake of unprocessed nutrient-dense foods, like vegetables, may unintentionally reduce your calorie intake substantially enough to result in your body weight decreasing. It may not have been your primary focus or even a goal at all, but it happened.

While one person who definitely wants to 'diet' might choose to track their calorie intake meticulously or have target macronutrient percentages, another person may simply opt to improve the quality of

their diet for health purposes and let any body composition changes be entirely consequential to this. Manipulating the macronutrient ratio of your diet or your feeding window doesn't actually tell you a lot about the overall quality of your diet, so let's shift the emphasis onto dietary approaches revolving around what foods you eat.

The paleo diet

The paleo diet (short for Palaeolithic) is normally characterised by only eating foods available to pre-agricultural hunter-gatherers, which is why it's sometimes referred to as the 'caveman diet'. One of the main ideas behind this is that if rates of certain diseases are trending upwards, perhaps this is linked to modern-day changes to our food supply. The rationale behind the diet can be explained by one research paper:

'In the United States and most Western countries, diet-related chronic diseases represent the single largest cause of morbidity and mortality. These diseases are epidemic in contemporary Westernized populations and typically afflict 50–65% of the adult population, yet they are rare or non-existent in hunter-gatherers and other less Westernized people.'¹

In short, if rapid changes to our diet coincided with obesity rates trending upwards and an increased prevalence of other diseases, should we start eating like cavepeople and avoid any foods that weren't available to our hunter-gatherer ancestors? While there is some disagreement around what foods are 'acceptable' on the paleo diet and what cavepeople really ate, there are some universal truths that we can all agree with. First, and possibly most importantly, we could unanimously agree that when early humans were huddling in a cave prior to the days of food manufacturing plants or even electricity, they definitely weren't eating doughnuts in front of the television. Ultra-processed foods are immediately off the menu on the paleo diet which wipes out a huge group of foods, including the most delicious

and calorie-dense options that people find difficult to stop eating (see chapter four for more on ultra-processed foods).

This diet has some solid foundations as a weight loss diet even if for just one very simple reason: prioritising unprocessed foods is a great idea for appetite regulation. If you had two tables of food – one of them full of meat, fish, whole grains, fruits and vegetables and the other one piled high with pizza, cookies, ice cream and chocolate – it is pretty much inevitable that the second one has a lot more calories on it. On top of that, these are the foods that a lot of people would say they find it difficult to stop eating. If you were told that you could eat as much as you wanted, there is a very strong likelihood that you would consume a lot more energy if you were presented with the second table rather than the first one.

Viewed simply from the perspective of prioritising nutrient-dense, unprocessed foods, the paleo diet sounds like a wonderful idea. However, a possible problem is that it is more extreme than that. Foods that aren't considered 'paleo' include all cereals, dairy, alcohol, some fatty meats, refined sugars, refined oils and even added salt¹ and some paleo fans go further and prohibit some additional foods like potatoes. As such, I think it is important to consider the risks involved in this extreme level of prescription. I fear that if you told 10,000 people to follow a diet plan that avoided these foods, you would see some nutrient deficiencies, a fair amount of unnecessary food phobia and a whole lot of confusion. Saying that some foods are not health-promoting in large quantities is one thing, but the practice of getting people to avoid them entirely is quite another and we know that removing long lists of foods from people's diets is not always the smooth-sailing journey to health that we think it is. As a single example of this, a short four-week study concluded that the paleo diet may not be practical because of potential side effects like headaches, dizziness and hunger, as well as the high financial cost.² Participants also consumed a growing number of foods outside the prescribed list in a single-month study, so should we really expect people to stick with it effortlessly for a long period of time? If you struggle to follow

a diet plan for a mere four weeks, the likelihood of lasting change is probably slim to zero.

There's no denying that a diet that is more focused on unprocessed foods is likely to provide some healthy advantages. In one study,³ the group instructed to follow the paleo diet consumed significantly fewer calories per day and saw a decrease in body weight, waist circumference and fat mass, and improved glucose tolerance, which is your body's ability to manage sugar and can be used to screen for type 2 diabetes. This is another good example of how diets focused on health markers can often inadvertently impact body composition.

This is not the only study that supports this notion. Other research has also concluded the same thing: when giving people 'ad libitum' access to eat as much food as they want, they tend to reduce their calorie intake on a paleo diet.⁴ A higher intake of vegetables, fruit, lean meat, fish and eggs, is great from an appetite standpoint, so it is pretty solid dietary advice, irrespective of whether the 'paleo' label has any relevance or not.

Rather than letting people eat as much food as they want, though, what happens if you make recommendations for people to eat a specific number of calories? One study did this by comparing the paleo diet against a 'healthy reference diet'.⁵ Both diets were designed in a way that participants wouldn't gain or lose weight and to help ensure this was the case, they had to track everything they were eating and even had phone calls with a personal coach to discuss their progress and body-weight fluctuations. On this weight-maintaining diet, what happened? They lost weight. Yep, you read that right, even with the lengths the researchers went to in an attempt to make this weight-maintaining, participants still lost weight and reduced their waist circumference in just two weeks. Apparently, it 'proved to be considerably difficult to keep body weight stable'.

Now, you can understand why people might get excited by all of this, right? When weight loss is seen in numerous trials, even when it isn't the original purpose, it makes perfect sense that people might gravitate towards it, thinking it has some mysterious fat-burning power. But as we know, it is very difficult to guarantee people are

eating the amount of food they tell you. If you put two groups on diets that both have the same calorie content, it is entirely possible that one group will simply consume more or less food than you asked them to, making it difficult to compare the body composition effects of the two. This is why some research papers will go one step further and provide the food to try to ensure a higher degree of accuracy. One study did this when comparing the paleo diet to one based on recommendations by the American Diabetes Association (containing whole grains, legumes, low-fat dairy, moderated salt intake and a reduced saturated fat and cholesterol intake) and in this instance, both groups lost similar amounts of weight, confirming once again that calorie intake is of paramount importance.⁶

Just to reiterate, most studies in this genre are not weight-centric, they are often looking at the health impacts of various diets and body weight is just one of several metrics that are being discussed. This is why there is research into participants with ischemic heart disease,^{3,4} metabolic syndrome,⁵ type 2 diabetes^{6,7} and hypercholesterolemia,⁸ rather than just people trying to lose weight. This means that unlike some research we've looked at in other chapters, we don't have any really tightly controlled trials to show that the paleo diet is better for body composition changes than an alternative diet with the same calorie intake. What we can see is that in most instances, people on the paleo diet tend to eat fewer calories. So, of course, we shouldn't be surprised that multiple review papers conclude that people who follow it tend to lose weight.^{9,10,11}

HOW CAN YOU PUT THIS INTO ACTION?

- If you prioritise minimally processed foods with a low energy density, this is always going to be a great strategy for appetite regulation. From that perspective, the paleo diet sounds very solid, and it is no wonder that it often results in weight loss and improved health markers.

- However, it is also a great example of how healthy-sounding diets can be too extreme. We also know that paleo diets can come with a more expensive food bill and a lengthy list of foods to avoid. This means that the paleo diet can be overly restrictive and difficult for you to adhere to, which we know is crucial from a long-term health and weight management perspective.
- The best take-home message is that diets revolving around lean meats, fish, fruits, vegetables, nuts and eggs often result in weight loss and improved health markers even when people are consuming as much of these foods as they want.
- Does that mean that you need to strictly avoid anything that's not on this list? Absolutely not. Does this mean it is affordable for everyone to follow this? Absolutely not. However, from a health and body composition perspective, we can probably take some of the benefits and apply them to whatever dietary approach you tend to opt for, without having to slap the paleo label on it.
- There is a balance between prioritising nutrient-dense minimally processed foods but not being so restrictive that it is impossible to stick to and sucks all the joy out of your life. That will look different for everyone, so you can focus on improving your diet quality in a way that is appropriate for you, like emphasising the foods you want to eat more of and naturally displacing some of the foods you may want to eat less of.

Diets based on food focus: the Mediterranean diet

Like the paleo diet, the Mediterranean diet is most frequently viewed as a health-promoting diet, rather than one that people follow for body composition purposes. In 1986, a research paper looked at the 15-year death rate in 15 different groups of people across seven

countries to try to identify trends that may have impacted how long people lived.¹² It found that those living in the Mediterranean countries included in the study had significant dietary differences to their non-Mediterranean counterparts. Their consumption of olive oil, fruit, fresh vegetables and wine was higher, whereas their intake of milk, meat fat, beer and distilled liquors was lower. Were these dietary habits part of the reason that rates of coronary heart disease were lower? Of course, it is impossible to know for sure; research like this is useful for drawing correlations but cannot tell us definitive causations.

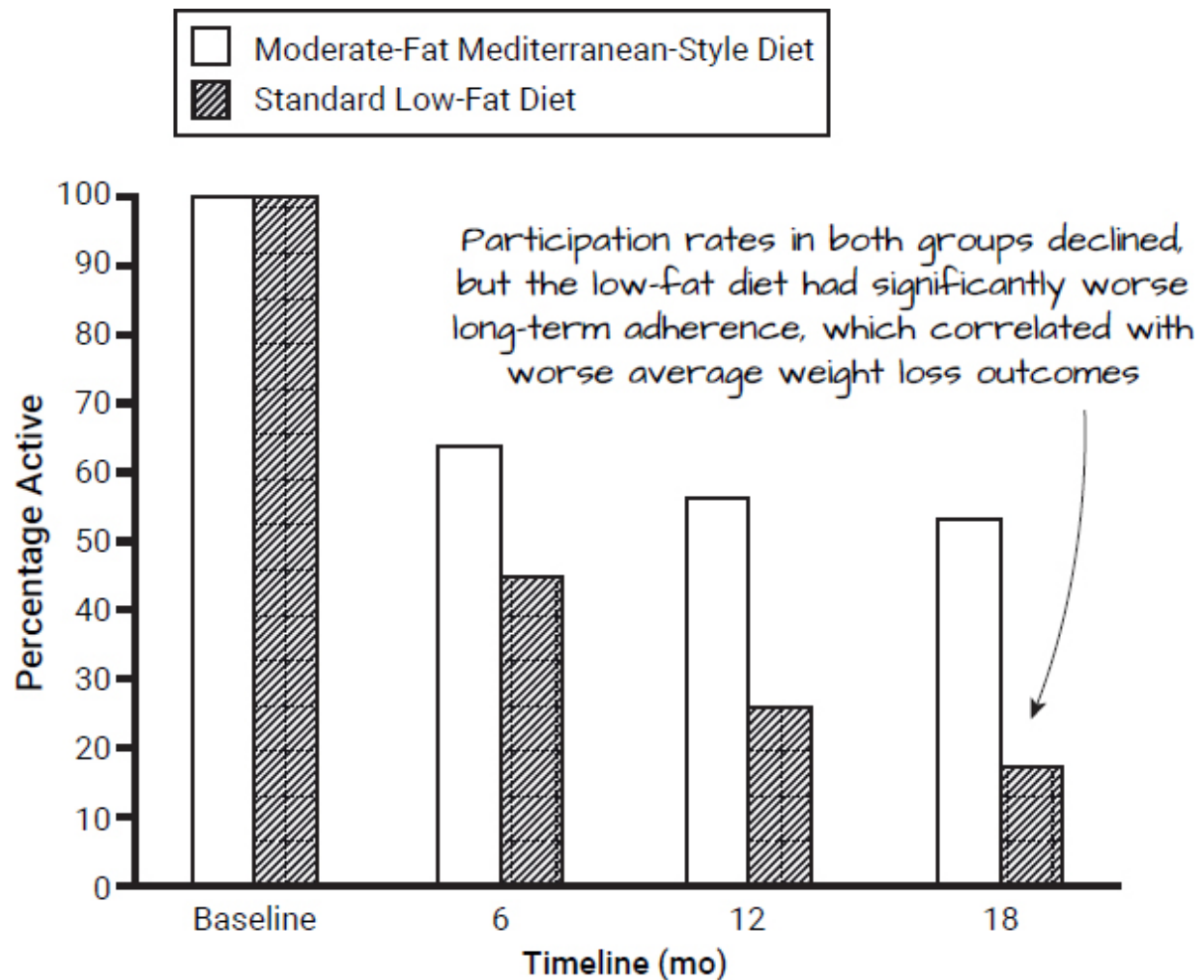
There isn't necessarily a strict definition of what the Mediterranean diet looks like, but it is normally characterised by:¹³

- High consumption of plant-based foods, like fruits, vegetables, legumes, nuts, seeds and wholegrain cereals
- A focus on seasonal, fresh and locally grown foods
- Olive oil as the predominant source of dietary fat
- Frequent but moderate intake of wine, especially red, often with meals
- Consumption of fresh fish and seafood
- Moderate consumption of dairy products, eggs and poultry
- Low consumption of red and processed meats

As this is a dietary pattern based on the types of foods people are eating rather than how much they are eating, we can't identify a definitive trend for whether Mediterranean diets are associated with higher or lower body weights.¹³ But there is a fair amount of research that at least loosely links Mediterranean diets with improved health status, including decreased risk of overall mortality, overall cancer and incidences of cardiovascular diseases, coronary heart disease, neurodegenerative diseases and diabetes.¹⁴ This is why it is commonly regarded as a health-promoting diet, not a weight loss diet. However, there are some body composition trials available and, as both weight and body fat percentage are often included as one metric in health-

centric research, this means we can also discuss it from a body composition perspective.

One of the early research papers on this basically came at it from the angle of ‘maybe low-fat diets suck for adherence because they are bland, so maybe the Mediterranean diet would work well because it is tastier’^{[15](#)} – paraphrased, obviously. This was a weight loss study, in which women and men had their food intakes cut to 1,200 and 1,500 calories per day, respectively, either following a Mediterranean-style diet or standard low-fat diet. Even though both diets had the same calorie intake goals, there was an average 7kg (15.4lbs) weight difference between the two groups at the end of the 18-month trial, in favour of the Mediterranean diet. Participants lost an average of 4.1kg (9lbs) in the Mediterranean diet group, while there was an average 2.9kg (6.3lbs) weight gain in the low-fat group, if you include all participants who started the trial. What kind of magic is this, you might wonder? How did two groups who were prescribed the same calorie intake achieve such vastly different results? Very simply, participation rates in the low-fat diet were piss poor and plummeted quickly. Rates of weight loss between the two were very close for the first year and then diverged after that, which reiterates a valuable lesson: adherence is always going to be a possible bottleneck for long-term success and focusing on something that delivers short-term results if you can’t stick to it in the long term is flirting with disaster.



Participation Rates in Mediterranean-Style and Low-Fat Groups over an 18-Month Period. Adapted from [15](#).

A later study took participants with metabolic syndrome (a combination of risk factors for heart disease and type 2 diabetes, one of which is abdominal obesity) and split them into two groups; one followed a Mediterranean-style diet and another followed a control diet.^{[16](#)} Those following the Mediterranean-style diet were told to aim for a pretty typical macronutrient split of 50–60% of their calories from carbohydrates, 15–20% from protein and less than 30% from fat, but they were also advised to keep saturated fat specifically at less than 10%, aim for 250–300g of fruits, 125–150g of vegetables, 25–50g of walnuts and 400g of whole grains daily, and to increase their olive oil consumption. Although this wasn't an aggressive weight loss

trial with strict calorie goals, participants following the Mediterranean diet did lose weight and reduced their waist circumference by the end of the two-year trial. This is another demonstration to show that following healthy dietary advice can result in body composition changes, even if that isn't the primary goal.

As we know, a lot of weight loss diets deliver results only in the short term as adherence over time decreases¹⁷ and it is common to regain at least some of that weight as time goes on. This is why some research includes a more thorough lifestyle modification programme rather than simply prescribing a reduced-calorie diet in isolation.¹⁸ As the Mediterranean diet is well established from a health perspective, one study decided to investigate its weight loss potential further by combining it with behavioural therapy.¹⁹ In addition to a calorie-controlled Mediterranean diet, especially emphasising vegetables, fruits and olive oil, participants were also prescribed moderate physical activity targets and a step count of 10,000 per day, with regular group meetings to discuss nutrition education and behavioural techniques, which included things like modifying their environment (as we discussed in chapter two) and self-monitoring techniques (which we will discuss in chapter 13). At the end of the 34-week trial, participants lost an average of 7.7kg (17lbs) in weight. As an interesting side piece of information, participants were also asked to complete a 'Barriers to Weight Loss' checklist. Three of the most common barriers were being prone to stress-related eating, being predisposed to eating when bored and thinking in black-and-white, all-or-nothing terms, which reiterates the importance of the underlying psychology and the cognitive flexibility concept that we discussed in chapter seven.

Unlike with other diets, where there are arguments about whether low carb is better than low fat or intermittent fasting is better than continuous energy restriction, the Mediterranean diet has not really been studied to see if it is 'better' than another. There is a pretty unanimous verdict that it is health promoting and the body composition research isn't necessarily about finding out if it is 'best', as much as it is finding out if it is useful and why it might be useful.

Some studies of the Mediterranean diet have been calorie controlled whereas others were not; some of them were tested in isolation, whereas others are compared against another diet; some of the studies combined the diet with exercise and some of them did not. Since the methods of research are so varied, it's no real surprise that it doesn't provide us with very many clear conclusions.

A systematic review examining the Mediterranean diet and central obesity (classified by using things like waist-to-height ratio and waist-to-hip ratio) looked at 18 research papers and highlighted the following differences in study design:²⁰

- All studies promoted an increase in fruit and vegetable intake; most also promoted an increase in olive oil intake and some promoted whole grains, nuts and moderate consumption of red wine.
- They sometimes promoted different macronutrient ratios. For example, some were higher in protein and others were lower in fat than a typical Mediterranean diet.
- 13 research papers compared the diet to at least one control group, the other studies did not.
- Eight of the research papers utilised a calorie-controlled diet, the others did not.
- Eight studies included counselling by a dietitian or nutritionist.

This further emphasises that, given the wide range of ways that the Mediterranean diet is implemented, no conclusion is ever going to be unanimous, but the summary of the review paper's findings is: the Mediterranean diet has potential for reducing central obesity, but it cannot be confirmed whether it is superior to other methods. Given that there are 'few to negligible risks involved with consumption of this healthy eating pattern',²⁰ a Mediterranean diet could be a worthwhile strategy to consider. After all, given that we know any calorie-controlled diet will promote weight loss in the short term, it is prudent to pick one that is healthy, right?

A separate systematic review specifically looked at studies longer than 12 months in duration. It only had five studies to go on and concluded that although they had drastically different designs, the Mediterranean diet resulted in similar weight loss as the diets they were compared with.²¹

‘The findings from this systematic review add to the literature suggesting that there is no ideal diet for achieving sustained weight loss in overweight or obese individuals.’²¹

HOW CAN YOU PUT THIS INTO ACTION?

- The Mediterranean diet is widely regarded as health-promoting and following it can also be good from a weight management perspective as the emphasis on food quality will often nudge you towards consuming fewer calories even if it isn't your main goal.
- Just like the paleo diet, you will notice that calorie-dense ultra-processed foods are not included. This is a common theme in diets that emphasise food type and food quality.
- You do not need to follow a strict Mediterranean diet. It is possible to reap benefits from simply prioritising some of the same foods, like fruits and vegetables, whole grains, fish, seafood, poultry, legumes, nuts and olive oil. Focusing on these and letting them displace less nutrient-dense foods is always a great idea.
- These favoured foods can slot into other dietary approaches. For example, you can eat more fish, poultry, olive oil, nuts and vegetables if you prefer eating low carb, or more poultry, whole grains, legumes, fruits and vegetables if you prefer eating low fat. In a world of diets that often only focus on

eating fewer calories, what your macronutrient ratio should be or what time of the day you should be eating, it serves as a good reminder that food quality shouldn't be neglected.

Plant-based diets

Plant-based diets are adopted for a wide range of reasons, ranging from ethical and religious to health and weight loss. Although it seems like a simple concept, plant-based diets can vary wildly, so lumping them all together under one single umbrella can be confusing and misleading. As an obvious example, there is a big difference between someone simply avoiding meat and someone consuming an exclusively raw vegan diet. Although vegetarianism sounds like a binary choice, in that you either are or you aren't, when looking at the health benefits, it is important to break it up into sub-groups. Not all meat eaters are the same; one person could consume a low quantity of meat primarily from poultry and another could consume a diet that is high in red and processed meats. Likewise, it would be silly to act as if all plant-based diets are the same. Here is a brief summary, so you know the most common plant-based diet categories:

- Vegan: excludes all animal products
- Raw vegan: excludes all animal products, along with foods that are cooked
- Lacto-vegetarian: excludes all forms of meat, fish and eggs but permits dairy products
- Ovo-vegetarian: excludes all forms of meat, fish and dairy products but permits eggs
- Lacto-ovo-vegetarian: excludes all forms of meat and fish but permits eggs and dairy
- Pescatarian or pesco-vegetarian: excludes meat, but permits fish, dairy products and eggs
- Semi-vegetarian/flexitarian: switches between vegetarian and meat-based diets; consists mainly of a vegetarian diet with a

minimal intake of meat.

- Omnivore: does not exclude any animal products

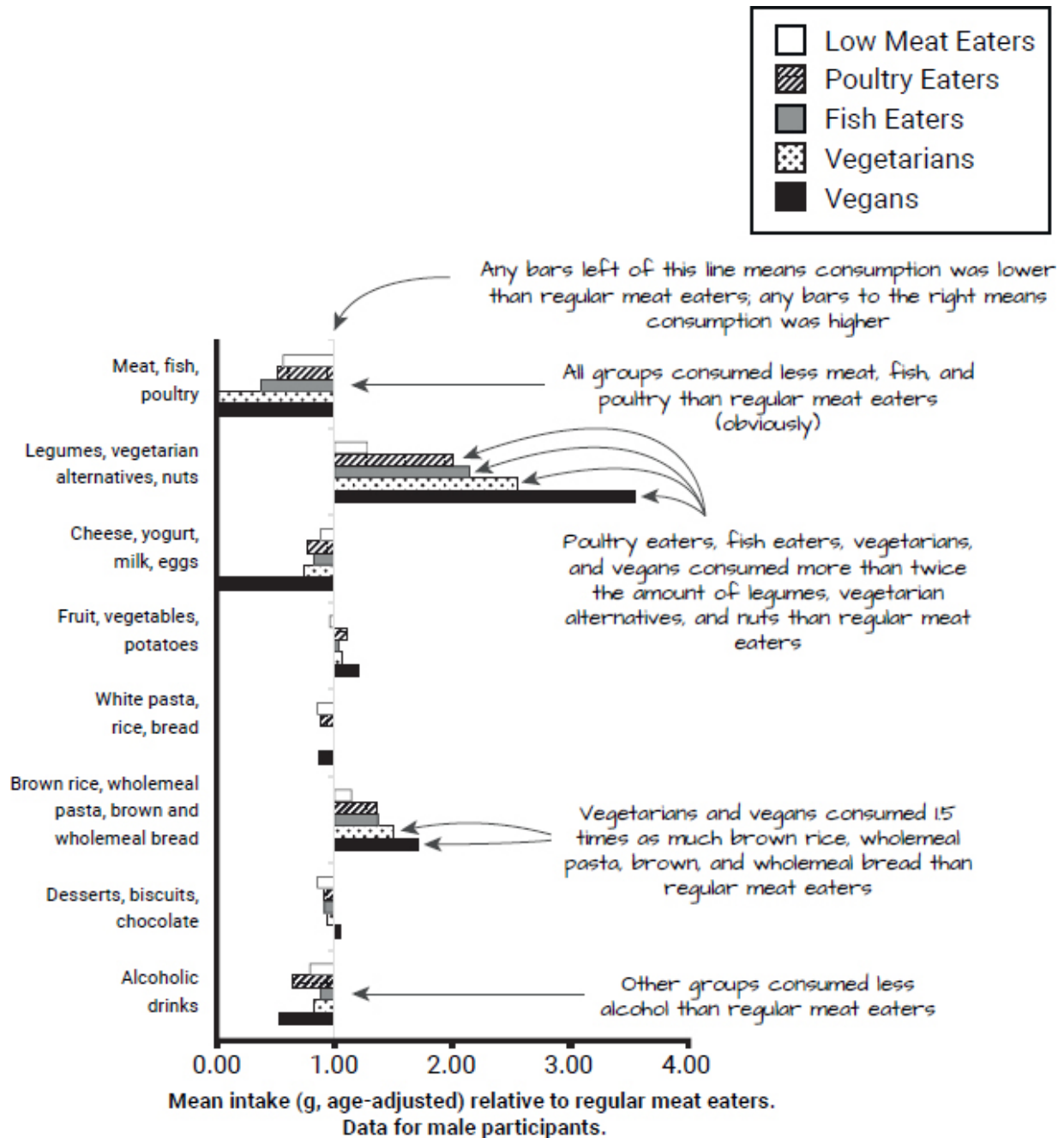
This makes the research literature a bit of a puzzle and I am pretty sure it is at least one reason why just saying the phrase ‘plant-based’ can conjure up very different images in people’s heads. Like most diets, I don’t think the label itself is a useful indicator of the overall effect of the diet because ‘plant-based’ can mean a lot of different things. For example, to investigate the health effects of meat eating and non-meat eating, one study surveyed 30,239 participants and had to break up participants into six separate groups:²²

1. Regular meat eaters, who consumed more than 50g of meat daily
2. Low meat eaters, who consumed less than 50g meat daily
3. Poultry eaters, who consumed poultry but no red meat
4. Fish eaters, who ate fish but didn’t eat any meat
5. Vegetarians, who consumed no meat or fish of any kind but did consume dairy products and eggs
6. Vegans, who did not consume meat, fish, dairy products or eggs

As you can see, this section of the book isn’t quite as easy as saying ‘Hey, let’s discuss the body composition research looking at plant-based diets.’ For example, one study comparing BMI data of vegetarians and non-vegetarians found that 13.1% of vegetarians still ate fish,²³ so how do we discuss this research when we already know some of the participants don’t fit the same definition of ‘vegetarian’? It’s good to understand that this isn’t very straight-forward before we move on.

The first study above surveyed a large group of people to try to identify dietary trends in an attempt to understand the health differences between each diet group.²² For example, when you look at

meat eaters compared with vegetarians, meat consumption is not the only thing that is different between groups; vegetarians may be inclined to eat more or less from other foods groups as well.



Mean Consumption of Foods in Low Meat Eaters, Poultry Eaters, Fish Eaters, Vegetarians, and Vegans Compared to Regular Meat Eaters Among Men. Adapted from [22](#).

The study found that vegetarians and vegans consumed less meat, fish and poultry compared to meat eaters, obviously, but they also consumed significantly higher amounts of legumes, nuts, whole grains, fruits and vegetables. On top of this, non-meat eaters consumed lower amounts of refined grains, fried foods, alcohol and sugary drinks. In general, this study would suggest that non-meat eaters likely have healthier diets than meat eaters, on average. This has also been supported in other research, suggesting vegetarians tended to smoke less, drink less alcohol at weekends, use less prescribed medication and perform more intense exercise than their non-vegetarian counterparts.²³ This is one reason why it is quite common to conclude that vegetarians have lower BMIs on average than meat eaters. Their overall lifestyles are often different and it's not just about whether they are consuming animal products or not.

One study of nearly 38,000 people found that pescatarians, vegetarians and vegans tended to have lower BMI scores than meat eaters.²⁴ Of course, this doesn't guarantee that non-meat diets are healthy. Plenty of high-calorie, nutrient sparse ultra-processed foods are still free of animal products, so you could live exclusively on these and still be vegan. Pizzas, cakes and brownies are all available as vegan foods and I doubt anyone would describe them as the healthiest foods in the world, right? Likewise, we cannot conclude from this that diets containing meat are guaranteed to be less healthy. It simply gives us some data to indicate common themes. It looks like non-meat eaters tend to be more health conscious than your average meat eater.

By now we all know that correlation doesn't equal causation and there are serious limitations regarding what conclusions we can draw. First, if you're surveying nearly 38,000 people, you can only ask for some basic measurements like height and weight – you can't ask them all for their body fat percentage, so we don't necessarily know what is happening from a muscle mass perspective, just total body weight. Vegans had the lowest BMI scores out of all four categories and they also consumed the lowest amount of protein, so it is therefore possible that they also had less lean body mass. The other strongest association with BMI was low fibre intake. Meat eaters consumed the lowest

amount of fibre and had the highest BMI, while vegans consumed the most fibre and had the lowest BMI, echoing what we have seen elsewhere: a higher fibre intake may help with weight management^{[25,26](#)} or it may simply be a tell-tale sign that someone is consuming a more nutrient-dense diet in general. Meat eaters also had higher energy intakes than pescatarians, vegetarians and vegans, which of course would make a difference.

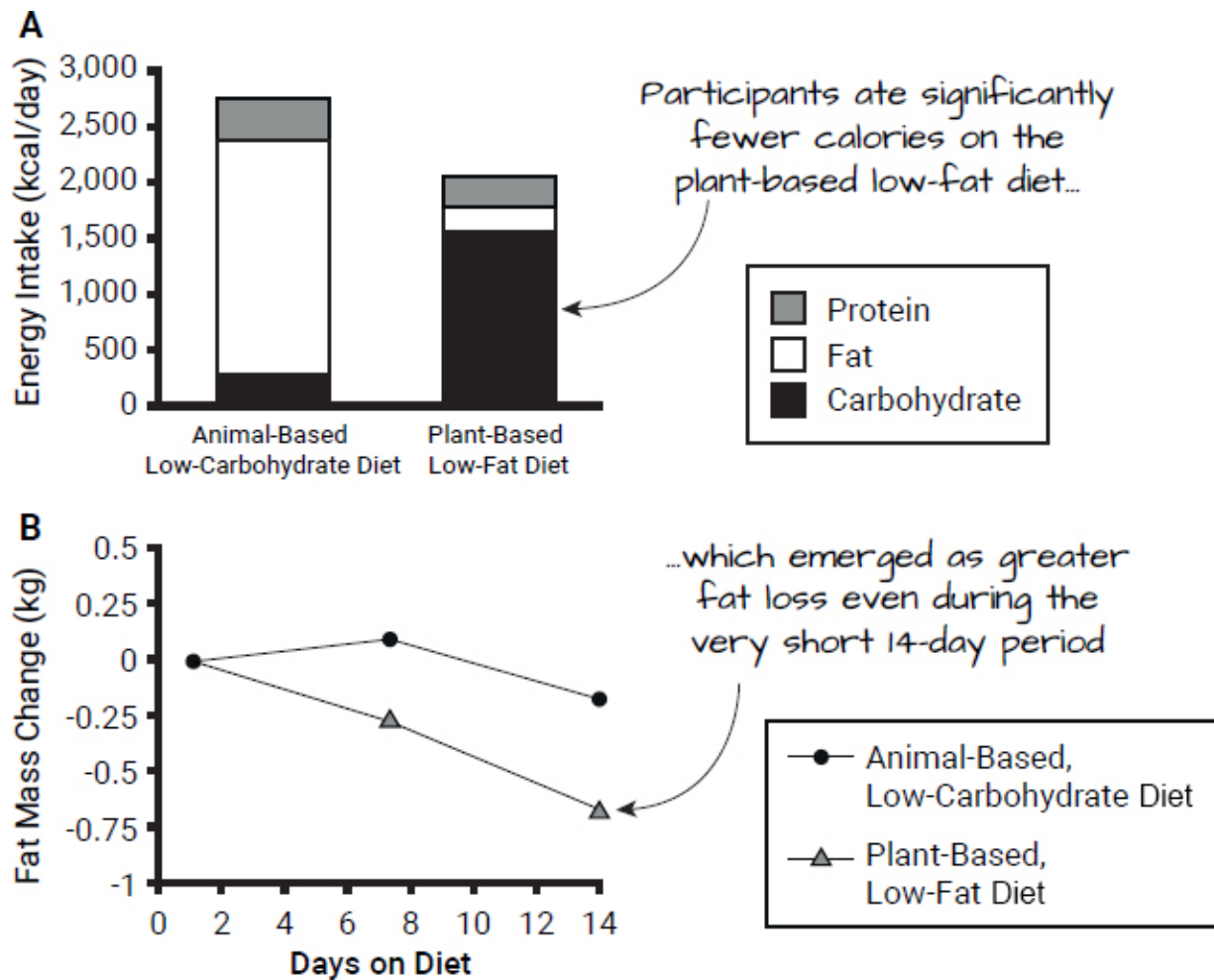
We can never form any firm conclusions from this type of research, so we need to look at controlled trials instead. One study recruited participants with type 2 diabetes and got them to follow either a conventional diet based on guidelines from the American Diabetes Association with a daily calorie deficit of 500–1000 calories, or a low-fat vegan diet for 22 weeks.^{[27](#)} On top of abstaining from animal products, the participants in the vegan group were also instructed to avoid fatty foods (obviously, on a low-fat diet) and favour low-glycemic-index carbohydrates, like beans and green vegetables. Needless to say, from a food choice perspective, this is very restrictive. For most people, if they removed all animal products, all fatty foods and then also had to favour low-glycemic-index carbohydrates, their diet is going to need a massive overhaul. The vegan group were also given a vitamin B12 supplement to help decrease any risk of deficiency. Despite the fact that the ADA diet group were prescribed a calorie-restricted diet and the vegan group were not, the vegan group lost twice as much weight at the end of the trial. A follow-up study by some of the same authors found that despite its restrictive nature, participants on the vegan diet didn't find it any harder to stick to than the conventional ADA diet.^{[28](#)}

We know that if you ask people to follow a low-fat vegan diet it can result in an overall decrease in food intake, but why is this? One study compared two diets: a plant-based, low-fat diet and an animal-based ketogenic (low-carb) diet and let participants eat as much food as they wanted.^{[29](#)}

1. The plant-based, low-fat diet contained 10% fat, 15% protein and 75% carbohydrates

2. The animal-based ketogenic diet contained 10% carbohydrates, 15% protein and 75% fat

This is putting two completely opposing hypotheses against each other. On one side, ketogenic diet proponents often believe that reducing carbohydrate intake will reduce insulin production and in turn promote fat loss, while low-fat proponents often believe that because dietary fat is high in calories, it is easier to overeat and therefore more fattening. All food was provided to participants so they managed to keep the protein intake exactly the same between the two diets, although in the real world we know that there is a good chance low-fat vegan diets would result in a lower protein intake than an animal-based ketogenic diet. When following the plant-based diet, participants ate an average of 689 fewer calories per day than they did on the ketogenic diet, which resulted in greater fat loss, despite each phase only being two weeks long.



