Dr Liz O'Riordan

'So clear and concise ... the book I wish I had from the day of my own diagnosis'
Dr Julie Smith

'Absolutely essential for anyone living with cancer'
Lorraine Kelly

The Cancer Roadmap

Real science to guide your treatment path

Endorsements for *The Cancer Roadmap*

'At last – a book about cancer that tells you how it really is. Dr Liz has the perspective of both doctor and patient. In this scientific but easy-to-understand book, she takes you by the hand to help you through treatment. Absolutely essential for anyone living with cancer, and anyone who has been impacted by the disease.'

Lorraine Kelly CBE, TV presenter

'I intended to flick through the pages but immediately I was hooked. Dr Liz does her homework but writes as if she is chatting to you over a cup of tea. So clear and concise – exactly what you need when you are looking for answers to the thousands of questions you need answered along this journey. The book I wish I had from the day of my own diagnosis.'

Dr Julie Smith, clinical psychologist and bestselling author of *Why Has Nobody Told Me This Before?*

'This hugely useful book clearly explains the causes of cancer and looks at how and why treatments work. Liz also explains why so many of the alternative treatments that patients are encouraged to try might be dangerous, from cancer coaches to CBD. It really is a roadmap of good quality advice and information.'

Ceinwen Giles, Shine Cancer Support

'Liz's incredible talent for "making it make sense" in a book. This is the cancer bible I wish I'd had when I heard "I'm sorry, it's cancer".'

Lauren Mahon, Founder of Girls Vs Cancer

'Liz was my port in a storm, my safe place and the only person I truly trusted to answer my cancer-related questions without bias or a hidden agenda. She has undoubtedly changed the breast cancer landscape for many women and men, FOR THE BETTER. Get this book into your basket and your life: measured, calm advice from a woman who knows, because she's been on both sides of the knife.'

Sarah Cawood, TV presenter

'A cancer diagnosis leaves you needing empathy and honesty. In her frank and hopeful book, Dr O'Riordan proves you don't need to choose between them.'

Alan Levinovitz, Professor of Religion at JMU and author of *Natural: The Seductive Myth of Nature's Goodness*

'Liz writes with such authority, knowledge and experience. Her clarity on how to deal with cancer is so valuable. All our lives will be touched by the disease in some way, so we could all do with a copy of this book.'

Fi Glover, journalist and Times Radio presenter

'Nothing will hold your hand more firmly through your cancer journey than this book. Liz is practical, realistic, human and kind with her advice. She's been there from both sides of the table.'

Helen Addis, journalist, *Lorraine*

'Being told you have cancer is scary. You're bombarded with information and opinions. It's difficult to know where to turn and who to trust. Liz truly understands. She answers every question, including the ones you haven't thought of. Scrolling through social media and getting confused? I highly recommend this book instead. We wholeheartedly recommend it.'

Dr Philippa Kaye

'This book is a calm, compassionate, and knowledgeable guide for those facing a cancer diagnosis, empowering readers make informed, evidence-based decisions about their own health.'

The Bone Cancer Research Trust

‘An indispensable guide, offering clear, accurate, and empowering information that cuts through the noise of cancer misinformation to provide readers with the tools they truly need. In the murky waters of cancer misinformation, [it] shines like a beacon, offering a clear, trusted path to understanding and navigating a cancer journey with confidence.’

Skyler Johnson MD, Assistant Professor in Radiation Oncology at the University of Utah Huntsman Cancer Institute

‘Having worked with people with cancer for over 35 years – first as an oncology nurse and then for the past 28 as CEO of cancer support charity Maggie’s – I have seen so many people trying to navigate this terrifying new landscape. In this book Liz gives people a no-nonsense guide to cancer, including what will and won’t work. I am sure it will prove to be an incredibly helpful roadmap for those coping with a diagnosis.’

Dame Laura Lee DBE, Chief Executive of cancer support charity Maggie’s

‘Dr Liz uses her experience as a breast cancer surgeon and patient to cut through the science and to explain in everyday language the complex world of cancer. She is a voice of calm, educated and experienced reason and insight which is why Future Dreams presented her with the Humanitarian of the Year Award. You feel better with Liz by your side.’

Louise Court, Future Dreams House

‘I wish this book had been available when I was diagnosed. The world of cancer is rife with inaccuracies, and the evidence-based reasoning in Liz’s book will help cancer patients to feel reassured and empowered. I know so many who will benefit from having the myths and taboos of the cancer world dispelled with the evidence to prove it.’

Leanne Pero MBE, founder of Black Women Rising

‘The Cancer Roadmap *is a master class for cancer patients to help them understand the complex nature of cancers while providing actionable tips to reduce a person’s cancer risks. This book is NEEDED on every person’s must-read list.’*

Dr Joe Zundell, PhD Cancer Biology

'Dr Liz is a veritable powerhouse of cancer knowledge and imparts it in such an accessible way, it will cut through the fear, confusion and chaos that can often follow in the wake of diagnosis. This book is essential, both a courageous no-nonsense companion and a comforting balm. It will bring light, as well as understanding. In short, it will help. It will really help.'

Donna Ashworth, poet

'Liz's experience as a breast cancer surgeon and patient means she is brilliantly placed to offer no-nonsense advice, support and guidance to those who are experiencing cancer of any kind. Those experiencing cancer need to know the facts and the realities about what they're dealing with. Her perspective is invaluable to so many.'

Holly Campbell, Trekstock

'In a world where cancer mis-and-disinformation can be the difference between life and death, Dr Liz O'Riordan's new book The Cancer Roadmap *is essential reading.'*

Marco Zenone, public health policy researcher

'Everyone needs this book. It's that simple. The Cancer Roadmap *is the authoritative guide we've been waiting for to help us sort through the overwhelming amount of cancer misinformation and pseudoscience that bombards our information landscape and threatens our health. This book is the lifeline that could save you and those you love from being exploited at a time when you're most vulnerable.'*

Jonathan N. Stea, PhD, R. Psych, clinical psychologist and author of *Mind the Science: Saving Your Mental Health from the Wellness Industry*

'Breast cancer doesn't discriminate, and I believe that my healthy lifestyle pre and post surgery helped me recover much quicker than if I wasn't. I am an advocate for movement and you don't need to be an Olympian to simply "get moving", it is vital for mental and physical wellbeing, no matter your age or ability.'

Donna Fraser OBE OLY, sport advocate and former Olympian

‘I’ve learned so much from this comprehensive book on cancer. It covers everything – from treatment to debunking common myths. I only wish I’d had something like this available during my own battles with testicular cancer. This is an invaluable resource for anyone touched by the disease.’

Phil Morris MBE, Founder of TesticularCancerUK.com

‘One in two of us will get a cancer diagnosis in our lifetimes, and when either we ourselves or a loved one receives that diagnosis there are many, many questions. I highly recommend The Cancer Roadmap *to anyone who wants reliable, evidence-based, factually correct information from someone who also has lived experience.’*

Dr Zoe Williams, GP and broadcaster

‘Passionate and engaging, The Cancer Roadmap *clearly explains the practical science of living with and beyond cancer. Dr O’Riordan is eminently qualified to guide readers through the journey, providing sound evidence-based advice as well as exposing potentially harmful myths, misinformation and hype.’*

Dr Giota Mitrou, Director of Research, Policy and Innovation, World Cancer Research Fund

The Cancer Roadmap

Real science to guide your treatment path

Dr Liz O'Riordan


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Dedication

For Mum and Dad
I miss you every day

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Introduction

In researching this book I've come across over 60 cancer treatments I've never heard of. Every week my social media followers ask me cancer-related questions. Is it true that deodorants are dangerous? Will juicing stop my cancer coming back? Most of the questions are based on rumours, hearsay and common myths. When I do go looking for evidence to see if there's an element of truth, there's nothing to find. And that's where this book comes in. It's a summary of the hundreds of hours I've spent researching the answers to my followers' questions. But why am I the person to write it?

Ever since I was a little girl, I knew I wanted to be a doctor. Dad was a surgeon and mum a nurse. Medicine was in my blood. It was only when I reached the sixth form that I knew I wanted to treat cancer patients. I read *The Transformed Cell: Unlocking the Mysteries of Cancer* by Steven Rosenberg,[1] about the introduction of immunotherapy. It blew my mind, and I wanted to be part of that world. It's why I took four years out as a junior doctor to do a PhD researching how cancers develop.

During my surgical training, I saw with my own eyes how cancer can spread. What it can do when it's been left too late. Awful cases where we'd open an abdomen and close it again, because there was nothing we could do. Seeing women with breast cancers that had grown through the skin because they were too frightened to go to a doctor. But those were few and far between. Most of the time I saw how my bosses could give their patients the best chance of a cure.

When I became a breast surgeon, it was now my job to give my patients their best chance of a cure. Once I'd removed their cancers, I would pass them on to my oncology colleagues to work their magic. They'd offer chemotherapy and radiotherapy to reduce the chance of cancer coming

back. I never met a patient who didn't want surgery, but there were many who didn't want chemotherapy. The biggest reason was hair loss. There weren't many women who wanted to try alternative treatments instead. Back in 2013 TikTok didn't exist, Instagram had only been around for a few years, and wellness podcasts were only just beginning to take off.

I will admit to being biased against alternative medicine. I've lost several friends who said no to conventional treatment that could have cured them, chose the alternative route and died at a young age, leaving young families behind. I've had to pick up the pieces when patients with a good chance of a cure who chose the alternative route came back to see me with incurable disease. These are the stories we never hear about. The people who died when alternative medicine failed them. I'm grateful to several of their relatives who kindly shared the stories of their loved ones with me. You will find them throughout the book to help you learn what can happen when mainstream medicine is turned down.

The only place where misinformation could be found back then was Facebook. I remember one woman who said no to radiotherapy because she wanted to go on a juicing retreat in France that a friend on Facebook had suggested. I couldn't understand why she didn't trust me. I thought she was throwing her life away for something that hadn't been proven to work.

And then in 2015, as a fit 40-year-old triathlete with no family history, I was diagnosed with a large breast cancer myself. Despite being an expert, I was terrified. All the decisions I asked my patients to make now fell on my shoulders. It was one thing telling someone about the side effects of hormonal therapy and chemotherapy, but it was completely different hearing them as a patient. All of those side effects could potentially happen to me. Was living for as long as possible more important than a worsened quality of life?

I said 'yes' to everything. I wanted to live and I would accept the risks and side effects that went hand-in-hand with the treatment. I continued to exercise. I didn't change my diet. I drank a bit less, but there was never any thought about looking for an alternative cure. When I went public with my diagnosis (mainly to stop people gossiping about me behind my back), I was sent dozens of emails from people promising they could cure me. One man was so insistent that he wrote to my MP asking her to tell me about his miracle cure. I just laughed them off.

And then in 2018 my cancer came back. A lump of scar tissue in my armpit was actually a loco-regional recurrence on my chest wall. Breast cancer cells had started to grow in the middle of the area that had been treated with radiotherapy. This time things were different. My oncologist wanted to give me more radiotherapy, but the side effects could be twice as bad. I didn't want the side effects. My husband didn't want me to die. I saw a second oncologist who I knew would tell me the truth and wouldn't pander to me. She agreed with my oncologist and I had the radiotherapy, and the side effects to boot. I was forced to retire as a surgeon because my weak left arm meant I could no longer operate safely.

It was blooming hard dealing with the mental and physical changes that came with my cancer diagnosis. Fast forward to 2023 when I had a second local recurrence. One day I woke up and saw a red nodule above my mastectomy scar. I instantly knew what it was. By now I was prolific on every social media channel. Every week my lovely followers would send me videos and clips from podcasts highlighting natural miracle cures. I was amazed at how big the alternative medical industry had now become, and how persuasive they could be.

Again, I stuck with my oncologist, and I'm on treatment for life to try to stop me developing metastatic disease in the future that can't be cured. I was never tempted by any of the diets and supplements, as you'll find out later, but it did make me think – for a very short while and only on my very low days – whether mainstream medicine is worth it. But I know it is. If I hadn't had chemotherapy and hormonal therapy in the very beginning, my cancer would have almost certainly spread to my liver, lungs and bones, and I wouldn't be here today to write this book.

I remember chatting to Mum in the beginning about what I should do. She had just discovered Facebook and mentioned one of the alternative Mexican cancer clinics. She was prepared to pay for anything if there was a chance it would keep me alive. She couldn't bear the thought of seeing me die. And then in 2022, Mum got cancer herself. She broke her arm opening a café door and was diagnosed with bone cancer. She had her right arm amputated, but it had already spread to her lungs. And now people were messaging me saying they knew how to cure Mum with alternative drugs and supplements. Now that Mum was a patient, she could see that it was

nonsense. While the NHS did its best to keep her alive for as long as possible, some cancers are vicious and we can't beat bad biology.

Sarah Cawood, a television presenter who's been treated for breast cancer, posted a video on Instagram in 2024, where she said this: 'I'm sick of the misinformation. I just don't know who to believe anymore. I am actually gonna cry. I am so tired of it and I just wish that there was one person we could go to on the internet that is the fucking party line on everything. There's too much conflicting information. There's too much misinformation. There are too many people all shouting really loudly in my echo chamber of post-cancer anxiety and I've had enough.'

I've had many messages from patients in similar situations who don't know who to trust.

And that's why I was compelled to write this book. Cancer leaves you feeling vulnerable, emotional and scared. I've been where you are. I've felt what you're feeling. I know how hard it is to think logically and rationally at a time like this. You want certainty and hope. Explanations as to why this happened and what you can do to stop it happening again.

The difficult truth that none of us want to hear is that no doctor can give you that promise. There is no magic bullet that can cure every cancer and this book will explain why. There's a little bit of science, but I've kept it simple. Everything I say has been checked and double-checked against the latest, most accurate evidence.

I want you to feel empowered as you learn why cancer happens and why your doctors treat it the way they do. I want you to understand the difference between complementary therapies, which can help and support you through this difficult time, and alternative medicine that can be dangerous, even fatal. I'll share with you the stories that you won't see online about the reality of what goes on behind fancy clinic doors. I want to give you tools to use so you can spot misinformation whenever you come across it. To give you breathing space to stop and think before you make a decision that could have dangerous consequences.

Let me take you by the hand and walk you through your cancer treatment roadmap.

Part I

What Is Cancer?

