FIBRE FOR LIFE

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LIVE LONGER AND HEALTHIER WITH NATURE'S MIRACLE INGREDIENT

PAVILION

CONTENTS

7 KEY POINTS ABOUT FIBRE

1. We over-eat most macronutrients: sugar, protein and fat. We are badly deficient in fibre.

2. This is shortening our lives by many years.

3. Current strategies that focus on reducing overconsumption have proven futile:

+ diets don't work over the long-term because they expect a change in habits and lifestyle.
+ a sugar tax has not reduced obesity because there are many ways to circumvent the tax.
+ sweeteners and supplements are not the solution because our metabolism can outsmart them.
+ preaching and shaming has not worked because – when has it ever worked?

4. There is a simple strategy that is certain to work because it already does: increasing our fibre consumption:

+ people who eat more fibre live longer and healthier by a huge margin (for every 10g of additional fibre you reduce mortality by 10%, which is over 7 years of healthy life).
+ over the past few years, science has started to explain why fibre is so central to our lives and every day we uncover new wonders.
+ by physically changing our gut and feeding our gut bacteria, fibre has a profound impact on our entire system (metabolism, immune, digestive, nervous and cardiovascular systems).
+ our gut bacteria act as a quasi organ. The main food this

organ needs is fibre and it is starving (let me repeat starving!) in most of us.

5. This strategy is affordable at the individual and societal level and would save our economies billions, but more importantly prolong our lives by powerfully tackling most of the big diseases that haunt us.

6. With three simple strategies, this book will help to add up to 10 healthy years to your life:

I. **Fibre up** – easy ways of adding fibre to your diet and some recipes.

II. **Physical activity up** – ways to sneak in more activity into your day, no sweat.

III. **Fun up** – easy ways to motivate yourself and improve your sleep.

7. In summary, there is no drug as powerful as fibre and this book will give you all the evidence and tools you need to add it to your life without having to change your lifestyle or habits dramatically.

‘WHAT IS SEVEN EXTRA YEARS OF HEALTHY LIFE WORTH TO YOU?’

As a child, I discovered that, when playing hide-and-seek, one of the best strategies was to hide in plain sight. It was an eerie experience; how was it that the friend looking for me in the playground couldn't spot me? I can only guess that when we are too focused on finding the hidden, we often miss the obvious. This book is about how one of our greatest nutritional treasures is doing exactly the same thing: hiding in plain sight.

What am I talking about? Fibre. That's right – boring, tasteless, invisible fibre. And yet exciting new research has found that, while we've had our eye caught by endless fad diets and supplements with empty promises, it's actually fibre that can help us live longer and, most importantly, ensure those years are healthy ones.

It does this by improving the health of our heart and blood circulation, reducing inflammation and strengthening our hormonal and immune systems. By doing so, it can save tens of billions in our healthcare systems and, more importantly, save many, many lives.

On top of all of that, fibre is an affordable and powerful tool for improving a society's health. Forget about cutting out this or restricting that, adding fibre to our diets is easier and better for us than trying to reduce fat, sugar or carbs.

This book will hopefully convince you that taking a closer look at fibre may be one of the best things you can do for your health and, indirectly, the health of our planet, too.

THE JOURNEY TO FIBRE

My mother, like many others, smoked. Even though at that time it was not yet fully understood how dangerous it could be, I knew it wasn't good. I started tinkering with various inventions to filter out as much smoke as possible and badgered her to smoke through them, which she complied with until I went to bed.

Even at such a young age, I was fascinated by two seemingly contradictory facts: firstly, with so many people getting sick from smoking, why did they not just stop (or use my complicated contraptions)? And secondly, why did it take years before diseases manifested themselves? Why did some people live to an old age before they got sick?

As none of my teachers could provide satisfying answers to these questions it was clear to me that, if I really wanted to understand this, I would have to dig deeper.