Average Calorie and Macronutrient Intake (A) and Fat Mass Change (B) During Each Dietary Phase. Adapted from [29](#).

As both diets were rated similarly in terms of pleasantness, it wasn't a case that people ate less on the plant-based diet because it was less tasty, the menus were designed to make both diets similarly palatable. It was suspected that they ate less because it was a much greater volume of food for the same number of calories. This aligns with the energy density theory: if you can increase the portion size for the same number of calories, people tend to eat less^{[30](#)} (see chapter four for more on this). For example, a meal of steak and avocado could be much smaller on your plate than a calorie-matched meal of whole grains and lentils, so a lot of people might find the former easier to eat in larger quantities than the latter.

Another study prescribed five different diets, four of them plant-based:^{[31](#)}

- Omnivorous diet (no foods are excluded)
- Semi-vegetarian diet (limits meat)
- Pesco-vegetarian (excludes meat, not fish or seafood)
- Vegetarian (excludes all meat, fish and seafood)
- Vegan (excludes all animal products)

On top of restrictions placed on animal products, which varied by group, participants were also told to limit their intake of fast food and processed foods to increase adherence to the low-fat and low-glycemic-index dietary goals. Although no calorie intake goals were given, quite a lot of food rules were in place that would impact how much food someone could eat. After six months, those following the vegan diet lost the most weight, followed by the vegetarian diet with the other three all being similar.

These studies show that plant-based plans tend to result in people consuming less energy than when following alternative diets, but what happens when calorie guidelines are also given, rather than letting people eat as much as they want and leaving the food restrictions to influence how much they eat? It turns out, the weight loss superiority of plant-based diets is at least somewhat mitigated, as shown when comparing a low-calorie vegetarian diet to a low-calorie Mediterranean diet,^{[32](#)} a low-fat vegan diet to a calorie-controlled conventional diabetes diet^{[33](#)} and a low-fat vegan diet to a portion-controlled eating plan.^{[34](#)}

We can conclude that following a plant-based diet often encourages people to consume less fat, more fibre and fewer calories than some alternative diets, which is quite possibly the reason why they are associated with lower body weights than diets containing animal products. What is perhaps more difficult to untangle is that plant-based diets are often combined with low-fat recommendations, which adds an extra degree of dietary restriction. In these instances, are people eating fewer calories because of the plant-based

recommendations or because of the additional focus on low fat food choices, which, we already know from previous sections, can reduce calorie intake?

What about lean body mass?

Whether a dietary approach has the potential to nudge your food choices is only one part of the puzzle, though; there are other things you might want to consider. For example, as plant-based diets vary in terms of how restrictive they are, there are concerns for nutrient deficiencies so it may take more planning to overcome those risks, like previous studies that prescribed vitamin B12 supplementation.^{[27,28,31,33,34](#)} Also, is a plant-based diet *better* than an omnivorous diet if calories and macronutrient intakes are matched? All of this research tends to lean on changes to body weight, so what about actual fat mass and lean body mass? This is something worth considering with all diets but it's especially pertinent when removing animal products, given many of them tend to be high in protein.

For a long time, plant-based diets have been viewed as probably inferior from a lean body mass perspective. First, the amino acid profile from plants tends to be less conducive to muscle recovery than the profile of animal products, on average^{[35,36](#)} (see chapter three for more on complete proteins). Various research trials have tested the muscle building response of different types of protein head-to-head, which is why milk-based sources are frequently viewed as superior to soy protein^{[37,38](#)} or wheat protein,^{[39](#)} for example. However, this type of research only measures short-term responses to the ingestion of different protein sources, it doesn't actually assess body composition changes over a longer period, which is the question we would like answered. Numerous other trials have compared different sources of protein in combination with a resistance training protocol, for example dairy versus soy,^{[40,41,42](#)} dairy versus rice protein^{[43](#)} and dairy versus pea protein.^{[44](#)}

The results from these are mixed. One obvious reason is because the protein sources are different – we shouldn't automatically expect

all animal sources of protein to beat all plant sources of protein – but most importantly, these are simply comparing two different types of protein added on top of an omnivorous diet. If two groups of people are consuming a foundation of animal protein with either a dairy-based or plant-based source of protein on top, it is kind of difficult to extrapolate those findings into concluding whether plant-based diets are better or not, right?

Instead, we should look at studies that consider the whole diet. One study compared a lacto-ovo-vegetarian (meat and fish free) diet to an omnivorous diet in combination with resistance training and found that consuming meat resulted in greater gains in lean body mass.⁴⁵ While this could look like consuming meat and fish is better for muscle growth, it is important to note that the two diets were not designed to be equal in terms of calories or protein intake, so this still doesn't really tell us if plant-based diets will give you *worse* results necessarily, it might just indicate that they need more fine-tuning to be equal. This is supported by a later trial that compared a lacto-ovo-vegetarian diet containing soy as the main protein source to an omnivorous diet containing beef as the main protein source, that found when the protein intake between groups is similar, body composition changes are also similar.⁴⁶

If you were sceptical of vegan diets, you could say, 'Yes, but lacto-ovo-vegetarian diets still allow for dairy and eggs, which are high quality sources of protein, so maybe that contributed to the results,' and that would be a fair thing to suspect. None of the studies we have discussed have compared an exclusively plant-based diet to an omnivorous diet in combination with an exercise programme. Although we know that animal-based protein sources often confer a better muscle building response on paper, how that pans out in the long term was still somewhat of a mystery, until a newer study tried to answer this question.⁴⁷ It took one group of habitual omnivores and one group of habitual vegans, who used supplemental protein to achieve a high protein intake of 1.6g/kg protein per day (160g for a 100kg or 220lb human) in combination with a resistance training programme. At the end of the 12-week period, both groups had

similar results, suggesting that equal gains can be made on a vegan diet to an omnivorous diet, if proper planning is in place. This is great news for vegans, although it is worth keeping in mind that the supplemental protein that they required to hit their lofty protein target was higher than the other group, reiterating what the earlier research suggested: vegan diets quite possibly require a bit more caution in their prescription as people may very well gravitate towards a lower protein intake.

Overall, when it comes to lean body mass growth or retention, some studies show similar results between groups and others show favouritism towards animal-protein sources. Although it might not be a huge difference between the two, animal-protein sources probably come out at least slightly superior, as confirmed by a meta-analysis of 16 studies.⁴⁸ There is a lack of data comparing exclusively plant-based diets with omnivorous diets in combination with resistance training and based on the little research we have, it suggests they can produce similar results as long as those following a plant-based diet consume sufficient protein.

Although ‘plant-based’ is an umbrella term which includes many different subcategories, generally speaking, when people follow this kind of diet, it frequently results in weight loss, even when calorie guidelines are not given. The overall weight-reducing effects of vegetarian diets, including all of the subcategories, have been confirmed by multiple review papers.^{49,50,51} Although it is difficult to single out specific reasons why people tend to lose weight on a plant-based diet, it is likely a combination of avoiding higher-calorie animal products and calorie-dense fatty foods, an increase in dietary fibre and a focus on low-fat food items with low energy density, all of which together result in a decrease in calories consumed.

HOW CAN YOU PUT THIS INTO ACTION (EVEN IF YOU AREN'T VEGETARIAN OR VEGAN)?:

- If you switch to a plant-based diet, it's highly likely that you will consume more fibre, ample fruits and vegetables and prioritise

minimally processed foods like whole grains and legumes, as well as minimise many ultra-processed and deep-fried foods, and reduce your fat intake and the number of calories you consume – all of which is naturally conducive to promoting weight loss. These are all dietary patterns that you can apply to your own circumstances, even if you are following an omnivorous diet.

- As plant-based diets vary in levels of restriction, there could be a greater risk of nutrient deficiencies which means vegetarian and vegan diets may require more planning to make sure you are not missing out, hence studies often including B12 supplementation or additional protein powders.
- If you are exclusively plant-based, the concern of not being able to maintain or grow muscle tissue as well as you could eating an omnivorous diet can be tackled simply by making sure you are consuming adequate amounts of protein, something that plant-based diets often lack when comparing them to diets containing meat and fish.

If it fits your macros (IIFYM) and dietary flexibility

When I first started getting into training, I remember flicking through gym magazines and looking at the types of foods fitness models used to eat. The recurring theme was stereotypical healthy foods, often plain and bland, repeated multiple times per day. If any of you are familiar with how fucked up hardcore ‘fitness’ culture can be, you will know exactly what I mean, but to everyone else let me give you some examples, so you understand the severity of the situation.

Can you imagine eating chicken, rice and broccoli with minimal to zero seasoning, exactly the same sized portions, multiple times per day for weeks? Carrying such uninspiring food around with them everywhere they go is extraordinarily common for fitness models and bodybuilders who are dieting for photo shoots or competitions. The

constant repetition of the same meals is probably due to a combination of ease of preparation and unnecessary food phobia. In the dark underbelly of the fitness world, this isn't a rare phenomenon.

One study back in 1991 described bodybuilding diets as 'repetitive and uninteresting'.¹ Correct me if I am wrong, but most people don't want to follow a 'repetitive and uninteresting diet', right? Also, let's not forget that following something boring as fuck for 12 weeks so you can step on stage in some skimpy clothing is one thing, but giving this dietary advice to the wider population who would benefit more from long-term habit change is another thing altogether.

Anecdotally, I have seen clients and even close friends following diet plans that were so restrictive you could count the list of foods they were eating on one hand and still have at least one finger left over. I knew someone who ate nothing but white fish and green vegetables six times per day, every single day, for three months. Do you like the sound of tilapia and broccoli? How about eating that exact meal, six times per day, including breakfast, and repeating it every day for three months? While this seems ludicrous to most people, within hardcore dieting culture it actually isn't as rare as it should be. Lots of people follow diet plans that involve immediately eliminating a long list of foods. If you have ever read dietary advice that said you need to strictly avoid bread, sugar, dairy, gluten, fruit, saturated fat, carbohydrates or anything that brings joy to your life, you will know what I mean. And while this advice may appear innocuous on the surface, it can be a slippery slope to unnecessary food paranoia and disordered eating.

Then, a dietary movement came along that helped break the bubble of this hardcore food elimination culture, called 'flexible dieting', also known as 'if it fits your macros', or IIFYM. It originally started on bodybuilding forums, contributors to which share a common goal to diet to a level of leanness far beyond what most people would ever entertain. Here, it was common to see questions like 'Can I swap my brown rice for potatoes?' or 'Can I eat turkey instead of chicken?'— which tells you just how much some people worry about food selection. There is often an intense fear that simply

swapping one food for a similar alternative might derail their progress entirely. The answer to these questions became ‘Yes, you can swap them, if it fits your macros.’ Which essentially translates to yes, if you are doing it within the context of your calorie intake and macronutrient targets, it isn’t going to fuck everything up.

For example, if your goal required you to consume 2,000 calories per day and you were aiming for 40% from carbohydrates, 30% from protein and 30% from fat, you can probably swap one source of carbs for another, or interchange sources of protein and fats, without feeling anxious and guilty about it. If you want to swap chicken for turkey, a banana for an orange, rice for potatoes, crack on because it isn’t going to screw up your progress. Imagine feeling anxious about swapping one food for an almost identical food. That is the level of food paranoia that is unfortunately engrained into hardcore dieting culture.

It is possible to take this level of dietary flexibility even further. We know that on a calorie-for-calorie basis, the ratio of carbohydrates to fats in your diet makes little difference from a body fat perspective, so you could aim for a protein and calorie target and then feel free to swap some of your carbohydrates for fats or vice versa, depending on what you fancy eating that day.

Overall, I think the flexible dieting movement was extremely valuable. It helped even the most hardcore dieters steer away from the extreme food phobia we used to see in fitness and bodybuilding culture and allowed them to feel like they could make their diet more enjoyable, which in turn would probably improve adherence. This is the simplified version, anyway. If you can at least eat foods you enjoy in the process, it’s probably going to be better than following a nutrition plan so restrictive it would take a heavy toll on your sanity.

Over time, as with any dietary movement, it had its extremists who took it way too far and in turn, the flexible dieting movement got a lot of criticism. Some of which was absolutely warranted and some was from people who probably just didn’t understand the point of it. Here are some examples:

Critic: ‘Flexible dieting is about fitting as much junk food into your diet as possible.’

No, it really isn't. Of course, some people might do that but that was never the original goal.

Critic: 'Flexible dieting doesn't pay attention to food quality.'

That isn't really correct either. I don't know any 'flexible dieters' who say your diet should revolve around 'junk' food. In general, it is always encouraged to keep most of your focus on unprocessed, micronutrient-dense foods if you are able to do so. I believe this criticism stems from some flexible dieters who claim food quality doesn't matter for weight loss as long as you are in a calorie deficit. Although that is correct in some ways, there is a huge difference between acknowledging this as true and actively encouraging it. It is true that you can eat nothing but chocolate and still lose weight, for example, but there is no way anyone would actually advise you to do that.

When the whole IIFYM craze took off, people eating pizza and ice cream and still losing weight was a novel concept and therefore people started marketing the shit out of it in a disingenuous way. I saw countless personal trainers posting photos of fucking gigantic meals and saying things like, 'If you want to eat all this and still lose weight, pay for my coaching.' In my opinion, this is grossly misleading because of course food quantity matters. Yes, you can eat pizza and still lose weight but no, you cannot eat as much pizza as you want and still lose weight. Calorie content is of course crucial, so personal trainers posting photos of astronomically sized meals that massively exceed their calorie requirements just for the sake of a catchy marketing image is a sleazy, intellectually dishonest way of advertising. The original idea of allowing a greater degree of dietary flexibility and not prohibiting foods you enjoy got hijacked for marketing purposes.

What IIFYM is really about is substituting foods to help with variety and potentially improve adherence, while still hitting macronutrient and calorie targets. In the study I mentioned at the start of this section, the bodybuilding participants used an exchange system for food selection, which essentially means listing foods based on similar classification, like a group of food options for proteins,

another for starches and another for fats.¹ People were actually implementing dietary flexibility way before IIFYM became a thing, they just didn't call it by that name.

If indulging in a few stereotypical 'junk' foods here and there makes sticking to your diet easier in the long run, then overall you're onto a winner. It's just about learning how to incorporate this sensibly. If your healthy diet is so strict that you cannot stick to it and you end up derailing and eating all the foods you have been avoiding, you didn't do yourself any favours.

Interestingly enough, one study examined diets of two groups of bodybuilders, those who followed a 'strict' dieting approach and those who followed a more flexible 'macronutrient-based' method and found that female participants who had more food flexibility actually had higher intakes of several nutrients including vitamins C, E and K.² This reiterates the idea that narrowing down your food choice selection may also reduce the micronutrient diversity in your diet. This shouldn't really be surprising. If someone is primarily living on chicken, broccoli and rice they obviously aren't going to have the widest range of micronutrients, right? This study also noted that the risk of deficiencies was high in participants in both groups, indicating that more attention should be paid to overall diet quality, especially as someone's calorie intake reduces.

Another study found that flexible dieting was associated with an absence of overeating, lower levels of depression and anxiety and lower body weights.³ A further study found that participants who engaged in rigid dieting strategies, like black-and-white strict avoidance of foods, reported symptoms of an eating disorder and mood disturbances, whereas flexible dieting was not strongly associated with any of these.⁴ Another research paper looked at a group of women enrolled in a commercial slimming programme and found that flexible restraint was a better predictor of long-term weight loss than rigid restraint.⁵

This brings us back to one of the key psychological concepts we discussed in the chapter on weight loss maintenance. Rigid all-or-nothing dietary restraint can backfire more than just cutting yourself

some slack to begin with. If you tell someone who fucking loves pizza that they have to avoid it forever, how long do they last? The default belief is that avoiding ‘bad’ foods is better for your health, but if the act of avoiding them causes you to periodically binge on them or become miserable and feel restricted, are you really benefitting? Perhaps this is one of many reasons that yo-yo dieting is so common. It is one extreme or the other, never anything in the middle. There is much evidence to suggest that rigid mindsets towards food may actually make it harder to maintain a healthy weight.⁶

Optimising the risk-to-reward ratio

Ultimately, if someone is actively trying to lose body fat, there are going to be restrictions in place. They can vary the method, like restricting food choices, modifying portion sizes or feeding windows, or any of the approaches we’ve looked at in this chapter, but they are still following rules. This can carry some risk, both in terms of nutrient deficiencies and psychological issues if people become too extreme in their approach. This is why there is a growing trend for people to move away from dietary restriction completely towards something called intuitive eating, which is often recommended as a safer alternative. By removing dietary rules aimed at weight loss and focusing solely on internal hunger cues, appetite and satiety, the effect on your relationship with food may be improved.^{7,8,9} There is a growing amount of research suggesting it is associated with positive psychological constructs including body image, well-being and self-esteem.¹⁰ However, as this is mutually exclusive with intentional dieting, we need to reconcile how to strike a balance so if you do want to lose body fat, you can do it as safely as possible.

On the whole, if your goal is fat loss, most of the research indicates that adopting a flexible approach so no specific foods are forbidden is likely better for long-term success than rigid all-or-nothing dietary behaviours.¹¹ One review paper concluded that in a sport like bodybuilding that has mandatory fat loss phases, perhaps a sensible way to approach this is to adopt flexible dietary restraint

when fat loss is the goal but move towards intuitive eating recommendations in the off season. This ‘modified intuitive eating’ approach may facilitate fat loss when necessary but transition you to a phase where you allow hunger and satiety signals to dictate energy intake, while still following some body composition conducive behaviours.¹² For example, you could aim to eat protein multiple times a day, which we know is good for maintaining lean body mass and promoting fat loss, and allow yourself a wide range of micronutrient dense foods, but ultimately let your own internal hunger cues guide how much food you eat, rather than relying on external cues like eating to a predetermined calorie goal. For most people who are just trying to find a balance between feeling healthy and regulating their body weight, it makes sense to ensure you are not constraining yourself with dietary rules that are any stricter than necessary. If you set super-ambitious, all-or-nothing rules and then feel shit every time you feel like you can’t adhere to them, it’s not really a surprise that you may be more likely to struggle in the long term.

HOW CAN YOU PUT THIS INTO ACTION?

- The easiest dietary advice in the world would be to ‘only eat minimally processed nutrient-dense foods and strictly avoid everything ultra-processed’ as we have seen time and time again that diets revolving around minimally processed foods can help with weight management. However, in a world where ultra-processed foods are becoming increasingly available, we must understand that prohibiting you from ever eating them comes with risk and that can blow up in your face if you are not careful.
- For example, if your favourite foods in the world are pizza and chocolate and I told you that you absolutely must never eat them again because they are terrible for your health and bad for weight loss, how long would you be able to follow this advice? Would you be able to do it forever or would you only

be able to do it for a short stint before eating them, feeling like you have broken your dietary rules and finding yourself in a yo-yo dieting pattern? Many people alternate overly restrictive dieting with feelings of guilt when they can't adhere to their plan, rather than relaxing the rules and aiming to be consistently good rather than inconsistently 'perfect'.

- While there is a small subset of people who can go through life never eating ultra-processed foods, we must reconcile that telling everyone to strictly avoid all of life's delicious treats just isn't a realistic strategy. Rigid all-or-nothing mindsets towards foods (like having a list of bad foods you need to avoid) are linked with worse weight and mental health outcomes.
- Rather than having a list of 'good' foods that you need to eat and a long list of 'bad' foods you must avoid forever, you can view foods on a spectrum and detach the moral value. Some of them are more nutrient dense than others, some are higher in calories than others, and some of them you would want to eat in higher quantities than others, but you still have permission to eat anything, if you want to. After all, nobody thinks eating a single salad is going to give them a visible six pack and improve their health immediately, so why do we act like eating one measly slice of cake is going to ruin your health and make you gain body fat? Your overall calorie intake and diet quality matters far more than individual food items within that.
- Given that the average human diet contains an increasing amount of ultra-processed foods and a decreasing amount of minimally processed foods, expecting people to suddenly avoid all ultra-processed 'junk' foods is like telling people they have to go from 0 to 100 right away. Going from 0 to 10 is still

making progress and if things feel good at 10, you can always aim for 20.

- If you want to succeed at losing body fat and improving your health in the long term, the goal is to strike a balance between adopting health-promoting behaviours and not going so far that it sacrifices your physical and mental health. If being able to enjoy life's delicious treats in moderation is conducive to your happiness, don't try and follow a strict dietary plan that prohibits them.

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9.

WHAT IS THE BEST MEAL FREQUENCY?

There is a strong chance that at some point you will have heard people talking about the ‘best’ meal frequency for fat loss. At one end of the spectrum, we have people claiming that you *need* to follow a fasting plan if you want to lose fat as quickly as possible and at the other end, we have people claiming that you need to eat smaller and more frequent meals to achieve the same result.

I promise you, when I first started in the fitness industry, I knew people who would set alarms on their watch to remind themselves to eat every couple of hours. In hardcore fitness circles, I knew people who would try to eat as soon as they woke up and every couple of hours after that right up until going to bed. This wasn’t a case of trying to eat six meals per day, some people were aiming for seven, eight or even more.

For any of you who are blissfully unaware of this trend, let me outline how this might look, using a genuine real-world example masquerading under a pseudonym.

Many Meals Madison wakes up at 8am and strives to cook their breakfast within five minutes to try to ‘kickstart their metabolism’. They need to consume this meal as quickly as possible and try to finish it by 8.15am. After that, they eat every two hours. So throughout the day, they have to eat something at 8am, 10am, noon, 2pm, 4pm, 6pm, 8pm and 10pm, which is right before bed. Obviously, as they have cranked up their meal frequency, they have had to substantially reduce the portion size of every meal. If you currently eat three meals per day, imagine dividing that same quantity of food into eight ‘meals’. I use quotation marks around that word because at some point, a portion of food must get so small I am not sure if it even qualifies as a meal anymore.

The idea that eating smaller, more frequent meals is better for fat loss is not actually without merit. One research paper stated: ‘The experts agreed that, as long as we do not consume more energy than we use up and we only eat when we are hungry, it may be useful to split our total energy intake into as many meals as our social pattern allows’.¹ The theory behind this is that smaller and more frequent meals would reduce the total amount of the hormone insulin (which we discussed in relation to low-carb diets in chapter eight) that your body secretes, and this results in better blood glucose control. Rather than bigger meals and bigger blood sugar spikes, having a larger number of small meals would help keep blood sugar levels more stable, which would result in more fat loss.

In observational research that studies large groups of people, an association has been seen between a higher number of meals consumed per day and lowered risk of obesity.^{2,3} As we all know by now, this type of research allows you to identify correlations and, in this instance, people who ate a higher number of meals per day tended to weigh less. For example, men who consumed three meals or fewer per day had a greater risk of obesity than men who consumed more than three meals per day.³ Of course, we also know that correlation doesn’t equal causation; if you look at the number of people who get sunburn, you will probably find that a large percentage of them are wearing sunglasses, but it doesn’t mean sunglasses cause sunburn. Two things can happen to the same person but it doesn’t automatically mean one is directly responsible for the other.

Unfortunately, these kinds of observational trials that only establish correlations are often the ones that get blown out of proportion in mainstream media. If a study shows a correlation between eating more frequent meals and lowered obesity risk, you can guarantee that at some point it will end up in the mainstream media as ‘the key to weight loss is eating six meals per day’, and that is problematic for many reasons.

If you ask 1,000 people about their lifestyle and you notice that people who eat four, five and six meals per day often have lower BMI scores than those who consume three meals or less, what does that

really tell you? More importantly, what does it not tell you? First, if you assess someone's eating habits, it isn't necessarily indicative of how they have eaten for their entire life. If you ate three meals per day for most of your life but recently switched to eating five, five may be what you write down on a survey even though you have only eaten that way for a teeny portion of your years on the planet. To quote one of the studies above: 'Although we found that eating patterns were associated with obesity, the findings cannot be considered causal. For example, current diet may not be representative of diet in previous years (which is the diet that led to obesity, not the current diet)'.²

It is also impossible to definitively conclude what caused what when there are other factors at play. For example, one of the studies that showed lowered obesity risk with higher meal frequencies reported that people who consumed a higher number of meals per day also had higher diet quality overall.³ If people who eat more frequent meals also have healthier lifestyles, it is difficult to untangle whether the meal frequency itself is what actually had a direct impact on how much people weighed. Researchers will try to control for variables like this but it is not easy.

If we go back to the example that wearing sunglasses often correlates with sunburn, lots of other variables are also at play too. Statistically speaking, people who get sunburn may also eat more ice cream, drink more beer in the pub with their friends, spend more time swimming and, of course, have more exposure to the sun.

Observational data has a lot of limitations like this, so it isn't particularly surprising to learn that you can often find studies that give completely conflicting results. For example, one research paper with more than 20,000 participants found that there was an association between eating more than three meals per day and a higher risk of weight gain,⁴ which to the untrained reader could be really confusing, since you were under the impression you needed to eat more frequent meals to lose fat, not gain it. This study readily acknowledged that the effect of confounding variables could not be ruled out. This is one reason why nutrition research can be so confusing.

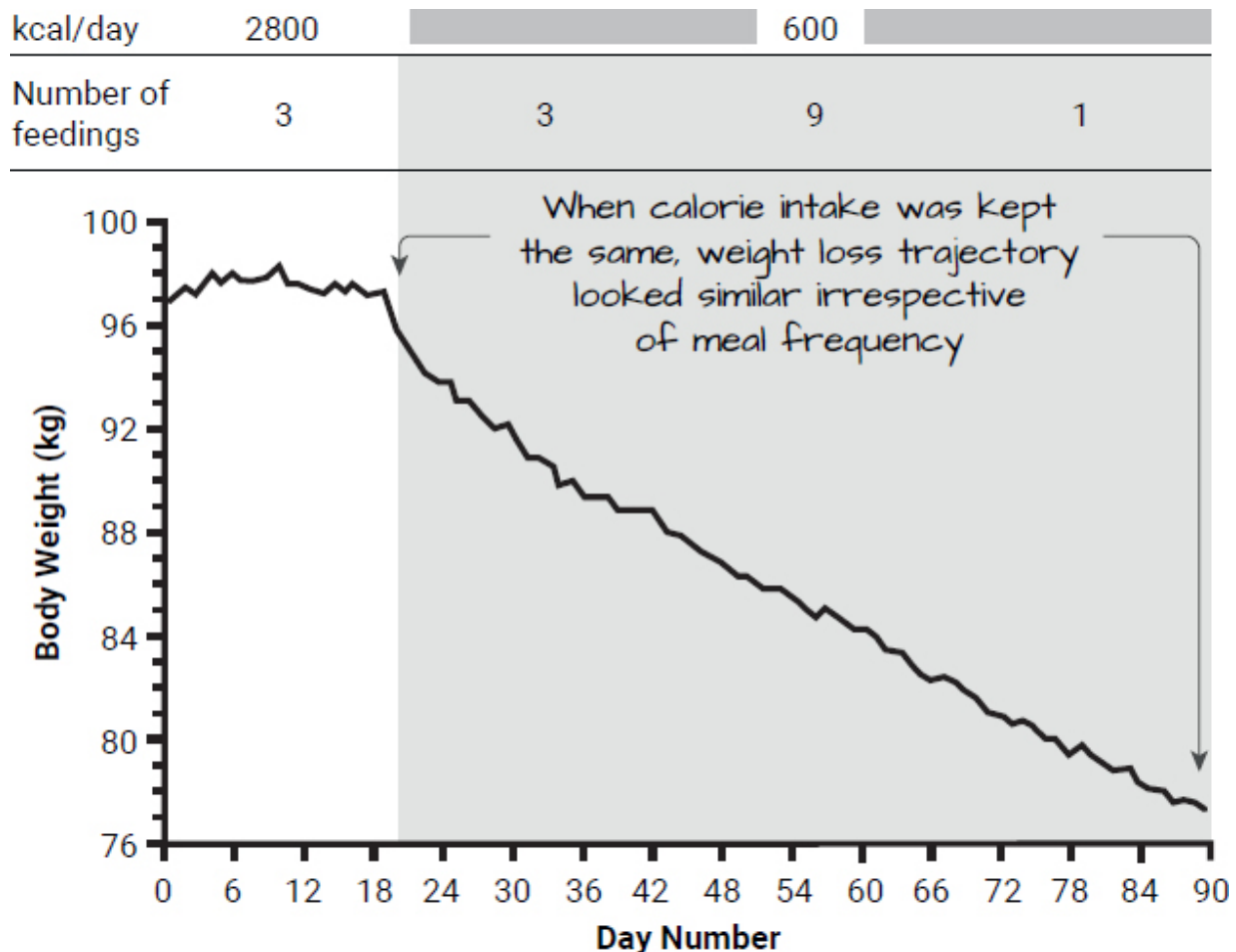
If a study claims that eating more than three meals a day is associated with lowered risk of obesity, it will probably get misworded and plastered around popular media sources. The message slowly changes over time and the final take-home statement is likely to be ‘eating more meals per day is good for weight loss’. Likewise, when conflicting research says there is an association between higher meal frequency and greater risk of obesity, the message could get simplified down to ‘skipping meals is good for weight loss’. In both instances, the take-home message doesn’t really reflect what the research study actually claimed, and the public becomes confused and not sure what the fuck they are supposed to do.

To clear up this confusion, you need to step away from survey results and directly test whether meal frequency has any direct impact on its own. For example, if two groups of people consume the same number of calories relative to their body weight and the same macronutrient ratio within that, but one group consumes three meals and one group consumes six, you can more accurately see whether meal frequency on its own actually makes a difference. Does eating six meals per day raise your metabolism? Is it better for muscle preservation because you are consuming protein more frequently? Is it better for appetite? Let’s turn our attention to controlled trials that are set up to answer these questions.

Back in 1963, one study described a ‘new concept in the treatment of obesity’ which involved an initial 48-hour fast with no food at all, followed by six meals per day.⁵ At the time, the explanation for this was to emulate the ‘nibbling’ pattern of rats and some other animals, which may help minimise fat storage. Even though participants were on reduced calorie diets, they expressed difficulty eating ‘so much food’, which could indicate that having smaller more frequent meals may help manage appetite and hunger levels. The researchers then proposed that perhaps dividing this even further into eight or ten meals per day could provide an even better result, if anyone was willing to try it. In this study, participants followed a very low calorie diet and lost a lot of weight, but this isn’t surprising. Although this study didn’t directly compare different meal frequencies head-to-head,

it gives you an idea of how the high meal frequency idea was born – from a theory that maybe it will help based on speculation from animal studies, which have only a hit-or-miss track record of translating to humans.

To test whether this ‘new concept’ was better than traditional diets, a controlled feeding trial was designed which had a very different methodology to how newer trials tend to be carried out. This study only included six female participants, who were given a diet comprised of precisely measured drinks made from skim-milk powder, eggs, purified powdered casein (a source of protein from dairy), sucrose (table sugar), corn starch and water.⁶ I won’t lie to you, this doesn’t sound like the most delicious nutrition plan in the world, but they were confined to a metabolic ward for the duration of this study, which basically means ‘tough, you are eating this and nothing else’. Each participant went through a brief weight maintenance phase, followed by what sounds like a fucking miserable 600-calorie per day diet for up to three months total, where their ‘food’ was administered in phases as one, three or nine ‘meals’ per day. Each person went through each phase, so everyone had a period of eating one, three and nine meals per day. It found that the rate of weight loss was similar between phases irrespective of the number of meals.



Daily Weight Change of One Participant During a Baseline Weight Stabilisation Phase and Three Subsequent Reduced-Calorie Phases with Varying Meal Frequencies. Adapted from [6](#).

An alternative way of studying meal regularity is to have separate groups, make them follow different strategies and compare their results. This is what a later study in 1971 did. Eight female university students were divided into two groups; one group consumed three meals per day and the other consumed six meals per day.⁷ Their meals were served to them to make sure calorie intake was controlled and equal between groups. At the end of the trial period, meal frequency didn't appear to have caused any significant difference on the rate of weight loss.

Although these early research trials concluded that how many meals you eat per day seems to make minimal-to-zero difference to

how much weight you lose, there is research that offers us some other information to consider. For example, participants in both of the last studies were provided precisely controlled diets by the researchers, but in the real world, we don't have someone feeding us to make sure we are adhering to specific calorie guidelines. This is why it is also important to consider the role of appetite. If eating six meals per day reduces hunger levels, this could be a useful strategy for people to use.