Let's be honest. Cancer is a really scary word. It's one of the words you never want to hear. Whether it's you or someone you know who's just been diagnosed, your world turns upside down. If you're like me, you might be thinking 'Am I going to die?', closely followed by 'Are the treatments going to work?' and 'What can I do to stop it coming back?'. Your life is now filled with a dictionary of words you don't understand and hospitals become your second home.

But what actually is cancer? As a junior doctor in the 1990s, I was taught never to say it out loud in front of a patient. Instead, I would use the words 'neoplasm', 'malignancy', 'lesion' and 'lump'. I was told it would stop the patients being frightened, but I think I was doing more harm than good. Thankfully, times have changed. People need to know that they have cancer so they can understand what is happening to them. If we don't know what's wrong with us, we can't make informed choices about what treatments we decide to have.

In this section I'm going to tell you what cancer is, and go through all the different types. I'll explain some of the words you might have seen on letters from your doctors, like 'stage' and 'grade'. This will give you a greater understanding of what is happening to you, or to someone you know. And then in Parts III and IV, you'll be able to understand why doctors offer you the treatments they do, and why some cancers can start to grow again, despite treatment.

1. What Is Cancer?

Cancer is a disease that happens when cells in one part of your body start to grow and divide uncontrollably. It's also called a malignancy or a neoplasm. Some cancers form solid lumps or tumours, but cancers of the blood, like leukaemia, do not. Cancers have the ability to move around your body via your bloodstream and your lymph system.

Another word for cancer is a tumour. Tumours are masses containing billions of abnormal cells. They are classified according to the original cell they grew from, which I'll explain a little later. However, not all tumours are cancerous. Healthy cells can grow into clumps which are called benign tumours, like fibroids in the uterus (womb), which affect up to four out of every five people with a uterus. They are harmless and they cannot invade other tissues or move around the body. Both benign and malignant tumours can cause symptoms, depending on which bit of the body they're in. That's why any new lump or symptom needs to be checked out, just in case it's something serious.

Cancers can cause non-specific symptoms as they start to grow and spread. These include losing more than 5% of your body weight even though you're eating normally, losing your appetite, unexplained bleeding, night sweats (not menopausal), unusual bruising and persistent tiredness. If you have any of these, you should get checked out by your doctor.

What distinguishes a cancer cell from a normal cell?

Every cell has to acquire a set of characteristics through mutations before it can be called a cancerous cell and start growing, invading and spreading around the body. These are called the ‘Hallmarks of Cancer’ and there are ten of them:

1. They can divide and grow without being told to.
2. They ignore signals telling them to kill themselves.
3. They can grow their own blood vessels which bring in oxygen and nutrients.
4. They ignore signals telling them to stop growing.
5. They can hide from blood cells in your immune system that want to kill them.
6. They are immortal and can divide and grow forever.
7. They can find their own food supply and can rely on different nutrients to healthy cells.
8. They have a high degree of genomic instability, meaning mutations are more likely to keep happening.
9. They have an inflammatory environment which promotes cancer formation.
10. They can invade surrounding tissues, and move around the body and grow in other places.

Some cancers have pre-cancerous stages (such as breast, cervical and bowel) where the cells have only acquired a few of these changes, and don’t have the ability to move around the body and invade other tissues. In time, these cells will develop the final mutation and can then form an invasive cancer. That’s why we screen for these cancers so we can pick up pre-cancerous changes before they become invasive. If you are asked to go for a mammogram, a cervical smear or dip a stick in your poo (FIT test) to look for blood, these are all screening tests. The mammogram is looking for early signs of breast cancer on a scan. The smear is looking for pre-cancerous and cancerous cells on your cervix and the FIT test is looking for tiny traces of blood that could have come from bowel cancer.

How does a healthy cell become cancerous?

You have about one trillion cells in your body. Many organs and tissues in your body, like the brain, blood, bone marrow, muscle, skin, heart and liver, have a small number of special cells called stem cells. These are similar to the cells in a fertilised embryo which becomes a baby. They can develop into a number of different cells to keep that tissue intact. Every cell in your body is controlled by its nucleus. This contains your DNA (deoxyribonucleic acid), the genetic make-up of your body. DNA is organised into chromosomes. Each cell should have 23 pairs, although some people have a different number of chromosomes. People born with Down syndrome have three copies of chromosome 21.

Chromosomes are made up of hundreds or thousands of genes. These tell a cell to make or do something. It could be making a protein or molecule of RNA (ribonucleic acid), and together these form a recipe for each cell. They tell a cell what kind of cell it should be – such as bone, muscle or cartilage. They tell it what to do, when to divide and when to die.

Cells don't just start dividing because they feel like it. They talk to each other using special proteins called cyclins. These act like traffic lights, telling a cell when to grow and when to stop. Every time a cell divides, it duplicates its DNA so each daughter cell has a copy.

As we get older and the cells get tired, things can go wrong. Think of it like a spelling mistake that we don't see when we're typing. It's why our skin gets wrinkly and our hair goes grey as we get older. But these mistakes can happen for other reasons. Some are due to the natural by-products of cellular metabolism, like free-radicals. Others come from external chemicals like tobacco, alcohol and ultraviolet radiation from the sun. These can all transform a healthy cell into a cancerous cell. Lifestyle factors, like eating an unhealthy diet or not exercising, can also modify how your cells react to DNA damage.

If there are spelling mistakes in your DNA, the cyclin traffic lights kick into action at control checkpoints where things are paused. Normally a cell can repair the mistake. If it can't, it kills itself. This is called apoptosis and it keeps the body healthy. We naturally lose 50–70 billion cells each day.

However, sometimes the traffic lights don't work. Spelling mistakes aren't corrected. They become permanent. These are called mutations.

Are all mutations dangerous?

While some mutations have no effect, others can cause serious harm. They can affect how a cell functions, triggering it to produce too many proteins, too few, or make ones that don't work properly. If a cell has one mutation it can make the DNA unstable. This is called genomic instability, and it makes it easier for another mutation to happen. If six or more of these mutations happen in the right genes in the right order, the cell is now rogue. It's a cancerous cell and it can do what it likes.

Let's look at the word 'chocolate'.

C H O C O L A T E

Let's assume it has a mutation. The second 'C' is swapped for a 'K', like this –

C H O K O L A T E

We can still read it as 'chocolate'. You might think that's how it's written in another language, but we can understand it.

Let's swap the 'T' for a 'D', like this –

C H O K O L A D E

It's getting harder to read, but most of us would still make a guess that this is 'chocolate'.

What happens if I swap a few more letters, like this –

Q H O K Z L U D E

This is now nonsense. It bears no relation to the original word ‘CHOCOLATE’ and if I saw it written down in a book I would have no idea what it means. This is what happens in cancerous cells that are allowed to divide and grow.

There are three types of mutations that have to happen before a cell becomes cancerous. The first type involves DNA repair genes that tell a cell to fix damaged DNA. If a cell has a mutation in one of these genes it means it can’t repair the DNA and further mutations are more likely to happen.

The second and third types of mutations involve the traffic lights I mentioned earlier. They are controlled by two groups of genes:

- Proto-oncogenes that control when a cell should divide or rest (green).
- Tumour suppressor genes that tell cells to stop dividing or die if the DNA is damaged (red).

When both sets of genes are damaged so the traffic lights are permanently green, a damaged cell can keep dividing and dividing. One of the most commonly mutated genes in human cancer is a tumour suppressor gene called p53, and it’s often one of the final mutations that happens.

How long does it take for a healthy cell to become cancerous?

It can take a long time for all of these mutations to happen without a cell repairing the damage or killing itself. That’s why cancer is more common in the over-50s. Once a tiny cancer has formed, it can take several years for it to grow large enough to be seen on a scan. Scientists estimate that it can take up to 10 years before prostate, breast or bowel cancers start to cause symptoms, like a visible lump or bleeding when you have a poo. A study[1] has shown that 36% of men in their seventies who had an autopsy were found to have prostate cancer.

Some cancers are very slow growing, doubling in size every six to nine months, whereas others, like lung cancers, double in size every four to five

months. Head and neck cancers can be faster still, doubling in size in just two to three months. It all depends on how aggressive a cancer is. That's why it's so important to keep checking yourself every month, as cancers can appear between scans and check-ups.

Does a cancer cell stop mutating once it has formed?

Some cancers will keep mutating as they divide and grow. It's why every cancer has a unique set of genetic changes, and even within the same cancer, there may be sets of cells with different mutations. This is why cancers can develop resistance to the drugs we use to treat them, and some cancers can come back during and after treatment. I'll explain more in Part IV.

Can you inherit mutations?

Yes, you can. Around 5–10% of all cancers are due to mutations that are inherited from our parents via the egg or sperm that made an embryo. These mutations greatly increase the chance that you will develop cancer. It explains why some cancers tend to run in one side of a family. One of the best known genes is the BRCA gene, which is passed down from grandmother to mother to daughter.

If we go back to the word 'chocolate' again, you may be born with –

Q H O K O L A D E instead of C H O C O L A T E

Now that cell only needs two more mutations to become a cancer –

Q H O K Z L U D E

If you have inherited a mutation, it doesn't mean that you will definitely get cancer. But you are more likely than someone who doesn't have that mutation. I'll cover this in more detail in Part II.

2. Types of Cancer

Cancer isn't just one disease. How many different types of cancer do you think there are? Ten? Twenty? One hundred?

There are actually over 200 different types of cancer. They all have different risk factors and they all behave differently. Some are slow growing and rarely spread, whilst others are aggressive and hard to cure.

Each type of cancer has its own dedicated treatment plan with a combination of some or all of the following – surgery, radiotherapy, chemotherapy and other drugs tailored to its unique characteristics. Your medical team also considers your health and any commitments you might have, like caring for a relative, before tailoring treatments to your unique set of circumstances.

Because there are so many different types of cancer and they are all treated differently, it's impossible for one surgeon or oncologist to be an expert in every cancer. There is no way they could stay up-to-date with all the latest guidelines, developments and research for each individual disease. The phrase 'jack of all trades and master of none' comes to mind. That's why every cancer doctor has their own speciality and area of expertise. It's why I only treated breast cancer and nothing else. I'm an expert in one particular disease and my patients expected and trusted me to know how to treat them.

And to make things even more complicated for your medical team, a cancer like breast cancer isn't just one cancer.

How many different types of breast cancer do you think there are? Three? Five? Ten?

Breast cancers can form in 13 different types of cells, and there are four combinations of cell receptors for every cancer. That's 48 possible

combinations, before we take different mutations that can occur into account. And that's just for breast cancer.

Why is any of this important? Well, you are going to come across headlines and videos and articles in the future. They will talk about infusions and supplements and diets that can cure cancer. But we now know that cancer is not one disease. There is no single treatment that can cure every cancer. This is one of the red flags that I'll talk about in Part III to help you scrutinise claims you might come across.

In this section I'm going to run through some of the common words used to describe cancer. You might have seen them in your doctors' letters and wondered what they meant, and I'm going to explain what they mean. But first, let's start with the eight main cancer types. The name of your cancer depends on the cell type it developed from.

Carcinomas

These cancers develop from epithelial cells which cover the inside and outside surfaces of your body, such as your skin, liver, lung, breast and bowel. This is the commonest type of cancer, and there are four different subtypes – adenocarcinoma, squamous cell, transitional cell and basal cell carcinoma.

Sarcomas

These cancers come from the cells in your bones, cartilage, fat, muscles and blood vessels. They are rare and account for less than 1% of all cancers diagnosed each year. They are more common in children than adults because that's when your bones and muscles are growing.

Leukaemias

These cancers come from cells in your bone marrow. You produce too many white blood cells and they're not fully formed so they don't work properly. They make up only 3% of all cancers, but they are the commonest cancer in children.

Lymphomas and multiple myeloma

Lymphomas are cancers of the white blood cells that are part of your immune system. Cells build up in your lymph nodes, bone marrow or spleen, forming tumours. They account for 5% of all cancers. Myelomas are cancers of plasma cells, a type of white blood cell, that form tumours in your bones. They account for 2% of all cancers.

Central nervous system cancers

These cancers come from cells in your nerves, brain and spinal cord, and account for 3% of all cancers.

Germ cell tumours

These cancers begin in the cells that produce sperm or eggs. They can occur almost anywhere in the body and can be both benign and malignant.

Neuroendocrine tumours

These come from cells that release hormones into the blood in response to a signal from the nervous system.

Melanomas

These are cancers that form in melanocytes, which are special skin cells. They make the pigment melanin which gives your skin its colour.

Why is this important?

I haven't listed all the different types of cancer to give you a biology lesson, and you don't need to remember them all. Even I had to check that I hadn't forgotten any. What I do want you to do is remember just how many different types there are. And that's because there is misinformation everywhere. The word cancer is now a catch-all term. It's used in newspaper headlines, podcasts, clips and videos on social media, talking about the latest miracle cure. Cancer is not a single disease and there is no single miracle cure that will treat every single type.

3. Cancer Vocabulary

Before I get to Part II and talk about how cancers are treated, I wanted to step back and talk about your new cancer vocabulary. As a surgeon, it's easy to forget that patients don't always know what these words mean. So, let's go through the ones you're most likely to see in your hospital letters.

Early, primary

These are words used to describe solid cancers that haven't spread beyond their draining lymph nodes.

Advanced, secondary, metastatic, late, stage 4

These are words used to describe cancers that have spread beyond the draining lymph nodes. I also use the phrase 'comes back'. The process is called metastasis. It means that a cancer is no longer curable, but it is treatable. I will explain how this can happen and what it means in Part IV. If lung cancer has spread to the bones, it is called metastatic lung cancer, not bone cancer.

Grade

The grade of a cancer describes how abnormal the cells look under a microscope compared to healthy tissue. It is an international scoring system. The lower the grade, the closer they are to normal cells. Lower-grade cancers tend to be less aggressive than high-grade ones. This generally means that they are slower growing and less likely to come back in the future. If you have a low-grade cancer, it means you're unlikely to need treatments like chemotherapy.

High-grade cancers look nothing like normal cells under the microscope. They tend to be fast growing, aggressive and more likely to come back. If you have a high-grade cancer it doesn't mean that it will automatically come back in the future. Your oncology team is more likely to recommend chemotherapy and targeted therapies to reduce the risk of this happening.