THE KEY TO HEALTH

I decided to study chemistry at the University of California, Berkeley, where complex chemical processes were brought vividly to life by the wondrous world of our biology.

In my last semester of undergraduate studies there was a fire in my laboratory and I was badly burnt. If this had happened before the advent of antibiotics, you would not be reading this book. During my time in hospital, I became fascinated by how my body healed itself. Skin cells around hair roots that were spared began growing like crazy to fill the damaged spaces between them; a high fever indicated a fight with bacteria trying to invade the breached barrier of my skin; and a ravishing hunger gave me the energy to repair myself. When I arrived at my graduate school at Harvard University, six months later, I was determined to further delve into how cells function and repair damage.

My doctoral thesis focused on this and I found our cells have a whole armament of repair functions to protect us with. Proteins patrol our DNA to detect and repel any attack or error. As I worked

on my PhD it started to answer some of my childhood questions: the reason we do not get immediately sick when abusing our bodies is because there are multiple lines of defence at the cellular and immune system level. Only when these are overwhelmed can disease take a foothold. The key to healthy longevity is keeping those systems working at their optimum level.

SCIENCE AND THE REAL WORLD

After graduating, I decided to switch track to better understand what it takes to translate pure scientific knowledge into the messy world of society, politics and economics. I joined McKinsey & Company, a management consultancy, and worked on the broadest set of economic problems imaginable. In many ways, I discovered that the very same powerful mechanisms I encountered in my studies had equivalent themes in business: the evolution of species and the dynamics of markets; ecosystems in nature and ecosystems in industry sectors; the immune system and risk management – they were essentially the same. It was exhilarating to see these parallels and how one can inspire the other. I also learnt that, outside of a crisis, it is easiest to change companies if the change can be incorporated into the fabric and existing habits of the company and its staff. This simple insight will be highly relevant when we discuss why it is better to increase fibre intake rather than try to lower sugar intake or engage in a diet that requires a change in lifestyle.

When I left McKinsey to start my own companies, it was a scary prospect. I started from zero, armed with a single question: what are the main drivers of human health and is it possible to create products that powerfully support them? As my team and I started to research this in-depth, we realised that, while there is a wealth of knowledge on the function of cells and organisms, there is very little reliable information at population level. You can find a huge body of excellent science on this or that 'super'-ingredient reducing the incidence of this or that disease, but there is very little on if there are also adverse effects. For example, while aspirin reduces the incidence of cardiovascular disease (and headaches), does its propensity to cause bleeding undo some or all of the benefits?

It became increasingly clear that one must look at the big

picture and determine benefit against parameters that are rarely measured. How many years of healthy life are added through an intervention? Is there a positive impact on all-cause mortality? Is the intervention societally affordable or only for the few?

THE F-WORD

How does all this relate to fibre? Well, during our research, my team and I found ourselves tripping over this nutrient again and again. The penny really only dropped when we connected the dots and could see the central role that fibre plays in our various bodily systems: from the gut and digestion to our cardiovascular, hormonal, immune and nervous systems.

Once we started to analyse its impact on healthy longevity and all-cause mortality, there was no escaping the life-changing insight that fibre is *the* nutrient which has the widest and most profound positive impact on our health. Fibre crowds out bad nutrition and shifts our food intake to the types of foods that are also better for the environment and health of the planet. Plus, the more fibre you consume, the better the outcome.

For all the products that my colleagues and I have created, no matter what the intended consumer benefit, we pay attention to the level of fibre, specifically the sugar-to-fibre ratio.

For example, we created the first commercial vegan ice cream, Frill, which had ten times the fibre and less than half the sugar (which came from fresh fruit) of a typical ice cream. It was one of the lowest calorie products on the market without having to resort to using sweeteners, and while it was extremely low in sugar, what we really cared about was that it was very high in fibre. With every new bit of evidence that emerges about the health benefits of fibre, we are increasingly proud of our tasty creation, where a single portion delivers about a third of your daily fibre needs. But there are many ways of upping your fibre intake and the important thing is not our creation, but that you find a way to eat more fibre. I will tell you why and give you many ideas of how.