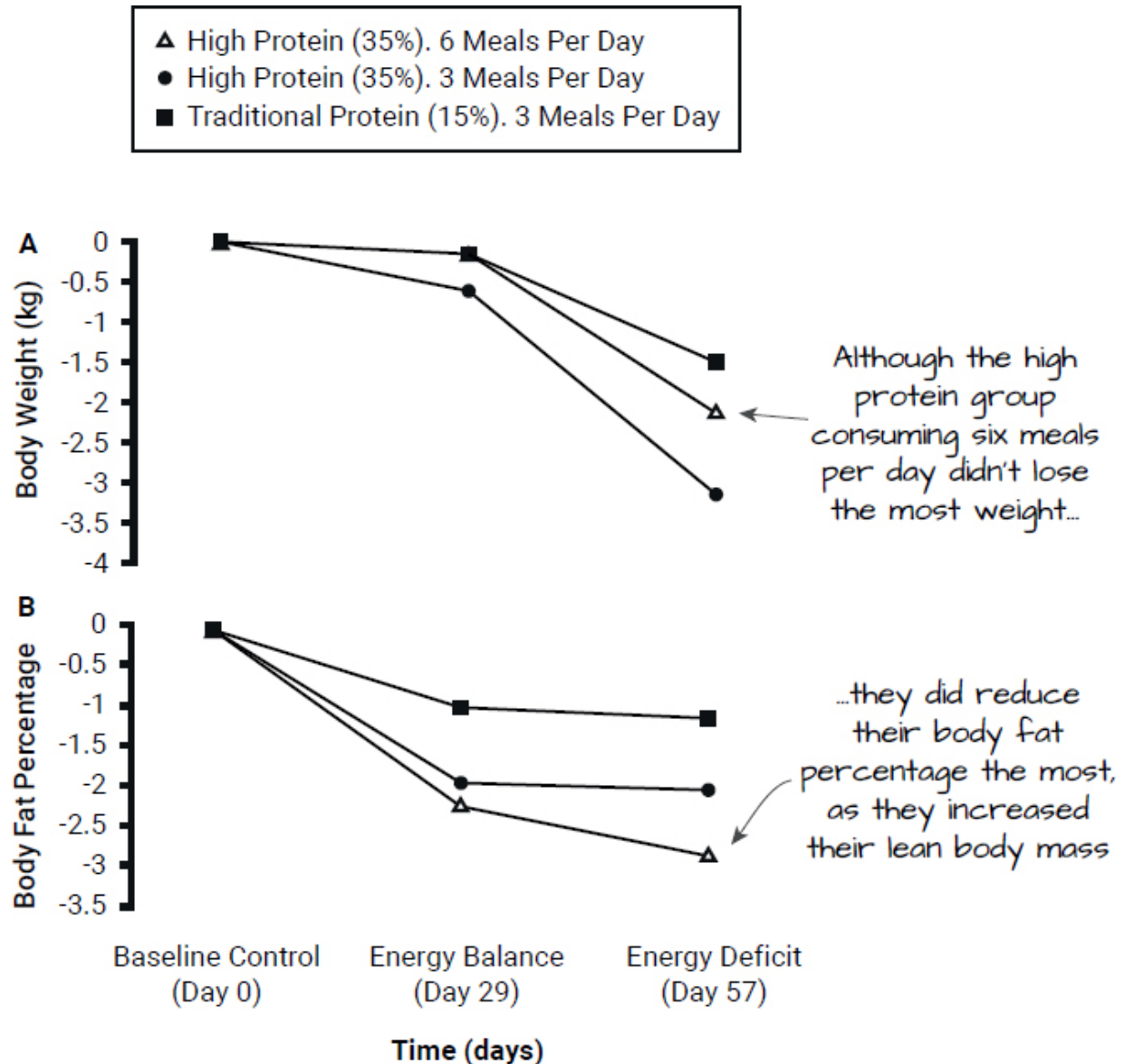
One six-month study compared the common eating pattern of three meals per day to a 'grazing' pattern where participants had to consume at least 100 calories every two-to-three hours.⁸ Those in the grazing group were not given firm timings on how often they should eat their meals and food was not provided to them, so this wasn't a tightly controlled trial, but they were given targets for how many calories to eat and how much physical activity to engage in. What were the results? Although grazing did appear to be better for regulating appetite, this didn't translate into a significant decrease in calorie intake or additional fat loss.

OK, so maybe higher meal frequencies don't promote more fat loss, but are they better at keeping hunger low? Well. Unfortunately, things aren't that clear cut here either. One study tested the impact of adjusting meal frequency in combination with a high-protein diet, dividing its participants into three groups.⁹

1. Higher protein intake (35% of total calorie intake) eating three meals per day
2. Higher protein intake (35% of total calorie intake) eating six meals per day
3. Traditional protein intake (15% of total calorie intake) eating three meals per day

After a brief introductory baseline period, all participants went through two different phases – one where they consumed enough calories to maintain their body weight and a second phase where they reduced their intake by 25% to promote weight loss. Results-wise, both high protein diets were better for regulating hunger than the

traditional protein diet, suggesting higher protein intakes are important regardless of meal frequency. From a body composition perspective, a high protein diet consumed as six meals per day was better for increasing lean body mass and decreasing abdominal fat than when it was consumed as three meals per day.



Body Weight (A) and Body Fat Percentage (B) Changes During Baseline Control Phase, Energy Balance Phase and Energy Deficit Phase. Adapted from [9](#).

If your body uses energy after consuming a meal (see chapter three for the thermic effect of food), perhaps bumping up the frequency and eating a higher number of meals would cumulatively add up to more calories burned per day, which could result in more fat loss? Whatever the mechanism is, this is one of the studies that falls into the ‘win’ column for more frequent meals and is yet another win for the already victorious high protein intake, as discussed at the beginning of chapter eight.

As you may have noticed by this point, research is all over the place so it’s very difficult to come to any firm conclusions. An alternative way to try to answer the question of whether eating more frequent meals results in some kind of metabolic advantage is to create a short-term, super-tightly controlled study. Rather than getting people to follow a specific diet for a few weeks or months, you can basically stick them in a room that precisely measures things like how many calories they burn and then pair that with things like hormonal measurements and extra-meticulous body composition assessments. It is kind of like taking a microscope and zooming in on something really closely; you might not be able to see the bigger picture but you can really confidently see individual pieces of the puzzle.

In one study, 12 participants spent separate 36-hour periods in a respiration chamber where they were fed a controlled diet, administered as either three feedings or a whopping 14 feedings per day.¹⁰ The total calorie intake and macronutrient breakdown were the same for both diets, the only difference was meal frequency. Fourteen meals per day is obviously super extreme and not something that anyone would actually follow in the real world but that is one of the benefits of research studies like this; you can impose artificially strict conditions just to see what happens. By cranking up the meal frequency to the absolute maximum, it would stack the odds in favour of detecting any possible differences than when looking at protocols that are more similar, like three versus four meals. If eating more frequently causes any metabolic magic that promotes greater fat loss, this was the study to work out why.

So, what happened? Although there were differences in blood glucose and insulin levels between the two conditions, rates of fat oxidation were the same, meaning you won't burn more body fat just by breaking up your daily calorie intake into lots of tiny meals. Surprisingly, in this study, eating three meals per day was shown to actually be better for appetite control than very small meals eaten every waking hour. The idea that you need to eat small regular meals for maximum fat loss just didn't seem to pan out, even in a study where meal frequency was absurdly high. If 14 meals offered no discernible fat loss benefit, do we really think that aiming for five or six meals per day instead of three is going to do much? It is doubtful.

There are other research papers like this. For example, a later study utilised a similar design and fed participants either three or six meals per day, again in a room that measures calorie expenditure.^{[11](#)} Once again, this found no differences in rates of fat oxidation, indicating that adjusting meal frequency didn't have any significant impact on the amount of body fat you would burn if your calorie intake remained unchanged. Interestingly, just like the previous study, it noted that hunger was lower when eating less frequent meals.

So, what can we conclude about meal frequency?

With so many conflicting ideas and conclusions floating about when it comes to meal frequency, it is no wonder people are confused. One person could read a single research paper and believe they should graze on small meals over the course of the day if they want to lose the most body fat and another person could go in the complete opposite direction and think they need to skip meals.

As we have seen, studies examining meal frequency vary wildly in design and length too. I have deliberately picked some that are very diverse so you can have a little taste of everything on the menu and appreciate the breadth of what is on offer. Of course, the best way to round all of this off is to turn to review papers that mix everything together in the same pot and give you a summary of what is going on.

One meta-analysis included 15 different studies that actually measured body composition^{[12](#)}. This meant that they had to exclude

some of the very short trials we have discussed. It found that higher meal frequencies were linked with greater reductions in body fat, however this appeared to be caused primarily by a single trial which skewed the results, casting doubt over the conclusion.

Another review paper included 22 different studies and actually leaned the other way: lower meal frequencies appeared to result in greater weight loss. For example, two meals per day was associated with a greater waist circumference decrease than six meals per day.¹³ However, they again stipulated that this was far from certain: ‘In conclusion, our findings indicate that there is little robust evidence that reducing meal frequency is beneficial.’

This is a very detailed way of saying that, while it is quite possible that changes in meal frequency may have other physiological effects that haven’t been fully studied yet,¹⁴ when it comes strictly to body composition, there doesn’t appear to be any really powerful evidence that you should strive for a specific number of meals.

HOW CAN YOU PUT THIS INTO ACTION?

- There is very uncertain evidence that changing how many meals you eat per day will make any significant difference to how much body fat you lose, assuming that your daily calorie and macronutrient intake stay the same. Therefore, it makes sense to opt for personal preference rather than striving for a specific meal frequency.
- For example, if you like eating three meals per day, there is no reason to feel pressured to change that. If you prefer eating smaller, more frequent meals for whatever reason, that is totally fine as well. If it has taken decades of research to conclude ‘we are not very sure’, it’s probably not something you should worry much about.
- From a fat loss perspective, the biggest consideration is appetite regulation. If a specific meal frequency nudges you

towards consuming fewer calories over the course of the day, that can make a significant difference. Some people may feel less hungry if they eat fewer meals, whereas other people may feel less hungry if they eat more frequently.

- Fat loss aside, many other factors may influence your personal preferences. Do you feel like eating smaller and more frequent meals is better for your energy levels? Do your workouts feel better because you have eaten shortly before training, or do you prefer limiting how much you eat before working out? Is it easier for you to fit three square meals into your daily schedule, or do you have a job where you prefer sprinkling snacks throughout your day? Let these kinds of questions guide your thought processes so you can make the best decision for your own circumstances.

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10.

SUGAR: THE TRUTH BEHIND THE CONTROVERSY

At the time of writing, sugar is probably one of the most controversial topics in nutrition. A lot of people view sugar as some kind of evil substance that needs banishing from their diet at all costs. If you've been paying attention to the health and wellness space for a while, it is inevitable that you will have seen countless diet plans that involve cutting sugar out completely. Honestly, the way people talk about it, you would assume it's a class A drug, with people following 'no sugar challenges' and 'sugar detoxes', implying that reducing intake isn't enough – you have to avoid it completely for lengthy periods of time, if not forever.

So, what exactly is sugar? Let's do a very quick summary of the basics.

Sugar is not a macronutrient itself but a category of carbohydrates. Sugars are often referred to as 'simple carbohydrates', rather than 'complex carbohydrates' – also known as starches. Simple carbohydrates come in shorter molecular chains than starches, so you might hear people saying they are 'broken down more quickly' by the body. Sugars are monosaccharides (one molecule) or disaccharides (two molecules), while starches are longer-chain oligosaccharides and polysaccharides. If it's easier, imagine that a length of metal chain is a complex carbohydrate. You could take off an individual link to represent a monosaccharide.

Glucose, fructose and galactose are all monosaccharides and can occur naturally in foods. Sucrose, lactose, maltose and trehalose are disaccharides, meaning they are combinations of two monosaccharides joined together.¹ These are the most common sugars you'll see listed on the foods and drinks you consume, and other

sources of sugar are combinations of these. For example, honey, maple syrup, agave syrup and high fructose corn syrup all contain varying ratios of these mono and disaccharides. You may see advice to stay away from ‘added sugars’ specifically rather than just sugar in general. This is because sugar is naturally occurring in many foods like fruits and vegetables, which contain fibre and micronutrients, whereas added sugars are often included in ultra-processed foods in much larger quantities. If you tell people to limit added sugars, they will need to minimise their intake of foods like ice cream, cookies, cakes and chocolate but don’t have to avoid the banana they are eating with breakfast or the apple they like eating for lunch, both of which are incredibly difficult to overeat compared to ultra-processed foods that are high in added sugars.

Why is sugar so controversial?

Sugars are consistently a source of controversy, endlessly criticised for how bad they are for your health. Discussions include the role that sugars may play in hypertension, cardiovascular disease, diabetes, some cancers, dental issues and obesity, to name just a few.^{[2](#),[3](#),[4](#),[5](#)} Body composition is obviously where our focus is in this book, and one of the most common observations is that as sugar consumption has increased significantly, so have obesity rates, so maybe sugar is the primary cause of body weights increasing across the planet. While plausible, this is a somewhat lazy explanation. After all, we know there are a bazillion other reasons why our lifestyles are totally different to a few decades ago, so looking at rising obesity rates and blaming it solely on sugar is like looking at someone getting older and saying the only difference is their hair colour. A lot has changed, not just that single thing.

Like many people, I have been through phases of cutting back on sugar intake. OK, that is underplaying it slightly. I was once in that small subset of people that avoided it as much as possible. Take your average hardcore low-carb fan and turn up the amplification dial to 100 – I was there. This started back when I was a teenager, when I

was repeatedly told by what I thought were reputable sources of nutrition advice that sugar was terrible for your health and you had to avoid it at all costs.

Obviously, like most sugar-avoiding low-carb fans, all desserts were removed from my diet straight away. Traditional ice creams, doughnuts, cakes and anything else sweet and delicious went as step one, but I went further and avoided all fruit. Not only that, but I was also given a list of ‘acceptable’ vegetables, where anything green and leafy was OK, while vegetables like carrots were prohibited because their sugar content was too high.

Again, I need to reiterate something: this was not ‘minimise’ or even ‘decrease’; this was ‘you must avoid’. It was very binary wording with zero flexibility. If I looked at the ingredients list of any food and saw a sugar derivative, that food was prohibited. I wish I was joking because writing this out feels a bit embarrassing, but it is true. I remember putting back a prepared chicken breast because I saw ‘glucose’ on the ingredients list, which in hindsight is ludicrous because it was literally just part of the seasoning and the amount on there would have been ridiculously small, but I want to explain this so you understand the extent of my avoidance. I think it is important for people to be aware of how extreme food phobias can be as it helps explain why it is important to put out accurate information without exaggerated wording. Many people tell others to ‘avoid sugar’ with the belief they are giving out healthy nutritional advice but might not consider the negative ramifications that making someone absolutely shit scared of food can have.

After a few months of living by my hardcore anti-sugar oath, I noticed some important changes. First, I was spending more money on groceries than before because I was trying to make elaborate low-sugar foods that also required more effort to make, were higher in calories and definitely tasted worse than if I was eating the real thing. Secondly, my relationship with food was atrocious. When you view sugar as the devil incarnate, checking the label of everything you eat feels necessary, but it can be very time consuming and stressful. Thirdly, I noticed absolutely zero change to my health or physique that I can attribute specifically to avoiding sugar. I didn’t suddenly

drop body fat – I looked exactly the same as before – but now I had extreme food paranoia which negatively impacted my social life because I avoided eating out with friends.

Why am I telling you this anecdote? It seems a lot of people are not sure where sugar fits into their diet, and given my personal history with it, I fully appreciate how confusing the topic is. Here are just a few of the questions I get asked a lot by my clients:

- If sugar is so terrible for you, do you have to avoid it completely or is cutting down good enough?
- If cutting down is good enough, what do you have to cut it down to? Is a teaspoon of sugar in your tea or coffee OK? If it is, what about two teaspoons?
- What happens if you consume too much sugar?
- If sugar is bad for you, does this mean you also have to avoid fruit?
- What about vegetables? I thought they were good for you.

It didn't take me long to fall off the ideological bandwagon of everyone absolutely having to avoid all sugar if they wanted to lose body fat. First, it just can't be that black and white. Many people do still consume sugar and lose weight, so the idea that you need to avoid it completely if you want to lose weight is absurd. If it really was that potent at preventing weight loss, it would be an amazing anti-starvation food. You could just give people a teaspoon of sugar every day and their body weight wouldn't decrease.

I started viewing this from a different angle. Rather than trying to strive for 'optimal' (whatever that means) and avoiding all foods I thought might be even slightly 'bad' for you, I wanted to know what you could get away with. Everything has a unique dose-response relationship, even things we view as beneficial. Too little exercise is unhealthy but too much exercise is also unhealthy. If you don't drink enough water, you will die but if you drink too much you will also die. Foods naturally contain many contaminants like heavy metals in trace quantities, but we don't automatically expect those to cause health

issues in any quantity whatsoever otherwise we wouldn't eat anything at all. Labelling sugar as 'bad' seemed oversimplified at the very least, like we discussed at the end of chapter seven regarding dietary flexibility instead of all-or-nothing thinking. It makes sense that some people would want to know how much sugar they could have. Does five grams make a difference? What about 50 grams? What about 500 grams? There must be more detail here than just 'Aaarrghhh, it is poison, don't you dare put it in your coffee or your fitness membership card will be revoked immediately.'

Is sugar fattening?

The association between high sugar intakes and higher body weights has been repeatedly identified. When looking at population data, people who consume more sugar in the form of food or sugar-sweetened beverages frequently weigh more. This association has been shown enough times for us to go straight in with a sentence from a review on the topic which not only identifies this association but goes as far as classifying sugar intake as a 'determinant of body weight'.¹

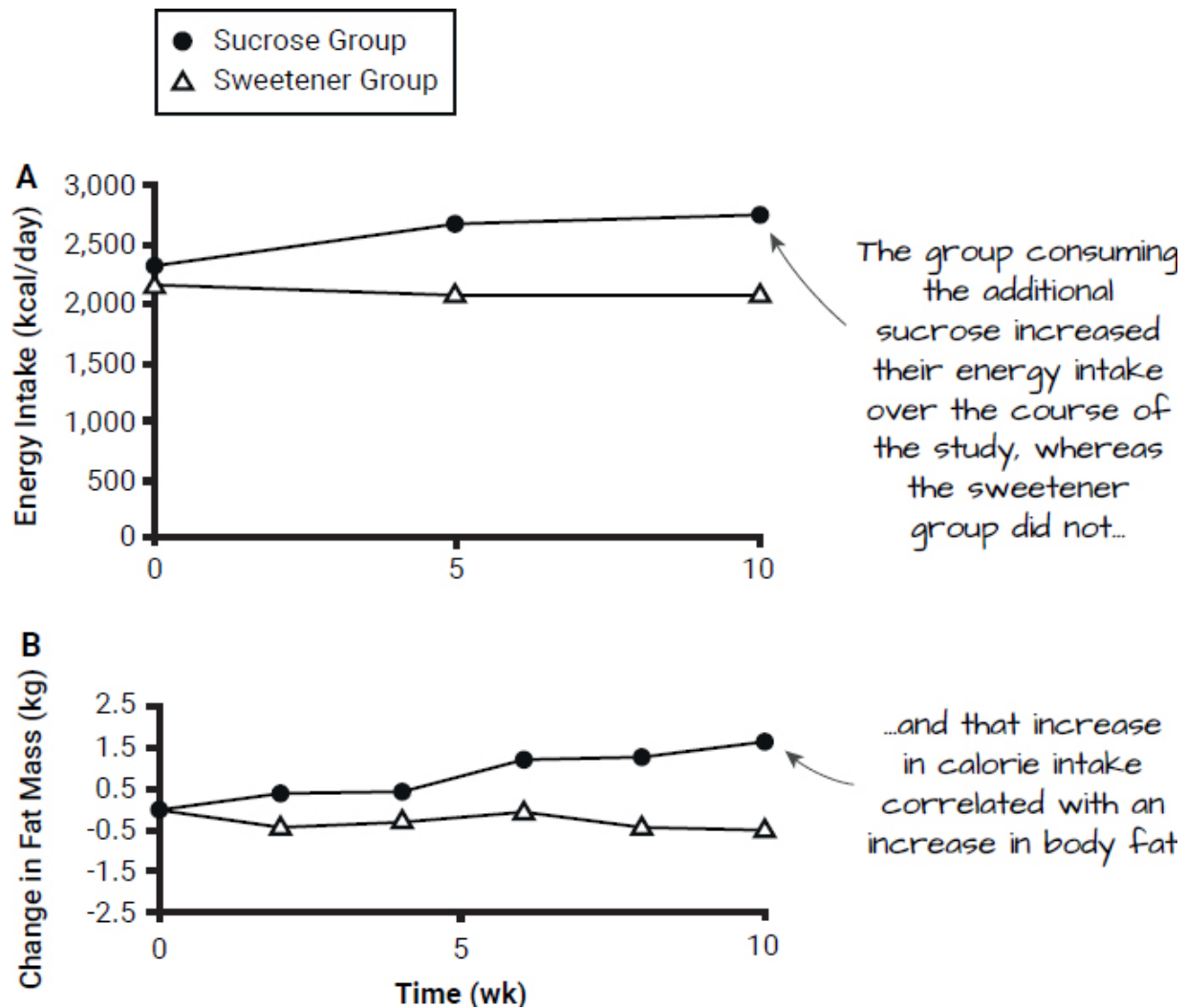
'The meta-analyses based on controlled trials provide consistent evidence that increasing or decreasing intake of dietary sugars from current levels of intake is associated with corresponding changes in body weight in adults.'¹

This seems pretty damning, right? If increasing sugar intake appears to reliably increase body weight and decreasing sugar intake appears to reliably decrease body weight, isn't that the end of this topic? Can't we just tell everyone to avoid sugar and end the chapter here? Well, no. That type of conclusion is the easy one that causes a lot of people to trip over on the first hurdle.

We know that correlation is not causation. Sugar intake may correlate with changes in body weight, but are there any other factors involved? First, a diet with a high sugar content may indicate a lower

diet quality in general. One paper showed that people who consumed more sugar-sweetened beverages also tended to exercise less, smoke more and consume more calories.⁶ Secondly, increasing or decreasing your sugar intake also directly changes how many calories you are consuming. If you add a couple of large sugary sodas to your diet and gain weight, was the sugar the culprit or was it simply because your energy intake went up? To be able to answer the question of whether sugar itself is fattening, let's dive into some of the research.

One trial looked at the impact of sugar on body weight by comparing sucrose-sweetened and artificially sweetened foods and drinks.⁷ Participants were prescribed specific foods that were either sweetened with sucrose (known as common table sugar) or artificial sweeteners. The sucrose group were to consume 2g/kg sucrose per day (e.g., 200g for a 100kg or 220lb person), which is an exceedingly high intake. At the end of the ten-week intervention, the sucrose group gained weight whereas the sweetener group actually lost a tiny bit. As the high sugar intake resulted in a significant gain of fat mass, should we avoid sugar completely? Again, not necessarily. Although the sucrose group gained body fat, they also consumed over 350 more calories per day on average than they did at the start of the trial, whereas the sweetener group did not.



Average Energy Intake (A) and Change in Fat Mass (B) During an Ad Libitum Diet with Participants Consuming Additional Sugar or Artificial Sweeteners. Adapted from [7](#).

So, is the problem the sugar specifically or just greater calorie consumption? This type of trial isn't designed to answer that question because they let participants eat as much food as they wanted. What it does tell us is that people are probably more likely to increase their calorie intake if selecting high sugar foods versus artificially sweetened foods with a lower calorie value. That probably isn't surprising since sweeteners are often used to reduce the calorie content of foods. If you use a lot of sugar in your coffee and swap it for sweetener, you have reduced your calorie intake.

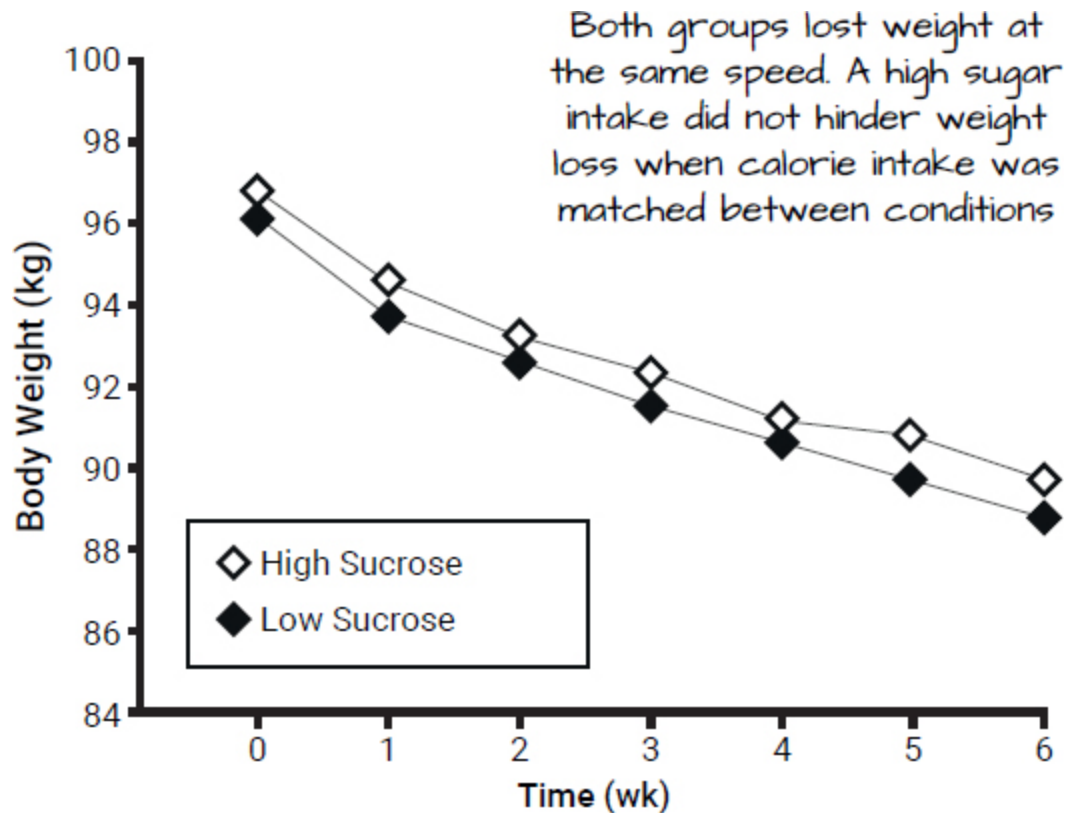
What we really need to know is whether sugar is more fattening than other carbohydrates on a calorie-for-calorie basis, not just what happens when you add more sugar, and therefore calories, on top of an existing diet. To test this, you need something that swaps them in isocaloric portions (portions containing an equal number of calories).

One trial designed isocaloric diets to compare the effects of a high and low sugar intake, one with 25% and the other with 10% of participants' total energy intake coming from sucrose.⁸ Both diets were designed to be identical apart from that, matched for calories, macronutrient distribution and fibre intake, so everything was in place to maximise the ability to assess the impact of sugar intake specifically. To help keep variables as controlled as possible, food portions were calculated and provided to the participants. At the end of the six-week intervention, no changes in body weight were observed. Do you know why? Because participants were fed diets that were calculated based on their maintenance requirements. This demonstrates why total calorie intake is more important than the proportion of sugar within that calorie intake, at least up to the 25% dosage that the researchers looked at.

Another trial also compared isocaloric diets, but this time with an even bigger discrepancy in the low and high sucrose intakes. The low sugar group consumed 4% of their diet as sucrose and the high group consumed a whopping 43% of their calories as sucrose.² Just so we are crystal clear here, 43% of a diet coming from sucrose is higher than most people would likely ever get to. Participants in the high sugar condition were given Kool-Aid powder alongside their breakfast, jelly and marshmallows alongside sweetened iced tea powder with their lunch and meringue cookies at dinner. Trying to go higher than that would be pretty difficult unless you started removing other food items to make room. Like the previous trial, both diets had identical macronutrient distribution, so the amounts of protein, carbohydrate and fat were the same, but this time they were designed to be hypoenergetic (putting people in a calorie deficit). Food was measured out and provided to participants to help ensure accuracy.

What do you think the differences in body weight change were at the end of the trial?

There were none. Both groups lost similar amounts of weight.



Changes in Body Weight with Sucrose Comprising Either 4% or 43% of Energy Intake. Adapted from [9](#).

This trial helps answer the question of whether a high sugar intake halts weight loss because it was tested in the context of a reduced-calorie diet and, perhaps surprisingly, sugar was not inherently fattening on a calorie-for-calorie basis. Strictly from a body composition perspective, similar results have been confirmed in other research trials^{[10](#)} and even systematic review papers.^{[11](#)} Naturally, this does not mean that diets super high in added sugars from jellybeans are the best thing you can do for your health, and nobody would ever encourage that, but the evidence suggests that sugars are fattening based on their calorie content, not because they have magical fat storage powers that other carbohydrates do not possess.

What about fructose?

Fructose is often referred to as ‘fruit sugar’ and is frequently discussed separately, largely because of its inclusion in the ingredient high fructose corn syrup, an increasingly common sugary additive used in sodas and ultra-processed foods. Added sugars that include fructose are thought by some to pose such extreme dangers to health that they should be controlled like alcohol. One of the proposed chronic health effects of consuming fructose is obesity.¹²

A review paper looked at the role of fructose in rising obesity rates and acknowledged two emerging lines of research that tended to point to fructose having negative side effects.¹³ First, based on overall dietary trends, the rise in fructose consumption from added sugars increases in parallel with rises in obesity rates. While this correlation is interesting, it does not, of course prove causation. Second, in controlled feeding trials, fructose can indeed have adverse effects on body weight, blood sugar regulation and fat metabolism in both animals and humans. However, this was seen when excessive intakes were used in studies, so it doesn’t translate to how humans tend to eat. Eating fruit that contains fructose alongside its naturally occurring water and fibre content is obviously not the same as ingesting pure fructose powder. Even high fructose corn syrups are not pure fructose; they tend to contain 42% or 55% fructose in combination with glucose,¹⁴ a ratio that isn’t hugely dissimilar to honey.¹⁵

Once again, this review paper concluded that the main mechanism linking fructose to body weight is its energy content. The authors stated: ‘Although the available evidence indicates that the consumption of sugar-sweetened beverages is associated with body-weight gain, and it may be that fructose is among the main constituents of these beverages, energy overconsumption is much more important to consider in terms of the obesity epidemic.’

It is also important to note that just because two different foods contain the same type of sugar, this doesn’t mean they will have an identical impact on health.¹⁶ Just because there are adverse effects of drinking a shitload of high fructose corn syrup-sweetened soda, this

doesn't mean that you need to avoid fruit forever just because both of them contain fructose. While it might sound blatantly obvious, it is surprisingly common for people to zoom in so far on one single molecule that they overlook the food as a whole.

Not all sugary foods are equal

There absolutely is research that links sugar to weight gain. Sugar is a source of calories so, of course, higher intakes are more likely to make people gain weight. Does that mean that eating fruit, adding a little bit of sugar in your coffee or having some dessert once in a while will completely derail your fitness goals in the context of a calorie-controlled diet? No, it doesn't seem to be that way. When I have discussed this topic before, a lot of people have interpreted my position as being 'pro sugar', which is laughable. I do not encourage people to increase their added sugar intake unnecessarily. There are many reasons why people should regulate their sugar intake.

For example, if a large chunk of your diet comes from added sugars in ultra-processed foods, there is a likelihood that your overall diet quality is low. If your carbohydrate intake comes exclusively from gummy bears and soda, I don't propose that this will be as beneficial health-wise as if it came from fruits and vegetables. It's also a lot easier to overeat jellybeans than apples for example, which have a higher water, fibre and micronutrient content, all with a much lower energy density. It is very easy to chow down a bag of jellybeans containing several hundred calories, but much more difficult to eat multiple apples consecutively for the same calorie total.

This is one reason why putting all sugar-containing foods under the same umbrella is very short-sighted. For example, fruit, specifically, does not appear to be linked to weight gain in the same way that sugar-sweetened beverages are. A systematic review concluded that fruit consumption is unlikely to contribute to excess energy intake and weight gain, as longer-term studies where participants eat more fruit tend to show weight maintenance or modest weight loss, and shorter studies show that fruit has a much greater impact on satiety than more calorie-dense sources of sugar.^{[17](#)}

This is why I dislike it when people demonise sugar without any further details being discussed. Are we talking about all sugar? Is fruit the same as candy? What is the dose being advised against, or is it just strictly avoiding all sugars as much as possible? While some people might think saying ‘sugar is bad’ just means people stop eating dessert and drinking soda, they are essentially promoting fruit avoidance as well, despite research on fruit looking completely different from a health and body composition perspective.

‘Current data indicates that dietary sugars are only associated with an increase in obesity when consumed as an excess source of calories and with that an increase in the risk of diet-related diseases.’¹⁸

Are sugary foods easier to overeat?