Some doctors use the terms well differentiated to describe low-grade cancers and poorly differentiated or undifferentiated to describe high-grade cancers. And while some cancers have their own special grading system, most are graded using a standard three- or four-point scale:

- **Grade 1 (Low Grade)** – These cancer cells look the most like normal cells.
- **Grade 2 (Intermediate Grade)** – These cells look moderately abnormal.
- **Grade 3 (High Grade)** – These cells look very abnormal.
- **Grade 4 (Undifferentiated)** – These are the most abnormal-looking cells.

Lymph nodes

Lymph nodes are small nodules that are connected by lymph vessels. Lymph vessels carry a thin watery fluid called lymph around the body. It contains white blood cells that can help fight an infection. You have clusters of lymph nodes in your neck, armpits and groins, chest and abdomen. They have two main jobs. Firstly, they have large numbers of immune cells that can fight infections. Secondly, they filter lymph fluid for foreign substances

like bacteria, viruses and cancer cells. Cancers can start in the lymph nodes (lymphoma), or they can spread to the lymph nodes in the lymph. If they aren't destroyed, they can start to grow.

Sentinel node

For most solid cancers, the connected lymph nodes are very close to the cancer itself and they are removed with the cancer. Your surgeon does this to see if they contain cancer tissue. This does not mean that your cancer is now incurable, but it does increase the chance of this happening in the future. If they are involved, you will be offered stronger treatments like chemotherapy to try to prevent this happening.

However, for some cancers, like breast and melanoma, the lymph nodes can be much further away. For breast cancer they're in the armpit and for a melanoma on the leg, they're in the groin. Your surgeon doesn't want to remove all of those lymph nodes unless they really have to, because there are serious side effects like lymphoedema. If the nodes look negative on a scan, your surgeon will only remove the sentinel nodes.

The sentinel node is the gateway to the 10 to 20 nodes you might have in that area. Imagine a bunch of grapes. The sentinel node is the lowest one. Your surgeon will use one of several techniques, such as injecting dye or tiny magnetic beads to find it. If the sentinel node does contain cancerous cells, you may be offered more treatment to the rest of the nodes in that area.

Stage

You may hear your team say that they want to stage you. This just means arranging scans to find out whether your cancer has spread. For some cancers it is part of the routine diagnostic work-up. For others, you only have these scans if you have, or develop, symptoms that suggest it has

spread. Every different cancer has its own set of guidelines that your team will follow.

Your cancer stage is a number that gives your medical team a quick overview of how big your cancer is, whether your lymph nodes are involved and whether it has spread. It helps them work out your odds of survival, and whether treatments like chemotherapy will increase those odds. Because it's a tool that's mainly for the benefit of the team looking after you, you might not be told what yours is. Generally, the lower your stage, the better your chance of survival. There are four or five stages, depending on your cancer type. Brain cancers aren't staged as it is incredibly rare for them to spread beyond your nervous system. Cancers of the blood and lymph nodes have their own staging systems, which your team will be able to explain for you.

- **Stage 0** – This means you have in situ or non-invasive disease. These are cancerous cells that haven't developed the ability to move around the body and spread to your lymph nodes, organs or bones. Examples include DCIS in the breast and CIS in the cervix.
- **Stages 1, 2, 3** – These are used for cancers that haven't spread beyond their draining lymph nodes. In a nutshell, the higher the stage, the larger your cancer is and the more lymph nodes are involved. Many cancers have their own complex systems with several subsections for every stage.
- **Stage 4** – This means that your cancer has metastasised. It is treatable but cannot be cured.

Staging systems can be incredibly difficult to work out. The latest update of the breast cancer system has several pages, and as a surgeon I could never remember it. It is also more accurate, as it takes other factors into account, like the impact that breast cancer receptors have on your prognosis. I was stage 3 when I was diagnosed, but the latest system scores me as stage 1b. It can be hard to get your head around it all.

Some countries don't use the staging system, but every country uses the simpler TNM classification, which stands for Tumour, Node, Metastases. Your team gets this information after surgery when your cancer has been

examined by the pathologist. You may see a combination of letters and numbers in your hospital letters, such as ypT2N1M0, and this is where that comes from.

- **T** – This means different things depending on the type of cancer you have. For breast cancers, it tells us how big the cancer is. For bowel and bladder cancer, it tells us how many layers of the bowel or bladder wall are involved. For some cancers, it's a combination of several things. The scoring goes from T1 to T3 or T4, with T1 being the smallest or least invasive.
- **N** – This relates to the number of lymph nodes that contain cancerous cells. N0 means they are free from cancer. N1, 2 and 3 describe how many nodes are involved, how big they are, or where they are in relation to the cancer.
- **M** – This means metastatic spread, M0 means your cancer is early and hasn't spread. M1 means that it has. Mx means that your team doesn't know, or you haven't had staging scans.

It gets a bit more complicated because some cancers are treated with chemotherapy and radiotherapy before surgery, extra letters are added to your stage, depending on where you are in your treatment plan.

- **c** – This is the clinical stage worked out from your scans at diagnosis.
- **y** – This means that you had chemotherapy before surgery. If your cancer has disappeared and your nodes look normal on your scans, the TNM will change to reflect that.
- **p** – This is the final assessment after surgery when a pathologist has looked at the cancer. If they find a small amount of cancer left behind, the TNM score could change again.

Lymphovascular invasion

This is a term used by pathologists when they look at your cancer under the microscope. If cancer cells are seen in the tiny blood or lymph vessels near the breast cancer, then they call it lymphovascular invasion. It does not mean that you have advanced cancer or that your cancer will come back in the future. Instead, think of it as the very first step that cancers take as they start to move towards the lymph nodes. Most people with involved lymph nodes will also have lymphovascular invasion. And that's why we don't use it as a marker of how aggressive your cancer is.

The Bottom Line

It can be very hard as a doctor to work out how much information to put on patient letters. We don't want to frighten you with medical jargon, and yet you have a right to know as it is your body. If there are words on your letters or scans that you don't understand, contact your team and ask them to explain them to you. Whilst an internet search may tell you the basics, it won't be relevant to your individual cancer and how those words relate to you.

P's story, as told by his partner

P had a relapse of his lymphoma. He didn't want a bone marrow transplant so he started looking online. He went to a clinic in Mexico for three weeks, and he came back in much better shape. That lasted for a couple of months. He went back and it cost about 20 grand each time.

Shortly after the second visit, the lymph nodes in his groin blew up like bunches of grapes pushing through the skin. The second clinic tried to persuade him to come back and have another course of treatments. He ordered drops from mainland Europe and found another clinic that said

they could cure any cancer. One of their treatments was a piece of paper in his room that said 'Look at the sun and smile more'.

He died whilst he was there. He'd spent almost $100,000.

It was hard with the clinics. When he felt better, I think it was a little bit of a placebo effect. He was trying lots of things all at the same time, so you couldn't really tell what was working, if any, and whether they were interacting with each other.

Something that angers me the most is how the clinics leverage fear. They broker hope. They play on that with people and they do it very well. I think it's really very rare to find a family member who isn't going to say 'Do what you need to do', because otherwise you're telling them, 'Don't try something you think might save you.' How do you say that to somebody that you love? Family and loved ones are put in an untenable position by these programmes.

I would just ask anyone reading this to think about these things before you make such a life-changing decision. Encourage anyone who's considering it to talk to their doctor about it. Many of them are afraid to. They think the doctor will shut them down. I know physicians are busy, but I think we have to open that door up and allow patients to walk in the door and say, 'These are the things I'm thinking about because I'm scared. Nothing is working.'

4. How Are Mainstream Cancer Treatments Developed and Tested?

I'm going to talk a lot about evidence and studies and trials as I go through what does and doesn't cause cancer, and what does and doesn't cure it. Now's a good time to explain what all of those words mean, to help you understand what I'm talking about in later sections. If this book is going to empower you on your cancer journey, and teach you how to recognise which experts to trust, you need to know how mainstream cancer treatments are developed.

Did you know that it can take over 20 years for a new cancer drug to go from a molecule in a laboratory through patient testing before it can safely be given to cancer patients all over the world? I was actually involved in the development of a drug I'm currently taking. Back in 2002 I started a four-year PhD as part of my surgical training, looking at the molecular genetics of thyroid cancer. Part of my work focused on enzymes called cyclin dependent kinases. They act as traffic lights when a cell is dividing and I discovered that in some types of thyroid cancer, they are always switched on to green.

Fast forward to 2024 and I'm now taking a drug that blocks those very enzymes to stop my breast cancer coming back. Initially, the drugs were used in small trials of women with incurable breast cancer. That was followed by larger trials in women with a high risk of developing metastatic disease. Once they showed that the drug was better at reducing the risk of recurrence than the current treatment, that it was safe and the side effects could be tolerated, it was then rolled out to people like me. Cancer research is incredible.

I'm going to start by explaining the testing process that all cancer drugs have to go through before they can be prescribed.

The stages of drug testing

Cell line testing

The first stage for any new cancer drug is laboratory studies to show it can stop cancer cells growing. There are several different populations or lines of immortal cancer cells. The cells have been modified so they will never die and will just keep growing. The most widely used was developed in 1952 called HeLa. The cells come from a 31-year-old African American woman called Henrietta Lacks who had cervical cancer.

These cells are kept alive in a petri dish in a laboratory with a nutrient solution. They're given high doses of chemicals and drugs, and scientists monitor whether they live or die. This is called *in vitro* research (Latin for 'in glass'). You may have heard it used in terms of IVF or *in vitro fertilisation*. These tests don't require ethical approval and they're quick to do, with results in a matter of days.

Animal testing

The next stage is animal testing, normally in mice and rats that have been specially bred. They are injected with a specific type of cancer cell which grows into tumours. A bowel cancer drug should be tested on a mouse injected with bowel cancer cells. The mice are then given the new drug to see if the cancer shrinks. This is called *in vivo* research (Latin for 'within the living').

The mice can be given the drug at different doses to try to work out what the safe level might be for humans. It can also help scientists work out what the potential side effects might be. It's important to remember that rodents aren't small people. Their bodies work differently to ours. They are also living in a completely controlled environment. Scientists have complete control over what they eat, when they eat, and whether they're allowed to

exercise. If a study says that a supplement kills cancers in mice, that's all it can tell you. You cannot assume that it will have the same effect on you.

Human testing or clinical trials

This is when a new drug is tested on adults for the first time. There are five phases[1] of testing that a drug company has to go through. This is to make sure that it does what it's meant to. They know what the safest dose is to get that effect, and that the people having the drug can tolerate the side effects.

Phase 0

This involves 10 to 20 people getting a very small dose of the drug. Scientists want to check that the drug actually gets to the cancer cells. They want to know what happens to the drug inside your body and how it responds to the drug. They're making sure that the effects they saw in the lab are the same in humans.

Phase 1

These are small trials with 20 to 50 patients, normally people living with advanced or metastatic cancer who have run out of treatment options. The aim is to work out what the safe and most effective dose of the new drug should be. Some trials will start the first couple of patients on a small dose of the drug. If they get on okay, the next few will have a higher dose and this is repeated until they find the best dose to give. They also want to see what the side effects are and whether the drug actually works. Does it shrink the cancer?

These trials can take several years to complete as it can take time to find enough patients with the same stage of advanced cancer to join the trial. A positive result in a Phase 1 trial does not mean a drug will work for all cancers in all patients.

Phase 2

These are larger trials with up to 100 people and are designed to find out what types of cancer can be treated by the drug. They check that the side

effects are tolerable and learn how to manage them in preparation for a much larger trial. They are also used to fine-tune the dose needed to have the biggest impact on the cancer.

Phase 3

These are larger trials with hundreds or thousands of people that compare the new drug with the best standard treatment. For example, they might test a new chemotherapy drug against the current regime that patients are prescribed at the moment. Most of the trials are randomised. This means that the doctors and the patients have no control over whether they get the current regime or the new drug.

The drug may be given instead of, or as well as, the current regime. The aim is to see if the new drug works better than what we give patients at the moment, and if it does, can patients tolerate the side effects to make it worthwhile giving them the new drug? There is no point giving people something that they stop taking after a few weeks because it makes them feel awful.

These trials also take many years to get the answers. If the ballpark of a successful drug is how many people are still alive after five years, then a Phase 3 trial needs to run for at least that length of time before the data is collected and analysed. If a Phase 3 trial does show positive results, it shows the drug has a real potential to increase cancer survival. Drug companies can then apply for a licence so the drug can be given outside of a trial.

Phase 4

These are large trials done after a drug has received its licence. They may be done to see if the new drug works on people with early cancer instead of advanced disease. They could look at rarer side effects that only happen in a handful of people, or what the long-term impacts of the drug are. The aim of these trials is to collect the evidence to help patients in the future, when the data has been collected and analysed.

I think that every cancer patient should be involved in a trial. The more data we have, the more people we can cure in the future. Most hospitals will be involved in a number of cancer trials, but they might not offer one that

could help you. It takes a lot of time, money and resources to run a trial. Small rural hospitals cannot offer all the trials that the larger cancer centres can. This is where you might need to do your homework to see if there's a trial that you could join. If there is, it might mean a lot of travelling back and forth if the hospital offering it is a long way away. Only you can decide if it's worth it.

I'll list some websites in the references section that can help you find a cancer trial for the UK,[2] the European Union,[3] the United States[4] and Australia.[5]

The Bottom Line

You can be certain that every drug your mainstream doctor offers you has gone through this rigorous process. They have the data from thousands of patients with five or 10 years of follow-up to prove that they can cure you, or reduce the risk of your cancer coming back. They know exactly how much to give you and what the side effects are.

The same can't be said for supplements you buy online or infusions given in alternative medical clinics. It comes down to the risk you are willing to take to try something that your doctor hasn't recommended. So, remember whenever someone tells you that an alternative cancer cure has been tested and shown to work, do a little digging and find out what tests have been done. Where is the research to show that the dose you're being given is safe, and does what it's supposed to? A small mouse study is not the same as a Phase 4 clinical trial.

Is a testimonial the same as a trial?

There are several different types of studies and trials done for very different reasons. It is easy for anyone to pick the one that had the results they wanted and use it as proof. Also, quoting a single study does not count as proof that a product can cure cancer. You need to know what the study was and how it was done. And most people aren't research experts with the time to scrutinise everything they see and hear.