WHAT'S IN A WORD?

The word *fibre* as the British write it, or *fiber* as the North Americans write it, originates from the Latin *fibre* or *fibra*. This meant filament or entrails, which was also the older proto-Indo-European meaning of tendon, sinew and bowstring, presumably because they were often made from the intestines of animals.

Fibre is also what the gut – our intestines – needs to be healthy. In this sense, fibre is descriptive and prescriptive; it's what they are and also what they need to survive. Our new scientific understanding has brought fibre full circle back to its roots.

MY SALES PITCH

Put simply, fibre is difficult to patent and sell at a premium the way a new drug might be. It's also not particularly tasty, unlike sugar or fat. Plus, in the short term its impact is subtle; its profundity is only revealed in the mid to long term.

I'm passionate about persuading you to up your intake of fibre. If fibre were to be marketed as a new pharmaceutical product, the response to it would be akin to that of a miracle drug, so profound are its effects on our health, well-being and longevity.

Fibre makes you feel fuller faster. It promotes satiety which, in turn, helps you maintain a healthy weight; this on its own promotes a whole range of health benefits.

But that's just the beginning: fibre feeds your gut bacteria, the body's own internal doctors, which in turn deliver a wide range of benefits to your cardiovascular, immune, digestive, metabolic, and (potentially) nervous, systems. The links between higher fibre consumption and significantly reduced risk of numerous debilitating diseases are many, and every day new ones are being discovered. Our gut bacteria, for example, protect our digestive system from less friendly pathogens. By interacting with our various body systems via the different chemicals they produce (such as short-chain fatty acids that play an important role in modulating inflammation), they help to significantly reduce the risk of some of the biggest human killers. These include cardiovascular disease (heart attacks, strokes) and some cancers (colorectal, breast and lung)[1]. So, when I talk about the various health benefits of fibre, it is shorthand for how the various fibres feed our many beneficial gut bacteria, which in turn keep us healthy.

For something that we've all heard of, many know very little about it. Where do I find it? How much is enough? Is it the same as roughage? Doesn't it give me wind?

Over the following pages you'll learn about the incredible benefits of fibre, where to get your hands on it and how you can

make it work for you. Most importantly, this book will give you the practical tools and tips to start making the easy changes you need, today. There are recipes, shopping lists, easy snack swaps and nifty tricks for sneaking more fibre into your everyday food intake. In short, I hope it will help you become as interested in fibre as I am, keen to tell the world about its benefits and skilled in transforming your own diet and health without having to change your lifestyle, likes and dislikes.

To circle back to my childhood questions, why did my mother not use my anti-smoke contraption? Because she would have had to change her habits and look ridiculous in front of other smokers. When habits clash with health, habits often win, so we have to find ways to improve our health that work with habits and lifestyles.

And why are we so resilient in the face of disease? Because our bodies have many layers of defence systems and these create a false sense of security. While one scoop of ice cream will certainly make very little difference to your long-term health, constant bad nutritional choices and lack of exercise and sleep will build up enough pressure to burst your invincibility bubble. On the other hand, doing a few simple things right will help your innate defences to do their job like a charm.

One of those simple things is increasing your intake of fibre. This book is a homage to that, and an urgent attempt to stop people looking for the hidden and to refocus on the obvious.

THE IMPORTANCE OF THE SUGAR-TO-FIBRE RATIO

The sugar-to-fibre ratio is a term you'll hear a lot as you read this book. And you'll soon come to realise, it's the most important thing to bear in mind when it comes to your food choices.