Sugar isn’t actually that exciting on its own. Most households tend to have pure sugar in a cupboard somewhere – the odd bag for adding a spoonful or two to your coffee, perhaps. How many times have you got the bag out and started eating it by the teaspoon? Although some people might have done this, it isn’t exactly common. Sugar on its own isn’t particularly tempting but it has the potential to impact the reward value of foods and make them easier to overeat. Flour, butter and eggs are not super-appealing on their own either but mix them together and add some sugar to make a cake mix and it’s suddenly a whole different ballgame.

In chapter four, ‘Food Quality vs Food Quantity’, we discussed how lots of ultra-processed foods are high in sugar and that they tend to be less filling and easier to overeat. In the ‘satiety index’ study that gave participants 240-calorie portions of individual foods before waiting two hours to see how much they would eat afterwards, many foods that are high in sugar scored very low, indicating they were not great at appetite regulation.¹⁹ Mars Bars, cake, croissants, doughnuts and ice cream all ranked poorly. So we can conclude that sugar is easy to overeat, right? Well, when we look at the unprocessed foods that

were measured – bananas, grapes, apples and oranges – which also contain sugar, they all scored better. So is it sugar that isn't very filling or is it the combination of sugar and fats manufactured into specifically designed delicious little packages that is the problem? Satiety scores were inversely related to how palatable a food was: the tastiest items are normally the ultra-processed ones and they also tend to be worse for appetite regulation.

This is very similar to the studies we talked about regarding 'addictive-like' foods. It is true that a lot of the highest ranking offenders do tend to contain high amounts of sugar, as well as having an appreciable fat content.^{20,21} The ultra-processed food items that are high in sugar but not fat – like non-diet sodas and gummy candy – are ranked lower for addictive-like properties, and the unprocessed foods that are high in sugar but low in fat – like fruit – sit near the bottom of the list. As we also saw, when comparing the unprocessed foods only (categorised by whether they had no added refined carbohydrates or fats), items that tended to be high in fat and salt (i.e., that are comparatively low in sugar) – like steak, eggs, nuts and bacon – were more likely to be addictive-like than fruit, suggesting that many things can make you want to eat more of a food, but sugar probably isn't even the main culprit. So, saying 'sugar is easy to overeat' just isn't equally accurate across all sugary food items.

At the extreme end of the sugar content spectrum, we have sugary drinks which are high in added sugars (but not added fats), and these are known to elicit 'weak dietary compensation' – a fancy term that basically means if you add them into your diet, you won't reduce your food intake elsewhere like you would do with other foods. If I told you today to eat twice the amount of food you normally eat at lunch, you may feel less hungry when dinnertime comes and therefore eat less food, right? This is dietary compensation. Liquid calories don't appear to have such an effect. If you include sugary drinks in your diet, they are more likely to be purely additional than if you ate sugary foods. For example, in one study, participants were given approximately 450 calories of jellybeans or soda to consume per day to compare the effect of liquid and solid calories, both primarily from sugars.²² The

rest of their diet was not controlled, which allowed the participants to adjust it naturally without being prescribed a specific amount of total food per day. Following the 28-day soda phase, participants had gained weight, but following the 28-day jellybean phase, they had not. When consuming the additional jellybeans, participants had compensated by reducing their food intake elsewhere, but they did not when consuming the soda. This doesn't show that sugary drinks are more fattening on a calorie-for-calorie basis, but it does show that they are easier to consume in excess. This is one reason why they are often discussed separately in research papers and public policies are more likely to specifically target reduction of sugar-sweetened beverages.^{23,24} It isn't easy to tell a whole nation of people what they can and can't eat but trying to minimise sugary drink options is a pretty safe start. This is a bit like a parent knowing they can't keep their energetic and curious child safe at all times, but they can at least tell them not to stick metal items in electric sockets. You can start with the easiest and most important advice and work up from there.

'The potential for overconsumption of sugars in the form of sugary foods and drinks makes targeting sugars, as a source of excess calories, a prudent strategy. However, sugar content should not be the sole determinant of a healthy diet. There are many other factors in the diet – some providing excess calories while others provide beneficial nutrients. Rather than just focusing on one energy source, we should consider the whole diet for health benefits.'⁶

HOW CAN YOU PUT THIS INTO ACTION?

- There is always going to be an ongoing debate around whether sugary foods themselves are harmful and if so, at what dose. What we should all be able to agree on is that

some foods containing sugar are more micronutrient-rich, harder to overeat and linked with better health outcomes than others. You do not want to lump all foods that contain sugar under the same umbrella. Food is far more complex than its macronutrient content alone.

- There are many reasons you don't want to consume too much sugar. It is a source of energy and therefore, like all foods, it can contribute to weight gain and lead to worse health outcomes when consumed in excess. Also, if your diet contains a lot of added sugars, this suggests that more nutrient-dense foods are being neglected.
- The easiest way for you to regulate your sugar intake is to minimise your consumption of sugar-sweetened beverages. Liquid calories are notoriously poor at regulating your appetite compared to solid foods, so limiting the number of sugary drinks you consume is a sensible behavioural choice if you want to lose body fat.
- It then makes sense to be aware of ultra-processed foods that are high in added sugars. Cookies, cakes, doughnuts and chocolate are engineered to be as tasty as possible and tend to be more calorie dense than unprocessed foods that are high in naturally occurring sugars. It is far easier to eat sugar in excessive quantities when your diet is high in ultra-processed foods than minimally processed foods.
- From a body weight perspective, sugar is fattening primarily because it is a source of energy that helps make foods tastier and therefore it is easy to eat a lot of it. This doesn't mean you need to avoid it at all costs, it is still entirely possible for you to lose body fat even on a diet that is high in added sugars, as long as it is calorie controlled, not that I am recommending you

do this. Prioritising minimally processed and nutrient-dense foods is always good from a health and body weight perspective, but you don't have to strictly avoid all sugary treats as if they will immediately derail your progress. Most people want to enjoy those delicious treats in moderation rather than abstaining from them entirely because life is too short to never eat a single slice of cake again, unless you want to, of course.

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11.

ALCOHOL: THE COST-TO-BENEFIT RATIO

Generally speaking, I don't think anyone ever consumes alcohol thinking it is going to benefit their health or physique. In all my years in the fitness industry, at most, I have heard of people drinking wine for the antioxidant content and claiming this will be good for fat loss (sure, let's conveniently overlook the calorie content of wine and hope those antioxidants are super-duper powerful). Unlike food groups, the default position for alcohol is abstinence and people can choose to opt in if they want to. This is different to something like protein, carbohydrate and fat where most diets will already contain a mix of these, and people can choose to opt out when manipulating their diet.

Although it isn't part of regular gym culture, alcohol *can* be part of sporting culture. If you have participated in a team sport, you might have gone out for drinks with the rest of the squad after a hard game. Nobody is doing this because they think it is some kind of physique or health optimisation strategy; it is just about enjoyment and team bonding. This sets the tone for this chapter because when people ask me about alcohol, they simply want to know what the negative effects are. I think you can look at it as basically a cost-to-benefit ratio. If someone drinks once a week, they want to know if this is absolutely catastrophic for their goals. For a high-level competitor or someone being very strict, it might be worth avoiding any possible negative side effects completely, while others want to know if they can still enjoy alcohol in moderation without ruining their gym progress.

Before we get into it, I need to make an absolutely massive disclaimer to this section. Alcohol comes with potentially severe risks. We all know the dangers of chronic alcohol consumption. Alcoholism can be life destroying. I have seen the impact that alcoholism can have

on people and I absolutely do not take this topic lightly. While I am going to objectively discuss research relating to alcohol and body composition, I need to stipulate with absolute adamance that I am not encouraging alcohol intake and I don't want people to think that this chapter makes light of any other health concerns.

Cheers: why we like a drink

Alcohol is never likely to be beneficial. That just isn't the angle here. So the question is, how much will alcohol fuck up your progress? For some people, this section is entirely irrelevant because they have no intention of drinking for whatever reason. I absolutely respect that. To a lot of other people, this is a hot topic, and maybe my own backstory will help highlight some of the reasons why.

When I was in my early twenties, I strictly avoided alcohol at all costs. I was very much a hardcore 'whatever it takes' type of trainer. If something was considered suboptimal, I tended to avoid it completely. It was a very black-and-white, all-or-nothing mentality. While some personal trainers think that this is setting a good example, which is exactly what I thought, it doesn't always go down like that. I remember very vividly a client saying to me, 'I will never make good progress in the gym because you basically live your life like a monk, and I am not that kind of person.' They saw my all-or-nothing approach and believed they needed to do the same if they wanted to lose body fat and improve their health, and this simply isn't true.

I avoided alcohol so strictly and for so long that when I was invited on a stag do (bachelor party to our US friends), the idea actually filled me with anxiety. I was petrified of what the combination of drinking and not going to the gym would do to me. In hindsight, this is embarrassing to admit, but it just goes to show how obsessive my mindset was at the time. Will I lose all my hard-earned gym progress? Will my muscle mass be eviscerated? How much weight will I gain?

Fast forward to the end of that week-long stag do and do you know what I realised? I'd had one of the best weeks of my life. I was

slapped in the face with the realisation that I had felt anxious about having a holiday. If I had let that anxiety make the decision for me, I would have missed out on some of the best memories with my friends. Was the alcohol I consumed good for my health? No, obviously it wasn't. Would I have regretted it if I had missed out on the feeling of sitting with friends, watching the sunset with a cocktail in my hand? Absolutely.

This psychology is why I think this chapter is important. For every client who wants to know the best way of achieving their fitness goals in record time, there are many more who want to know how they can balance having a fitness regime with socialising with their friends in the pub or having a glass of wine on date night. To many people, alcohol is part of their culture and is associated with social enjoyment.

Alcohol: the basics

Ethanol contains about seven calories per gram (1 millilitre is around 0.79g as the density is different to water where 1ml weighs 1g).¹ You may see it stated as having slightly different numbers like 7.1 calories per gram² or sometimes even 6.9 calories per gram,³ but I don't think anyone is going to lose sleep over a decimal place or two. Even if you consume it without any other ingredients because you are one of those people who likes drinking spirits straight without any mixers, the calories can quickly add up. A popular global brand of beer containing 5% alcohol has 42 calories per 100ml, while a global wine brand quotes 72 calories per 100ml for their 11.5% alcohol sauvignon blanc. When you consider that people tend to drink these by the pint and large glass, the calorie content can rack up much faster than you might realise.

If you are someone like me who enjoys a sweet and fruity cocktail by the pool on holiday, there is a strong possibility that the calorie content of the overall drink will be much higher. A piña colada can contain anything up to several hundred calories per glass, depending on how generous you are with the ingredients. So, depending on your particular tippie of choice, the calorie content can tally up very

quickly. It doesn't take many piña coladas to consume an entire day's worth of energy. It may also be interesting to know that alcohol has a thermic effect estimated at 10–30%, meaning your body will actually burn more energy after consuming it than it would for carbohydrates and fat.^{4,5}

Does alcohol impact appetite?

On top of its high calorie content, alcohol is renowned for being a piss-poor regulator of appetite. How many of us can relate to the feeling of sinking a few drinks and suddenly having very intense food cravings? The kebab van in my local town doesn't get many sober visitors. Rather than making you feel full, consuming alcohol can make you feel increasingly hungry. As we have discussed previously, 'dietary compensation' means that if you add something to your existing food intake, it is normal to compensate by eating less food later that day. If you consumed a larger lunch than normal, you might naturally feel inclined to eat a smaller dinner. Alcohol isn't really like that. Instead, you can add a few drinks to your day and actually find yourself feeling hungrier, despite consuming more calories than you normally would.

To test the impact of alcohol on appetite, one study had participants come into the lab on three separate occasions and gave them either a non-alcoholic lager, the same lager with one unit of alcohol or the same lager with four units of alcohol.⁶ These drinks were consumed 30 minutes before lunch to see whether it changed how much food they ate afterwards. When consuming the lager with one unit of alcohol, there was no increase seen in appetite, but after consuming the lager containing four units of alcohol, hunger ratings were significantly higher over the course of the day, which corresponded with an increase in food intake.

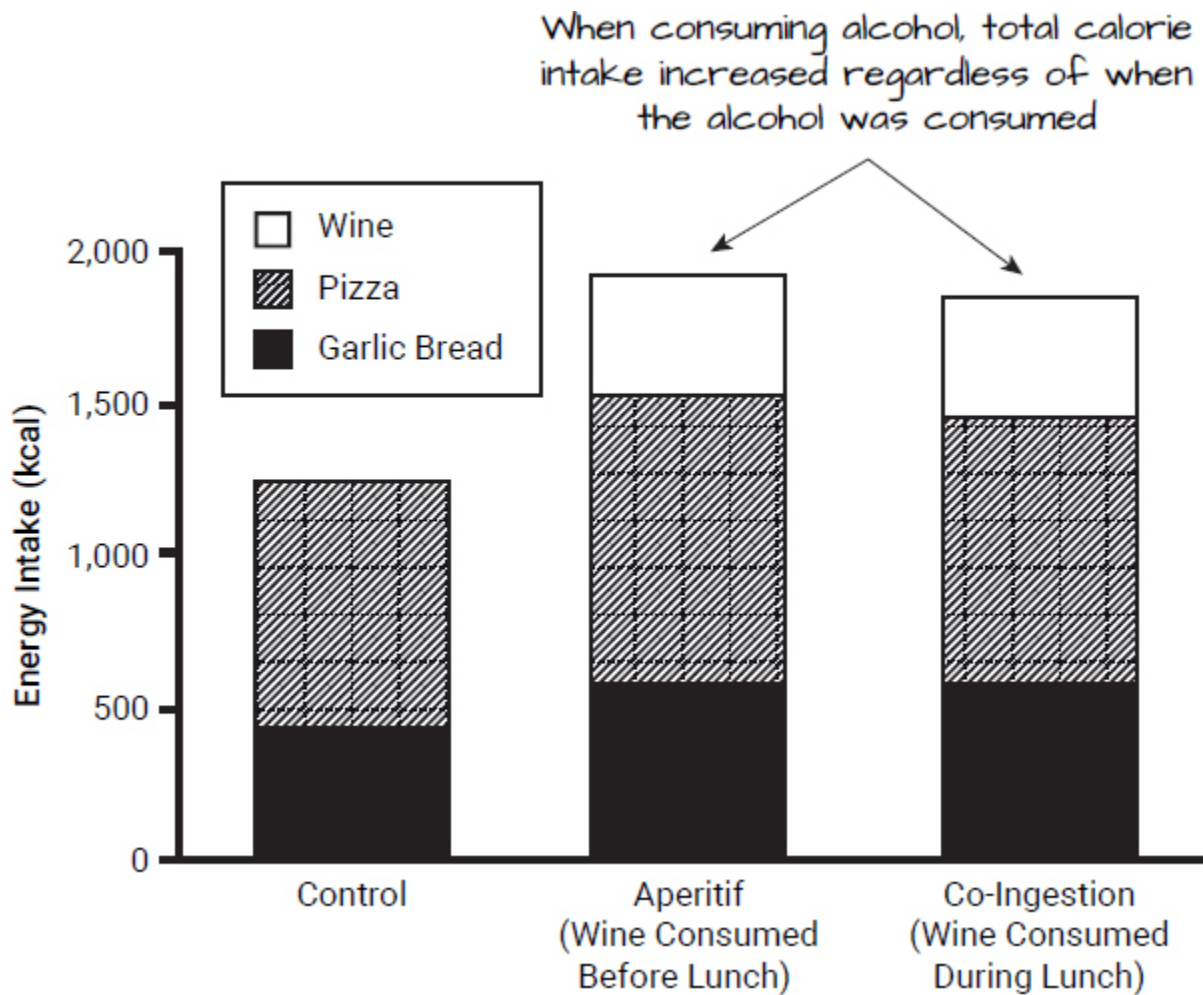
Here we can see the increase in hunger after consuming four units of alcohol in an otherwise identical drink. So, if you have a large glass of wine with dinner (containing around two to three units), it is quite likely you won't notice much difference in how much food you eat,

but if you consume two or three glasses, you may notice a significant increase in hunger which can persist for several hours. We don't really know what happens if you consume more than four units of alcohol – perhaps appetite keeps going upwards or perhaps it would reach a ceiling at some point.

Another study tested whether alcohol has an impact when consumed either prior to a meal or alongside it.⁷ This study design sounds like the type of thing a lot of people would willingly sign up for, as participants had to go into a lab and eat a two-course lunch of garlic bread and pizza with some wine. There were three conditions:

1. They ate as much lunch as they wanted without alcohol.
2. They consumed 375ml of wine 20 minutes prior to eating.
3. They consumed 125ml of wine with their starter and another 250ml with their main course.

In both instances where alcohol was consumed, participants ate significantly more food than when no alcohol was involved, with a 25% higher calorie intake when wine was consumed prior to eating and a 22% higher calorie intake when wine was consumed alongside their meal.



Average Energy Intake of the First and Second Course During a Test Meal with and without Alcohol. Adapted from [7](#).

Although the simple message that ‘alcohol increases food intake’ is fine, it is a bit more nuanced than that. We have seen there is likely a dose-response relationship and that very low consumption of alcohol may not have an impact on food intake at all. There is quite possibly also an impact of the type of drink consumed. As we saw in chapter four, large volumes of liquid can reduce subsequent food intake, as demonstrated in trials where participants consumed soup or a milkshake prior to their main course,[8](#) and we will look at this again in chapter 14 where we talk about how drinking just plain water effects your appetite, so it is possible you might see a different impact between a shot and a pint.

The easiest way to summarise all this slightly mixed data into one simple snippet is to turn to a meta-analysis specifically examining the effect of alcohol on food intake. When looking at all of the available research, it concluded that studies consistently show that people do not compensate for calories from alcohol, essentially meaning that you can add alcohol to someone's diet and it is likely that they will not reduce the number of calories they eat from other foods.⁹ There is a whole array of things that could influence this and, of course, it is very likely that this will vary between individuals – so, while you might have a couple of drinks in a bar and not feel hungry, it's possible your friend who has also had a couple might feel the total opposite.

Why is research on alcohol so mixed?

There are many reasons why there isn't a clear association between longer-term alcohol consumption and body weight. Obviously, how much somebody consumes is a factor but there are possibly also differences between men and women as well as the type of alcohol someone drinks.¹⁰ For example, it is possible that people who drink wine may be inclined to have healthier dietary habits overall. One study showed that people who consume wine also tended to consume more fish, fruit, vegetables and olive oil when compared to beer drinkers.¹¹ This is a good example of why it is difficult to trust observational research; when you look at survey results from tens of thousands of people, it is difficult to fully isolate other variables. For example, alcohol consumption in some Mediterranean cultures is common, but often the entire attitude towards food is different too. Compare a couple of glasses of wine served alongside a meal lasting several hours with a night out in a bar knocking back shots. During both, alcohol is consumed, but looking at alcohol in isolation here means you're missing out on other pieces of the puzzle.

Does alcohol impact exercise recovery?

calories, appetite and food intake aside, there are other ways that alcohol can impact body composition. It's possible that it has a negative effect on muscle growth and performance.

Since many team sport events have a culture of drinking after a game, one study wanted to find out if drinking post workout impairs recovery. To do this, male participants performed a workout followed by consuming either:

1. Protein
2. Protein and alcohol
3. Carbohydrates and alcohol¹²

The alcohol was administered as 1.5g/kg/body mass (this worked out to be around 12 units of vodka for participants weighing just under 80kg/176lbs on average) consumed in the form of vodka and orange juice drinks. Just to clarify – yes, a group of volunteers trained and then drank vodka orange juice all in the name of science. You are welcome.

When consuming this large dose of alcohol, there was a suppression of something called mTOR signalling and muscle protein synthesis. For the small subset of really nerdy folk among you who love this kind of detail, when consuming alcohol and protein together, muscle protein synthesis was 24% lower than when protein was consumed in isolation. When carbohydrates and alcohol were consumed together, it was 37% lower. This essentially means if alcohol kicks your muscle protein synthesis to the floor, protein can at least help it get back up to its knees.

It is worth noting that this study only tested markers of muscle growth after a single workout. While we have a clear mechanism that shows hindered recovery from exercise, how does it translate to actual muscle growth over a longer period of time if participants were consuming alcohol regularly? Does it suppress muscle growth? If so, how large is the effect? As always, the dose makes the poison. Is a single glass detrimental? What about ten glasses?

It is likely that lower doses do not have the same impact compared with higher doses. In two similar studies by the same authors, participants completed a weight training protocol and were then given 1g or 0.5g per kilogram of body weight of ethanol, in the form of vodka orange juice.^{[13,14](#)} While the study with the higher dose showed impaired muscle recovery, the follow-up paper testing the lower dose did not.

The same 1g/kg/body weight dose was also tested in another trial on male rugby players, where they consumed alcohol after a match. This was found to have a detrimental impact on peak power the following morning.^{[15](#)} This study didn't measure changes in muscle tissue but decreases in training performance are worth considering for the possible impact of muscle growth in the long term. After all, if recovery is hindered, it makes sense that this could also potentially affect muscle growth. Admittedly, I don't think it will surprise anyone here that alcohol can ruin your training performance the following day, right? I don't think anyone strolling into the gym on a hangover is expecting to smash some personal bests that day.

So, rather than saying 'alcohol is bad for muscle growth', we have to at least factor in that this might not be seen with lower intakes. While getting super drunk at the weekend definitely isn't great for training the next day and muscle recovery might be impaired, this might not be the case after just one or two drinks.

To further complicate matters, there appears to be a biological sex-specific impact of alcohol's role in impairing muscle growth. One paper tested post-workout alcohol consumption (1.09g/kg/fat free mass) in both males and females and found that the anabolic response was impaired in males specifically, essentially meaning it may impair muscle growth.^{[16](#)} Another trial on females found that 0.88g/kg/body weight did not significantly impact muscle recovery^{[17](#)} despite it being very close to a dose that has shown to worsen recovery in males.^{[15](#)} Although alcohol is never likely to be beneficial, it is likely that lower doses on rare occasions won't have a significantly detrimental impact, and this may be especially true for women. It is important to reiterate here, though, that these are short-term trials.

The impact of alcohol on muscle growth and fat loss in the long term is still speculative. Just because someone's recovery from a single session of exercise might be impaired, it doesn't mean that doing this once per month would translate to any significant differences over 12 months of training. A speed bump might feel like it slows you down at the time, but a single speed bump over the course of a long journey doesn't mean you get there significantly later.

Is it true that alcohol impacts testosterone?

There is another aspect to consider and that is the role that alcohol can have on hormone production. Testosterone isn't the only hormone that may be impacted but it is the one most commonly associated with muscle building and body composition, so it's what we are going to focus on here. Let's break this down by biological sex for obvious reasons.

In males, 1.5g/kg/body weight ethanol consumption can reduce serum testosterone concentration by 23%, 10–16 hours after drinking.^{[18](#)} Obviously from a hormonal perspective, saying that alcohol decreases testosterone doesn't sound ideal, does it? Again, it appears to be dose specific, as the rugby trial mentioned earlier (1.0g/kg/body weight) also measured testosterone levels and no significant changes were observed.^{[15](#)} A low dose (0.5g/kg/body weight) of alcohol has actually been shown to temporarily raise testosterone levels in males.^{[19](#)} All of this is very short term, so how much it impacts long-term progress is anyone's guess at this point. It might not actually amount to any significant differences over the course of a year if someone drinks occasionally. However, these studies demonstrate how important it is to discuss the dose-response curve. The devil is in the dose, so to speak.

It appears that this effect is different in females. One trial examined hormonal responses to intravenous alcohol and noticed that testosterone suppression was seen primarily in males, not females, and this might also change depending on their age.^{[20](#)} Another study took measurements from adolescents who arrived in the emergency

department with acute alcohol intoxication and compared them to adolescents who didn't drink alcohol.²¹ Whereas drunk males had lower testosterone levels, the opposite was seen in females.

Another paper showed that 0.5g/kg alcohol raised testosterone in premenopausal females, which was especially pronounced in those taking oral contraceptives.²² In this study, alcohol was administered in lingonberry juice because apparently even scientists like getting a little bit fancy sometimes. As a follow up, female participants who took oral contraceptives were given three different doses of alcohol (0.34g/kg, 0.68g/kg and 1.02g/kg) and increases in testosterone were similar across all doses, something that appears to be different in males – once again reiterating that the negative hormonal effects probably vary depending on who is drinking and just how much.

Does alcohol actually impede fat loss long term?

The short-term trials we've looked at so far help us to identify specific mechanisms that may be affected by alcohol, like increases in appetite, suppression of muscle building processes and short-term changes to hormonal output, but none of them have actually measured body composition over time. If someone drinks alcohol regularly, are they going to hinder their body composition results?

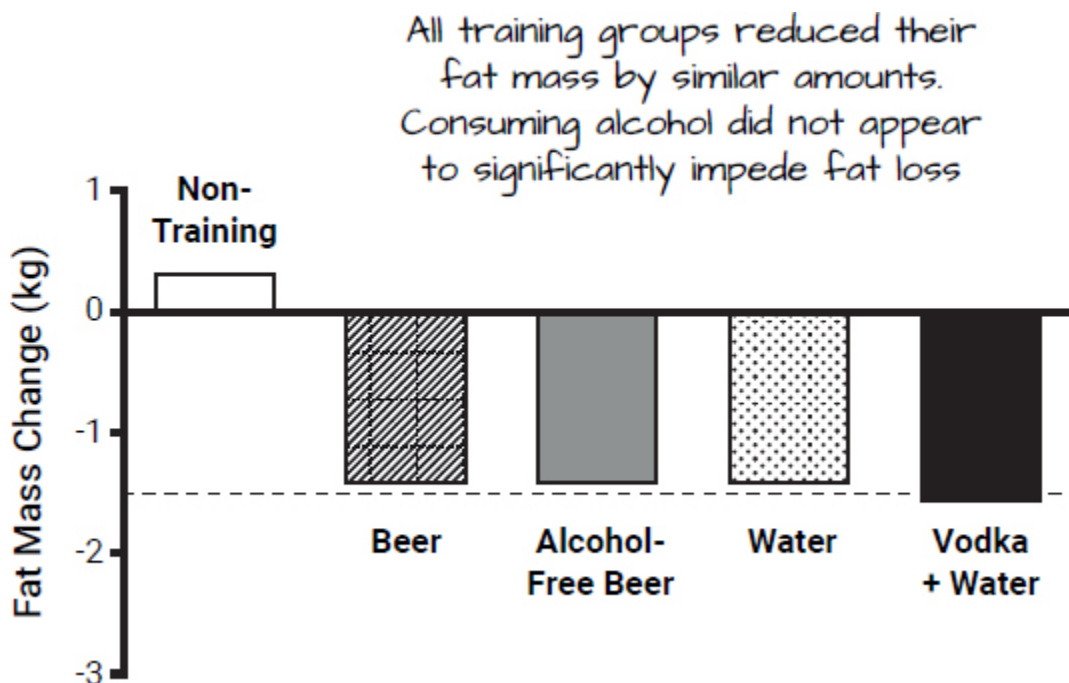
To answer this question, what we really need is a study that lasts at least a few weeks with everyone following the same workout programme, but some of the participants drink alcohol and the others don't. Then at the end of the trial, we actually measure body composition changes. Thankfully, we do have precisely this research. This study measured body composition changes after a ten-week intervention, with or without alcohol.²³ Participants were split into groups, one control group didn't train at all and four groups followed a twice-per-week programme, with different alcoholic or non-alcoholic drinks:

1. Sparkling water
2. Non-alcoholic beer

3. Alcoholic beer (5.4% volume)
4. Vodka in sparkling water (with the same alcohol equivalent as the beer)

The male participants ingested 330ml of the alcoholic drink with lunch and another 330ml with dinner, Monday to Friday. The female participants consumed 330ml of the alcoholic drink with dinner only, again Monday to Friday. At the end of the study, changes in fat mass and fat-free mass were similar across all training groups, regardless of whether they consumed alcohol or not.

A follow-up study with the same design also concluded that moderate alcohol consumption doesn't significantly impair cardiorespiratory fitness either, so it seems to be quite possible to improve your fitness levels while still consuming alcohol, at least to a point.²⁴ Of course, it is important to keep in mind that long-term research on this is very limited. What would happen if participants drank more? We don't really know. What if their alcohol patterns were different and it wasn't a drink or two every day but binge drinking on the weekends? Again, we can only really make a guess.



Average Changes in Fat Mass After the Training Intervention in Five Study Groups. Adapted from [23](#).

With a scarcity of long-term research, our only sensible conclusion is that low doses of alcohol don't appear to have any significant effects on muscle growth or fat loss, although it is quite likely that higher doses would yield different results. So, while I am not encouraging alcohol intake and would strongly like to reiterate that there are serious potential risks involved, we can at least acknowledge that it is possible to consume it in low amounts without completely derailing any body composition goals you have. Remember, this is strictly related to body composition; overall health is a separate and much wider topic.

HOW CAN YOU PUT THIS INTO ACTION?

- There is no doubt that excessive alcohol consumption comes with serious health risks. You know it, I know it, we all know it. I am not encouraging you to drink alcohol.
- For many people, alcohol is intertwined with their culture, like for people who live in parts of the world where they tend to enjoy wine with meals. A lot of people know that drinking alcohol can come with risks but are happy to enjoy drinking small quantities, and it's not my business to tell you what you can and can't do. I am here to provide you with information so you can make the best choices for yourself.
- From a body composition perspective, consuming a lot of alcohol can contribute to you gaining fat because of its calorie content, plus the fact it often makes you feel hungrier, so you also eat more food. It can also impair your muscle recovery and mess with hormone production (depending on your sex and age, perhaps) so if you drink a lot, you are probably

undermining your performance in the gym and any lean body mass gaining goals you might have, at least a little bit.

- However, a lot of the negative side effects of alcohol come with higher intakes so it is entirely possible to consume a low amount and still lose body fat, gain muscle tissue and improve your fitness levels.
- If you are going to drink, please do so responsibly. While I am happy to enjoy an occasional drink, I do also respect that alcohol addiction ruins many lives and it would be remiss of me not to say that, given that I care about you and your health.

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12.

CHEAT MEALS, REFEEDS AND DIET BREAKS

When I first learned about the concept of ‘cheat meals’, I was told they would spike your metabolism and help you lose body fat faster. I remember reading articles that explained how your metabolism slows down when you are losing weight (see chapter three) and imposing a large surplus of calories would stop that happening. Some fitness models I knew would diet for a few days and then have a huge cheat meal where they ate anything they wanted. They said it ‘kept the metabolism guessing’ or some other shit like that. I cannot remember what the exact explanation was, but I remember it was vague.

This idea is still popular today. Here are the types of claims you might see if you look up cheat meals on the internet:

‘A cheat meal can actually assist in jumpstarting your metabolism.’

‘Refeed days kickstart your metabolism.’

‘Refeeds help to normalise leptin levels which can boost your metabolism.’

With catchy sales lines like this – as well as a free pass to eat whatever you want – it isn’t surprising that people are drawn to the idea of cheat meals and refeeds. It also isn’t surprising that a lot of people are confused by what cheat meals and refeeds actually are. Funnily enough, there isn’t a firm definition for either of these. One person’s implementation might look very different to another’s. This is the main reason I am discussing cheat meals, refeeds and diet breaks in the same chapter: it allows me to clarify the differences between each one and help eliminate any confusion.

To some people, a ‘cheat meal’ is simply eating whatever the fuck they want to escape the boredom of their dietary meal plan. Some

people believe this ‘resets your metabolism’, while others eat cheat meals purely because they enjoy them. As diets are not always the easiest thing to stick to, giving yourself a free pass every so often may make the idea of long-term adherence less daunting.

Refeeds tend to be more calculated than this. Most people who claim they are ‘refeeding’ do so with more of a focus on dietary carbohydrates. They will normally eat to their calorie maintenance levels but sometimes go up into a surplus.

I am going to be honest: I think some people simply want a psychological break from dieting (which is in no way a bad thing to admit) and use some shaky logic to justify stuffing their face under the guise of being scientific. This sounds like I am throwing shade, which isn’t my normal style, but I actually speak from personal experience on this. When I was first told about the seemingly magical benefits of refeeding, I planned one per week, believing that a large influx of food would raise my metabolic rate and help me lose body fat faster. Who wouldn’t want that, right? Lose fat by eating more food? It is no wonder that many people want this to be true. Operation weekly refeed began.

The people I knew who encouraged refeeds and cheat meals were mainly bodybuilders. Some of them were doing it because they were sticking to very monotonous diets and they wanted to eat all their favourite foods they had been avoiding, while others were doing it with the genuine belief that their metabolic rate would spike through the roof and body fat would melt off them afterwards. Outside of fat loss, other people were doing it because the extra carbohydrate intake could help make their muscles look fuller after periods of carbohydrate restriction, by replenishing lost muscle glycogen.

While I enjoyed refeeds to begin with, my refeeds got bigger and bigger over time and it became a worryingly regular occurrence that I would stop eating only when I felt stuffed. There were some occasions when I ate so much that I actually felt a bit nauseous and, needless to say, this behaviour is highly problematic. This just goes to show how important wording is when describing nutritional interventions to people. The very simple sounding rule of ‘you can eat as much as you want but only for one meal’ became catastrophic for me. These meals

essentially became a way to cram as much food into my mouth as possible. When you think about it, it is a recipe for disaster, right? Tell someone who is dieting that they can eat anything they want but only for one meal? You know when people walk into a buffet, see the sign ‘all you can eat’ and think to themselves ‘challenge accepted!’? Well, this was basically the same thing.