I'm going to give you a quick overview of the different kinds of studies out there. It will help you quickly work out which studies you can trust, and which to ignore. I'm going to use the juicing diet, an alternative cancer cure, to take you through the Hierarchy of Evidence. This is what statisticians use to rank evidence from the best to the worst, and I'm going to start at the bottom with anecdotes and testimonials.

Anecdotes and testimonials

Let's say you see a message in a Facebook group that says: 'My aunt cured her cancer with the new juicing diet. You have to try it.' That might be enough for someone to follow a juicing diet. But those two sentences are not proof that juicing cures cancer. Firstly, in this new world of AI, the aunt could have even been made up to sell a book or a course. And if the aunt is real, did she really have cancer? Did she really try a juicing diet? How long did she juice for? Were there any side effects? Was she asked to say that she was cured in return for a discounted juicer? Did she have other cancer treatments as well? Did she have the cancer that you have? And is she still alive?

Anecdotes prove nothing, and yet they are the most successful form of marketing in the alternative cancer world. We are drawn to them. The power of a testimonial is far greater than anything your doctor might say. People selling alternative cures know this.

I spoke to Tim Caulfield, author of *The Cure for Everything: Untangling Twisted Messages About Health, Fitness, and Happiness*,[6] about the power of testimonials. I think it's a bit like Tripadvisor. I've looked up reviews for a restaurant I want to go to, and one bad review will make me change my mind, and vice versa. Tim says these testimonials are more exciting than your doctor saying they can't promise a cure. 'Stories and narratives are

incredibly powerful. We're wired to respond to those, especially if that narrative comes from another patient, right? They're speaking to your values. They've walked your path. That can be an incredibly persuasive marketing tool and there are so many problems with it, you know? One powerful anecdote can outweigh hundreds of millions of data points on efficacy. And we see that again and again in our research. They are consistently one of the most dominant marketing tools.'

I could tell you that I cured my cancer three times by eating sausages and that might be enough for you to set up camp in your nearest butcher's. I didn't. I've just made it up to prove my point. Anecdotes and testimonials should not be the driving force behind choosing and paying for an alternative cancer treatment.

Cohort study

This is when a group of people are followed over a period of time to see what happens to them. Nothing is done to them, and they aren't asked to change their lifestyle. It could be a group of women in their forties who all have ovarian cancer. They are watched to see how many are still alive after five years. At the end of the study, the researchers will look at the different lifestyle behaviours in the group of women. For example, how many were juicing. Let's assume that the women who juiced regularly were less likely to die. This should then lead to more research to see whether juicing was the actual reason, or was it just a coincidence. A cohort study is retrospective. It looks at things that happened in the past.

One of the big problems with cohort studies is that their results can be taken out of context and used as proof for something that isn't true. A juicing company could see this trial and think that juicing was the reason some women didn't die. Advertising campaigns are created telling women that juicing could save their life.

Another problem is that the results aren't completely reliable. In most cohort studies, the women taking part aren't asked to keep a daily record of everything they eat and drink and do. It's normally an annual phone call or survey asking them to remember what they've done in the last year. I would struggle to remember what I ate two months ago, let alone 12.

Another problem is that the women who juiced may have been more likely to exercise regularly. And we know that this can decrease the risk of recurrence of some cancers. So, was it juicing or exercising that stopped ovarian cancer coming back? That's why larger, more detailed studies are needed to work out the actual reason for the difference in cancer rates between the two groups of women.

Case-control study

This is a study that compares two different groups of people. It could be people who have cancer and people who don't. Researchers will look at the lifestyle factors and behaviours of the two groups over previous years to look for things that could be linked to the cancer diagnosis. This is also a retrospective study.

Scientists have to study huge numbers of people to prove that a lifestyle factor (for example, not juicing regularly) causes cancer. They try to match the people in both groups so they are roughly the same weight, gender, race and socio-economic status. This helps strengthen the case that it was that single lifestyle factor that differed between the two groups which caused cancer. This is how researchers proved that smoking increases your chance of getting lung cancer.

Randomised controlled trial (RCT)

This is the holy grail of all cancer research, and almost every new drug is tested this way. The aim of RCTs is to prove in real time that a drug or treatment works, and that it's better than the current 'gold standard' cancer treatment. RCTs are designed to test the 'null hypothesis'. They assume that the new treatment (juicing) isn't better than what we currently prescribe. If the results show that it is, then this is statistical proof that it works. This is very different from a trial where researchers assume that juicing cures cancer and want to prove it.

If I was setting up a juicing RCT, I would first apply for ethical approval. A committee would have to agree that my trial would be honest, rigorous, transparent, respectful and protect the people taking part. Without this, the

trial cannot go ahead. I cannot do it just because I want to. People's lives are at stake. And I'm certain that it would not be granted for the trial I want to do, but let's assume it was.

I would then recruit a number of women in their forties with ovarian cancer. They would be randomly divided into two groups by a computer program. I would use a mathematical tool to work out how many women I'd need to prove that the difference in survival between the two groups was statistically significant. One group would get mainstream cancer treatment and eat and drink normally. The other group would follow my strict juicing diet. After five years, I would compare the two groups to see how many women were still alive. If more women were alive in the juicing group, then I would have proof that juicing cures cancer.

To make randomised controlled trials even stronger, they are 'double-blinded'. This means that the patients don't know if they are taking the drug, and neither do the doctors. Now, this is hard to do with juicing as I can't think of a fake juice example, so let's take a new vitamin I've just invented called Vitamin L. Half the women would be given Vitamin L, and the others would be given a sugar pill, called a placebo, which looked exactly like Vitamin L. This way the women have no idea if they are getting the new drug or not. It means that they are less likely to over- or under-hype any side effects. If you knew you were on the drug and you desperately wanted it to work, you might lie about the side effects saying they're not as bad as they are, because you desperately want to stay on the drug. And that's not fair to the women in the future who could be given the drug.

The second part of the blinding is that the doctors don't know which patients are getting the drug and which are getting the placebo. When they follow these patients up in the clinic to see if their cancer has shrunk, their opinions can't be swayed by a drug that they want to work. Compare this to an alternative doctor running a trial on their new supplement to see if it makes people feel better. Imagine how different the outcome might be if it was done as a blinded randomised trial.

If RCTs don't show a difference – in this case, juicing had no impact on cancer survival – then scientists go back to the drawing board and that treatment is not recommended. We have robust scientific proof that it is not better than the treatments we currently prescribe. Sometimes things don't pan out.

Systematic review and meta-analysis

There will always be trials that have different results, even RCTs, depending on how they were set up and what they were designed to prove. How do you know what to believe when there are differences of opinion? The answer is by expertly assessing all the evidence, and there are two ways to do that.

A systematic review looks at all the published studies, let's stay with juicing, and analyses their results. It is firmly structured and has to be done according to a fixed method with strict parameters. Scientists look at each study and trial in detail so they can say whether the conclusions are reliable or not.

A meta-analysis normally looks only at the randomised controlled trials, as they're the highest valid evidence for a treatment. Statisticians analyse and combine the results of all the RCTs to give an overall view of the effectiveness of juicing as a treatment. This is as close as you can get to the proof that something can cure cancer. But there could still be issues. The person doing the meta-analysis can choose which RCTs they include. If they were being paid by a juicing company to do the research, they could leave out the trials that said juicing didn't work, and include bad studies with results that can't be trusted, just so they can say that juicing is a cure.

Research integrity

In an ideal world, every study would be done with a patient's best interests in mind. Every trial would have ethical approval, the results would be transparent for anyone to see. This isn't always the case in the field of alternative medicine. Many studies are conducted by people who don't understand statistics and have no research training.

Randomised controlled trials are expensive. They cost millions of pounds to run. Although drug companies foot the bill, the trials are run through hospitals after ethical approval following strict guidelines. If a trial fails and the drug doesn't work, that data is still published. Contrast that with an alternative medical doctor who conducts her own study to show that her new supplement can cure cancer. She stands to lose money if the study

doesn't work. Her patients are paying her for that supplement, and they want it to work. Knowing who funded a study is important.

The Bottom Line

Just because something is quoted in a book or a website as being a miracle cancer cure, it doesn't mean that there's robust evidence to prove it. Now this may shock you, but I'm the only person who chooses what papers, studies and websites to include in this book. You can write a book claiming anything, and self-publish it on Amazon tomorrow.

My editor trusts that everything I say is evidence-based and accurate, and to the best of my knowledge it is. I have spent hundreds of hours double-checking everything that you've read here. All you can do is choose to trust that what I'm saying is true.

That's why I refer you to big charities and organisations like Cancer Research UK (CRUK)[7] and the American Cancer Society[8] so you can check for yourself that what I've said is correct. You need to find your inner sceptic and question every claim you see, so you get to the truth. I've said this before but I'll say it again. You only have one body and life is precious.

Part II

Why Do We Get Cancer?

One of the first things I asked myself when I was first diagnosed was ‘Is it my fault?’. Was it something I’d eaten or hadn’t eaten that had caused my breast cancer? I was fit and healthy. No-one else in my family had it. And yet, as I thought back on my life, I started to blame myself. I drank a lot at medical school. I knew it could cause cancer and a host of other health issues but I carried on drinking as a junior doctor. I was young and invincible. I joined gyms but never went. One-hundred-hour weeks and night shifts meant I ate a shocking diet full of bland carbs. Fresh fruit and vegetables were rare. Did the stress I was under as a trainee surgeon do it? Was the depression I had in my twenties the reason behind my cancer?

It is so easy to end up in this spiral of despair, blame and guilt. And when you think cancer is your fault, it is incredibly hard to move forwards and look towards the future. And that’s where this chapter comes in. Getting cancer was not your fault. There are those of us who’ve never smoked, who have eaten well and exercised all our lives. There are some of us who haven’t, and there are people who will never read this book who have smoked and drank far more than we ever did and remain cancer-free.

Now there may have been moments in your past where, like me, you didn’t follow a healthy lifestyle. But for most of us, the main reason we got cancer is down to rotten luck. And I’m going to explain why.

5. Why Does Cancer Happen?

You might be surprised to learn that we still can't explain why a lot of cancers happen. For many of us, it's a mystery. A combination of chance, things we might have done in the past and things we've come across in our environment. We still can't explain why cancer-causing behaviours don't give everyone cancer. And this is really frustrating for anyone who's been diagnosed. I wanted to know why. Why me? What had I done? Mainly so I could make sure I never did it again.

When I entered the online cancer space, I was bombarded with a list of things that caused it. Things I'd never heard of. Things I couldn't believe were true. I started to question myself. Did I really know why a normal cell turns into a cancerous one? Were the things I learned at medical school really true? Was I really the expert? Now I was potentially facing a much shorter life than I'd planned for, I wondered if I should make some drastic changes based on things I'd read and seen.

Should I throw my phone and microwave away? Stop wearing bras? Never use sunscreen or deodorants? Get rid of all the plastic in my house? Ban cosmetics that weren't 'natural'? Drink green juices and follow a cancer diet?

The list goes on and on. And I'll be honest, I did think about switching to paraben-free cosmetics that I was told would be better for me. Despite being a cancer surgeon, I had no idea what my patients were meant to eat once hospital treatment finished. I didn't think there was a special cancer diet, but I wasn't a dietician. Had things changed since I'd done my training? And after living off crustless white bread and bland chicken soup for five months during chemotherapy, thanks to severe nausea, mouth ulcers and ruined taste buds, I considered changing my diet. I thought about living

off green juices and maybe going vegan. Anything to feel healthy again and less like a patient.

And then my taste buds came back and my mouth ulcers disappeared. I started eating all the things. Cakes. Pastries. Crisps. I cannot tell you how good they were. My good intentions went out the window. I'd just got over chemotherapy. I deserved to eat what I wanted.

And then I started researching what I should be eating after breast cancer. I saw so many different cancer diet books, all saying something different. I wanted to know the truth, and I'll share that with you in Part IV. I fact-checked some of the cancer causes in the podcasts and videos my followers sent to me, and believe me they were very persuasive. I've seen how easy it is to get sucked into the claims they make. As a patient, or relative of a patient, you have this burning desire to blame something. Anything. Just so you can make sure it never happens again. How do you know who to believe?

I'm going to make it really simple for you. If it's not in the list in this chapter, then it doesn't cause cancer. I've researched every cause of cancer and the evidence behind it. I've fact-checked with major international cancer charity and government websites, and cross-checked with the latest systematic reviews of all the available evidence. If I don't mention it, then it doesn't cause cancer. And at the end of the chapter I'll leave you with a couple of website links you can use to fact-check any other claims you might read online.

I'll also cover some of the popular cancer-causing myths, like underwired bras and deodorants, so you can understand where they came from and why they aren't true. So, let's get started.

What causes cancer?

It all begins when a mutation happens in the DNA of a healthy cell. When there are enough mutations in the right genes, the cell starts to grow and divide and it never stops. There are four ways that a mutation can happen.

Chance

The first is by chance. Every time a cell divides, there's an opportunity for a mistake to happen, called a mutation. The older you are, the more likely this is to happen. And that's why getting older is still the biggest reason that people get cancer. As I explained in Part I, it's because your cells are getting tired and mutations are more likely to happen.

Inherited from our parents

The second way is by inheriting mutations from one or both of your parents. These are mutations in specific genes that mean you have a very high chance of developing cancer. These are often found in families where a large number of people have been affected by cancer. There are also risk factors that relate to our genetic make-up, like how tall we are, that can increase the risk of cancer.

Carcinogens

The third way is when our cells are exposed to carcinogens. A carcinogen is a substance, organism or agent that can cause cancer. Some occur naturally in our environment, like the ultraviolet rays in sunshine. Others are things we choose to come into contact with, like tobacco and alcohol. They cause mutations which increase the chance that we'll go on to develop cancer. Being exposed to a carcinogen does not mean you will automatically get cancer. A lot of it is still down to bad luck, as I'll explain later. But avoiding the carcinogens we know about will lower your risk of getting cancer in the future.

Lifestyle and other factors

The final way is down to the way we live our life. This can have a big effect on how likely we are to develop cancerous mutations. The World Cancer Research Fund[1] estimates that 18% of all cancers diagnosed in America are directly due to a bad diet, lack of exercise and obesity. That's more than 300,000 cancers every year.