Much of the world's attention is on reducing sugar and, while this is a noble cause as a way of tackling obesity, it will, in my opinion, ultimately end in failure. Pretty much all the diets that we have plagued ourselves with, since the advent of obesity and various cultural beauty diktats, require people to change their lifestyle or habits. This is something an individual might be able to achieve here and there, but at a societal level all evidence points to

a different conclusion. I hope to convince you that it is not the amount of sugar (or fat, or calories or whatever is the latest diet-industry obsession), but the ratio of sugar-to-fibre that is important.

I believe adding fibre is a more powerful strategy than removing sugar, and I'll return to this throughout the book. Even with plant materials, the sugar-tofibre ratio – that is to say, how much fibre bang you get for your sugar buck – can make a big difference when it comes to foods being healthy or less so. Vegetables and fruit that have sugar in them are healthy because that sugar comes with fibre.

A NOTE ABOUT META-ANALYSIS

In making the claims in this book I rely primarily on meta-analysis and using multiple lines of evidence. What this means is that, as a scientist, I do not trust a lone scientific study. The result may be due to luck or inadequate methods and controls. Recent analysis shows that a significant portion of scientific work cannot be easily replicated[2]. Also people generally do not publish negative results. It is therefore more prudent to look at the entire body of evidence, try to find any evidence that contradicts the findings and look at what is called 'dose-response' relationships. Dose-response simply means that if I do more of a good thing, I should see more of a positive effect. Therefore, if I don't see this, there may not be a relationship between doing what I think is beneficial and the desired effect. For example, there are many meta-analyses and dose-response relationships supporting my claim regarding the benefits of fibre on cardiovascular health, whereas the evidence for the benefit of fibre on attention deficit hyperactivity disorder (ADHD) is more tenuous; therefore I have mentioned it with far more caution.

As more and more evidence gathers around the benefits of fibre, I will publish the latest review of major investigations at www.fiber4life.com/fiber-facts so that you have the latest evidence at your fingertips.

‘WHEN YOU ARE TOO FOCUSED ON FINDING THE HIDDEN, YOU OFTEN MISS THE OBVIOUS.’

boon for our intestinal bacteria (more on this in Chapter 4), but it's not a nutrient for us in the way that protein, fat and carbohydrates are. The tongue rather than the gut has come to rule the body.

FIBRE AND MORTALITY

The most robust way to measure the benefits of any health intervention and ensure that it has an overall net positive benefit is to ask if all-cause mortality is reduced. (All-cause mortality includes every kind of death, from infectious diseases to accidents. It is the one number that is not subject to interpretation. All other statistics run the risk of miscounting the cause.) While most interventions and drugs fail this test, fibre excels: an extra 10g of fibre a day can reduce all-cause mortality by approximately 10%[3]. If every American ate a handful of raspberries every day, the health impact would be equivalent to saving the same number of lives that perish in traffic accidents over seven years[4].

In line with this, in 2019, the World Health Organization (WHO), based on a broad review of meta-analyses, stated that a diet rich in fibre results in a 15–30% reduction in early deaths, with rates of coronary heart disease, stroke, type 2 diabetes and colorectal cancer reduced by 16–24% (see [12]). Not bad, I think you'll agree?

So how does fibre do all this? I'll reveal more in later chapters, but some of the broad benefits are based on its anti-inflammatory actions, as mediated by the gut microbiota. Inflammation is a normal and desirable process. It's effectively your body's way of dealing with problems, such as a microorganism invading your body or cells rupturing after trauma.

Where inflammation becomes a problem is when the body is in a low-level inflammatory state all the time, without having sustained any trauma. Emerging evidence suggests this is linked to a whole host of chronic health conditions. And, importantly, fibre seems to significantly reduce an unwanted inflammatory response.

In this way, fibre can lead to massive reductions in diseases of the cardiovascular system, including reduced arterial plaque formation, cutting down the chances of a cardiac event.

And scientists are finding more and more evidence for the central health role of fibre. While some of the evidence is at a very early stage (such as its benefit for improving sleep, depression,


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