What is a cheat meal?

I may as well rip off the Band-Aid now: I detest the term ‘cheat meal’ and I think it belongs in the trash, for eternity. A lot of people implementing cheat meals might get annoyed at me for saying this, but I come armed with evidence.

One study analysed a selection of over 1.6 million Instagram images using the #cheatmeal tag and found that over half contained portions of food that represented ‘a volume of food consistent with an objective binge episode’.¹ The food shown in some of the images was estimated to contain more than 9,000 calories. I don’t think it is a stretch to say that this volume is excessive. Can you really get behind the idea that the common implementation of cheat meals is simply a binge eating episode? I personally do not want to encourage something that can have significant negative consequences.

The concern that I, and many other people, have is that cheat meal culture frequently overlaps dangerously closely with binge eating. Many people ban foods from their diet then feel like they lose control when they eat them again, often consuming significantly more than they would have previously. This has also been supported in research, with one study concluding ‘cheat meals may reflect psychopathological properties akin to binge episodes’, which appeared especially prevalent in men.² The term ‘cheat meal’ implies guilt as well as an open pass to eat foods that were previously forbidden. I fear this is essentially a case of rebounding from a significant level of dietary restraint, which could be avoided, or at the very least, mitigated. ‘Cheat’ in every other context has a negative connotation, so why would you want to schedule weekly cheats on your diet? Isn’t that a sign something is wrong?

Let's try a little experiment in your head. Pick your absolute favourite high-calorie food in the world. The type of food that a lot of people would consider not so great to eat in large quantities. OK, now imagine someone tells you that you absolutely cannot eat that, not even a single mouthful. How long would you go before you would cave in? OK, now imagine that someone tells you, 'On Saturday, you can eat as much of it as you want, but only on Saturday night.' How much do you think you would eat? Giving people single meals where they can eat as much as they want of foods that are normally off limits sounds like a great way to actively promote binge eating.

Personally, I would prefer someone was able to consume foods they enjoy without feeling the need to binge on them. If abstaining from eating chocolate causes you to go on a weekly guilt-ridden chocolate binge under the guise of a 'cheat meal', is it worth abstaining from chocolate in the first place? Maybe you could eat a little bit every so often and remove the need to 'cheat'.

Some people use the two terms 'cheat meals' and 'refeeds' interchangeably. I am not the terminology police, but I would argue that this is probably not a great idea. To me, the word 'cheat' implies rules, shame and guilt, none of which I think are ideal. If we remove the term 'cheat meal', it could be said that increasing calories on some days may be beneficial purely from an adherence perspective.

One research paper said, 'We argue that planned goal deviations may be needed when trying to persist in the long-run and to not quit from current goal pursuit. This can be spending money on occasion when the long-term goal is to save, or sometimes consuming high caloric foods when the long-term goal is to lose weight'.³ In this study, they asked participants the hypothetical question: if a doctor told them they had to lose a lot of weight in a short space of time, would they rather go on the 1,500-calorie per day diet plan or on an alternative plan that consisted of 1,300-calories for six days and then 2,700 calories on the seventh day? In both instances, this equates to 10,500 calories per week, but the idea of having a 'planned hedonic deviation' – the deliberate straying from a strict path – seemed to be more appealing. This was then tested in a real-world dieting scenario

and once again, motivation was higher on the alternative plan than traditional linear dieting. This is simply from an adherence perspective – it is worth keeping in mind that this planned hedonic deviation was calculated within the context of a calorie-controlled diet, it wasn't a hypothetical 'eat whatever the fuck you want' cheat meal-type scenario.

A lot of people don't factor in the possible consequences of using poor language, especially when it comes to people's psychology towards food. Refeeds and cheat meals are often used interchangeably. I propose that they shouldn't be. I propose that the term 'cheat meal' can burn in a fire and never appear again.

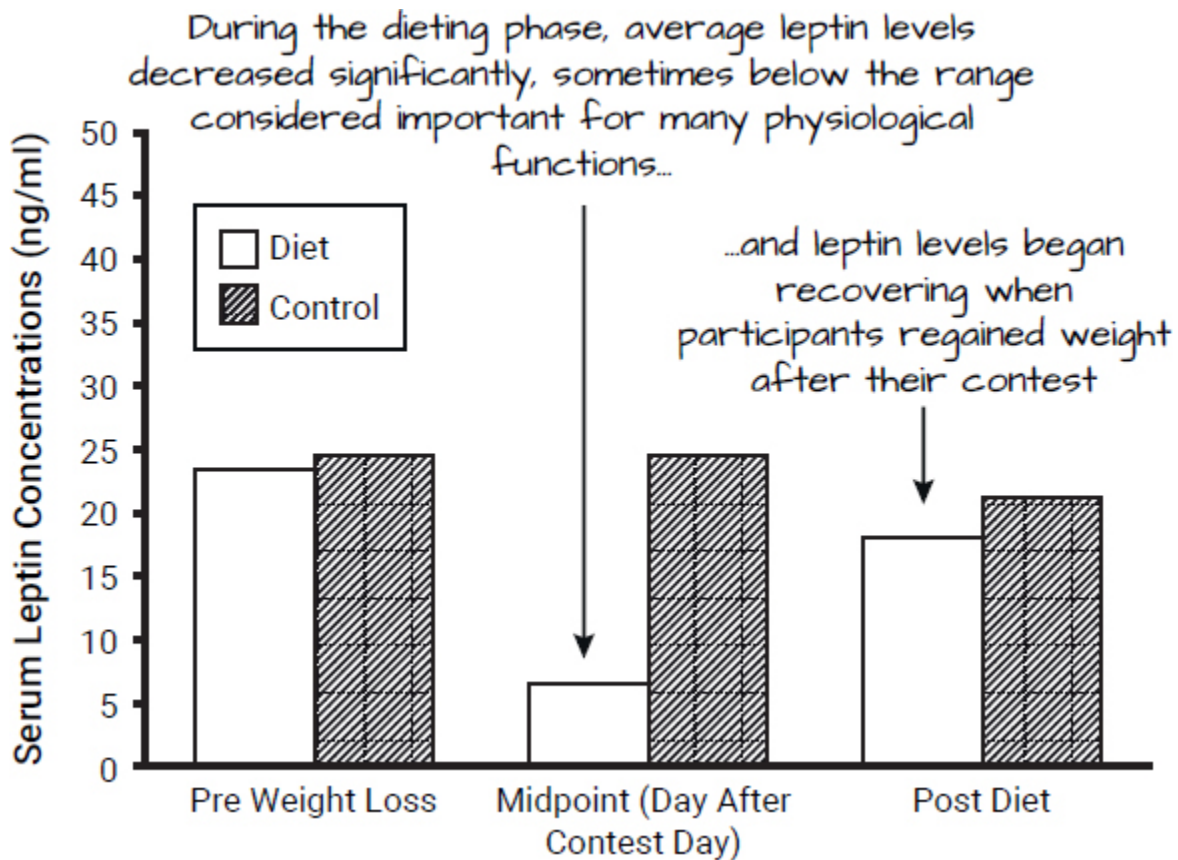
What are refeeds and why do people implement them?

Refeeds are not the same thing as cheat meals: they are typically categorised by strategically increasing your carbohydrate intake specifically, either to calorie maintenance levels or into a calorie surplus. When you lose a significant amount of weight, there can be shifts in hormonal production. The one that gets the most attention from the refeed crowd is leptin. Leptin is secreted mainly by fat tissue and plays a role in signalling satiety and stimulating energy expenditure,⁴ causing it to be described as an 'anti-obesity signal'.⁵ When you lose weight, leptin production can decrease, which may make you feel hungrier.

One study took male Olympic athletes and divided them into groups based on whether their sport emphasised having some level of physical leanness, such as boxing, judo, wrestling and so on. The researchers found that lean athletes had significantly lower leptin levels on average.⁶ This type of study compares two groups of individuals but it doesn't track changes over time, which is important if we want to understand how dieting impacts leptin levels. As we know, correlation doesn't necessarily mean causation.

To test what happens over time, another study had participants maintain their usual body weight for two weeks and then overfed them by 1,000 calories per day for eight weeks.⁷ Following the eight-week overfeeding period, they gained nearly 5kg on average and leptin levels rose proportionately. So, when you gain body fat, leptin levels are expected to go up.

Another trial followed male bodybuilders dieting for a competition and measured their body composition and blood work at 11 weeks, 5 weeks, and 3 days prior to national championships.⁸ Their leptin levels decreased between week 11 and week 5 by 27.7% and stayed there for the final test. Another study assessed female bodybuilders leading up to and post competition, to examine the physiological effects of weight loss and subsequent weight gain.⁹ They lost an average of 12% of their body weight for their contest and this coincided with significant reductions in leptin. In some competitors, their leptin levels were so low they were considered at risk for many physiological changes, such as decreased immune system function.



Serum Leptin Concentrations in Female Fitness Competitors.
Adapted from [9](#).

It is worth reiterating that in these bodybuilding studies, participants were inevitably doing a lot of things well, such as consuming a high protein diet and taking part in resistance training. It isn't like they were crash dieting in a way that was destroying lean body mass at an unnecessarily high rate. Despite trying to do everything right, striving for such an extreme level of leanness does appear to come with hormonal side effects, at least temporarily.

Given that leptin plays a major role in appetite and energy expenditure regulation, it makes logical sense that keeping leptin levels high during weight loss phases could potentially overcome some of the negative side effects of dieting, and this theory has been investigated from multiple angles.

First, what happens when you give people an outside source of leptin? In a three-phase trial,[10](#) one study looked at participants:

1. At their usual weight
2. After putting them on a reduced-calorie diet
3. After administering subcutaneous leptin injections

Unsurprisingly, during the weight loss phase, leptin levels decreased. In the third phase, once leptin had been restored, there was a simultaneous change in thyroid hormones and energy expenditure, causing the authors to summarise, 'Prevention of weight regain might be achievable by strategies relevant to reversing this leptin-insufficient state.' In short, keeping leptin levels high may be a successful tool to help maintain weight loss. This is obviously good news.

Now, I know what you will be thinking. 'I don't want to inject leptin, so what could we do to combat this naturally?' Don't worry, we are getting there...

It turns out that leptin levels also increase in response to overfeeding, hence the idea of refeeds. Perhaps it is possible to strategically consume a surplus of food to normalise leptin levels and this in turn will overcome some of the negative effects of dieting. To test how leptin reacts to changes in food intake, one study put participants through brief periods of calorie maintenance, calorie surplus and calorie reduction (in randomised order).^{[11](#)} As expected, overfeeding by 30% raised leptin levels and underfeeding by 30% decreased leptin levels. No real surprises here. However, the study also found that in the group that went from overfeeding to maintenance and then underfeeding, during the period between overfeeding and underfeeding phases, leptin levels still hadn't returned to baseline. This means if participants overfed for three days and leptin levels increased, when they returned to maintenance calories, leptin remained elevated. This sounds promising, right? You could overfeed for three days and raise leptin levels. Maybe this would improve your appetite and raise your energy expenditure. However, the results actually aren't that exciting because leptin levels went back to baseline when participants switched over into a calorie deficit.

Allow me to simplify this as much as possible. When you eat more food, you will increase leptin levels, which could be a good thing.

When going from that overfeeding period back to maintenance calories, leptin levels might still remain slightly elevated, but when going back to reduced calories, leptin just goes back to normal. This means any increase is very short lived, which puts a big spike through our balloon of enthusiasm. This implies that if you are dieting and implement a three-day refeed to raise leptin levels, this change will subside once you go back into a calorie deficit, which makes the idea of spiking leptin through overfeeding a little bit redundant. Does it really make a difference if a hormone changes briefly, only to return to baseline shortly afterwards, especially when you have had to consume a lot of extra calories to make that happen? If it stayed elevated for a long time, great, but if it is only very brief, it is hard to imagine it will amount to much. It is a bit like knowing a higher testosterone level can help with muscle building but then doing something that will only increase it for a day or two. A short-lived transient spike just isn't the same thing as having higher levels all the time.

It has also been shown that the type of food you eat can have an impact on leptin levels. One study had participants overfeeding 40% above their calorie requirements for three days either in the form of dietary fat or carbohydrates.¹² It was shown that overfeeding in the form of dietary fat did not change leptin levels but overfeeding with carbohydrates did raise leptin levels by 28%. An important extra stage in this study to note is that it also measured energy expenditure – i.e., the number of calories that participants were burning. After eating 40% surplus calories through an increase in dietary fat, energy expenditure did not change, but after increasing dietary carbohydrates, energy expenditure did increase.

This again sounds very promising. A short, three-day higher calorie phase from carbohydrates can raise leptin levels, which might mitigate some of the hormonal downregulation that occurs with dieting. This is basically why the idea of refeeding for fat loss became so popular. This all sounds great, right? Well, not quite because the total increase in energy expenditure was only 7% which works out to be approximately 139 calories per day. Of those 139 calories, about 36 calories can simply be attributed to the energy cost of consuming

the additional food (thermic effect of food), leaving us with barely over 100 calories per day. And to remind you, this small increase in calories burned came from overfeeding by 40% per day.

That means if you want to raise your metabolic rate a tiny bit, you have to overfeed significantly to achieve it, which kind of defeats the point, right? I genuinely know people who told me they were trying to eat between 5,000 and 10,000 calories on refeed days to try to ‘spike their metabolism’, but this is a huge influx of food that will only have a very modest increase in the number of calories burned, putting them in a huge calorie surplus for that single day and possibly even for the week, once you average it out. It is a bit like spending several dollars a month on an exclusive bank account to access an interest rate which only gives you a few cents extra – it just isn’t worth it unless there are some other perks involved.

These are all interesting studies to form hypothetical best-guess scenarios, but the best way to know if refeeds actually make an advantageous difference to body composition is to study it long term.

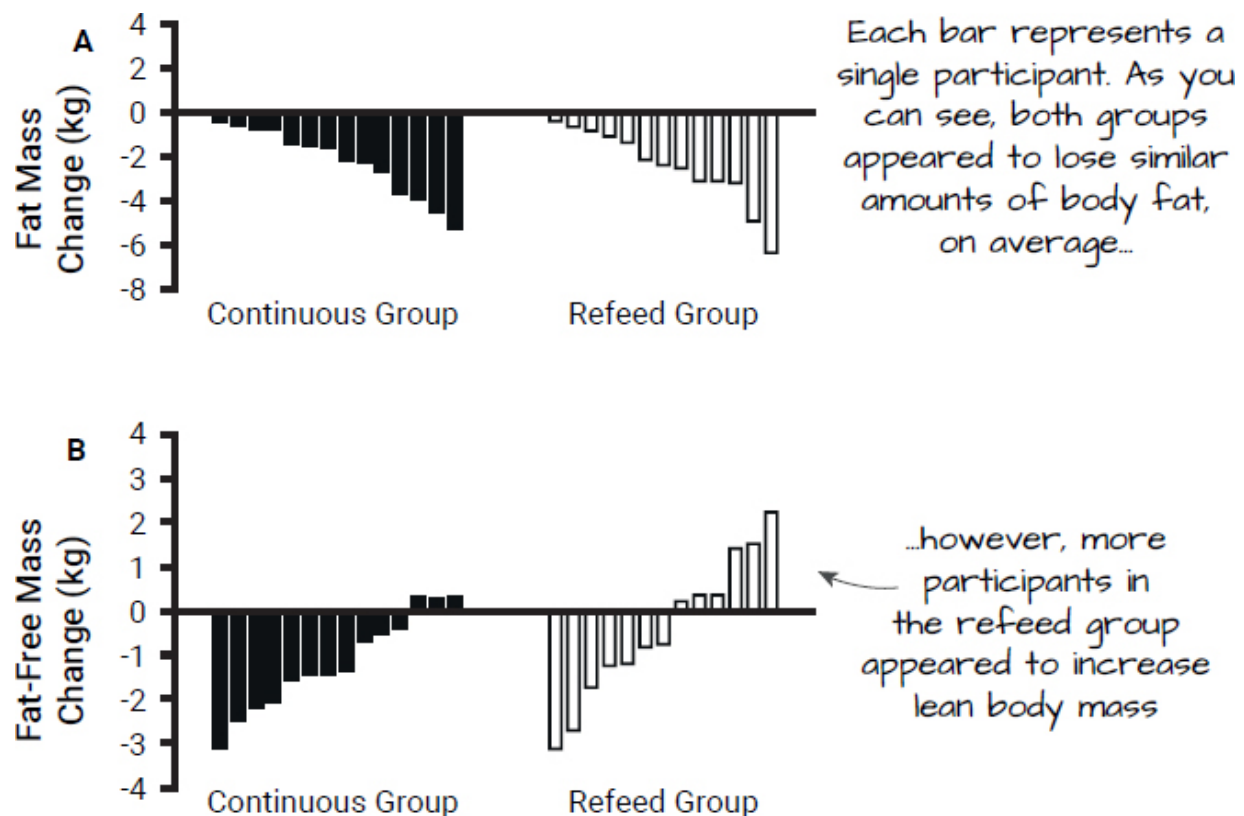
Longer-term research on refeeds

Thankfully, after all the previous papers were published, there has since been a trial that compares continuous calorie reduction with a two-day per week refeed strategy.¹³ To put these head-to-head in a fair manner, you need total calorie intake to be the same between conditions, so one group maintained a 25% calorie deficit every single day and the other group were in a more aggressive 35% deficit for five days per week followed by maintenance calories for two days. Note, the calculated nature of this is very different to cheat meals, which are just a free for all on whatever the fuck you want to eat.

This refeed strategy is also known as ‘non-linear dieting’, where your calorie intake fluctuates rather than keeping it static the whole way through the week. Remember the study earlier where people expressed a preference for having higher calorie days interspersed into their regime, even if it meant for the rest of the week, they had to further reduce their food intake?³ Well, from working with clients for

over a decade, I can tell you that a lot of people do this naturally via this thing called ‘the weekend’. It is common for people to have a more controlled food intake for five days of the week if they work a typical Monday to Friday job and then eat more on a Saturday and Sunday. The difference with this study is that calorie intake was planned to make sure it was equal between conditions across the week and refeeds came predominantly from carbohydrates. So, if your calorie maintenance levels are around 3,000 per day, you would diet at a 35% calorie reduction level of 1,950 calories for 5 days of the week and then eat 1,050 more calories from carbohydrates on Saturday and Sunday, versus a more conventional, linear dieting strategy of eating 2,250 calories every single day.

What were the results? Fat loss was similar between groups, however participants who were refeeding maintained more fat-free mass and better preserved their resting metabolic rate, which we know tends to decrease as people lose weight. Even if it didn’t result in significantly more fat mass lost, two-day refeeds were advantageous for holding onto lean body mass, which is something most people would want to achieve. Even though there was some debate on the statistical method being used, even a more critical analysis of the data concluded that the group implementing refeeds maintained more dry fat-free mass (fat-free mass minus total body water).¹⁴ Basically, refeeds might help retain more muscle tissue, maybe.



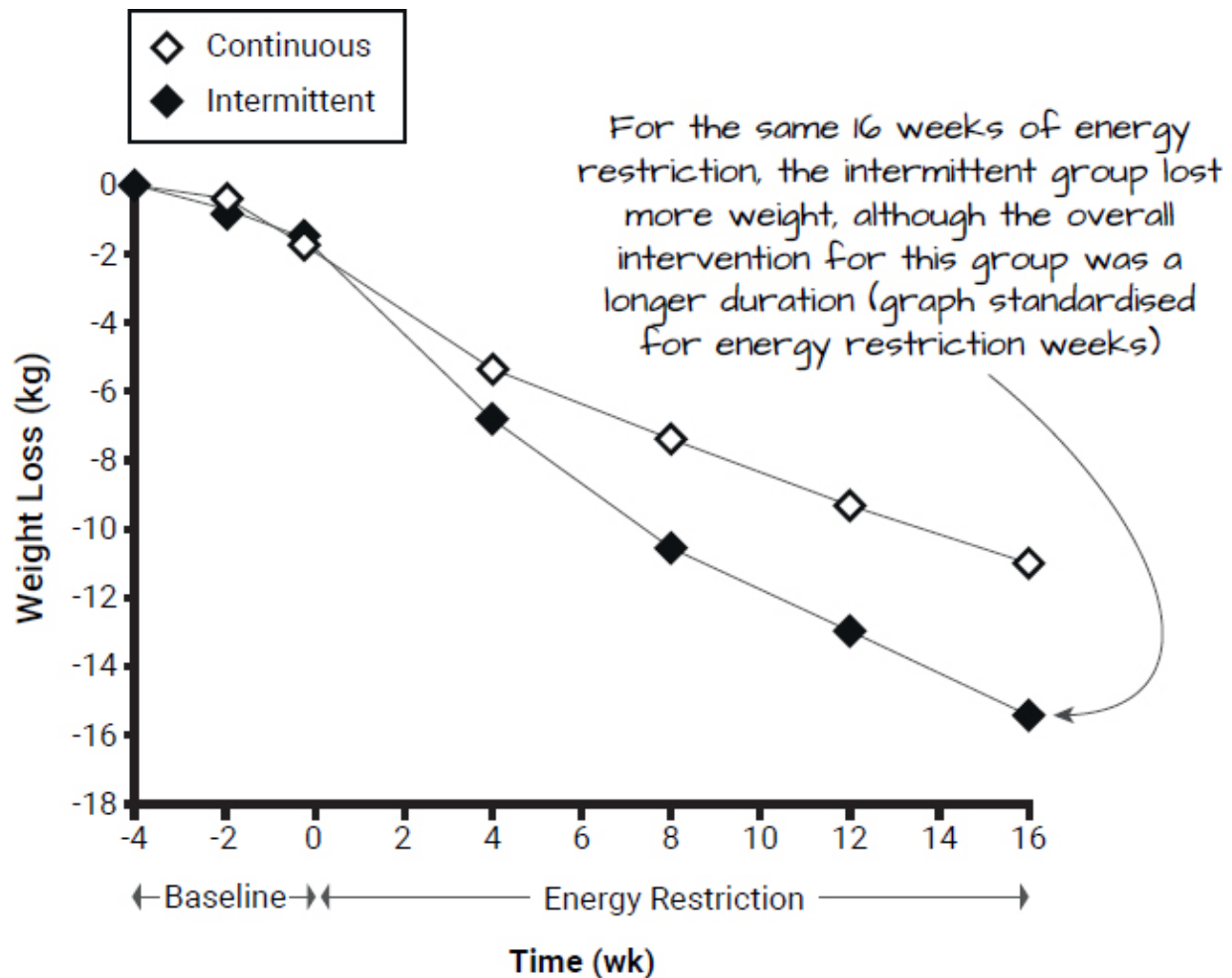
Individual Body Composition Changes Following Continuous Dieting or Two Days of Refeeds Per Week. Adapted from [13](#).

What is a diet break?

There is also another option: instead of building refeeds into your weekly calorie target, you could implement something called a 'diet break'. Rather than one to three days of maintenance calories, you would do it for a longer period, like consuming maintenance calories for one to two weeks and then going back to your lower calorie intake. From an anecdotal perspective, if someone has been dieting for a while, feels particularly drained and their workout intensity has fallen to shit, eating at maintenance for a week or two can give them a physical and psychological break. We have seen in countless research papers that adhering to a calorie deficit often delivers diminishing returns over time. Rather than someone's calorie intake creeping up, perhaps having specific periods where they know

they can eat more food will allow them to adhere better during the lower calorie phases.

One study tested this by getting one group of participants to diet continuously for 16 weeks and another group to alternate between two-week blocks of reduced calories with two-week blocks of maintenance calories.^{[15](#)} The group who interspersed diet breaks had to follow the plan for 30 weeks because they had a total of 16 weeks of dieting alternating with 14 weeks of maintenance calories. At the end of the trial, participants who implemented diet breaks lost 14.1kg (31.1lbs) body weight versus 9.1kg (20.1lbs) in the continuous group. This intermittent approach also resulted in greater fat loss (12.3kg/27.1lbs versus 8.0kg/17.6lbs) without losing significantly more lean body mass. This intermittent approach also seemed to do a better job of preserving resting metabolic rate, so this looks like a huge win for diet breaks.



Body Weight Changes During 16 Weeks of Energy Restriction in the Continuous and Intermittent Groups. Adapted from [15](#).

These results suggest that diet breaks could be advantageous from a fat loss perspective, but it comes with an extension of the total dieting period, which may be viewed as a disadvantage by some people. In short, would you prefer to diet for 16 weeks consecutively or for 30 weeks with interspersed periods of maintenance calories? That is what it would boil down to. One being 'better' is only really relevant if you actually want to follow the plan.

One later study tested whether interspersing a single week of maintenance calories for every three weeks of dieting would have any impact on body composition changes.^{[16](#)} Unlike the previous study, the group who implemented diet breaks did not see more fat loss. They

also did not see greater lean body mass retention or any additional preservation of resting metabolic rate. It turns out that the only significant differences between the two groups is that those implementing diet breaks had lower levels of hunger and desire to eat.

Why does one study show that diet breaks result in significantly more fat loss and another one doesn't? Well, they have different protocols. One is two weeks of dieting interspersed with two weeks of diet breaks; the other is three weeks of dieting alternated with single weeks of diet breaks. On top of that, they were studied in two different populations: the one showing greater fat loss recruited participants who had higher body weights and the one showing no difference was in participants who were leaner. It is entirely possible that the reason diet breaks worked in the first instance was simply because it made it easier to adhere to a calorie deficit. If adding in periods of maintenance calories allows you to be more consistent with your calorie deficit the rest of the time, it could absolutely be worth it.

Should you try refeeds and diet breaks?

To conclude, while refeeds and diet breaks have some sound rationale, there isn't a huge amount of data on them to know what works best. Personally, I think it might be a good idea to use some trial and error on this. Do you prefer eating more on some days than others? If so, a refeed schedule where you eat slightly less during the week and slightly more carbohydrates at the weekend might suit your personal preferences, for example. Does this make you feel better or improve your energy levels, mood or gym performance? For example, one small study showed that eating a couple of higher carb meals may help mitigate the perception of muscle soreness in response to exercise.¹⁷ Does the idea of interspersing longer diet breaks sound appealing? If you only reduce your calorie intake on alternating weeks would that help you adhere to that calorie deficit more comfortably? If so, diet breaks might very well be worth experimenting with to try to find something that works for you.

HOW CAN YOU PUT THIS INTO ACTION?

- Psychologically, some of you may prefer the idea of ‘planned hedonic deviations’ (eating slightly more food for a day or two, like a refeed) or ‘non-linear dieting’ (eating more food on some days or some weeks) to the idea of dieting on the same amount of food every single day. If this appeals to you, allowing yourself more food on some days might be a great idea. It’s normal to want to eat more food on some days when you feel slightly hungrier or maybe because you have social events, so having the flexibility to do this makes sense.
- I would strongly discourage the idea of ‘cheat meals’ or ‘cheat days’ where you give yourself a free pass to eat unlimited quantities of foods you would normally prohibit. If you are dying for the idea of a ‘cheat day’ so you can eat a specific food, it is worth considering if prohibiting that food for the rest of the week is doing more harm than good. Lots of people avoid foods that they think are ‘bad’ for them, only to eat them in even larger quantities on ‘cheat days’, something that can be a very slippery slope to disordered eating behaviour.
- From a body composition perspective, eating slightly less on some days and slightly more on some days doesn’t appear to make much of a difference when it comes to actual fat loss. However, you might find it better for other reasons, like regulating your hunger, improving your dietary adherence or your performance in the gym. For example, if you have a couple of days of eating slightly more carbohydrates and notice you feel more energetic and stronger in the gym, it makes sense this could be beneficial for you in the long run.
- Although there is very limited research, longer diet breaks may be a good idea, where you intersperse one- or two-week blocks of eating more food, rather than trying to adhere to a calorie deficit every single week. This may simply be because

dieting for several weeks or months continuously doesn't feel fun, whereas breaking it up can make it feel more manageable. If this sounds like something that appeals to you psychologically, it is well worth considering.

- In the absence of any real concrete evidence, refeeds and diet breaks probably fall in the category of 'things you might want to try to see if you like them' rather than 'things that definitely help and everyone should follow for the best results'.

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13.

CAN KEEPING TRACK KEEP YOU ON TRACK? THE SCIENCE OF SELF-MONITORING

‘Self-monitoring’ is basically a term for recording what you are doing. If you log your workouts to see if you are making progress, that is a form of self-monitoring. This umbrella term also includes recording your food intake and tracking your body weight, both of which are much more heavily studied, so this is where we will focus our attention. Self-monitoring is often considered so important that it has been described as ‘the cornerstone of behavioural treatment for weight loss’.¹

Self-monitoring stems from the idea of something called self-regulation theory: by writing down your habits, you can evaluate the progress you are making and adjust accordingly. In simple terms, think of it like the owner of a company implementing a new business strategy. If they are watching their profits, they can assess whether it was successful and if not, they can tweak what they are doing to improve the outcome. Self-monitoring strategies can be bolted onto your existing exercise and nutrition programme, if you wish, but it is important to understand the pros and cons of each so you can make the best decision for yourself.

With this in mind, let’s dive straight in there with one of the questions I am asked the most ...

How often should I weigh myself?

The closest thing most people get to having their body composition measured is stepping on the scales and seeing how much they

weigh. Of course, this won't actually tell you about fat mass or lean body mass specifically, but it is quick and easy. A lucky few may have access to fancy stuff like DEXA scans or hydrostatic (underwater) weighing equipment, but the most accessible tools to measure your body fat percentage are not particularly accurate. You could buy a skinfold calliper and use it yourself, but this would be about as reliable as a blindfolded monkey throwing at a dartboard. Digital scales that guess at our body fat percentage will likely have increasing accuracy as technology improves but, at the time of writing, aren't something to really put a lot of faith in.

Stepping on the scales is very accessible, both from a convenience and cost perspective. You don't require super-expensive fancy equipment and you don't have the same invasive experience as you would if someone was pinching you with callipers or asking you to strip down to your underwear so you can hop in their fancy machine. For the moment, and probably the foreseeable future, body weight scales are going to be the most frequently used device to tell you anything body composition related.

The question 'how often should I weigh myself?' is a great example of how a seemingly straightforward musing requires a very complicated answer if you want to do the topic justice. This isn't just a case of measuring human anatomy; it is a case of accountability, psychology and individual preference, all wrapped up together. Let me give you some examples of common fitness industry advice to show you how contradictory people's beliefs can be:

1. 'Weigh yourself every week so you can track changes to your body weight and monitor your progress.'
2. 'Weigh yourself every day so you can take a weekly average. If you weigh yourself just once per week and a body weight fluctuation coincides with the day you weigh yourself, it could skew your perception of what is happening.'
3. 'Throw your scales in the bin. Measuring your body weight doesn't tell you anything and it is bad for your psychology.'

If you look at it purely from a data perspective, encouraging someone to weigh themselves every week makes logical sense. If you have an online personal trainer writing programmes for you, they may ask you to send frequent measurements to them so they can gather information on how you are progressing. If you want to lose body fat and you don't take any kind of measurements, how will you both know if you need to change your approach? If your calorie intake is too high for your goal, it would become evident from looking at body weight data over time. In this regard, getting clients to weigh themselves regularly makes perfect sense.

Some coaches may then swoop in with an extra level of detail. They understand that many things can influence your body weight and body fat is only one component. After all, your weight could fluctuate if you had a larger meal the night before, due to the contents of your gastrointestinal tract. Bowel movements can make rapid changes to body weight that are hard to factor in, as are changes to total body water. For example, menstrual cycles can cause drastic fluctuations on the scales that aren't necessarily indicative of changes in body fat. If you weighed yourself once per week and this happened to coincide with a spontaneous spike in your body weight, you could think you are gaining weight when, in reality, you may have weighed less on the other six days you didn't weigh yourself.

Again, this makes logical sense, right? From a data collection perspective, it acknowledges the limitations that scales have. By weighing yourself more frequently, you perhaps decrease the likelihood of being fooled by sudden fluctuations caused by things that aren't related to changes in body fat. Essentially, more data must be better because it allows you to make decisions based on even more information, and that is hard to argue with.

At the other end of the debate spectrum, you have the people who will tell you to throw your scales away. First, as scales provide only a numerical value for your total body weight and cannot tell you how much fat mass and lean body mass you have, you could change your body composition a lot without the number on the scales moving at all. I have had clients who have lost several inches from their waist despite their body weight only decreasing a little bit. I have also been

told countless times that people feel demotivated because even though they can see changes to the way they look, when the only tool that can give a numerical value on their progress doesn't show much change, they feel like they are doing something wrong. If you can change your body composition yet feel upset that your body weight hasn't changed, what is the point of weighing yourself in the first place?

There is also the possibility that someone pursues weight changes on the scales at the expense of their own well-being. You know those slimming clubs where you get weighed in front of people once a week? Well, I have lost count of the number of people who have told me that they have strategies to try to get the lowest weigh-in possible. When people stop eating the day before a group weigh-in or take laxatives to make sure they weigh less than they did the week before, this is clearly an issue, and a very fucking big one at that. I have also known members of slimming clubs who are advised not to weight train because it will 'slow down weight loss'. This is essentially admitting you want people to lose muscle tissue, just to get the number on the scales down. Clearly, there can be issues with placing too much emphasis on body weight alone.