But first, I need to talk about risk. It's a word I'm going to use a lot, but what does it actually mean, and how does a risk relate to you?

6. What Is Risk?

Learning to live with uncertainty is hard. You can't make balanced decisions unless you understand what risk is and how it affects your own individual circumstances.

In its simplest terms, risk is the possibility of something happening. Everything we do has a risk attached. We weigh up that risk before we make decisions, based on our own life experiences. Is the risk of doing something worse than the risk of not doing it? The risk can be small, like choosing to eat a third doughnut knowing we might get indigestion. It could be big, like deciding to send an angry drunk text to a new partner. The risk could be huge, like driving a car. There are so many things that could go wrong every time we hit the road, but if they've never happened yet, the risk seems much smaller than it actually is.

When it comes to cancer, risk takes on a different meaning. We are now thinking about life and death. Faced with our own mortality. We want certainty. We want to know that we'll definitely be cured.

But no-one can give us that certainty. When it comes to our health nothing is 100% guaranteed. Every treatment has a risk attached. Our doctors offer us the treatments that give us the best chance of a cure based on all the available evidence, knowing that there's a chance your cancer might come back. How are we meant to make decisions when our life is on the line? You might have a high chance of having a recurrence, but no-one knows whether it will actually happen.

For some cancers, like breast cancer, there are computer algorithms based on data from lots of trials that can estimate our chance of surviving for the next five or 10 years. Your medical team will use that number to decide whether the benefits of chemotherapy outweigh the harms. They could tell you that an extra 10 out of 100 people like you will still be alive in 10 years

if they gave all of you chemotherapy. But they have no way of knowing if you will be one of the lucky 10, or one of the people who would have made it anyway.

Is all risk the same?

There are two types of risk, absolute and relative, and they are very different.

Absolute risk

This is the number of people who will experience an event (getting cancer) in relation to the population at risk. An example would be your risk of getting lung cancer in your thirties if you've never smoked. If that number is 2%, it means that two in 100 people would get lung cancer. No-one can tell you if you're in the 2% who get it, or the 98% who don't. That's where your own attitude to risk helps you make the right decision for you.

Relative risk

This is the ratio of the probability of something happening in a group of people who do something, compared to a group of people who don't. An example would be the difference in risk of getting lung cancer between people who have never smoked and people who smoke 30 cigarettes a day. The risk is higher in the smokers, and this difference is called the relative risk. It is always much larger than absolute risk, and I'll explain this in a moment.

Many doctors don't know how to explain risk to patients. We understand statistics and percentages and therefore assume that our patients do, but this is rarely the case. The numbers roll off our tongues with ease as we repeat them every day, but the person in front of us is still a stranger to the world of cancer.

Risk is often manipulated by journalists for a shocking headline, especially when it comes to health issues like cancer. They want to sell papers. Everyone working in the media knows it's all about the 'hook', and they're right. Thousands of pounds have been spent on market research to work out what makes us 'click'. My husband often tells me I have the attention span of a two-year-old as I flick through my phone. It's widely known that people only have a couple of seconds to catch our eye with the cover of a magazine or an online article. If the first line of a video doesn't have a word like 'cure' or 'cause', I'll move on to something else.

Let me show you what I mean with this newspaper headline from 2018:

'Women who eat bacon are more likely to get breast cancer'[1]

Did this make you panic for a second? If you've had breast cancer, did you instantly think it was your fault because you've had a bacon sandwich or two in the past? And if you eat bacon and haven't had breast cancer, are you now worrying that you will? Maybe you're now planning to never eat bacon again? Will you stop your friends and family from eating it as well?

If the answer to any of those questions is yes then, based on that single sentence, you've already made an assumption, and acted on it, probably driven by fear or guilt.

The headline relates to a review[2] that said women who eat a lot of processed meat have a 9% increased risk of getting breast cancer. The journalist who wrote the article is clever. Nine per cent sounds like a huge increase. That's almost one in every 10 women who eat processed meat getting breast cancer. Or is it?

Now, I've got a bit of knowledge about breast cancer, and these were my thoughts when I saw the headline:

- How does eating bacon affect my personal risk of breast cancer?
- How much bacon do I actually have to eat to increase my risk?
- Is there anything I can do to reduce my risk so I can feel less guilty the next time I have a bacon sandwich?

The article, like most news stories, only summarised the scientific paper to prove the point the author wanted to make. I read the actual paper and this is what I found. It reviewed 14 studies that looked at how much processed

meat women remembered eating over a period of time. The women weren't weighing the amount of bacon, chorizo or salami on their plate. Some were asked how many portions they had, and we all know how much a serving can differ by, and how inaccurate our memory can be.

The 9% increase in breast cancer risk is between the women who ate the lowest amount of processed meat a day compared to those who ate the most. It's the relative increase in breast cancer risk that comes from eating a lot of processed meat. One serving was two slices of bacon. A high serving was more than four slices of bacon every day. We also don't know if eating a lot of bacon was the only difference between the groups of women. Were some women exercising or drinking more, for example? And what does that 9% increase in risk mean for you?

The biggest risk factor for breast cancer, after being a woman, is your age. If a woman lives until she is 80, her lifetime risk of getting breast cancer is one in seven, or 140 in 1,000. But that's a risk over a lifetime. It still doesn't tell us what your absolute risk of getting breast cancer is if you eat a lot of processed meat.

I'm going to use a 40-year-old woman as an example to show you how her absolute risk of getting breast cancer changes if she eats a lot of bacon.

My 40-year-old woman has a one in 64 chance of getting breast cancer. That is her absolute risk. Rounded up, that's 1.6% of all 40-year-old women, or 16 in 1,000 women. That risk will get higher as she gets older.

If she eats a lot of processed meat, that absolute risk goes up by 9% (the relative increase in risk). That means it's now 1.7% or 17 in 1,000 women. Whereas the headline made us think that an extra one in every 10 women get breast cancer if they eat a lot of bacon, it's actually an extra one in 1,000 women who are affected.

That's a massive difference, and it would make a very boring headline. And that's why the media like to use relative risk instead of absolute risk. It gets our attention.

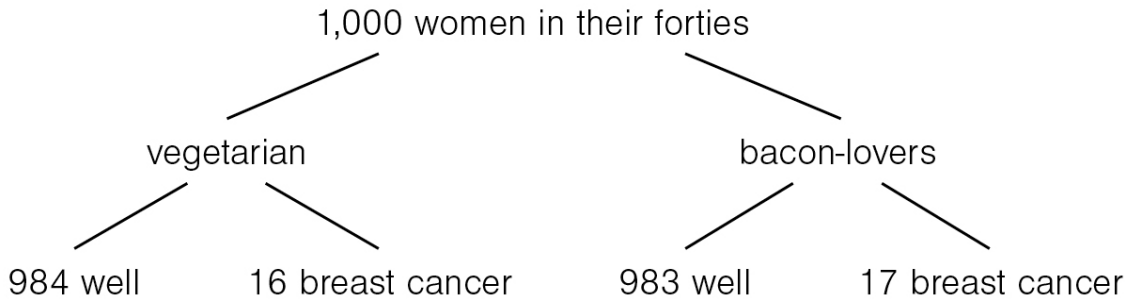
The actual impact of eating processed meat every day is actually very small, and how many of us eat processed meat every single day of our lives? Processed meat can be a small part of a healthy balanced diet, eaten a couple of times a month instead of two to three times a week. You certainly don't need to give it up altogether. And if you are worried and want to

reduce your risk of getting cancer, I'll tell you what you can do and the impact it will have on that risk in Part IV.

All we can do is live the best we can for this particular moment, ideally based on a solid understanding of the risks of everything we do. And that's where this book comes in. I hope I've shown you that before you react to a headline like this, take a step back and do a bit of groundwork first to see if you really need to. One thing that always helps me is creating a number tree.

Number Tree

My mental arithmetic isn't what it used to be, and I struggle to keep all these numbers in my head. And that's why I use a number tree like this to help me understand risk.



The headline *could* have been 'Eating a lot of bacon every day means that an extra one in 1,000 women in their forties will develop breast cancer', but that wouldn't sell a lot of papers.

Let me show you another example. This is something I've made up from an imaginary supplement company. It says that their new pomegranate powder can cut your risk of getting breast cancer by 25%. I'm using breast cancer again to keep the numbers familiar for you.

At first glance you might think that's a huge effect. Pomegranate powder stops 25 in 100 women from getting breast cancer. That's one in four women. Where do I sign up?

Let's go back to our example again.

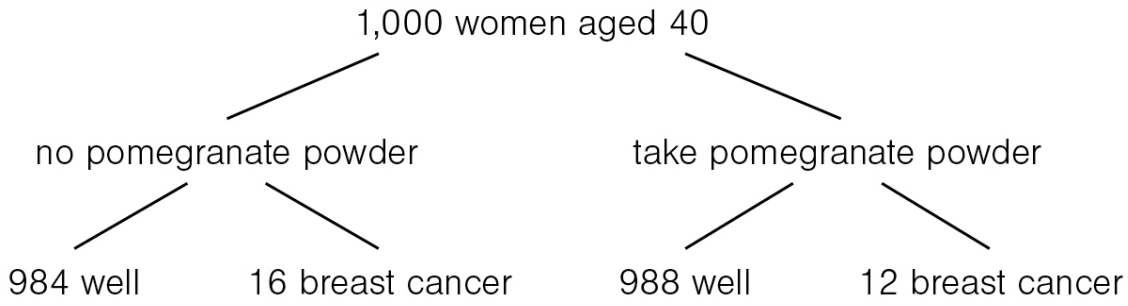
Firstly, most women won't get breast cancer. Pomegranate powder theoretically stops 25 in 100 breast cancer cases, not 25 in 100 women getting breast cancer. There's a big difference between the two.

My 40-year-old woman has a 1.6% chance of getting breast cancer. That's 16 in 1,000 women.

If she takes pomegranate powder, her risk drops by 25%. That's 1.6/100 x 75, taking it from 1.6% to 1.2%, or 12 in 1,000 women.

So, 1,000 women would have to take the powder to prevent four women getting breast cancer. It's a tiny decrease in your risk, and definitely not something to get excited about.

This is what it looks like if we use the number tree.



But we also have to think about the following things:

- Did they actually do a study to see if the powder worked, or were the numbers plucked out of thin air? If there was one, who paid for it and where was the data published?
- How many women took the pomegranate powder supplement? Was it four, 40 or 400?
- How long did they take it for? It can take 10 years for breast cancer to develop so this is important. If they only took it for three months, that's not long enough to prove anything.
- Do they know what the safe dose of the powder is?
- How old were the women taking the powder? If they were in their thirties then their risk of breast cancer is 1 in 200 women, so the benefit from the supplement is even smaller.

- Was pomegranate powder the only difference between the two groups? This is because there's a wellness phenomenon. When people take health supplements they often eat better and start exercising, which can reduce your risk of getting cancer.

And yet based on that single statement – that pomegranate powder can cut your risk of breast cancer by 25% – many of us would automatically start taking it. And while it may make you feel better and lead a healthier life, it is going to have no real impact on your cancer risk.

This is how you need to think whenever you hear a cancer statistic. I've had to learn to do this when I do my health explainer videos. I break all the statistics and risks and percentages into number trees so they're easy for you to understand.

There are many people out there who sell and promote cancer cures, diets and supplements. There are others who warn you to stop using products because they cause cancer. They don't need to explain the difference between absolute and relative risk. They don't need to use the latest evidence, and that's if they use any at all. Scary statistics lead to sales. They know how to stop the scroll by offering certainty. But you know how to work out what's actually going on. What those impressive numbers actually mean for your own individual cancer risk. And that means you can make an informed choice about what you want to do when it comes to your body and your health.

Mainstream doctors will only offer you treatments when the benefits outweigh the risks. The last thing we want to do is cause unnecessary harm. There may be some harm. Cancer can be a tricky little devil to treat. But we hope that any possible side effects are worth the extra years of life that we hope you will get.

Why are we so scared of cancer?

Studies have shown that many of us are scared of things that are unlikely to kill us, whilst we happily engage in behaviours that might. Some people

won't swim in the sea in case they're attacked by a shark, whereas others will text whilst they're driving without a second thought. And yet the lifetime risk of dying from a shark attack is over one in three million, while every 17 minutes someone is killed or seriously injured on UK roads. What is it that makes us feel safer in a car than in the sea?

It's the same when it comes to our health. A fascinating study[3] done by the American Heart Association asked North American women 'What is the disease you fear the most?'

61% of women said cancer, mainly breast cancer.

9% of women said heart disease.

And yet the leading cause of death for these women is heart disease. When it comes to cancer deaths, lung cancer kills more women than breast cancer. In 2024,[4] 59,000 women in the US are expected to die from lung cancer, compared to 42,000 from breast cancer. And yet most women were scared of getting breast cancer. Breast cancer is seen as a disease of the young, not the elderly, despite increasing age being the biggest risk factor for getting breast cancer in women. Bowel cancer is the third biggest killer of women and yet this rarely makes the news unless a celebrity is affected.

Contrast this with American men. Prostate cancer is more common than breast cancer and claims almost as many lives. But most men are not scared about getting prostate cancer. It is presented in the media as an old man's disease, and yet men are being diagnosed in their forties.

It explains how the things we see and hear in the media, podcasts and social media can have a massive influence on our perception of risk and our health behaviours. The ability to think logically can disappear when fear surrounds us. Most people know that October is Breast Cancer Awareness Month, but do you know which months are for stomach cancer, cervical cancer or brain cancer? They can all kill, and yet they rarely get a look in.

I want you to remember the next time you see 'cancer' and 'risk' in the same sentence that risks can be manipulated to make us do something that's not necessarily in our best interests. When you're emotionally involved, it can be easy to make the wrong decision. Our previous experiences can blind us to the reality of the situation. Take me. I never checked my breasts. I was a breast surgeon. I didn't know anyone who had breast cancer and it wasn't going to happen to me. Look how that turned out.

If you want to understand more about risk, I'll list two excellent websites[5,6] in the references. They go through risk in detail using easy to follow examples and give you a set of questions you can ask whenever you have a decision to make.

7. Things That Cause Cancer

Age

Getting older is the biggest risk factor for developing cancer. The longer you've lived, the more tired your cells are, and the more likely you are to develop cancerous mutations. This is backed up by national statistics[1] that tell us how many cancers there are for a certain age group.

- **Teenagers** – <25 in 100,000
- **Forties** – 350 in 100,000
- **Sixties** – 1,000 in 100,000
- **Eighties** – 40–50,000 in 100,000

If two people live until they are 80, one of them will have developed a cancer. So, when someone says 'One in two of us will get cancer', that's where the figure comes from. It doesn't mean that one in two of us will get cancer today. We all have to live into our eighties for that statistic to be true.

If we look at the three commonest cancers, this is how they vary with increasing age.

Breast cancer

A woman's lifetime risk of getting breast cancer is one in seven. In your thirties, it's one in 204 women. In your seventies, it's one in 24 women. A quarter of all breast cancers are diagnosed in women who are 75 and older.

Bowel cancer

Your lifetime risk of getting bowel cancer is one in 15 men and one in 18 women. Less than 10% of cancers happen in people younger than 50, whereas 43% of cases happen in people older than 75.

Lung cancer

The lifetime risk of getting lung cancer is one in 14 for men and one in 13 for women. That includes people who smoke and people who don't. Less than 10% of those cancers happen in people under the age of 45, and 44% happen in people older than 75.

The average age for getting cancer is 66 years old. That means half of all cancers happen before your sixties, and half of them happen after your sixties, in the final 20 to 30 years of your life. And in the UK, over a third of all cancers are diagnosed in people who are 75 and older.

Having said that, we are seeing a dramatic increase in the number of cancers diagnosed in people in their twenties, thirties and forties. For example, the number of bowel cancers in people younger than 50 has doubled in the last 30 years. And it's not just bowel cancer that is becoming more common in younger people. We are seeing far more cases of breast, oesophageal, stomach, pancreatic, lung and prostate cancer as well.

Scientists don't know exactly why this is happening, but many think it's to do with our modern lifestyle.[2] A combination of poor diets full of fast food, lack of regular exercise, increasing body weight, alcohol and smoking has had an impact on the global increase in cancers in the young. More research is being done to investigate the role of the gut microbiome in cancer development. We also know that where we live, our social standing and our ethnic background have a part to play. Having said that, nearly four in every 10 cancer cases in 2015 in the UK are due to these lifestyle factors. The British charity CRUK estimates that all of these cancers could be avoided if we made changes to our lifestyle, and I'll go into these factors later in this chapter.

Inherited mutations

Only 5–10% of all cancers are due to an inherited genetic mutation. You can inherit a faulty gene from one or both of your parents. Most adults have two copies of every gene (apart from the sex chromosomes, X and Y), and each parent gives you one copy.

If you do inherit a faulty gene, you are far more likely to get cancer compared to someone born with a healthy set of genes. The type of cancer and the age you might develop it all depend on which genes are affected. These mutations are normally picked up when there's a strong family history of a particular type of cancer, such as breast or bowel cancer. If this is your family, you may have already had screening tests at a younger age, like mammograms and colonoscopies, to pick up cancer at a much earlier stage. For some inherited mutations you may be offered surgery to prevent a cancer from forming. These are some of the commonest inherited mutations.

BRCA 1 and 2 mutation

BRCA stands for BReast CAncer. This greatly increases your chance of developing both ovarian and breast cancer. For women with BRCA 1 or 2 the risk of breast cancer increases to 70%, and for men with BRCA 2 the risk increases to 10%. For women with BRCA 1 the risk of ovarian cancer increases to 45%, and with BRCA 2 the risk increase is 20%. There is also an increased risk of pancreatic and prostate cancer.

PALB2 mutation

This increases a woman's chance of getting breast cancer by 40–60%, as well as a small increased risk of pancreatic and ovarian cancer. In men there is a slight increase in the risk of developing breast cancer by up to 5%.

MLH1, MSH2, MSH6 and PMS2 mutations

These give you a 70% chance of developing bowel cancer, normally before you reach your fifties. These are very high-risk mutations. You also have an increased risk of developing endometrial (womb lining), ovarian, stomach,

gall bladder, prostate and bladder cancer. It's also known as Lynch Syndrome.

APC mutation

This means you're almost certain to develop hundreds of polyps in your bowel that, if left untreated, are likely to turn into bowel cancer in your twenties and thirties. You also have an increased risk of developing stomach, liver and pancreatic cancer. It's also called Familial Adenomatous Polyposis (FAP).

TP53 mutation

This gives you a 60% increased lifetime risk of developing bone, breast, brain and adrenal cancer, leukaemia and sarcoma. It's also called Li-Fraumeni Syndrome (LFS).

PTEN mutation

This gives you an increased risk of developing breast (40–60%), thyroid (35%), endometrial (30%), bowel (20%), kidney and skin cancer. It's also called Cowden Syndrome.

STK11 mutation

This gives you an increased risk of developing breast (30–55%), bowel (35–40%), pancreatic (10–35%), stomach (5–7%) and ovarian cancer (>20%). It's also called Peutz-Jeghers Syndrome.

Genes we don't know about

We know that there are strong family clusters of one cancer, such as breast cancer, where no mutation has been identified. At the moment, we can't explain why so many people have been affected – and it could simply be that there is a faulty gene but we haven't identified which one it is yet.

If several members of your family have cancer, you should talk to your family doctor. They will be able to advise you about whether you need to be referred to a genetics clinic to see if there is a mutation that runs in your family.

Carcinogens

A carcinogen is something that can create cancer-forming mutations in our DNA. Some occur naturally in our environment, like viruses and ultraviolet light from the sun. Others are chemicals like alcohol, nicotine and asbestos. If you are exposed to a carcinogen, it doesn't automatically mean that you'll get cancer. A lot depends on the dose and how long you're exposed to it. Take a woman who's only had one glass of wine in their lifetime and compare her with another woman who's drunk a bottle of wine every day for 20 years.

But it's not as clear cut as that. Heavy drinkers don't automatically get cancer. We think it's because carcinogens cause some but not all of the mutations that are needed to turn a normal cell into a cancerous one. The others are often down to chance. And that's why only 15–20% of people who smoke develop lung cancer. Once you've been exposed to a carcinogen, it can take up to 40 years for a cancer to form. That's why it's so important that children, teenagers and young adults understand the risks involved in getting sunburnt, and from smoking and drinking heavily.

The International Agency for Research on Cancer[3] (IARC) has classified them into four groups.

Group 1 – Carcinogenic to humans

This means there is enough evidence to conclude that they cause cancer in humans. Examples include alcohol, tobacco, processed meat, asbestos and ultraviolet radiation.

Group 2A – Probably carcinogenic to humans

This means there is strong evidence to show that they can cause cancer in humans, but it's not conclusive. Examples include anabolic steroids, diesel engine exhaust fumes and formaldehyde.

Group 2B – Possibly carcinogenic to humans

This means there is some evidence to prove they can cause cancer in humans, but it is far from conclusive. Examples include chloroform, the drug Digoxin and lead.

Group 3 – Not classifiable as to its carcinogenicity to humans

There is no evidence at present that these cause cancer in humans. Examples include caffeine, coal dust and hydrochloric acid.

Group 4 – Probably not carcinogenic to humans

This means there is strong evidence to show that they don't cause cancer in humans. Examples include Caprolactam, a chemical used in the production of nylon.

If you search online you'll find a very long list of Group 1 carcinogens, but they don't all carry the same risk. Substances are classed based on the level of evidence that they can cause cancer, not how likely they are to cause cancer in every person who comes into contact with them. Let's take tobacco. We know that tobacco causes lung cancer, but fewer than one in five people who smoke will get lung cancer.

Now I don't want you to panic. You don't need to avoid every chemical on the list of Group 1 carcinogens. For example, sunlight is a carcinogen. It causes skin cancer. But it's impossible to avoid being exposed to sunlight. Our bodies need it to make vitamin D and keep our bones strong. What we can do is use sunscreen to protect our skin. Some carcinogens may only cause cancer after a very high exposure over many years, which would not happen in our day-to-day life. Some drugs are carcinogens, like the breast cancer drug Tamoxifen and some chemotherapy drugs. Your doctors know this, and they weigh up the benefits of giving you these drugs against the

much smaller risk of getting a different cancer in the future. It's why you're not given these drugs for life.

It's all about making an informed choice. Let's talk about how some of these carcinogens, like tobacco and alcohol, actually affect your risk of getting cancer.

Tobacco and smoking

Tobacco is the best-known carcinogen and the biggest global cause of cancer. Six out of every 10 cancers in the UK are due to smoking,[4] both active and passive (where a non-smoker, like a child, inhales smoke from a parent smoking in the same room). Smoking is also directly linked to at least 16 other cancers, including bowel, bladder, liver, pancreas and larynx (voice box). It has a role to play in one out of every five cancer deaths.

However, despite tobacco being such a potent carcinogen, only 10–20% of regular smokers will get lung cancer.[5] And 10–20% of all lung cancers happen in people who've never smoked or those who've smoked less than 100 cigarettes in their lifetime.

How does smoking cause cancer?

Tobacco smoke contains more than 7,000 chemicals and at least 70 of them are carcinogens. They enter your lungs and get absorbed into the bloodstream. When they reach the cells in your lungs, they can cause cancerous mutations. The smoke itself causes inflammation in the lungs which can also damage your DNA. I'll talk about inflammation in more detail in a bit.

There is no safe level of tobacco. Even smoking just one cigarette a day for the rest of your life still will increase your risk of getting lung cancer in the future. However, the more you smoke, and the longer you've smoked for, the greater your risk. If you smoke 25 cigarettes a day you're 25 times more likely to get lung cancer.[6]

But what is your individual risk of getting lung cancer? We need to know what a non-smoker's risk of getting lung cancer is before we can work out the increase in risk for someone who smokes. A study looked at the number of lung cancers diagnosed between 1995 and 2013, and this is what they found:

Smoking status	Male lifetime risk	Female lifetime risk
Never smoked	1.8%	1.3%
Ex-smoker	7.2%	5.8%
Current smokers	14.8%	11.2%

Now it's a rough guide, as we don't know how much the current and ex-smokers actually smoked. If you smoke one to five cigarettes a day, your lifetime risk is around 8%. If you smoke more than 35 cigarettes a day, your lifetime risk increases to 26%, or a one in four chance of getting lung cancer if you live until you're 80.

For male smokers in their sixties, their chance of dying from lung cancer is the same as their chance of dying from heart disease. For female smokers in their forties, their chance of dying from lung cancer is greater than their chance of dying from breast cancer.

Are e-cigarettes and vapes safe?

I guess it depends on what we mean by 'safe'. At the moment there is not enough evidence to prove that vaping and e-cigarettes cause lung cancer. They work by heating up a liquid that produces a vapour you inhale. While they don't contain tobacco, they might contain potentially harmful chemicals, although at much lower levels than cigarettes. Your best bet is to avoid them, just in case.

Alcohol

I'll be honest with you. When I was diagnosed with breast cancer, I thought it was my fault because of how much I drank as a medical student and junior doctor. Pints, wine, spirits – it didn't matter. Alcohol was how I dealt with the tough stuff I'd seen on the wards. It made me feel invincible. It also gave me horrific hangovers to brag about and many nights I couldn't remember. So, was alcohol really to blame? Was getting breast cancer three times all my fault for drinking so heavily when I was younger? The truth is that it's impossible for anyone to tell me definitively.

What we do know is that drinking alcohol regularly[7] will increase your risk of getting seven different cancers – breast, liver, mouth, larynx (voice box), pharynx (throat), oesophagus and bowel cancer. It doesn't matter what you drink – whether it's wine, spirits or beer. It doesn't matter how often you drink – whether you binge at the weekends or spread it out through the week. The more you drink overall, the greater your risk.

How does alcohol cause cancer?

There are several ways that alcohol can cause cancer. Firstly, when you drink, your body turns alcohol into a toxic chemical called acetaldehyde. This can stop your cells repairing mutations in your DNA. Alcohol also increases the amount of oestrogen and insulin in your bloodstream. These are hormones that can speed up cell growth and increase your risk of getting hormone-dependent cancers, like breast cancer. Alcohol can damage the cells in your mouth and throat. This increases your risk of getting oral cancer and it also makes it easier for tobacco smoke to be absorbed, which can also cause cancer. Alcohol also alters how tobacco smoke is metabolised, making it even more toxic. So, if you smoke and drink, your risk of getting mouth and throat cancer is much higher than someone who only drinks or only smokes.

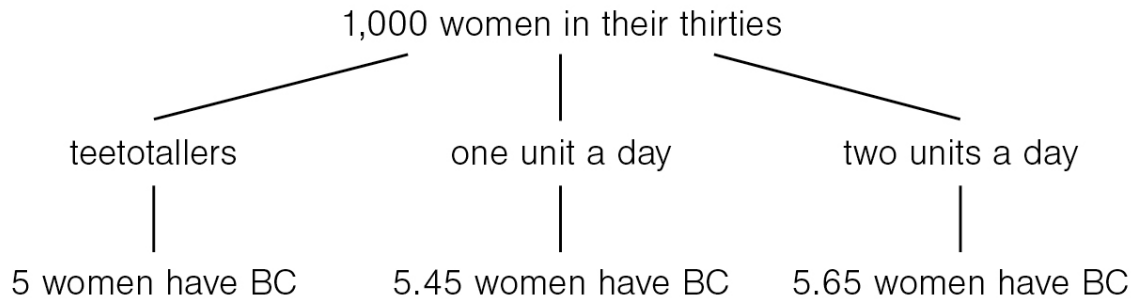
Finally, there is growing evidence[8] to show that drinking heavily can affect your gut microbiome and make the lining of your gut 'leaky'. This means that any toxic chemicals you eat or drink could enter your bloodstream instead of leaving in your poo. And this can increase your risk of getting bowel cancer.

Do you need to stop drinking?