There is no single black-and-white conclusion to take from all of this. Weighing yourself more frequently makes sense from a data collection perspective, but there is absolutely no way I would encourage everyone to do this. To illustrate why, I will give you two hypothetical examples.

Person A is a professional boxer who needs to lose fat for an upcoming fight. They already have several different phone apps that they use to track their food intake, sleep patterns and body-weight measurements along with the weight, sets and reps of everything they do in the gym. They track changes over time and clearly love having objective data to work with. You know the type, someone who has never met a spreadsheet they didn't like.

Person B also wants to lose body fat but this time for general health purposes. Their history with the scales is much more emotionally charged. They were weighed as a child and told they were 'overweight', which inadvertently prompted a lifelong turbulent relationship with food. The idea of weighing themselves is anxiety

inducing, let alone doing it regularly and tracking it alongside their food intake. Since we know that someone can improve their health without specifically striving to lose weight, is it really mandatory that they record everything they do?

When people have completely different goals, personality types and life circumstances, does it really make sense to have a firm policy on how often someone should weigh themselves? I don't think so. That is why I believe it is so important to understand the pros and cons so you can apply the knowledge in the most appropriate way for you.

How can weighing yourself help with weight loss?

It has been observed in multiple studies that stepping on the scales regularly is associated with more successful weight loss outcomes. The National Weight Control Registry (NWCR) was set up in the United States to make it easier to examine the behaviours of people who had lost a significant amount of weight and managed to maintain it, given that it is a difficult population to study as they are in a minority of people who diet. When looking at 784 participants who had lost an average of 30kg (66lbs) and maintained a minimum of 13.6kg (30lbs) for 5 years, approximately 75% weighed themselves at least once per week and 38% weighed themselves daily.² This doesn't prove that self-weighing had any direct impact on their weight loss success, but it does show us that it is a popular habit in a group of people that we can consider to be highly successful in their weight loss journeys – in a world full of yo-yo dieting and failed weight loss attempts.

Think of this like asking a few hundred successful business owners about their daily routine and finding that a large percentage of them have something in common, like waking up early to start work. We can't conclude that this has any direct impact on their success, but it is interesting to learn that lots of them do the same thing, and maybe it can teach us some lessons.

What you could then do is also survey a group of less successful business owners to see if there are any differences in habits between

the two groups. One study implemented this type of design by comparing surveys of people who had maintained significant weight loss with others who had also lost weight but hadn't maintained it. It found a higher percentage of successful weight loss maintainers weighed themselves daily,³ and similar results have been seen elsewhere in other studies as well.⁴ Once again, this doesn't prove that weighing yourself regularly is better for weight loss; it merely shows us that it is a common habit of people who successfully lose weight and keep it off. We know correlation is not causation though, so to examine this relationship further, we need to look at controlled trials.

Way back in 1967, a weight loss plan was outlined for a mere eight participants, which included instructions to weigh themselves an astonishing four times per day – the idea being that this would serve as a 'periodic, mildly aversive stimulus associated with overeating'.⁵ If nothing else, this study gives us insight into how people can develop unhealthy, obsessive relationships with the scales. The participants in this trial saw noticeable weight loss results. However, this weighing protocol was just one aspect of a multifaceted plan, so we don't know for sure whether it had any impact on its own.

A few years later, a study tested self-monitoring against several alternative treatments, so we now start to get a little bit of head-to-head research. In this research paper, participants were split into five groups:⁶

1. Self-reward
2. Self-punishment
3. Self-reward and self-punishment
4. Self-monitoring
5. Control group

'Self-punishment?' I hear you ask. Yes, that is correct. At the beginning of the trial, participants in the self-reward and self-punishment groups deposited a minimum of \$10 of their own money into a kind of 'bank account' system. The first group was rewarded if

they were successful while the other was fined if they weren't. The self-reward groups appeared to lose more weight than the other groups, but this was a very small trial, and each group had only a handful of participants, so I wouldn't put too much emphasis on the results, but this helps explain the evolution of self-weighing research. Between the 'aversive stimulus' from the previous paper and the 'self-punishment' in this paper, you might start to realise how the pressure of losing weight could push people to resort to desperate or unhealthy tactics. You could possibly draw parallels between this and how some modern-day slimming clubs work, if you wanted.

Then in 1978, a research paper proclaimed to be the first to examine whether weigh-ins were actually helpful or whether no weigh-ins with an emphasis on habit change would be more effective.⁷ They stated that 'monitoring of weight or frequent weigh-ins could foster an unfortunate dependence on weight as the only measure of success' and noted that because of the unreliable nature of weight fluctuations, it may be more beneficial to focus on individual habits, like tracking calorie intake. As it turns out, participants who avoided the scales actually lost slightly more weight than those who weighed themselves regularly. The authors noted, though, that since they didn't have very many participants, it was difficult to draw any super-firm conclusions from this, but this does emphasise the idea that you can avoid the scales completely and just focus on habit change, if that tickles your fancy more.

This study helps confirm some of the worst suspicions about weighing yourself. Participants who weighed themselves regularly didn't lose more weight and it was also noted that they were perhaps more likely to adopt temporary starvation tactics in an attempt to 'beat the scales'. With this in mind, it may be a better strategy to monitor what you can control – i.e., what you eat and how you exercise – and this might also carry less risk?

Before you throw your scales out of the window, there is some research that came to the opposite conclusion. One study gave college freshman students a set of scales, asked them to weigh themselves every morning and email the number to a member of staff.⁸ After

seven days of data, each student received a graph plotting their body weight so they could see if the trajectory was going up, down or staying level – similar to tracking apps you may have on your smart phone. Students who weighed themselves daily kept their body weight static, contrary to the common ‘freshman weight gain’ which was observed in the other group who didn’t weigh themselves. This suggests that being aware of your body weight could serve as a useful strategy to help prevent weight gain – likely because if someone sees their body weight trending upwards, they can adjust their behaviours accordingly, in the same way that if you monitor your bank balance you may decide to reduce your spending instead of ignoring it and hoping for the best.

This more closely resembles modern day technology where people have digital scales and phone tracking apps that can graph your changes. As an example of one of the newer studies on this topic, one paper had all participants install an app on their phone which included tips for healthy habits and a physical activity tracker. One of the groups also had an option to track changes to their body weight, and the other group were told not to weigh themselves.⁹ Although both groups followed the same behavioural plan, participants who monitored how much they weighed reduced their weight and body fat percentage further than participants who didn’t weigh themselves, demonstrating how self-monitoring can be a useful addition alongside whatever diet or exercise regime someone is following.

Obviously, stepping on the scales doesn’t promote weight loss directly, but rather hinges on whether it influences your behaviours. If routinely weighing yourself causes you to make changes to your food intake or exercise habits that you wouldn’t have made otherwise, it can obviously impact your results, which is probably why more frequent weighing is associated with greater weight loss outcomes.¹⁰ It is also worth noting that self-monitoring nowadays isn’t actually only about weighing yourself. Some digital apps incorporate feedback based on the numbers you enter, which introduces an extra psychological element you don’t get from just stepping on a set of scales and writing down the number, which is what the early research

investigated. Some newer research papers incorporate these additional factors, like one paper showing that participants who weighed themselves daily didn't lose as much weight as those who weighed themselves twice a day and also received daily targets and feedback.^{[11](#)}

Does weighing yourself regularly help with weight maintenance?

As we saw from data taken from the NWCR, regular self-weighing was common practice among a subset of successful people who had managed to maintain a significant amount of weight loss. There are also controlled trials to back the principle that self-monitoring your body weight could help prevent weight gain.^{[8](#)} This is great news, since we know some weight regain is likely after an initial diet period.^{[12,13](#)} For example, in one study, two groups of participants both followed the same behavioural plan, but one recorded their body weight and the other group did not.^{[14](#)} Although both groups lost weight initially, the self-monitoring group maintained it for the full follow-up, around four years later, on average.

Another study specifically targeted the post-weight loss maintenance period by recruiting participants who had already lost 10% or more of their body weight.^{[15](#)} They were then divided into three groups:

1. A control group who only received quarterly newsletters
2. A face-to-face intervention
3. An internet-based intervention

Both intervention groups had regular meetings, were given a set of scales, then encouraged to monitor their body weight and submit the numbers weekly. In response to this, there was a traffic light system where they received small rewards if their body weight kept roughly static (green zone), were given instructional messages if it started deviating (yellow zone) and were told to resume active weight loss

efforts if their body weight increased too much (red zone). (This type of strategy is similar to the weight relapse prevention techniques we discussed in chapter seven, ‘How Difficult Is Maintaining Long-Term Weight Loss?’.) It found that a higher proportion of participants in the two self-regulation groups stayed in the green or yellow zones, indicating that this was a helpful strategy to help maintain weight loss.

While there are still more research papers that similarly conclude that people who weigh themselves more frequently tend to have better outcomes,¹⁶ it is still a little bit of a chicken-and-egg scenario because people are generally more inclined to weigh themselves as a consequence of active dieting efforts. It has also been shown that weight regain after dieting correlates with people standing on the scales less frequently,¹⁷ so it may simply be a case that people are less likely to want to weigh themselves if they suspect they are gaining weight and more likely to weigh themselves if they are actively dieting. Ultimately, although the research isn’t entirely unequivocal, most review papers conclude that self-monitoring is a useful behaviour for weight control.^{18,19,20,21}

Are there psychological risks?

Although this all sounds overwhelmingly positive, it isn’t sensible to suddenly tell everyone that they should weigh themselves regularly without at least acknowledging some potential pitfalls. We have already touched on the idea that monitoring body weight shouldn’t be at the expense of overall well-being. Some research has shown that people who weigh themselves frequently have higher levels of body dissatisfaction than those who weigh themselves less frequently.²² This is believed to come via increased body surveillance – essentially meaning people have a heightened focus on monitoring their physical self. This makes sense, right? People who weigh themselves frequently are probably more likely to be paying closer attention to how they look, and constantly scrutinising yourself probably isn’t a sensible idea for healthy self-acceptance.

If you went to a personal trainer to improve your health and they told you that you absolutely needed to lose a specific amount of weight and you should weigh yourself at least once per day to increase the likelihood of that happening, would you obsess more about your weight than you did before? Probably, yes. Would the increased focus you were putting on your body make you feel less content with how you looked than you did before? Possibly, yes.

Alternatively, if you went to a personal trainer who recommended that you follow some healthy habits but didn't discuss your weight at any point and never gave you instructions related to weighing yourself, would you be as likely to obsess over what the number on the scales said as you would have with the first personal trainer? Probably not.

Increased body surveillance isn't where the psychological risks start and stop; there are other things to consider. For example, if you weighed yourself every single day but you lived in a vacuum where you were completely unaware of what 'normal', 'overweight' and 'underweight' were, would it come with the same psychological risk? What if you stood on the scales every single day but didn't have the same pressure of comparing the number you saw with the number you wanted to see? Is the act of weighing yourself actually problematic or is it just your interpretation of that information and how it makes you feel?

One study weighed participants and assigned them as 'normal weight', 'underweight' or 'overweight', much like if you were looking at a BMI chart at a doctor's appointment. This research study had a twist, however: the categories were based on a fictitious chart.^{[23](#)} Some of the participants who would normally be described as having a 'normal weight' were incorrectly told they weighed too much or weighed too little, based on their height. Those who were described as being 'overweight' had a significant increase in depression and a decrease in self-esteem, despite the fact this didn't actually reflect their true body weight. This helps highlight that it isn't simply the act of weighing yourself that could cause psychological distress, but perhaps the emotions you feel when comparing yourself to other standards.

This, in turn, begs the question whether comparing people to a height and weight chart with such classifications is a benign behaviour, given how commonplace it is as a practice. Let's face it, you can decide to focus on improving your health irrespective of whether or not you know how much you weigh.

So it seems it's possible that the act of repeatedly weighing yourself can actually make you feel pretty shitty. Another study split participants into two groups: one group weighed themselves every single day for two weeks and the other group only weighed themselves at the end.^{[24](#)} Those who weighed themselves every day saw an increase in anxiety and depression as well as a decrease in self-esteem, which obviously aren't ideal consequences to be striving for. Interestingly, the changes in mood seemed to be related to weight change itself: participants whose weight stayed the same or increased had higher levels of depression and body dissatisfaction, whereas participants who lost weight had lower levels of body dissatisfaction. The authors of this study suggested that the changes in psychological state could facilitate further overeating and decrease the likelihood of successful long-term weight loss.

These psychological risks explain why some people say, 'you should throw the scales away' and you can understand this, right? After all, you don't actually need to weigh yourself, ever. You could implement healthy behaviours, like increasing your physical activity and consumption of fruits and vegetables while decreasing your ultra-processed food intake, and lose weight without ever stepping on the scales at all. It is possible for you to focus solely on a few healthy behaviours and sidestep the overtly weight-centric ones completely. This could help eliminate the risk of embarking on what can be a complicated psychological spiral of weighing yourself and constantly trying to get the number down, which we know can cause issues for some people.

However, before you decide to smash your scales on the floor, there is yet another angle. A study with a longer duration of 18 months found no evidence that daily self-weighing was associated with adverse psychological consequences.^{[25](#)} And another research

study suggested that people who weighed themselves daily over the course of a year viewed the act of self-monitoring their body weight more positively than they did at the beginning.^{[26](#)}

If one study says weighing yourself may have negative ramifications on mental health and another study doesn't, how are we supposed to know what is the correct thing to do? Well, that is probably the best take-home message you can get from all of this: there isn't a simple answer. A meta-analysis specifically dedicated to the psychological impact of weighing yourself stated:

'The findings suggest that, for the most part, self-weighing is not associated with adverse psychological outcomes. However, in some cases the association between self-weighing and psychological outcomes may be more negative than in others.'^{[27](#)}

HOW CAN YOU PUT THIS INTO ACTION?

- Your body weight fluctuates a lot and doesn't necessarily indicate a change in fat mass. People can suddenly gain weight based on their menstrual cycle, what they ate for dinner and whether they have been to the bathroom or not. Your weight literally changes over the course of every single day, which is one of a bazillion reasons why you shouldn't obsess about the number on the scales.
- However, weighing yourself regularly has been shown repeatedly to help with weight loss. If the number trends down over time you know you are in a calorie deficit and if it trends up, you know that you are in a calorie surplus. Having this information allows you to change what you are doing if you want.
- If you want to improve your health, you could adopt health-promoting behaviours without ever stepping on the scales, if

that sounds more appealing. If someone stops smoking, reduces their alcohol intake, increases their consumption of nutrient-dense minimally processed foods and starts exercising, they know they are taking steps to improve their health regardless of how much they weigh. In this regard, you could view the act of weighing yourself as entirely unnecessary.

- If you are someone who likes data and you already enjoy weighing yourself regularly as an objective form of feedback, there isn't much convincing evidence that this is bad for you. Please make sure that you aren't trying to 'beat the scales' by adopting unhealthy behaviours and aren't sacrificing your mental health by obsessing over the number.
- If you are someone who feels like shit every time you stand on the scales, or you find yourself obsessing over the way you look or how much you weigh, or you feel tempted to sacrifice your health to try and get the number lower, please consider that the scales may be doing more harm than good. Just because weighing yourself can help with weight loss doesn't mean it's always a great idea for everyone because we know that health is far more multifaceted than how much you weigh.
- Please understand that your body weight does not dictate your self-worth.

Self-monitoring food intake

When I started as a personal trainer, I rarely met anyone who claimed to know precisely how many calories they were eating, whereas now, it is a very popular trend. A large factor in its surge in popularity was the concept of 'if it fits your macros' or 'IIFYM', whereby people feel able to enjoy more flexibility in their dietary choices (see the final section of chapter eight) and often use food

tracking to facilitate this. Rather than thinking, ‘Yeah, this chocolate cake won’t stop me from losing fat if I consume it in the context of a reduced calorie diet,’ it became, ‘I need to accurately track my calories to make sure I can eat this chocolate cake.’ This is an important distinction because the first idea simply acknowledges that you have permission to eat the cake, the second comes with a rule that allows you to eat it. Having flexibility over the food choices you make and tracking your food intake might overlap, but they are not the same thing.

Calorie tracking is so common now that a question I get a surprising number of times on social media is, ‘How do you lose weight if you aren’t tracking your food intake?’ The first time I was asked this, I felt a little bit perplexed. You realise people were losing weight long before calorie-tracking apps were a thing, right? When I thought more about it, though, I realised what they really meant was, ‘How do you know if you are in a calorie deficit if you aren’t tracking?’ And this is a very valid question.

Calculating how many calories you are eating can help ensure a level of precision over your diet. It doesn’t matter what nutritional approach you follow; we know that without consistently being in a calorie deficit, you aren’t going to lose weight. Like with your spending habits, if you monitor them daily, you are far less likely to find any sudden surprises. Weighing and logging what you eat can help provide a more accurate picture than using guesswork.

Although calorie-tracking apps are commonplace now, self-monitoring has been viewed as a cornerstone of weight loss treatment for quite some time. I would often ask my early clients to make a quick food diary for me to look at. Just a notebook was fine, and it rarely came with calorie and macronutrient breakdowns. A lot of the time, it was simply a list of foods with no approximate quantities or anything else. Obviously, this is extremely imprecise, but let me give you an example of the kind of thing I’d see:

- Breakfast: oatmeal
- Lunch: chicken salad

- Dinner: fish and potatoes

Guess the calorie breakdown of this. Let's be honest, you have no idea. As a trainer, I had no idea either.

- Oatmeal. How big was the portion? What was added into it?
- Restaurant chicken salads can go from a couple of hundred calories right up towards a couple of thousand, depending on the quantity and ingredients.
- Fish. What type? How was it cooked? Was there a sauce?
Again, this is impossible to estimate accurately.

In terms of calculating calorie intake, food diaries like this are pretty useless. As a trainer, however, I still found them very helpful because you would be amazed to see how quickly people's psychology changes when they write things down. It was common for clients to suddenly become aware of how much alcohol they were drinking after being asked to keep a food diary. Even if you can't glean calorie intake, it's still possible to identify behaviours that are easy to modify. For example, encouraging people to eat more vegetables and protein while reducing their alcohol intake could provide noticeable results with very little need for precision. These kinds of straightforward changes don't necessarily need calorie guidelines attached to them. Simply recording what you eat can create an increase in awareness of what you are doing.

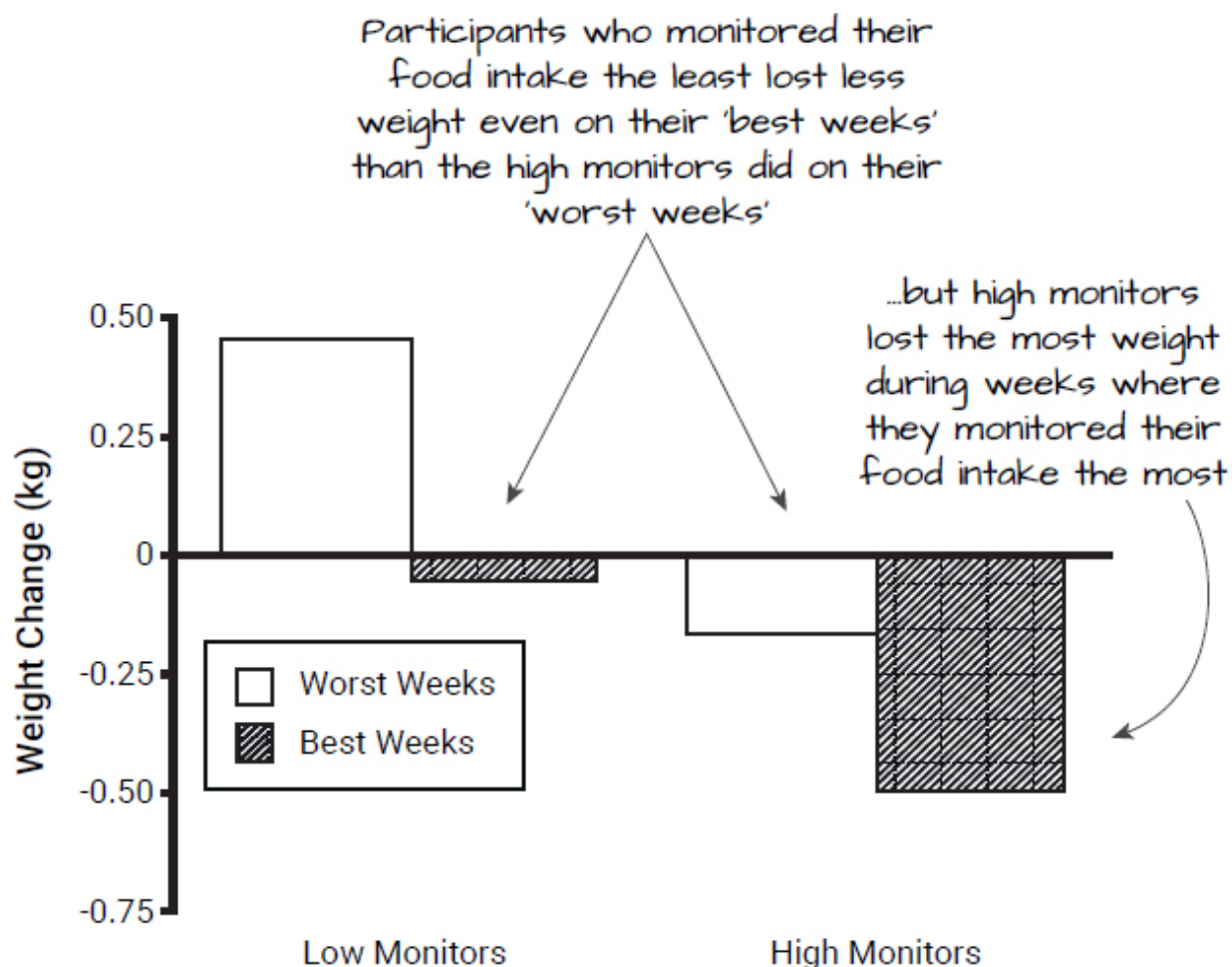
You absolutely don't have to be meticulous with food tracking to notice things that you might want to adjust. You do not need to weigh every single thing you eat and add it to a calorie tracking app on your phone to collect ultra-precise information. A lot of people notice that just a low level of awareness is enough for them to make some helpful changes. While all of this sounds like a glowing endorsement for recording your food intake, I am very reluctant to recommend it to everyone. Let's go over the benefits and drawbacks.

Does tracking your food help promote weight loss?

Self-monitoring food intake has been shown to help weight loss, even when using just a basic pen and paper. In one study, participants were encouraged to record all the food they consumed in a notebook with columns for food type, time of day and calorie content.^{[28](#)} It was during a dieting phase so researchers could make associations between body weight changes and food tracking habits. It found that:

- Participants lost more weight during their ‘best’ weeks, where they recorded more of what they ate, than they did on their ‘worst’ weeks where they recorded less of what they ate.
- The ‘high monitors’ who recorded their food intake more regularly lost significantly more weight than those who monitored less frequently.
- Not only that, ‘high monitors’ lost more weight even during their ‘worst’ weeks where they recorded less of what they ate than ‘low monitors’ did during their ‘best weeks’ where they recorded more of what they ate.

This paper concluded that ‘as monitoring quality improved, so did the likelihood that subjects lost weight, particularly those monitoring at the highest levels.’ A follow-up study replicated these findings and proposed a threshold for monitoring where successful weight loss was seen when participants recorded their food intake 75% of the time.^{[29](#)} Additionally, the authors suggested that if people monitor their intake for fewer than half of the days, they were unlikely to see long-term weight loss and they described consistent self-monitoring as a ‘vital component of successful weight control’. This is another impressive testimonial for tracking what you eat, but this time they acknowledged it doesn’t have to be every single meal, which is a pleasant relief.



Average Weight Change in High and Low Monitors, Comparing Their Best Weeks and Worst Weeks of Monitoring. Adapted from [28](#).

If people who track their food intake more regularly lose more weight, we should encourage everyone to do this, no? Well, not really. Like the chicken-and-egg scenario we saw with people being more inclined to weigh themselves when they were proactively dieting, maybe people who are highly motivated to lose weight are just more likely to track their food intake. It is like saying people who are good at saving money are the ones more willing to check their bank balance regularly. It doesn't necessarily mean that checking their bank balance helps them save money, even though it is probably connected.

The earlier study also stated something that raises a big fucking red flag: 'These results support the notions that self-monitoring, and

perhaps obsessive-compulsive self-regulation, are necessary for successful weight control.’ [28](#)

We know there is a blurry line between weight- and health-related outcomes so recommending obsessive-compulsive self-regulation doesn’t sound great from a mental health perspective, does it? It appears that self-monitoring what you eat can have a positive impact on how much body fat people tend to lose, but I can’t promote something that could encourage people to also have an obsessive relationship with food without at least stipulating what the possible risks are. We’ll discuss this in more detail in a few pages.

What food tracking option is best?

All the flashy food tracking apps aside, we have research from three decades ago supporting the idea that recording what you eat with just a basic notepad might be a good strategy, which begs the question: what level of meticulousness is needed? I mean, there are people trying to hit precise calorie and macronutrient targets, and tracking everything to the exact gram. Is this really necessary? Let’s look at the research.

One study compared detailed food tracking to a simplified strategy. [30](#) During an introductory detailed phase, participants had to record food types, quantities, calorie values and fat quantities for each meal. After eight weeks of that, they were divided into two groups. One half continued to do the same for another eight weeks and the other half transitioned to an abbreviated strategy, where they just had to fill in boxes to estimate the fat and calorie content of their meals, indicate skipped meals and record the duration of their workouts. Interestingly, there were no significant weight loss differences between groups. Thus, it looks entirely possible to get benefits from food tracking without having to commit to it at an obsessive level. If you said to me, ‘These two methods get similar results, but one of them is going to be a fuckload of work and the other one will get much easier after a while,’ I am definitely going for the second option. Perhaps it’s like learning to ride a bike: you can use stabilisers for a while until

you are confident and then stop using them when you don't need them anymore.

Anecdotally, many people report that using a food tracking app is a very good way to learn about what they are consuming in terms of macronutrients and calorie values. A period of tracking their food intake more meticulously can then allow them to transition to a more casual approach once they've learned the basics of what their food intake looks like. Through this initial period of tracking, they are able to develop helpful strategies so that they can continue without feeling like they need to record everything precisely.

Another trial compared notebook diary usage to that of a personal digital assistant (a device that nowadays is barely used as smartphone technology improves so rapidly) and found no significant differences between types of self-monitoring. It claimed that the method of monitoring didn't matter as much as consistency.³¹

'People seeking to lose weight should be encouraged to self-monitor and be matched with a mode of self-monitoring that is fitting to their lifestyle and skills.'³¹

I like this snippet. After all, when everyone has different needs, knowledge levels and psychological traits, why would we advise everyone to follow the same path, unless there was really clear research that one of them is best? I can say with a high degree of confidence that if I told everyone reading this book to track their food intake a certain way, some of you would do well with it, some would be ambivalent to it and some of you would absolutely hate it. It isn't going to be right for everyone.

A similar trial also compared a paper diary to a personal digital assistant (PDA) loaded with self-monitoring software. Participants were divided into three groups:³²

1. Paper diary only
2. Personal digital assistant with self-monitoring software

3. Personal digital assistant with self-monitoring software and daily feedback messages

All participants took part in group sessions alongside prescribed diet and exercise goals. The only thing that differed was their method of self-monitoring. The trial found there was greater adherence to digital food records versus paper records, suggesting that digital recording may be more convenient for some people versus digging out a notebook and writing things down with a pen. Although all participants saw weight loss results, a greater number saw clinically relevant weight loss of over 5% of body weight when digital recording was combined with daily feedback messages. A little bit of accountability and encouragement can go a long way.

This is perhaps one of the main advantages of digital record keeping now. Whereas a paper and pen are good for jotting down your own notes, websites and phone apps can use feedback messages and notifications to encourage you when you are doing well or give advice where needed. If food tracking is sometimes viewed like giving someone training wheels as they learn to ride a bike, perhaps feedback messages are like coaching tips or words of encouragement – it might be more motivating than just letting someone go at it solo.

Another benefit of food tracking technology is that advancements allow for greater ease. Modern food tracking apps now often have built-in databases for food selection and charts that compare your food intake to your macronutrient and calorie targets. In 2013, a pilot study tested self-monitoring via a smartphone app and put it head-to-head against website tracking and simple pen and paper tracking.^{[33](#)} The app allowed people to pick food items from a database and record them in their food diary. The primary aim of this trial was not intended to monitor changes in body weight; researchers simply wanted to see which method of food monitoring saw the highest level of adherence. While 93% of the smartphone group stuck to the plan, only 55% and 53% respectively of the website and paper diary groups did so, indicating that tracking food on your smartphone might be significantly more convenient and therefore easier to continue with. This is probably because it requires less effort to search and select a

food item on your phone which then automatically calculates the calorie values for you, and also because a lot of people carry a smartphone, but rarely have a notebook sitting in their back pocket.

This study also reiterates that adherence is paramount because although smartphone usage was higher, the number of people who recorded their daily food intake still decreased significantly over time. This drop off is common and brings us to an important issue: what happens over an even longer period of time? Research supports an association between self-monitoring and weight loss,¹ but we also know weight loss in the early phases of a diet is relatively simple and long-term success rates are notoriously low. Could self-monitoring help avoid weight regain in the long run?

Does tracking your food help long-term weight maintenance?

One trial sought to answer this question by not only prescribing an initial six-month weight loss period but also including a secondary 12-month maintenance phase.³⁴ Participants were encouraged to record whatever they ate and drank at least three days per week, alongside twice per month face-to-face or telephone check ins. Just like we have seen with other self-monitoring research, people who were most successful at maintaining their weight were also the ones who recorded their food intake more regularly, indicating that self-monitoring is not only a valuable weight loss tool, but it could also be a good strategy to prevent weight regain in the post-diet phase.

‘... only participants who reported the highest rate of food record completion continued to lose weight after the initial intervention, supporting the importance of encouraging participants to track food and beverage intake even after initial weight loss.’³⁴

This has also been seen in other research papers. Another trial conducted a six-month treatment phase followed by an additional 12-month extended-care period.³⁵ Female participants were provided with a pen and paper and asked to complete a food diary for at least three days per week, including type of food, quantity of food, caloric value and time of day eaten. It found that participants who monitored consistently (classed as 50% or more of the time i.e., 26 weeks or more of the year) had significantly greater weight loss results than those who monitored inconsistently. It also concluded that the comprehensiveness of dietary recall did not impact results above and beyond self-monitoring frequency – once again adding support to the notion that simpler dietary tracking may be sufficient to support weight loss, as long as it is done frequently. This is great news. Asking for food records three times per week on a consistent basis is a much easier goal than telling people they need to track every single thing they eat and drink every single day.

By now, you probably have a pretty clear idea that there is a significant amount of research supporting the association between self-monitoring your food intake and better weight loss and weight maintenance outcomes, hence earning the title of being a ‘cornerstone’ or ‘core component’ of behavioural weight loss treatment.^{28,29,30,31,34,35,36} However, whether it helps you with your weight loss goals is only one part of the puzzle.

Does tracking your food come with psychological risks?

Do you remember that red flag I talked about earlier? ‘Obsessive-compulsive self-regulation’ is the bit that I want to circle back around to. While it could be easy to recommend everyone tracks their food intake since the research supports it helping weight loss and weight maintenance, we have to acknowledge when something comes with risks.

I have seen countless people take calorie tracking to extreme levels. I have known people who use an online calorie calculator to work out approximately how many calories they should eat per day then try to hit that number absolutely perfectly, as if it is realistic to consume

exactly 2,361 calories per day, every single day, without deviation. I have also seen people who are terrified of eating at restaurants with friends because they cannot track their calorie intake precisely, or they insist on taking food scales everywhere they go. Meticulous? Yes, absolutely. ‘Whatever it takes, bro’? Perhaps. Probably creating other issues for yourself, in the extreme pursuit of perfection? Abso-fucking-lutely.

From a sustainability perspective, something that limits your social engagement is probably going to be an issue, right? If trying to hit 100% accuracy on your calorie tracking every single day means that your life sucks and you’re missing out on seeing friends and family because of it, I would strongly recommend reassessing your goals and what would make you happy. Throughout this book, you may have noticed a theme that body weight in isolation isn’t a strong indicator of health. If pushing for a lower body weight causes you psychological distress, you should seriously consider the risk-to-reward ratio in your own personal circumstances. If I told you that you absolutely had to monitor every single mouthful you ate, record it to the exact gram and exact calorie for the next five years, and if you do this there is a strong possibility you could achieve your lowest body weight ever, would you actually feel happier for achieving it? What if your relationship with food was so fucked up you didn’t ever eat at a friend’s house, you didn’t ever go to restaurants and every time you wanted just another mouthful of a snack, you needed to grab the weighing scales again? I have seen people doing this, where the goal of losing weight supersedes everything else and people find themselves spiralling into a level of unhappiness because they have become completely number obsessed.

I would like to clarify again that I am not giving recommendations or advice around disordered eating. It is not within my scope of practice and I strongly encourage seeking professional advice when necessary. I am simply presenting a summary of some relevant research.

In one study, college students who used dietary tracking software completed a questionnaire related to food psychology. Results showed that tracking was associated with eating disorder symptoms, and the researchers concluded that calorie counting may do more harm than good for some people.³⁷ Although this paper found an association between the two, it doesn't allow us to draw any conclusions on the direction of the relationship. Does calorie tracking exacerbate eating disorder symptoms or are people with disordered eating tendencies more likely to gravitate towards calorie tracking?