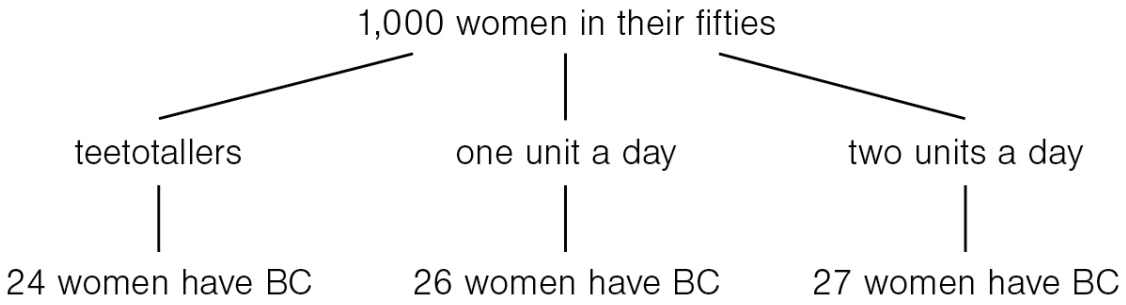
For many of us, alcohol is an important part of our social lives. It's how we celebrate. It can help us relax or have fun. I still enjoy a glass of bubbly on special occasions. It all comes down to risk again. When we see headlines[9] in the tabloids saying that a drink a day increases our risk of breast cancer, do we need to pour our wine down the sink? The answer is no. I'm going to explain why using breast cancer risk, but the principle is the same for other affected cancers, like bowel.

If you drink one unit of alcohol every day, your risk of getting breast cancer increases by 9%.[10] Drinking two units a day increases it to 13%. Now that sounds scary, but it's not as bad as you think. It's all about relative and absolute risk, as I mentioned earlier.

When you're in your thirties, your risk of getting breast cancer is 5 in 1,000 women. Drinking two small glasses of wine a day increases that risk by 13%. Many of us think that it means 13 in 100 women will get breast cancer, but that's not true. You see, the 13% increase relates to your lifetime risk of 5 in 1,000 women. Your new risk of getting breast cancer is 5.65 in 1,000 women. That's an extra half a woman out of 1,000 if you drink two units a day.



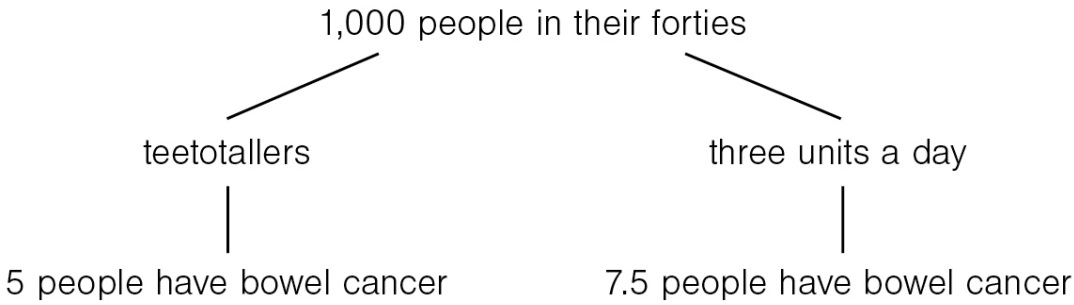
As you get older, your risk of breast cancer increases. So, when you reach your fifties, 24 in 1,000 women will get breast cancer. Drinking two units a day increases your risk from 24 to 27 in 1,000 women. So that's an extra three women in 1,000 who will get breast cancer.



So, while doctors like me tell you to cut back on the amount you drink and to stay within the recommended guidelines, the effect that alcohol has on your individual cancer risk is actually very small. But there are 34 million women in the UK. If we all stopped drinking, over four million cases of breast cancer could be avoided.

While alcohol might have played a part in my own cancer, it might have had nothing to do with it at all. Yes, I drank heavily in my twenties, but my risk of getting breast cancer was very, very small. No-one can tell me whether alcohol triggered one of the cancerous mutations in my left breast. And like cigarette smoking, many people who drink heavily won't get cancer.

Let's look at how alcohol affects your risk of getting bowel cancer. Your lifetime risk is 4%, or 1 in 25 people. Heavy drinking increases that risk by 1.5 times, but what does that mean? Well, over your lifetime, your risk of getting bowel cancer would increase from 4% to 6%. But, like breast cancer, bowel cancer is more common the older you are. In your forties, your risk of getting bowel cancer is 0.5%. Heavy drinking increases that to 0.75%, or an extra two and a half people in one thousand. Again, alcohol has a very small impact on your own risk.



The Bottom Line

The actual impact that alcohol has on your individual risk of getting cancer is small, as long as you stick to the recommended guidelines of 14 units a week. I still drink, but far less than I used to. Mainly because my new cancer drugs have changed my taste buds and the increase in menopausal night sweats due to my current cancer treatment is never worth it. But I'm not cutting it out of my life altogether. And if you enjoy it, there's no reason you should either. Just drink sensibly, and spread your units out over at least three days. I'll talk about drinking alcohol after cancer in Part IV.

Bacteria, viruses and parasites

When I was researching this book, I was amazed to discover that 20%[11] of all cancers worldwide are due to bacterial, viral and parasitic infections. That's almost two million cancers. You can't 'catch' cancer from someone with an infection and not everyone who's infected will get cancer. What it does mean is that some of these cancers could be prevented with vaccines. This is true for cervical cancer and there's a real chance that it will soon be

completely eradicated. These are some of the commonest cancer-causing infectious agents.

Helicobacter pylori

This bacterium infects the lining of your stomach causing symptoms of indigestion and heartburn. It's easily treated with a course of antibiotics. Without them, it could cause chronic inflammation. In time, this can turn into stomach cancer and lymphoma. Smoking and eating an unhealthy diet increase the risk of this happening.

Human papillomavirus (HPV)

Around 80% of us will be infected with HPV at some point in our lives, and there are many different types. The viruses can infect your skin, causing warts and verrucas, the lining of your mouth, your throat and your genitals, including the cervix. There are no real symptoms, and your immune system normally deals with it without you even knowing you've been infected. You're infected through close skin-to-skin contact, such as unprotected oral, vaginal or anal sex. The more sexual partners you have, the more likely you are to get infected.

Some strains of the virus increase the risk of cervical, head and neck, vagina, vulva, penile and anal cancer. Almost 100% of all cervical cancers are caused by HPV. The virus can stay dormant in the cells lining your cervix for a long time. As the months and years go by, it causes cancerous mutations in the cells. Smoking increases the risk of you getting an HPV-related cancer because it weakens your immune system, making it harder for your body to clear the virus.

The cervical HPV vaccine protects children against the cancer-causing strains. It's now offered to all children aged 11–13, anyone under the age of 25 who missed their vaccine, men who have sex with men and some transgender people up to the age of 45. It has reduced the cervical cancer rates in 20-year-old women by 90%, which is just incredible.

Hepatitis

There are five hepatitis viruses, but only Hepatitis B and Hepatitis C cause liver cancer and non-Hodgkin lymphoma. You can be infected when you share body fluids with someone who's been infected, such as unprotected sex.

Epstein–Barr virus (EBV)

This is one of the viruses that causes herpes. It can spread through saliva and nine out of 10 of us will have been infected at some point in our lives. There aren't many symptoms and you might not even know you've had it. Most of us get it when we're children. If you get it in your teens or as an adult, it can cause glandular fever – 'the kissing disease' when I was at school, or 'mono' in the US. You normally get better after a couple of weeks, and the virus stays dormant in your body for the rest of your life. In a few rare cases, (less than one in 300 in the UK), it can cause lymphoma and cancer of your nose and pharynx (throat).

Human immunodeficiency virus (HIV)

This attacks your immune system. It makes it harder for your body to fight other infections. You have a higher chance of developing lymphoma, cervical cancer, eye cancer, anal cancer and Kaposi's sarcoma (a cancer of the cells that line your mucous membranes). The risk increases if you develop AIDS (acquired immuno-deficiency syndrome). However, HIV treatment reduces the risk of this happening.

Sunburn, sunbeds and ultraviolet radiation

My quest for a tan started when I was at school. At lunchtime I would see the girls in the years above me sitting on tinfoil rubbing baby oil into their legs. I wanted to be tanned like them. Back then, magazines were full of tanned, bronzed models and celebrities. I was influenced to think that women looked better, and were more attractive, with a tan. Tell me I'm not

alone. Although I'm a doctor and knew sunbeds cause skin cancer, I started using sunbeds in my twenties. I hated my pale skin that always burned. I thought that if I used a sunbed before a holiday, I'd build up the coveted tan and wouldn't get burnt. I couldn't have been more wrong. A suntan doesn't protect you from UV radiation.

How does the sun cause skin cancer?

There are three different types or wavelengths of UV light – A, B and C. It's the UVB radiation in sunshine and sunbeds that does the damage by causing mutations in your skin cells, particularly if you get sunburn. The more UV radiation you're exposed to, the greater the damage.

Nine out of every 10 cases of malignant melanoma (an aggressive type of skin cancer) are due to sun damage. The damage can start when you're a baby. Anyone can develop skin cancer, regardless of the colour of your skin. Now, if you've been sunburnt in the past it doesn't automatically mean that you will get skin cancer. Your body is quite good at repairing the damage. But if you get burnt at least every couple of years, it can triple your risk of melanoma.

Do we need to avoid the sun?

Sunshine is really important. We need it to produce vitamin D and keep our bones strong. It can also lower our mood if we go for long periods of time without it. However, no-one should spend long periods of time outside without sunscreen. Skin damage doesn't just happen on those glorious hot sunny days. You can still damage your skin when it's cloudy or cold. That's because the heat of the sun has nothing to do with the UV exposure. It's due to infra-red light. The UV rays can penetrate the clouds, and you can't feel the effect of them on your skin.

Is sunscreen safe?

Despite what you might read in the papers or see online, sunscreen is completely safe. There is no evidence to show that it causes skin cancer. It

does not stop you absorbing vitamin D, and it doesn't block your skin's natural defences from the sun. Sunburn is caused by sun damage, and that's why we should always wear sunscreen.

I'll admit I was an idiot. I never built up a decent tan using the sunbeds and I still got burnt in my twenties. I'd use SPF (sun-protection factor) 4 or 6, baking for hours in the sun. My face is now covered in sunspots and my hands look like those of an 80-year-old. Luckily, things are changing. High-factor SPFs are thinner and lighter to apply. I put one on my face every day. Don't rely on the sunscreen in moisturisers alone. Fake tans no longer smell like biscuits and we now see pale-skinned actresses in films and on the red carpet. I can't undo the damage I've done to my face and body, but I can stop it from getting worse. And if you've spent any time in the sun, you should check your moles regularly for signs of skin cancer.

What do cancerous moles look like?

This is a simple ABCDE checklist that anyone can use:

- Asymmetry – Your mole has changed shape and is no longer symmetrical.
- Border irregularity – The edges are ragged, blurred or notched.
- Colour – Your mole now has patches of dark brown and black instead of being one colour.
- Diameter – It's more than 6 millimetres (the size of a pencil) wide.
- Evolution – It has changed size, shape or colour, or is itching or bleeding.

If you see any of these changes, get your moles checked by a doctor.

Inflammation

Inflammation is a tricky one, because it doesn't happen by itself. It's a reaction to something. It can be acute and last for days or weeks, or chronic

and last for years. So, what's the difference and which one causes cancer?

Acute inflammation is part of your body's normal response to an injury or infection. It's sudden, short-lived and helps it to heal. As a medical student I learned that there are four parts – calor (heat), dolor (pain), rubor (redness) and tumor (swelling). That's why a sprained ankle is swollen and painful to touch, and you get a temperature with a chest infection. Your immune system kicks into action, sending inflammatory cells and molecules called cytokines to the site of the problem. They stimulate an inflammatory response to trap bugs or start healing a wound. When you get better, the inflammation goes away.

Chronic inflammation happens when your body keeps sending out inflammatory cells but there's nothing left to target. It can also happen for no good reason, and can last for months or years. It's chronic inflammation that increases your risk of cancer. The constant influx of inflammatory cells damages healthy tissue and causes mutations. It can also create the right environment for cancer cells to develop, and encourage cancers to grow and spread.

What causes chronic inflammation?

Some causes are due to illnesses like ulcerative colitis and Crohn's disease. These are inflammatory bowel disorders that increase someone's chance of getting bowel cancer. It can also be caused by carcinogens like alcohol and nicotine, and some bacteria and viruses. The way we live our lives can also trigger inflammation. If you don't exercise regularly, eat a poor diet, are overweight, or have an unhealthy microbiome in your gut, these can all cause chronic inflammation. And this increases your risk of developing several cancers. In fact, one in every five cancer deaths are said to be linked to chronic inflammation. If you want to reduce your chance of having chronic inflammation, you can think about eating a healthy diet, drinking less and moving more. I'll cover all of these things in more detail in Part IV.

Ionising radiation

Ionising radiation is a particular wavelength of radiation that can damage DNA and cause cancer. It includes x-rays, gamma rays and particles released from nuclear explosions. We're all exposed to a tiny dose of radiation every day from the sun and naturally occurring radioactive materials in the soil.

I've had a lot of women ask me if it's safe to have a mammogram. It comes from headlines, podcasts and social media posts that say they cause breast cancer. But is it true? Does radiation cause cancer? The answer is yes, but that risk is very, very small. It depends on the dose you have, and how often you have it.

Are medical scans safe?

Ionising radiation is used when you have certain medical scans or treatments, like an x-ray, a CT scan, a PET scan and radiotherapy. These procedures have been thoroughly tested. We know your risk of getting cancer from each scan, and your doctors know how often you should be scanned to stay within those limits. They only request them when they are absolutely necessary.

If you're being treated for cancer you will naturally have more scans than a healthy person. However, it takes a long time for the radiation damage from those extra scans to cause cancer, and the risk of that happening is very, very small. Also, the net benefit from the information in those scans – for example, has your cancer grown or do you need to change treatment? – far outweighs the risks of not having this information.

If you're pregnant, you may be asked to wear a special shield to protect your baby from the radiation that can harm them, or your team will delay scans until after you have given birth.

How much radiation do you get from a scan?

X-rays and mammograms use a very low level of ionising radiation. A mammogram is the same as the background radiation you get from the sun and the soil over six to eight weeks. CT scans use a higher dose. A scan of your abdomen and pelvis is three years' worth of background radiation. The

risk of getting cancer from one CT scan is 1 in 2,000 people.[12] This is a very small risk, especially when compared to things like alcohol and tobacco. Doctors who do procedures that involve a lot of x-rays wear lead-lined aprons to cover their thyroid glands and reproductive organs to reduce the risk of radiation damage.

What about radiotherapy?