A follow-up study recruited individuals with diagnosed eating disorders and found that around 75% of them used calorie tracking devices.³⁸ However, in addition to this, it also found that 73% of those people felt that calorie tracking itself had contributed to their existing eating disorder. This was backed up in another study, which found that nearly 40% of calorie tracker users thought the app contributed to their eating disorder symptoms to some extent.³⁹

This is a huge problem. If common weight loss advice is to track everything you eat, are we unknowingly directing people towards a heightened risk of a worse relationship with food? Rather than merely warning people who have a history of disordered eating, maybe we need to warn everyone who tracks their food intake. After all, if every single person reading this book decides to record everything they eat and some of you feel like it worsens your relationship with food, I would be doing you a disservice. I am not prepared to give blanket advice that could have disastrous consequences for some of you.

However, before you take this information and think it means that tracking your food directly causes you to develop an eating disorder, it's important to note that not all research has reached this conclusion. Rather than just using surveys, one study actually decided to track changes over time by enrolling participants into one of four different monitoring strategies, alongside a control group:⁴⁰

1. Daily self-weighing to track body weight
2. MyFitnessPal use
3. Brief monthly consults to chat about progress

4. Self-monitoring hunger only

At the end of the 12-month trial, there were no differences between groups in terms of key disordered eating symptoms and behaviours, including binge eating, laxative usage, vomiting and excessive exercise. There were also no differences in the scores on the eating disorder questionnaires.

Although there is clearly some cause for concern over whether calorie tracking can contribute to eating disorder symptoms, it isn't clear cut. Thus, the most sensible advice is to be aware of the potential issues and, of course, always seek professional help when necessary. Not everyone will want to track their food intake anyway, especially meticulously, and I think it could be dangerous to steer everyone towards this behaviour, so it is sensible to be aware of the pros and cons and make an educated decision for yourself.

HOW CAN YOU PUT THIS INTO ACTION?

- If you feel like you are struggling to lose weight and have absolutely no idea how many calories you are consuming, it may be helpful to learn more about the calorie content of foods you eat regularly. In a world that has a growing number of calorie-dense foods, it can be eye-opening to have more calorie awareness and this often helps inform people to make the simplest of changes.
- Likewise, if you are struggling to lose weight, paying some attention to your overall dietary habits can also be revealing. Even studies using a basic pen and paper often suggest that writing down what you eat can help with weight loss. If you write down what you eat for a week and realise you barely consume any fruits and vegetables, or you are drinking more alcohol than you realised, you can make health-promoting dietary changes without needing to meticulously record your calorie intake every single day.

- Although a subset of people claim that they enjoy meticulously tracking everything they eat, I cannot recommend this in good conscience to everyone. It is arguably far more effort than it is worth, given that simpler methods can help promote the same results and probably come with less risk to your mental health – like briefly recording your intake just three times per week instead of seven days per week, as consistency seems to trump frequency and detail. Extreme record keeping may feel appropriate for people whose careers depend on maintaining a certain level of body fat, but this won't apply to most of you.
- With all methods, you need to consider the cost-to-benefit ratio for yourself. Having absolutely zero calorie awareness probably isn't helpful from a weight management perspective but trying to count every single thing you eat is at the other extreme end of the spectrum. Learning more about what you eat can be helpful, but please don't go too far in the other direction that you sacrifice your mental health in the process. If you start feeling more anxious about eating at restaurants that don't provide calorie values, or more nervous about eating at a friend's house because you don't know the precise nutritional information, it is worth taking a step back and realising that this anxiety could be causing more harm than good. Too many people try to lose weight in a way that sacrifices their mental health and I don't want to let you fall into that trap.

Calorie underreporting

An overlapping topic that we need to consider when discussing dietary self-monitoring is calorie underreporting. This is simply a term used to describe when someone underestimates how many calories they have consumed. We are notoriously bad at guessing our total calorie intake and it can cause some people to self-diagnose themselves with a 'slow metabolism' or 'metabolic damage' because

they are disappointed in their rate of fat loss. The reasons for underreporting calorie intake are diverse, so I will give you three examples I have seen personally, before we look at the science.

1. I decided to weigh some portions of foods I was commonly eating in order to see how accurate I was at eyeballing my serving sizes. The first one I picked was easy, just a single ingredient food: plain oatmeal. This wasn't a complicated recipe with a dozen different ingredients. I just decided to weigh some dry oatmeal in a bowl to see how accurate I was at estimating its weight. How much do you think I was out by? It turns out I was eating literally double the amount of food that I thought I was. If I couldn't accurately eyeball a single ingredient, there was a strong likelihood my entire diet would have been miles away from what I would have guessed. I also realised that every time I had blamed a cooking recipe for not turning out like I expected, there was at least a solid possibility it was my fault for thinking I could just measure all the ingredients by eye. Maybe that cake recipe was actually great after all, but my guesswork on the butter was not so great.

2. A client had been training with me for a few weeks. We were sitting down and talking about nutrition, and they told me that they hadn't been entirely truthful when telling me about their eating habits because they were worried that I would ask them to change things they didn't want to change. This is an example of intentional underreporting, which often happens from fear of judgement, especially if you are telling someone else about your habits, rather than writing them down for yourself.

3. A good friend of mine was a personal trainer and many years ago they were following a low-carb diet and not seeing the weight loss results they expected. Despite the fact their carbohydrate intake was already miniscule they wondered if they needed to be extra diligent to try to eliminate the last few remaining grams from their diet, which is a common thought process for hardcore low-carb diet folk. As a suggestion, I said it might be worth recording what they ate for a couple of days just to see if anything jumped out at them as being surprising. Among other things, they realised that the 'splash' of

cream they added to their coffee was a lot bigger than they thought, and due to drinking quite a few coffees per day, it turned out they were drinking several hundred calories worth of cream that they hadn't previously factored in. Rather than changing their food choices and being obsessively meticulous about their low-carb diet, they decided just to reduce the amount of cream they put in their coffee. This saved them from going down an unnecessary path that involved more effort than the easy shortcut.

The point I would like to make here is: calorie underreporting is extraordinarily common and can happen for a wide variety of reasons. Here is a non-exhaustive list of the most common reasons for underreporting:

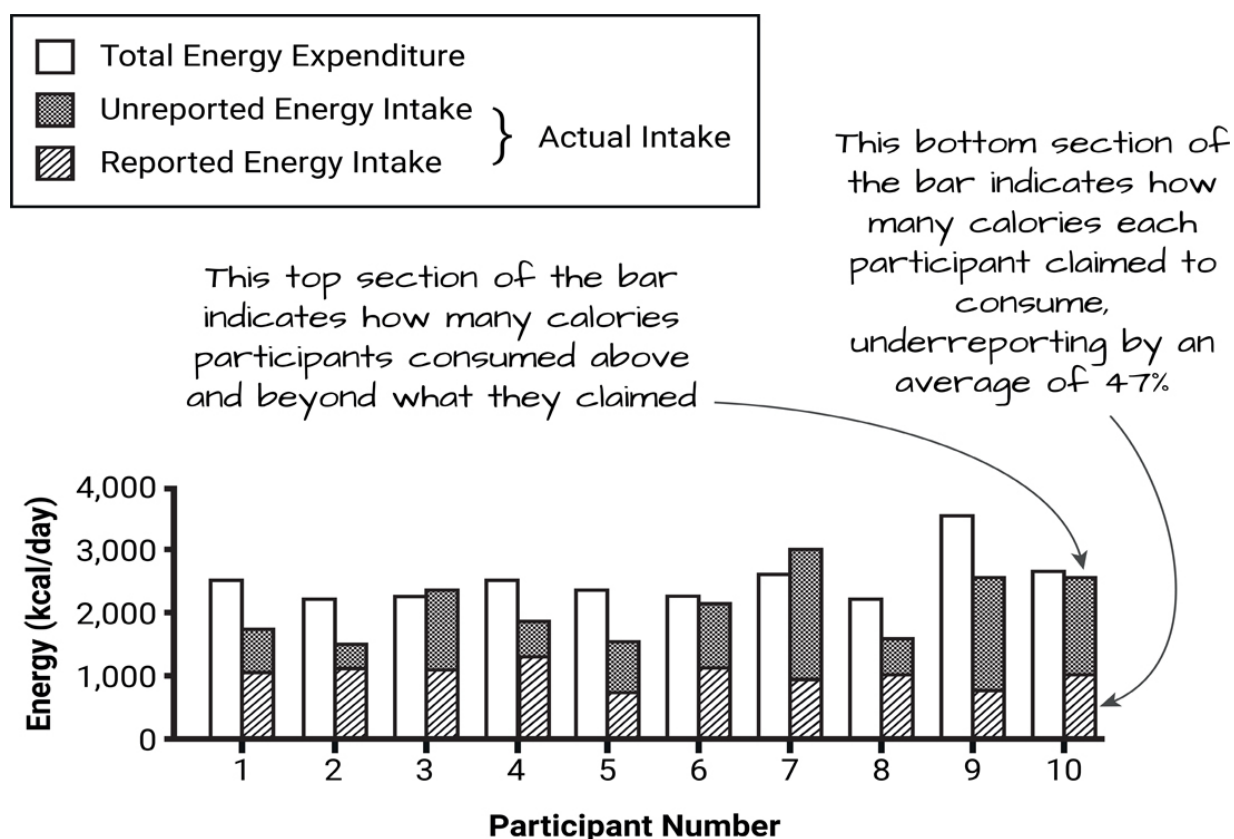
- You can eyeball portions and guess the weight wrong, like I did with my oatmeal.
- You can forget what you ate. Many people who record what they eat do it at the end of the day and it is easy to leave stuff out.
- You can record food accurately but use an incorrect entry on food tracking apps. As many of these are manually created databases that rely on people entering information, there is a likelihood that a percentage of entries are simply incorrect.
- You could track something accurately to your own knowledge but not realise it is incorrect. For example, you could record 'one spoonful' of peanut butter without knowing that your spoonful is twice the size of the one used for the nutritional information on the back of the jar. Similarly, if a restaurant supplies the nutritional information on their menu there is always going to be a margin of error when the chef is making things by hand.
- You could do it deliberately by choosing not to log some things you eat. Often this doesn't have the devious intent accusatory personal trainers may assume. It is often for fear of embarrassment or judgement.

- You could log some days which aren't representative of others. It is common for people to record what they eat during the week when their life is more routine but then guess their food intake at weekends when social events come into play. If you ever ask someone about their dietary habits, there is a strong chance they will think back to the most familiar meals, like their breakfast, lunch and dinner on their workdays, rather than their days off when their eating may be more sporadic. You could be adhering to any calorie targets you are aiming for on the days you track, not realising how far off you are on the days you don't.

Accurately knowing the calorie content of your diet is not easy. In fact, statistically it is safer to assume that none of us really know exactly how many calories we are consuming. Even if we were all super-hardcore obsessive calorie trackers, there are margins of error that we could never be fully in control of. For example, the nutritional content of food varies: if you ate an apple every single day, some of those apples will be slightly bigger or smaller than others, and some are likely to have a higher sugar content than others, thereby affecting the total calorie counts. Various research papers have also concluded that there are sometimes discrepancies between the nutritional information a product claims and what is actually contained in the food, as demonstrated in snack foods,^{[41](#)} supermarket ready meals^{[42](#)} and restaurant meals.^{[43](#)} This means that even if you tried your best to track every single calorie you consumed, there is still a good chance you aren't going to be precise, because you can't be.

The reason why underreporting can cause issues is because it can make people believe there is something wrong with them physically. One study recruited participants who were 'diet resistant' and couldn't lose weight despite the fact they claimed to eat a measly 1,200 calories or less per day.^{[44](#)} Participants completed a medical and nutritional history and underwent a physical examination, metabolic testing, body composition analysis and psychological evaluation. The goal was to identify any and all differences between them and the control

group, who did not report diet resistance. When the testing was complete and the results were in, was it shown that their metabolism was slow? No. On average, their metabolic rates fell very close to the predicted values you would expect based on their body weight. Once uncharacteristically slow metabolic rates were ruled out, there was only one hypothesis left: they must be consuming more energy than they thought. Yes, on average, they underreported their food intake by a massive 47%, which worked out to approximately 1,053 calories per day. They also overestimated their physical activity by 51%, which worked out to be 251 calories per day.



Individual Total Energy Expenditure, Reported Energy Intake, and Unreported Energy Intake. Adapted from [44](#).

The very blunt interpretation of this is that they were wrong about what they thought they were eating and how extensively they were exercising, but I would strongly suggest interpreting this with some tact. The research paper recorded that the participants were distressed

when they were given their study results. We know that long-term weight loss can be extremely difficult, so while this shows us the extent of calorie underreporting that can occur, it also highlights a level of desperation that a lot of people feel. Obviously, there could be advantages to finding out that there is nothing wrong with your metabolism but telling someone that they are simply eating more than they thought is a topic which often requires some delicate navigation.

No study can prove that nobody on the planet has a slow metabolism and no study can prove that everyone underreports how much food they eat, but this one helped identify that there may be a tendency for people to falsely attribute the reasons why they can't lose weight. So just how common is calorie underreporting? Were the people in this study just an anomaly?

One study recruited a group of qualified dietitians to compare the accuracy of their food record keeping with a group of non-dietitians.⁴⁵ The idea here was that dietitians have a lot more experience with diet logs so they should be much more accurate than regular members of the public, but once again, there was a tendency to underreport across the board. The non-dietitians underestimated their calorie intake by 429 calories per day, on average. As we would have guessed, the dietitians were more precise, but they still missed the mark by an average of 223 calories per day.

If a group of qualified dietitians cannot accurately record how many calories they are eating, should we really be surprised that members of the general public can't either? Accurate calorie tracking is just not a realistic expectation for most people. To tackle the prevalence of calorie underreporting, one study went so far as to offer financial incentives to people to see if this helped.⁴⁶ Participants were told if they recorded their food intake accurately, they would receive a \$50 bonus, but as it turns out, even a financial incentive was shown to be ineffective.

Why is calorie underreporting so common?

Why does the trend always seem to involve underestimating and not overestimating? Are people being intentionally dishonest? Does

everyone secretly know they are eating more food but all of them decide to fudge the numbers downwards a bit? Would people really prefer to lie about it than be given \$50?

To test whether underreporting was done knowingly or not, one study set up something called a ‘bogus pipeline’, where two groups of participants tracked their food intake for one week and then one of the groups was told that a researcher was going to verify the accuracy of their reports.⁴⁷ The ‘bogus pipeline’ is essentially a way of testing how someone’s answers change if they suddenly think they are verifiable, a bit like if they were told they’d be taking a lie detector test.⁴⁸ During phase one of the trial, both groups underreported their food intake by nearly half, claiming to consume only 52% and 55% of what they actually ate. During phase two of the trial, when one group was told that their food records were being verified, their accuracy improved – but only slightly, nudging its way up to a mere 61%.

‘Participants continued to significantly underreport their caloric intake even when they believed that the researcher could check their self-reports. Thus, underreporting of dietary intake seems to be entrenched and not easily altered.’⁴⁷

If financial incentives and being told that the results are going to be independently verified doesn’t stop calorie underreporting, what is actually driving it? One theory is based on the social desirability to appear to be eating a certain way. For example, some research has shown that people tend to underreport fat and carbohydrate intake more than protein.^{49,50} As dietary carbohydrates and fats are often demonised more than protein, is there an external pressure for people to omit some of these foods from their food diaries? If you were telling someone about your dietary habits, do you think any part of you would feel inclined to discuss the foods you view as healthier and perhaps leave off some of the less healthy ones?

One research paper attempted to delve deeper into this question by studying pairs of identical twins.⁵¹ The study recruited pairs of weight-discordant monozygotic twins (which is just a fancy term for when each genetically identical twin has a different body weight) as well as some weight-concordant monozygotic twins (where their body weights were the same). When asking them how their eating habits compared, both the lighter and heavier co-twins reported the same calorie intake as each other, but the lighter co-twins also believed that their heavier co-twins consumed more food overall, ate more unhealthy food and had lower levels of physical activity per day. When their food intake was measured, it showed that only the heavier co-twins significantly underreported their own calorie intake and overreported their exercise levels, which suggests that individuals with higher body weights may be more susceptible to misreporting their nutrition and exercise habits.

Is there a reason they were worse at estimating their calorie intake, or is it simply because their diet was harder to estimate? It is possible that it is just harder to estimate the calorie values of some diets. After all, if someone is eating a lot of calorie-dense foods, it is quite likely that any margins of error when eyeballing portion sizes are amplified. As an extreme example, it's probably much easier to estimate the calorie content of an apple somewhat accurately compared to a high-calorie multi-ingredient food, like a slice of pizza.

Another possibility is that there is an increased motivation to massage the answers. In the same way that social desirability may influence what foods people are more inclined to omit from their food diary, perhaps there is a pressure to conform to social norms, out of fear of judgement. This isn't actually a radical idea because fudging numbers based on social desirability happens a lot. Do you think everyone who fills in an online dating profile would be honest about their weight if they were asked? Body weight is far easier to measure accurately than food intake, given you can just hop on and off the scales, but it is still common for people to misreport how much they weigh, which may be especially common in people whose body weights fall outside of the social 'norms'.⁵² Part of this may be purely

unintentional, as not everyone weighs themselves regularly, but what about something that doesn't fluctuate, like height. Do those dating profiles all accurately report their height? Probably not. Out of all the people who fibbed and stated their height incorrectly, do you think everyone would lie in the same direction, or would men and women be inclined to report differently? Would people who are shorter feel more inclined to round their height up versus people who are considered 'average'? Men and women are likely to feel different pressures to report their own physical characteristics⁵³ so should we be surprised if people with higher body weights may feel more inclined to underreport their calorie intake? Quite a few research papers have investigated the relationship between social desirability and dietary underreporting^{54,55,56,57} but I would like to give you a couple of lesser known examples.

What happens when we compare participants from different countries altogether? In theory, if there are societal pressures that may encourage people to bend the truth with their food records, maybe you would see lower rates of underreporting when you look at countries with different cultures around food and body image.

One study tested exactly this, by comparing four populations of African origin from rural Cameroon, urban Cameroon, Jamaica and the UK.⁵⁸ The idea behind this was that if the perception of calorie-dense foods being bad for your health is more prevalent in Western societies, this may encourage participants from the UK to downplay how many calories they eat compared to those in rural Cameroon. In the same way that being constantly surrounded by media images of celebrities could have a negative impact on your self-esteem, maybe there is a similar external pressure for you to conform to a more socially acceptable way of eating. Sure enough, calorie underreporting was lowest in rural Cameroon, slightly higher in urban Cameroon, higher in Jamaica and highest in the UK, which correlated with cultural influences of food pressure. In other studies, rates of calorie underreporting were significantly lower in Egyptian women than American women, which may reflect less self-consciousness about food intake in Egypt.⁵⁹ There were extremely high rates of calorie

underreporting in a study on Japanese women, where there is a strong desire for thinness.^{[60](#)}

Lots of things can influence how accurately someone records what they eat. In some countries there may be higher rates of home cooking or less food diversity or increased levels of education, all of which could promote a greater familiarity with the nutritional content of your diet, but I wanted to bring this social desirability aspect up for one specific reason. If you thought you ate a lot of food and this was something that would cause negative judgement from other people, would you be more inclined to lie? Would this change depending on your body weight? Maybe your fear would be amplified if you were heavier and reduced if you were thinner? For example, two review papers that looked at 34 and 59 different studies respectively found consistent underreporting, especially in females and participants who weighed more.^{[61,62](#)} If you lived in a part of the world that celebrated larger body weights rather than being immersed in a culture that strived for thinner ideals, would you be as likely to calorie underreport? Possibly not. We don't know all of the contributing factors, but we do know that underestimating how much you eat is a widespread, approaching universal, phenomenon. Although advances in technology might make it easier to record your food intake accurately over time, in studies that compare different methods of food recall, none appear to be super reliable.

HOW CAN YOU PUT THIS INTO ACTION?

- If you are someone who already tracks their food intake, please understand that it is extraordinarily difficult to accurately record how many calories you are eating and some of the reasons for this are entirely out of your control. Even food labels in some countries are allowed to have margins of error of up to 20%, so if you buy a snack from the store, the actual calorie content could be up to 119% of what it says on the label. Trying to record your calorie intake absolutely perfectly would require a level of obsession I could never

encourage. You would have to weigh every single thing you ate, including every ingredient you cooked with, and this level of meticulousness could be disastrous for your mental health.

- Even though calorie tracking can be notoriously inaccurate, it can still be a useful tool. You don't need to know exactly how much money you are spending and earning every single day to make periodically checking your bank balance worthwhile. Just having more awareness can be a good thing so don't freak out at the idea that you don't know exactly how many calories you are eating. It is of course entirely possible to improve your health and lose body fat without tracking your calorie intake at all. It is a tool, and not a tool everyone wants to use.
- However, if you are not getting the results that you expect and you are not sure why then having a greater degree of calorie awareness may help shine a light on things you hadn't previously considered. For example, you may notice you are consuming more calories than you realised from foods you don't care about (such as the extra cream in my friend's coffee) and reducing or removing these will allow you to keep eating the foods you enjoy. There may be some easy modifications to your diet that are relatively effortless to implement, allowing you to make your overall diet easier to adhere to.
- As always, your health and weight are not perfectly intertwined. If you hate the idea of occasionally looking at the back of packets to learn more about what you are eating, stick with healthy dietary fundamentals like prioritising minimally processed, nutrient-dense foods because focusing on health-promoting habits is always a good idea.

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14.

WHAT ELSE CAN AFFECT WEIGHT LOSS?

There are a few additional factors that research has shown can influence your body composition or the amount of food you eat. Think of this as a bonus chapter of the book. These topics either don't have enough research available for a complete chapter of their own, they're a little bit obscure and/or they are not necessarily strategies I'd recommend, but still make for some fascinating extra reading.

Why sleep quality matters

Poor sleep quality is a contributing factor towards weight gain. It has been directly linked to altered food behaviour and has been specifically studied in relation to body composition.

Examining the relationship between sleep and body weight is not the easiest thing to do. You can't take a group of people and keep them in a research facility for several years just to see if those who slept less ended up weighing more. On top of that, it isn't particularly easy for people to report how long they slept for. You might know roughly what time you went to bed and what time you woke up but if you were awake for a while before dozing off or you woke up in the night to go to the toilet, it becomes more of a ballpark guess than anything. As with nutrition diaries, self-reported data can never be fully reliable, which makes sleep patterns tricky little buggers to study. This is getting easier with the invention of new technology, but for the moment it isn't super simple.

Some research papers look for long-term associations, which essentially involves surveying people and identifying trends.^{[1](#),[2](#)} For example, one study claimed that people who slept nine or more hours

per day had less than half the risk of obesity than those sleeping fewer than six hours.² This identifies a correlation but it does not tell us anything about causation and it doesn't tell us much about what else might be influencing their weight gain.

One research paper built on this by combining sleep questionnaires and diaries with an actual sleep test, to see if there were any significant differences in various metabolic hormones.³ It found that those with shorter sleep durations had lower levels of the hormone leptin (which helps tell us when we are full and stimulates energy expenditure, as we discussed in the section on refeeds in chapter 12). They also had higher levels of the hormone ghrelin, which in combination with a decrease in leptin would be expected to increase appetite. We now know that inadequate sleep may make people hungrier, but how much of a difference does it make?

A later study directly tested whether sleep deprivation actually impacts how much people eat, rather than just measuring changes in hormones that are related to appetite. To do this, participants slept in a lab on two separate occasions for either four hours or eight hours.⁴ After sleeping for only four hours, they ate an average of 22% more food, which equated to 559 more calories. Although there was an average increase, the effects were even more pronounced in some people, who ate 36% more food, while the opposite was seen in a minority group, who actually ate 15% less food. This is an example of how people can respond in totally different ways to the same situations and why looking at the overall averages might hide important parts of the puzzle.

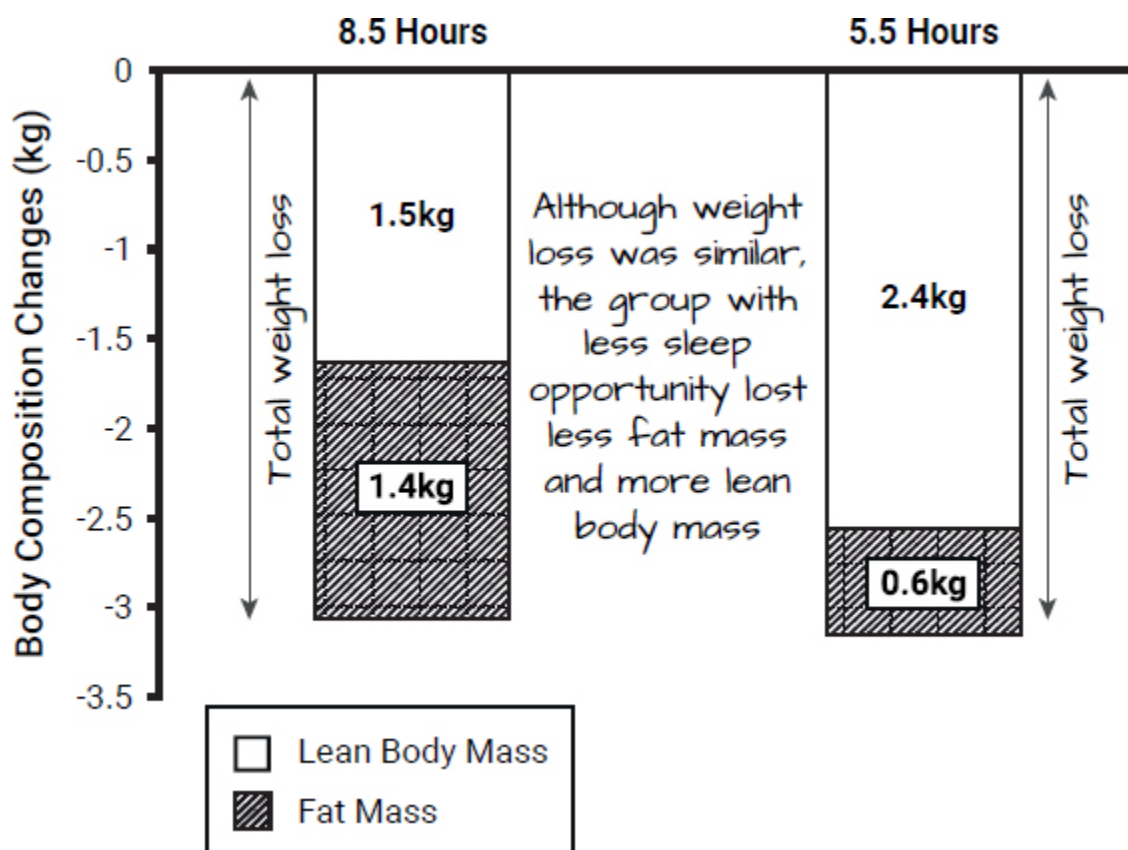
This study was very small and only included 12 men. It was also extremely short, comparing just a single night of sleep deprivation to a single night of adequate sleep, so how this would play out in the long term is anyone's guess. If a single night of bad quality sleep is enough for people to increase their food intake by nearly a quarter, or in some cases more than a third, what would this mean for insomniacs, shift workers and parents of young kids who may get several days, weeks, months or even years of really shitty sleep? When you consider that sleep is a potent behind-the-scenes regulator of appetite, some people

who don't have the luxury of adequate quality sleep may feel like they are swimming upstream to get the same results that other people find relatively effortless. After all, when dieting is intentionally restricting calorie intake, anything that makes you hungrier is likely to make things more difficult.

There is another reason why sleep deprivation may make you eat more food. As well as any possible hormonal changes, you are literally awake for longer which presents a greater opportunity to eat.⁵ If someone works a weird shift pattern and they only get five hours sleep, they are awake for 19 hours of the day, which of course means they are probably going to want to eat more food than if they were only awake for 15 hours. While it is possible that being awake for longer means you are also more active and using more energy, it isn't guaranteed to be the case, especially if you are feeling tired.

Some research papers have also questioned whether our growing use of technology is a possible contributor to slowly worsening sleep quality over time.⁶ This is probably worth considering, given we can now stay awake watching TV, streaming online films and scrolling various social media platforms, all of which are relatively new to us as a species.

Of course, we can't really test the effects of very long-term sleep deprivation on people's food intake under controlled conditions. How many people would willingly sign up for a study where they were kept awake for 20 hours per day for a whole year? A more realistic solution is to have a shorter protocol which is more closely monitored, like one study where participants slept in a lab for two 14-day periods, either with 8.5 or 5.5 hours of 'sleep opportunity' per night in combination with a reduced-calorie diet.⁷ At the end of the research study, it was found that although the total amount of weight loss was the same between groups, the shorter sleep duration group lost less fat mass and more lean body mass. In short, less sleep won't stop you losing weight, but it can skew it away from fat loss towards losing precious lean body mass, which isn't ideal.



Average Body Composition Changes Following 14 Days of Calorie Restriction with Either 8.5 or 5.5 Hours of Sleep Opportunity.
 Adapted from [7](#).

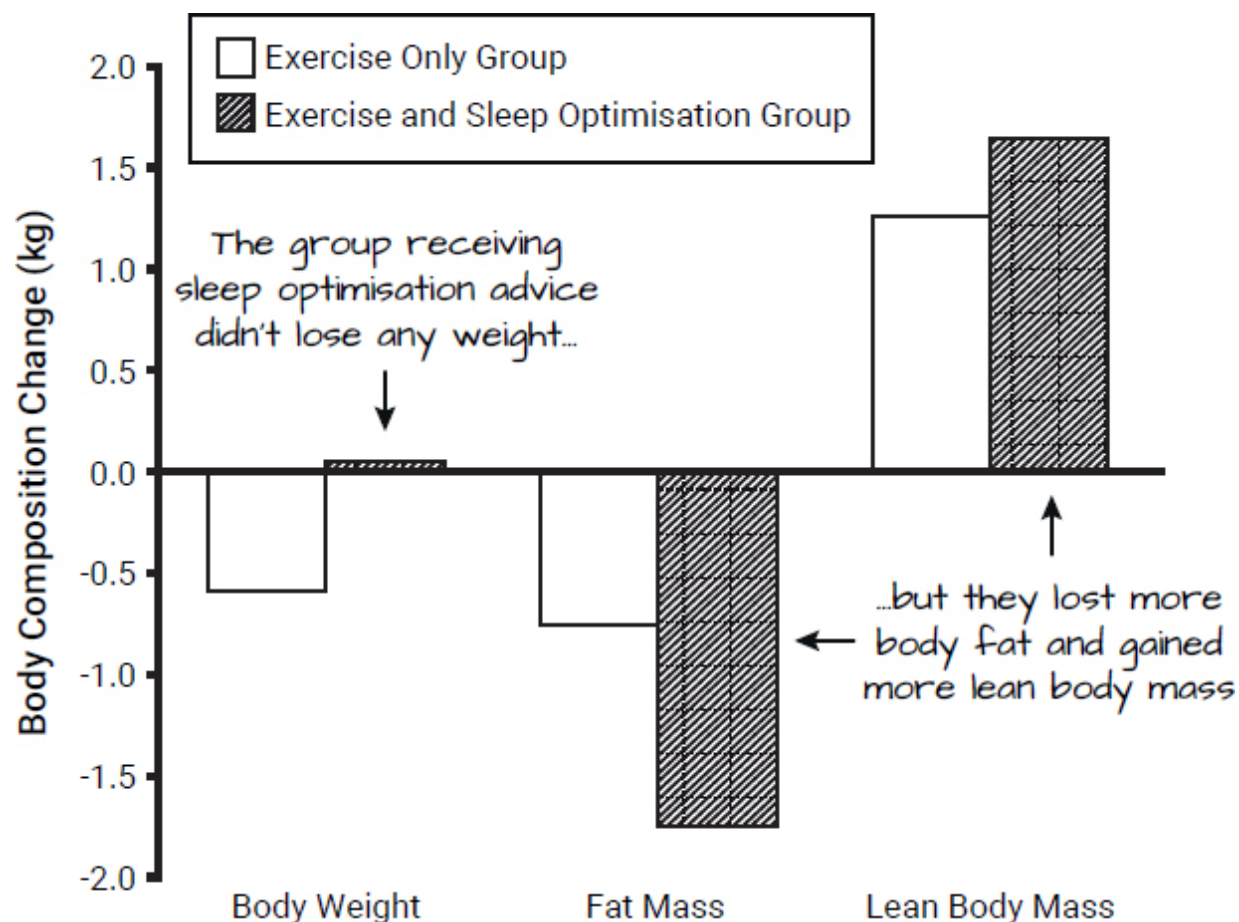
Just to recap, we know that inadequate sleep could possibly alter your hormonal output, increase your appetite, make you eat more food and could also be worse for lean body mass retention in the context of a calorie-controlled diet, but what happens if people are given recommendations to improve their sleep quality, rather than studies intentionally stifling it?

One study took participants who habitually slept less than 6.5 hours per night and split them into two groups. One received sleep counselling advice and the other didn't.^{[8](#)} Those who received the sleep counselling slept for an additional 1.2 hours per night and consumed an average of 270 calories fewer per day than the other group, which is significant enough to aid weight loss if extended over time.

Another trial tested the impact of sleep optimisation advice but this time in combination with a ten-week resistance training programme.⁹ For the participants aiming to improve their sleep quality, the following action was recommended, as much as possible:

- Keep the room you sleep in dark, quiet and cool.
- Go to bed and get up at the same time every day.
- Go to bed at a time that means you can get eight hours of sleep.
- As soon as you get up in the morning, expose yourself to as much natural light as possible.
- Try to get enough sleep that you do not need an alarm clock to wake up.
- Do not use electronic devices that emit light in bed.
- Learn a relaxation technique and use it to fall asleep at night or if you wake during the night.
- Two hours before bed:
 - turn down the lights
 - put away computers, tablets and mobile phones, or use a blue light filter and the lowest possible light setting
 - no exercise
 - no food, coffee or black tea, or energy drinks (your last cup of coffee for the day should be a minimum of six hours before bedtime, ideally)
 - do calm and positive activities and do not bring up relationship conflicts before bedtime.

At the end of the trial, there were significant differences in body composition changes between the two groups. Those who strived to improve their sleep quality lost more fat mass and gained more lean body mass, despite the fact they followed the same resistance training programme.



Average Body Composition Changes Following a 10-Week Training Programme in Isolation or Alongside Sleep Optimisation Advice.

Adapted from [9](#).

Since heading to the gym when you are exhausted isn't exactly the perfect scenario to smash some personal bests, it's not surprising that sleep deprivation can reduce resistance training performance.^{[10](#)} Therefore, we probably shouldn't be surprised that improving sleep quality could inadvertently impact body composition.

As we all know by now, not all dieting behaviours are straightforwardly health-promoting and some are even possibly health-sacrificing, but improving sleep quality is a great example of something that is good from a health perspective and also something that could inadvertently impact your appetite, body composition and performance in the gym. Of course, while this is great on paper in the confines of a research trial, not everyone will have the luxury of

indulging in quality sleep in the real world when life obstacles can get in the way. However, if you are able to significantly improve your sleep quality, it may lead to alterations in your body composition without you having to adopt any other behaviours, which is a definite win.

HOW CAN YOU PUT THIS INTO ACTION?

- If you have good sleep quality, this can naturally help regulate your appetite, encourage you to consume less food, improve your performance in the gym, help retain lean body mass when dieting as well as increase the amount of body fat you lose.
- Whereas dietary restriction can sometimes come with risks, improving your sleep is something that helps regulate your body composition while also being a health-promoting behaviour. Not many things tick both boxes so please do not underestimate how important sleep can be.
- Unfortunately, not everyone has the luxury of being able to sleep well. If you work shifts, have young children that keep you up at night or have any medical conditions that hinder your ability to stay rested, it's obviously not easy to snap your fingers and suddenly get consistently restful sleep. This is one of a bazillion reasons why dieting can be harder for some of you and often for reasons not inside your control.
- However, you can use the sleep optimisation tips outlined in this section to see if there are any that you can implement that might help you and your current circumstances.

Water intake

making sure you are adequately hydrated is one of the most common pieces of general health advice. Most of you reading this will have heard something like ‘drink eight glasses of water per day’ (which seems like an arbitrary number given people come in all shapes and sizes, live in different climates and also have varying levels of physical activity, but that’s not the point) or ‘make sure you drink enough that your pee is pale or clear’. We’re probably all already fully on board with the idea that hydration is important, right? After all, without water, you would die. Interestingly, though, I receive a surprising number of questions from people asking whether water promotes fat loss or not. It is kind of funny that the weight loss industry manages to turn something as basic and essential as water into a possible weight loss tool.

Believe it or not, there aren’t a lot of research studies where a group of participants are locked in a metabolic ward for a few months and given either six glasses or eight glasses of water per day to see if there are any differences. Why would there be? We all drink water in some form every day and chances are none of us have ever associated it with weight loss, until someone somewhere put that idea in our head. However, there are research studies that have caused people to latch onto the idea that you need to drink more water to lose weight, so let’s discuss some of them to clear up the confusion.

Perhaps surprisingly, it has actually been shown that there is an association between inadequate hydration and higher BMI scores.^{[11](#)} In simple terms, this means when you look at the urine samples from a few thousand people, there is a trend for people who weighed more to be less hydrated than those who weighed less.

‘This association between inadequate hydration and obesity, after controlling for confounding variables, has not previously been shown on a population level and suggests that water, an essential nutrient, may deserve greater focus in weight management research and clinical strategies.’^{[11](#)}

Does this mean that pounding back a shitload of water will make everyone lose weight effortlessly or that dehydration causes fat gain? Not really. This study shows us that there is a relationship there but it doesn't tell us what the relationship is. This has been confirmed in other studies, with one systematic review concluding that although the evidence was limited and inconsistent, it seems to point towards the idea that drinking water has either a neutral effect or beneficial effect on weight loss,¹² although other review papers highlight, again, how mixed the research is.¹³

For health purposes, if you had to pick between dehydration or adequate hydration, of course we would all pick the latter, so this subsection is obviously not debating whether you should drink water or not, but I think the research on it is actually kind of interesting. As we have learned previously, many unprocessed foods have a higher water content than ultra-processed foods (see chapter four for discussions on energy density) and we also know that foods with a higher water content tend to be more filling, to the point that if you eat a bowl of salad or a serving of soup as a starter, it can reduce how much you eat for your main course, lowering the total number of calories you consume. As it turns out, if drinking water helps promote weight loss, it's probably also because of this 'preload' effect.

In one study, a group of older participants (aged 61 on average), drank a 500ml bottle of water 30 minutes prior to breakfast, where they could eat as much food as they wanted and, on another day, they had the same breakfast but without the water preload.¹⁴ Drinking half a litre of water before their meal was linked with a 13% reduction in calorie intake. The authors proposed that this could be an effective strategy for weight control because the habitual water consumption of the older participants was lower than the recommended intake anyway.

Just to clarify, this type of study only tests what happens in the very short term – a single meal with a precisely controlled amount of water consumed at a specific time. It doesn't tell us what would happen over the course of the day, let alone over a period of weeks, months or years. All we know is that drinking 500ml of water 30

minutes before a meal may nudge people towards eating slightly less food and that's about it.

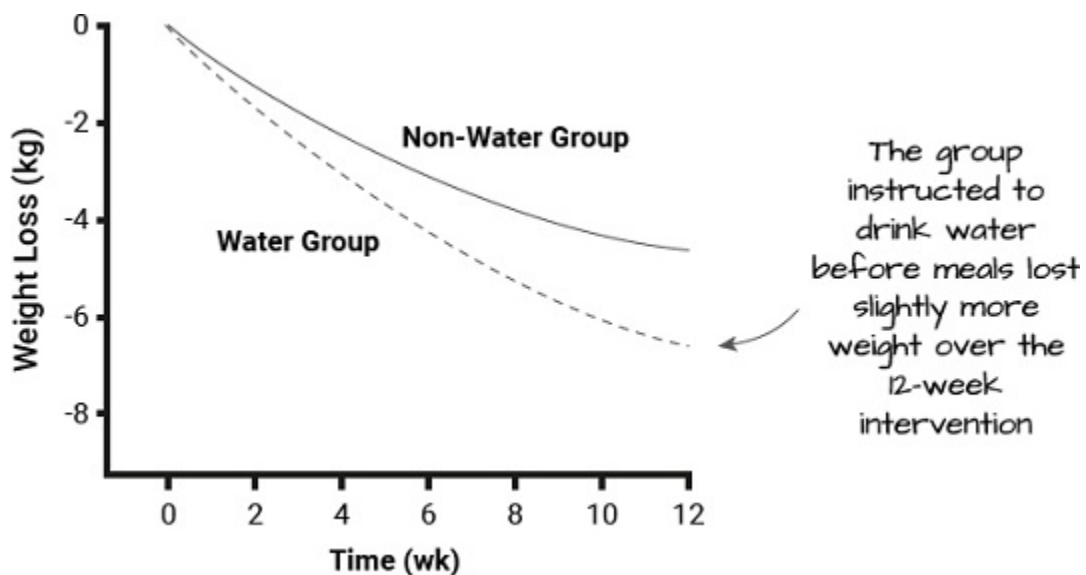
Another study followed a similar design and recruited an additional group of younger participants to see if age made any difference.¹⁵ The two groups were aged 60–80 and 21–35. The men consumed 500ml of water and the women consumed 375ml of water 30 minutes before the test meal. This time, the preload decreased feelings of hunger, but this only resulted in a decrease in food intake in the older participants, not the younger ones. Why? The authors didn't really know, but they proposed that it was related to changes in gastrointestinal function that may occur when you get older.¹⁶

As age looks like it could be a factor, a later study investigated this further by selecting younger participants for another water preload trial. This time they had to drink 568ml of water immediately before eating, not 30 minutes before like we have seen previously.¹⁷ Once again, feelings of hunger were reduced after drinking, but this time it also translated into a 22% reduction in food intake, suggesting that the timing may have made a difference.

Just to make things a little bit more confusing, another study tested the effect of drinking 300ml of water before a meal in young adults. This time, it reduced how much they ate, despite this being a lower volume of water than most of the previous studies.¹⁸

When someone asks a seemingly simple question like 'does drinking water make you less hungry?' we can see that it is not a straightforward answer. It can depend on age, how much water is drunk, how close to the meal it is and possibly what people's habitual water intake is, on top of individual biology of course. And we must bear in mind that all of this has been studied in the context of tightly controlled trials. When it comes to real-world advice, things get even more uncertain. What we have now, at least, is some research that suggests that drinking a significant volume of fluids could reduce hunger and this can be enough to impact how much food someone eats at their next meal. What remains to be seen is whether this pans out to actual weight loss in the long term.

One study tested this with the simple recommendation of drinking 500ml of water prior to meals, to see if this would be enough to promote additional weight loss over a 12-week period.¹⁹ One group was specifically instructed to drink one 500ml bottle prior to meals and the other group received no instructions on how they should drink their water. Everyone followed the same calorie-controlled dietary recommendations but at the end of the trial, the group who followed the preload recommendations lost a further 2kg (4.4lbs) of body weight.



Average Weight Change During the 12-Week Intervention Among Water and Non-Water Groups. Adapted from ¹⁹.

Similar results have also been seen in another research paper.²⁰ Although it might not result in a huge, groundbreaking difference, the researchers pointed out that it is also an extremely simple strategy to implement, because telling people to drink water prior to main meals is about as easy as weight loss advice can ever get. From a practical standpoint, do I think it makes sense to recommend people chug a high volume of liquid prior to eating? No, not necessarily. Most people wouldn't exactly be compelled by the idea of smashing back glasses of water just as your meal is served in a nice restaurant. But looked at simply, aiming to be adequately hydrated does of course

make sense from a health perspective. Thankfully, our bodies are pretty good at telling us when we need more water, by letting us know that we are thirsty.

‘... increasing water consumption is a simple, inexpensive behavioral change which can be recommended as a component of a hypocaloric diet to possibly enhance weight loss outcomes.’¹⁹

HOW CAN YOU PUT THIS INTO ACTION?

- Please don’t get caught up in the hype that you need to follow specific hydration protocols for weight loss purposes.
- Although there is some research showing that drinking water can promote weight loss, it is primarily in the context of drinking a large volume before eating and I am fearful that some people would drink far more water than their body needs simply to try and override their natural hunger signals.
- By all means, if you think you have a tendency to not drink as much fluid as you should, this is worth rectifying for many far more important reasons than whether it makes you feel slightly less hungry.

Eating rate

We know that different energy densities and volumes of food can affect appetite regulation, but what about how fast you eat? Sounds obscure? Well, perhaps not as much as you would think. As children, we are often told to ‘chew your food properly’ because it makes logical sense that swallowing food whole might not be best for digestion purposes, though quite conducive to choking, which is sub-optimal. This slows down your rate of eating because if you go from

chewing each mouthful just a couple of times to 20 times, it will obviously take you longer to finish the meal.

How fast someone eats their food has also been a point of interest with regards to body weight. Some research has found that people who weigh more tend to eat faster and people who weigh less tend to eat slower.^{[21](#)}

‘Our results thus strongly suggest that the rate of eating may be an important factor for the prevention of obesity in all generations.’^{[21](#)}

In this study, how fast people ate wasn’t actually measured: participants simply self-reported based on their own perception. Did they think that they eat ‘very slow’, ‘relatively slow’, ‘medium’, ‘relatively fast’ or ‘very fast’. It essentially shows us that people who weigh more are more likely to think that they eat fast and people who weigh less are more likely to think they eat slowly.

The belief that how fast someone eats correlates with their body weight goes back a long way. One research paper in 1962 noted that people with higher body weights often ate faster. It described the eating ‘chain’ as occurring very quickly: people would often reach for another forkful of food just as the last one had entered their mouth.^{[22](#)} A couple of the proposed ways to slow down this eating rate were to increase the number of times food is chewed and to only reach for a subsequent mouthful once the last one had been swallowed. Part of the theory that evolved from this was that if you eat your food really fucking quickly it prevents your satiety mechanisms from kicking in. You would consume more before your body signalled to you ‘yeah, that is enough food for now, thanks’. So if you slowed this down it might help prevent overeating. That’s the theory at least.

You know how this works, once a hypothesis is born you need to test it to see whether it is true or not. If you think that eating more slowly would help people naturally avoid overeating, you create conditions that encourage people to eat at different speeds and see what happens. As it turns out, there are many ways to manipulate

how fast someone eats, ranging from the obvious to the much more unusual.

One way is to change the texture of a food. As softer foods require less chewing than harder foods, it makes sense that the time between mouthfuls would be reduced. One study gave participants variations of the same meal consisting of potatoes, carrots, steak and gravy.²³ In one meal, these ingredients were served whole, while the other used mashed vegetables and small pieces of meat instead, all of which required less chewing. When the food was mashed, the eating rate (grams of food consumed per minute) was approximately 20% faster, which also nudged people towards consuming more calories overall. Same foods, same taste but simply a change in texture was enough to influence how fast someone eats and, inadvertently, how much food they consume.

Another way to influence how fast someone eats is to change the method of consumption. For example, one study had participants consuming yoghurt via three different methods:²⁴

- Liquid yoghurt consumed with a straw
- The same liquid yoghurt but consumed from a bowl with a spoon
- A semi-solid yoghurt-like pudding eaten from a bowl with a spoon

Drinking through a straw would likely encourage people to consume that same yoghurt faster than when using a spoon and perhaps the thicker version would also slow down eating rate. As expected, participants consumed the yoghurt much faster when they were using a straw, which resulted in more than a 20% increase in energy consumed. What you might not expect is that despite there being a noticeable difference in the quantities eaten, there were no differences in hunger and fullness scores. This is an important take-home message from quite an obscure study because while I am obviously not recommending you start eating things in inconvenient ways just to slow down how fast you consume your food, it does show you how multifaceted appetite regulation is. Feelings of satiety

are not only influenced by what or even how much you are eating but, as it turns out, how you are eating them as well.

One research paper manipulated bite size to slow down how fast people ate. By giving participants a smaller spoon to eat a bowl of porridge, it decreased the amount of food consumed in each mouthful and extended how long it took to eat the meal.²⁵ The slower rate of eating resulted in 8% less food being eaten, simply by eating with a teaspoon instead of a dessert spoon.

This has also been seen in other research papers that use different methods to slow down eating speeds. Rather than manipulating food texture or changing the utensil that people use to eat their yoghurt, one study implemented the glaringly obvious and just told participants how many times to chew their food, either 15 or 40 times per mouthful.²⁶ When they could consume as much food as they wanted, chewing more times resulted in 11.9% less food being eaten and some significant differences in gut hormones related to appetite. In a later study, a series of audible bleeps were used to cue participants to take a mouthful of food, so they could compare the difference between eating a portion of food in six minutes or 24 minutes.²⁷ This time, instead of seeing how much food they would eat at that meal, the portions were kept exactly the same, but their food intake was measured three hours later when they were given a selection of cookies and crisps (or chips, in American terms). When they had eaten the same-sized initial meal slowly, participants ate 25% less food at the subsequent sitting, now showing us that reduced eating rate can impact later food intake as well.

Some of the studies that look at eating rate are fucking strange, let's be honest. I am obviously not telling you to eat all your meals with small cutlery, or chop it up into small chunks, or set an audible bleep so you know when to have your next mouthful. These are simply the methods used in research to slow down how fast someone eats so they can measure the impact. But they still teach us some interesting things about appetite regulation. For example, the foods that you eat more quickly are likely to be easier to eat in volume and at speed. It has been proposed that part of the reason people eat more

ultra-processed ‘junk’ foods is simply because there is a tendency to eat them faster than unprocessed foods.^{[28](#)}

Many foods can be made more convenient to eat quickly when you think about it. Most people probably eat takeaway fries faster than they eat potatoes because they grab them with their hand rather than sitting down with a knife and fork. Even grapes without seeds or nuts without shells are much more convenient to eat. Likewise, if you don’t have to wait long between servings you could probably eat more. Lots of people will consume more food when they are at a self-serve buffet, and part of this could be because they don’t have to wait between courses, making it easier to consume more food in a shorter period of time. At a population level, I also suspect that this means that the food culture of where you live plays an influential behind-the-scenes role. In some countries, there is a much greater tendency towards long mealtimes, where you sit and talk with big gaps between courses.

The point is, although the research on eating rate is frequently geared towards finding out if people eat less when they slow down what they are doing, how we choose to implement that, if at all, is entirely up to us. Some people might realise they have a tendency to swallow food without chewing it much, in which case slowing down their meals and being a bit more mindful about eating might be a great thing.

As you can see from the studies I’ve quoted, the methods that test the role of eating rate are extremely diverse. Not all of them suggest that eating slowly has a significant impact on how much people eat, however the overall body of literature does seem to indicate that it can play a role. One meta-analysis concluded that there was a positive association between eating rate and body weight – people who ate food faster tended to be heavier on average.^{[29](#)} Another meta-analysis looked at studies that deliberately manipulated eating rate, like the interventions we have looked at already, and they concluded that although the evidence was mixed, it did support the claim that eating slower will reduce energy intake.^{[30](#)}

HOW CAN YOU PUT THIS INTO ACTION?

- If you were in a speed eating competition, taking bigger mouthfuls, barely chewing, not pausing between mouthfuls, and not pausing between platefuls would be the best strategies to eat as much food as possible before your appetite signals tell you to slow down, so it makes sense that how fast you eat can impact how much you eat.
- Therefore, if you are someone who eats food extremely quickly without chewing it much, trying to slow down and be more mindful around mealtimes may help regulate your appetite.
- However, please don't take this to the extreme by counting every single time you chew or eating every meal with small cutlery. These are just methods used in research to test the impact of eating rate. Advice like this can be a slippery slope towards disordered eating behaviours.

‘Mindless eating’

Taking the ideas around eating rate one step further, let's look at the concept of ‘mindless eating’, for which there is a growing body of research investigating its role in eating behaviour. Mindless eating basically means eating when distracted – like eating while working or sitting in front of the television. You can probably think of settings where you crave food more than usual or you eat more than you usually would. This is totally normal: your desire to eat is consistently influenced by a huge number of factors which are impossible to directly quantify. You might notice you tend to consume more food when you are chatting with friends, working at your desk or snuggled up watching a film. Let's use the specific example of television watching, because there is more research available and it serves as a useful vehicle for us acknowledging some other side topics at the same time.

It has been repeatedly observed that there is an association between TV watching and body weight, even shown in childhood and adolescence.³¹ One paper stated: ‘There was a 10% to 27% increased risk of overweight or obesity in adolescents and children watching 1–3 hours of television per day,’ and this 2013 paper looking at worldwide trends only included TV watching, not playing video games or the evolving trend of scrolling social media on mobile phones.³²

There are some pretty big limitations in drawing conclusions between how many hours per day someone watches TV and their physical characteristics, like body weight and body mass index. First, it is pretty difficult to accurately guess how much time you spend watching. Unless you know the specific shows that you watch and how long they last, there is a strong chance some guesswork is going to be involved with time flicking between channels to find something else to watch.

On top of this, it doesn’t actually tell us why there is an increased risk of higher body weights with more screen time. If people who watch a lot of TV are heavier on average, is it simply because the more time someone spends watching, the more hours per day they are sedentary? That is the obvious explanation, but it is quite likely that there is more to it than that. A few hours in front of your favourite TV series means there is a good possibility that an array of food marketing adverts have been gently penetrating your subconscious. In one study, children watched a cartoon either with food adverts or without and they consistently ate more food when the adverts were included.³³ These findings have been confirmed in other research papers, indicating that adverts have the power to nudge our decisions towards eating more food without us even realising it,³⁴ and this is especially pronounced in children.³⁵

Relying on surveys where people simply tell you how much time they spend watching the TV is fraught with limitations. How accurate were the survey results? Were there other factors at play? As an alternative to this, one study investigated whether coaching children to spend less time watching TV would have any impact on their body weight, even when screen time wasn’t substituted with activities that

promoted more exercise.³⁶ By coaching them to limit and be more selective with their screen time, children had statistically significant decreases in body mass index, waist circumference and skinfold thickness relative to the control group.

There are multiple reasons why increased screen time is thought to be associated with higher body weights. First, people who watch a lot of TV spend more time sitting down, obviously. There may also be something inherent about TV watching that encourages people to eat more food. As we have just seen, advertising campaigns are one aspect of this, but another is the concept we started with: mindless eating.

To test this, one study had participants eat lunch in a lab on four separate occasions. Two of those were in a quiet room without any distractions, one of them was in front of a television and the other was while an audio story was playing.³⁷ To minimise variables, the lunch they were served was the same on all four occasions. Even though hunger scores were similar across all study days, participants ate an average of 11.6% more food when they were watching TV or listening to the audio story. The theory here is that environmental conditions can distract people, so they eat more food even if they aren't feeling hungrier. Although this was just a single test meal for each condition and the audiobook had the same impact as watching TV, the researchers pointed out that it could play a cumulative role, given the prevalence of TV watching. A lot of people eat their meals while watching their favourite shows, and if they consistently eat more than 10% extra food at each of those meals, in the long term that could add up to make a significant difference.

In a similar follow-up study, participants were served pizza and macaroni and cheese, either in front of a TV programme of their choice or with some classical music playing in the background.³⁸ Just like we saw before, people ate more food when they were in front of the TV, but this time the difference was much bigger, 71% more macaroni and cheese and 36% more pizza.

As always, we need to bear in mind that these are short studies that only look at food intake at a single meal. The big question is how would this pan out in the long run? If someone eats more food while

watching a single TV episode, what about the people who watch multiple hours of television per day – do they consistently eat more? We don't really know as it's not super easy to conduct this kind of research long term, so for now it's just a best guess scenario.

Watching TV isn't the only vehicle used to test the theory of mindless eating; some other studies have included listening to an audiobook versus focusing on what they are eating,³⁹ eating food in the company of friends as well as strangers,⁴⁰ working on a computer,⁴¹ playing on a smartphone⁴² and driving a car (well, a driving simulator for safety reasons).⁴³ Not all research on this topic comes to unanimous agreement, however one meta-analysis concluded that television watching was particularly effective for increasing how much food someone eats.⁴⁴ Another meta-analysis also concluded that distracted eating can prompt people to eat more food and advised that being more attentive around mealtimes could be a worthwhile strategy if someone wants to reduce their food intake.⁴⁵

This is not a particularly easy topic to study because life is so full of distractions of varying degrees. I would guess that very few people eat all of their meals in a quiet room on their own. Perhaps you eat with the TV on, or while working from your laptop or scrolling on your phone or chatting with friends and family. There are always likely to be external influences at play and, importantly, these are not inherently bad. Eating more food when you are in the presence of friends isn't a bad thing because having a social life is great. Eating more food in front of the TV isn't necessarily a bad thing either; we are just discussing the finer details of external influences that can impact eating behaviour and how they have been investigated by various lab-based studies. Whether you wish to do anything with that information is your decision.

HOW CAN YOU PUT THIS INTO ACTION?

- As life has an increasing number of technological distractions, 'mindless eating' is probably a growing phenomenon and it is unlikely that you will ever get rid of these distractions, or even

want to. Obviously, I am not telling you to throw your TV out the window and eat all your meals on your own in a quiet room. That would be absurd.

- If you are someone who enjoys distractions when you are eating, like watching TV or scrolling on your phone, there is a strong possibility that this is nudging you towards consuming a bit more food and over time this might tally up. No judgement from my side, that's just what the research suggests.
- If you feel inclined, minimising distractions while you are eating might be worth considering. Like eating dinner at the table instead of in front of the television or taking a break from your laptop for lunch instead of eating and working simultaneously. This may allow you to pay more attention to hunger cues and naturally result in you feeling less hungry, without you having to change the foods you are eating.

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WHERE TO GO FROM HERE

Here is the conundrum for you.

In the last half-century or so, there have been huge shifts in food manufacturing practices that have resulted in an ever-increasing prevalence of low-cost, high-calorie, ultra-processed, hyperpalatable foods, which are getting easier and easier to overeat. We have also witnessed rapid developments in technology and industrialisation which have given us more transport options, labour-saving devices and a greater number of desk jobs. Combined, these have whipped up an effective recipe for sedentary lifestyles and increased calorie intakes, both of which can take a toll on our health and cause weight gain on a population level. If improving your health and regulating your weight feels like you are swimming upstream, you are not alone; our environment is more conducive to gaining weight than ever before.

The problem is, there isn't a universal solution.

The global weight management industry is gargantuan, estimated at being worth hundreds of billions of dollars per annum and growing. It churns out diet plan after diet plan, often marketed as being revolutionary. It can do this because people feel desperate and don't know what else to try. If there really was an easy solution that worked well for everyone, people wouldn't need to hop from one diet to the next, constantly trying to find something that works for them. Unfortunately, this feeling of desperation that so many people share is capitalised on by companies that often set aside their ethics in favour of making a quick buck: the diet space is rife with misinformation, often amplified by people who are just trying to get your money.

When presented with issues that are complex and multifaceted, the likelihood of finding a simple solution that works universally is extraordinarily unlikely. Nutritional advice that some people love following will be hated by others. Weight management strategies that

work well for one person could be catastrophic for someone else. Not everyone has the same physiology, psychology, goals and preferences, so we shouldn't be surprised that for every success story achieved through one dietary approach, there are likely multiple failings.

As much as I would love to have written a book half the length and told you all precisely what to do, that would be doing you a massive disservice. Complex issues require nuanced solutions and my goal in writing this book was to present you with a menu of options in an unbiased fashion, so you can pick and choose any principles you want to adopt, while also being empowered with the knowledge to reject others that you don't. Rather than trying to sell one set of guidelines for everyone under the guise of the latest revolutionary weight loss advice, hopefully I have given you enough information so you can make the best decisions for yourself, which may look completely different to everyone else who also read this book.

In this book, I am your metaphorical trainer, and you are my metaphorical client. You have full authority to tell me what your goals are, and my job has always been to help you achieve them in the best and safest way possible.

That is why, throughout this book, I have given examples of why strategies might work for one person but not another. At one end of the spectrum, if you are a fitness model who is already lean but wants to stack every single fat loss method in your favour so you can diet down for a photo shoot, you know what you can do. You know how to pick the best rate of fat loss for your goals, you know what protein intake to aim for, you know how to pick the best dietary strategies to help with appetite regulation and how changing the energy density of your diet can assist with that. You know the risks of extreme dieting so you can work to avoid nutrient deficiencies from narrow food selection and understand how having some dietary flexibility may make your choices easier to adhere to. You know how regularly monitoring your body composition and calorie intake can help increase your rate of weight loss and can even play around with refeeds and diet breaks if you think they help manage your hunger and improve your gym performance. At the other end of the spectrum, if you are someone who feels like you have always struggled with your

weight, you may have decided that it is better to step away from dieting completely in favour of just focusing on healthy habits. You may have realised that weighing yourself regularly was causing more harm than good, or that there are emotional reasons that drive you to eat more food, and that would be a better thing to focus on right now. Perhaps you want to escape the feeling of dietary restriction but realise that there are some healthy habits that can also aid with weight management, like improving sleep quality, prioritising nutrient-dense and minimally processed foods, finding a form of physical activity you enjoy rather than exercising solely for the purpose of burning calories, reducing your alcohol intake and reducing how much time you spend watching TV.

Look back at your original goal in chapter one, read over the action point suggestions at the end of each chapter and pick a few strategies that appeal to you personally. If you give them a go for a few weeks, you can see how you get on and then chop and change anything that doesn't work for you. If you don't like how something makes you feel physically or mentally, you are educated on how to change this. That's the beauty of there being a no one-size fits all approach when it comes to weight management: you can tailor things to suit your specific needs and preferences, which may also change over time. If I told you all to follow the exact same diet and training plan, what would you do if you hated it? Some of you inevitably would and at some point, you would stop and feel like you have to go back to square one, which is exactly why being armed with the knowledge to pick and choose things that work for you is so important. This is exactly how I would work with you in person – checking in regularly to reassess how things are going and adapting our methods based on your feedback.

Whatever your goal is, let's unanimously agree to say goodbye to shitty, overhyped, short-term fad diets and say hello to making educated decisions that are best for your health in the long run. Let's also say goodbye to unknowingly sacrificing your well-being just to fit into a pair of skinny jeans or see a particular number on the scale. I think we can all agree, there are better things to do with your life than constantly worry about how much you weigh.

Thank you for taking the time to read this. I hope that you have found it useful.

P.S. if you would like to stay in touch with me, you can visit my website www.bdccarpenter.com, where you'll also find the ongoing free content I post across various social media platforms.

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Chapter 7: How Difficult Is Maintaining Long-Term Weight Loss?

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Chapter 8: What Diet Will Work for Me?

Diets Based on Macronutrient Manipulation

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If It Fits Your Macros (IIFYM) and Dietary Flexibility

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Chapter 9: What is the Best Meal Frequency?

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Chapter 10: Sugar: The Truth Behind the Controversy

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Chapter 13: Can Keeping Track Keep You on Track? The Science of Self-Monitoring

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Chapter 14: What Else Can Affect Weight Loss?

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At no point did I start my fitness career journey with the idea of earning a fortune. Let's face it, if that was my goal, I have done an incredibly shit job. I simply wanted to try and provide information that would help people like you, whether it was to save you wasting money on worthless products or save you time and effort by steering you away from nutrition myths. This book is the more detailed extension of that.

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About the Author

Ben Carpenter has been a personal trainer since 2006 and has worked with a diverse range of clients ranging from young athletes training to be fitness models to elderly people who are just trying their best to live a bit longer. Over time, he shifted his focus towards specialising on the most common goal that his clients strived for, losing body fat.

He realised that if he truly wanted to help as many people as possible, he needed to step away from one-to-one clients only and turn towards social media to reach a larger audience. He has been posting social media content since 2009, answering as many of your questions as possible, completely free of charge, and his videos are now seen by millions of people every single week.

His goal is simple: help you as his metaphorical client. Whether that's navigating the minefield of misinformation that the weight loss industry is rife with – like quick fix fad diets that are being endorsed by whichever celebrity is being paid the most – or providing you with simplified summaries of the latest research papers.

He is a self-confessed 'research nerd'. He isn't a scientist working behind the scenes to publish research papers. He is a personal trainer that has devoted his entire adult life helping his clients and social media followers get the best results possible. It isn't just about being up to date on the latest scientific research, but actually helping you put this information into practice.

In *Everything Fat Loss*, Ben is your own personal trainer. He isn't giving you a cookie-cutter one-size-fits-all plan, he is helping you make the best decisions for your own personal circumstances. From identifying your motivation to lose body fat in the first place – and if this is even the right path for you – to the challenges you may face as an individual in your fat loss journey, to what diet might suit you best and tips to help you achieve long-term success. Ben gives you all the

information you need to formulate a plan of action personalised to you.

Ben was born in the UK but now lives in California with his wife. You can find him on various social media platforms, and at www.bdccarpenter.com.

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"This is the most thoroughly researched book on fat loss I've ever come across written by the most thoughtful, compassionate trainer in the fitness industry."

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"Ben's scientific knowledge and empathy make this a must-read for anyone struggling with their weight and fitness goals."

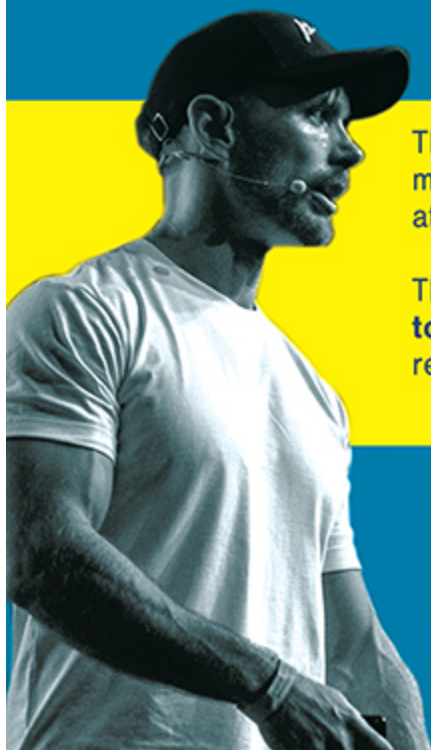
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Jordan Syatt



The weight loss industry feels like a minefield of misinformation, and losing fat is the most sought-after goal in the fitness world.

This book is, quite literally, **everything you need to know** about fat loss, compiled into one handy resource.

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