Although radiotherapy is used to treat cancers, it can sometimes cause them. Teenagers who have had a particular type of treatment called mantle cell radiotherapy for leukaemia and bone marrow cancers are at a greater risk of developing breast cancer in the future. We offer yearly screening at a much earlier age for anyone who's had this treatment.

Radiotherapy for breast cancer has a very small risk of causing angiosarcoma, a tumour of the blood vessels of the chest wall. This is rare, and normally takes over 10 years to form. Overall, the benefits of radiotherapy to prevent a breast cancer recurrence far outweigh the risks of a second cancer forming. And modern techniques mean radiographers can target the radiation beams more accurately and reduce damage to the normal tissues nearby.

G's story, as told by a friend

My friend G told me she had been diagnosed with early breast cancer after a mammogram and was going to have a small operation to treat it. The next time I saw her she needed to have a mastectomy, chemotherapy and radiotherapy. She'd had an appointment with a herbalist in Brighton who'd told her she didn't have cancer, that the NHS massively over-diagnoses breast cancer and most operations aren't needed.

I spoke to a mutual friend who knew G better than me. She said G was very stubborn once she got an idea into her head and warned me off trying to directly challenge her or tell her she was being foolish. I really regret taking this advice. G started making 100-mile round trips to visit the

herbalist every couple of weeks, spending a lot of money on supplements and strict diet programmes that were supposed to boost her immunity.

The herbalist finally admitted that G did have cancer but had convinced her that it had actually been caused by the mammograms, which she said were toxic. G said that the herbalist sold 'black salve' to smear on her breast to draw the poison out, along with some other potions and supplements.

G died around 18 months after her initial diagnosis, I think it was. I heard from mutual friends that the caustic black salve caused her a lot of pain but she just couldn't let go of the belief that it would cure her, even after her cancer lesions had broken through her flesh. It was, in my mind, a totally unnecessary way to die.

Chemical exposure at work

Some jobs expose people to chemicals that can cause cancer. Three of the commonest are asbestos, diesel engine exhaust fumes and silica dust. They account for three to four out of 100 cancer cases in the UK. There are now laws that ensure workers are protected or that the exposure to these chemicals is as low as possible.

Asbestos is only toxic when its fibres are released into the air. It was often used to insulate buildings. If you breathe in the fibres, it can cause mesothelioma, a cancer of the lining of the lungs, and this can take up to 20 years to happen.

Where you live

Some cancers are more common in certain parts of the world, but this can change as low-income countries become more industrialised. A good example of this is Japan.[13] In the 1970s, hardly anyone had breast or bowel cancer, but today there are 10 times the number of cases. We believe this is

due to Westernised lifestyles, with people drinking more alcohol, eating more red and processed meat, and an increase in obesity.

We also know that if a family moves from one country to another and adapts to the normal lifestyle of that country – what the population eat and drink, for example, within two generations (that's a grandparent to a grandchild) that family will develop the cancer risks of the native population.[14] This is proof that how and where we live has some impact on our risk of getting cancer.

Obesity

I'm going to start with the hard facts, and they might be uncomfortable to read. The International Agency for Research on Cancer Working Group[15] concluded that there is consistent evidence that higher amounts of body fat are associated with an increased risk of a number of cancers. In a nutshell, the more you weigh, the greater your risk of getting cancer. We also know that people who are obese when they are diagnosed with cancer also have a higher risk of developing a second, unrelated cancer.

Obesity is the second biggest preventable cause of cancer after smoking. In America, that's 700,000 cancers each year. It increases the risk of 13 different cancers,[16] including endometrial (womb lining), liver, gall bladder, post-menopausal breast cancer, bowel, kidney, oesophageal and pancreatic cancer. Researchers think that one in every five cancers could be prevented if everyone had a healthy weight.

What does obesity mean?

Obesity is the medical term for someone who has an unhealthy amount of body fat. Doctors and scientists use a simple scoring system called the body mass index (or BMI) to work it out:

BMI = Weight (kg)/Height (m2)

There is a different scoring system for people living in the Asia-Pacific region, as their health risks are higher for a lower body weight. These are the categories and what it would mean for me (I'm 172cm tall):

SCORE	GENERAL	ASIA-PACIFIC	WHAT I WOULD WEIGH
Healthy	18.5–24.9	18.5–22.9	59–73kg
Overweight	25.0–29.9	23–24.9	77–86kg
Obese	30.0–39.9	25–29.9	91–113kg
Severely obese	40.0 or higher	30.0 or higher	> 118kg

BMI is a crude tool and it's not very accurate. It doesn't discriminate between fat and muscle, but it's not a bad starting place. Another method we sometimes use is your waist:hip ratio. This is because there are different types of obesity. It depends where you carry your fat. If it's mainly in your tummy, surrounding your stomach and bowel, the risks of cancer are higher compared to someone who has their fat more evenly distributed about their body. The waist is measured at its smallest point and the hips at the widest point. The waist measurement is then divided by the hip measurement.

The World Health Organization defines obesity as:

- **Women** – waist:hip ratio > 0.85
- **Men** – waist:hip ratio > 0.90

How do we talk about people who aren't a healthy weight?

There is no consensus on how to describe people who are overweight. Most scientific papers use the term obesity or 'increased body fatness'. I've had several discussions with friends about how to describe people with a high BMI and they couldn't come to an agreement. Some hated the idea of being labelled, whereas others said they should be called fat, because they were. For this section, I'm going to stick to the medical terms obese and obesity.

Weight stigma is real. Dr Joshua Wolrich covers this brilliantly in his book[17] *Food Isn't Medicine*. It can stop people going to see their GP

because they don't want to be fat-shamed. And if you are overweight and have cancer you can easily think it's your fault. That is *not* what I want to get across. There are lots of things that all come together to cause cancer. Obesity is never the only factor.

Being obese also doesn't automatically mean you are unhealthy. There are skinny people in this world who live off fast food, drink, smoke and never exercise who are far more likely to get cancer than someone who is overweight who eats a plant-based diet and runs marathons.

There are many reasons why people become obese, and we know it's not all due to how much you eat and how much you exercise. Some people are genetically predisposed to weigh more than their brothers and sisters. Certain illnesses and drugs can increase your body weight. The middle-aged spread can seem inevitable as our metabolism and hormone levels change when we reach our fifties and beyond.

You need money to be able to buy fresh fruit and veg, and you need the luxury of time to prepare and cook your own meals. In many countries eating healthily is a luxury, not the norm – and that includes high-income countries where more and more people are relying on food banks. We also know that reducing what you eat and moving more doesn't always lead to weight loss. However, there is a global trend of increasing body weight. In the UK, six out of every 10 adults are overweight or obese,[18] and our children are getting larger as well.

How does obesity cause cancer?

There are several theories, but the exact mechanism hasn't been fully worked out yet. We know that obesity is a chronic inflammatory condition which causes oxidative stress. This increases the chance of a DNA mutation happening, and encourages cells to keep dividing when they have faulty DNA. Fat cells release growth hormones called adipokines like leptin that can stimulate irregular cell growth.

After the menopause, fatty tissue takes over from the ovaries to produce the sex hormone oestrogen. The more fat you have, the more you produce. Oestrogen can stimulate and speed up the growth of breast, endometrial and ovarian cancers.

Obesity can also raise the levels of insulin and insulin-like growth factors in your blood. This is due to insulin resistance and it can speed up the development of bowel, kidney, prostate and endometrial cancers.

Finally, people living with obesity often have an unhealthy gut microbiome that is less diverse than someone at a healthy body weight, and this is associated with inflammation and bowel cancer.

Does obesity always cause cancer?

The actual impact of obesity on your personal cancer risk is small, like it is for alcohol. While it does increase the chance of a cancerous mutation happening, it doesn't mean that will automatically happen. And if you are overweight and have cancer there is no way of proving that increased body fatness led to one of the mutations that caused your cancer.

Most of the obesity-associated cancers are only twice as likely. However, there are two cancers that are heavily impacted by obesity. The first is oesophageal cancer, which is three to five times more likely[19] if you're severely obese. The second is endometrial cancer (cancer of the womb lining) which is seven times more likely[20] in women living with obesity. We think that half of all endometrial cancers are partly due to obesity.

And I know that this is another scary statistic, but it comes down to relative and absolute risk again. A woman's lifetime risk of getting endometrial cancer is 3%. If you're overweight, that lifetime risk goes up to 21%, which is quite a jump. How you interpret that depends on how risk averse you are. I'm a pessimist and I'd say it means a one in five chance of getting womb cancer if I live to 80. You might think it means that you have a four in five chance of not getting womb cancer.

When it comes to breast cancer, it gets even more complex. There is evidence[21] that shows if you are overweight when you're premenopausal, it very slightly decreases your risk of breast cancer by 0.8 times. In other words, if you're obese and in your thirties, your breast cancer risk drops from 0.5% to 0.4%. However, if you're postmenopausal and obese, your risk increases by 1.2 times. In other words, if you're obese and in your fifties, your risk of getting breast cancer rises from 2.4% to 2.9%. In your seventies, that risk increases from 4% to 5%.

On a global scale, obesity increases the number of post-menopausal women with breast cancer, but at an individual level the impact is small.

Do you need to lose weight to stop you getting cancer?

This is tough to answer. I've told you that obesity has a considerable role to play in your lifetime cancer risk. For some cancers, that risk continues to increase as your weight goes up. But can anyone say that being overweight directly caused someone's cancer? No, they can't. However, being obese does increase your risk of developing serious illnesses like diabetes and heart disease, so for this reason, losing weight is something you should consider.

We also don't have a lot of evidence to tell us whether your cancer risk goes down when you lose weight. I've seen friends struggle to lose weight despite eating well and exercising regularly, and as I said earlier it's a really complex issue. There's also not a lot of evidence to tell us whether losing weight improves your outcomes after a cancer diagnosis. I'll cover this in more detail in Part IV.

Physical inactivity

It's time for another guilty admission. I hated sports as a child. I couldn't hit, throw or catch a ball to save my life and did everything I could to avoid it. I swam, but that was about it. As a junior doctor I dreamed of getting fit again. I would join a gym, go once and then work would get in the way. It was only when I started dating my now husband in my late thirties that I discovered exercise again. He got me into cycling, which led to triathlons, and then I got cancer. And again, I've wondered if my lack of exercise was the reason why.

And that's because there is now strong evidence[22] to prove that people who don't exercise regularly have a higher risk of getting 13 different types of cancer. We estimate that 5% of all cancers are due to a lack of regular exercise.[23] The cancers with the strongest links to inactivity are breast,

bowel and endometrial cancer, where exercise can decrease the risk of developing them by up to 30%. That could simply be because these cancers are common, so there are far more patients to research and recruit into trials.

There is also strong evidence[24] to show that exercise can help lessen the physical and mental side effects of surgery, chemotherapy and radiotherapy. It helps with fatigue, and it can reduce the risk of recurrence by 20–30%. Based on this, it should almost be the first treatment that anyone with cancer is prescribed, and I'll go into more detail about how to exercise during and after cancer treatment in Part IV.

What does that risk mean to you?

I've said that being inactive increases your relative risk of getting breast, bowel and endometrial cancer by up to 30%. But that doesn't mean you have a one in three chance of getting these cancers if you don't own a pair of trainers.

Let's look at bowel cancer. Your lifetime risk of getting bowel cancer is around one in 20, or 5%.

Being inactive increases that risk by 30%, taking it from 5% to 6.5%. It's not a big increase. But when being inactive is added to drinking alcohol, smoking, and eating an unhealthy diet, the little increases can start to add up.

How does being inactive cause cancer?

The first reason is simple. Research has shown that the more inactive someone is, the more likely they are to be overweight and to eat an unhealthy diet. Both of these increase the risk of getting cancer.

Secondly, regular activity boosts your immune system. This is an important defence mechanism when it comes to destroying cancer cells. Exercise also boosts your insulin sensitivity and reduces fasting insulin levels. This reduces the amount of insulin-like growth factors in your blood, which are linked to prostate, bowel and breast cancer.

Thirdly, aerobic exercise decreases the level of oxidative stress in your cells and helps them repair faulty DNA. This lowers inflammation in your body which also helps prevent cell damage. It also speeds up how long it takes for your food to move through your gut. There's something about exercise and needing to have a poo, isn't there? And this means that anything that's harmful in your food spends less time in contact with your bowel.

How much exercise should we be doing?

The World Health Organization recommends[25] that every adult should be doing at least 150 minutes every week of moderate-intensity activity. That's half an hour, five times a week. Instead, you could do 75 minutes of vigorous-intensity exercise. It basically means that you need to get your heart rate up and get a bit sweaty. It's also important that some of that time is spent on strength or resistance training. It doesn't need to be in a gym. You can do squats and lunges and arm curls at home. And this isn't only for cancer prevention. One of the biggest reasons that old people end up in nursing homes is that they don't have the strength to get up from a chair. It really is 'use it or lose it'.

If you want to work out what moderate and vigorous exercise means for you, this is how you do it. If you're healthy, your maximum heart rate (MHR) is:

208 – (Age x 0.7)

I'm 50. So, my maximum heart rate is 208 – (50 x 0.7), which is 173.

Moderate-intensity exercise means a heart rate that's 50–70% of your maximum heart rate. For me, that's a heart rate of 86–120.

Vigorous intensity exercise means a heart rate that's 70–85% of your maximum heart rate. For me, that's a heart rate of 120–147.

There is also research looking at sedentary activity. In other words, how much time we spend sitting at our desks or on the sofa watching Netflix and doom-scrolling. Assuming people who spend a lot of time sitting down aren't also training for a marathon, the longer you spend on your bum, the

higher your risk for cancer. Now I've been guilty of spending many hours on the sofa in one go. My solution is to set an hourly timer on my watch or phone to remind me to get up and move.

Eating unhealthy food

Guess what? This is another thing I beat myself up with when I was diagnosed with breast cancer. As a trainee surgeon I wasn't really aware of the importance of a healthy diet when it comes to cancer. I knew what I was meant to be eating, but 100-hour weeks, night shifts and living by myself meant my diet was mainly beige. I lived off cereal, bagels and ready meals. Fresh fruit rarely entered my house. Even now, it's my default when my husband is away for work. It can be really hard to cook from scratch when there's just one of you to feed.

How does a bad diet increase your risk of cancer?

In order for your body to repair DNA damage in your cells, it needs an essential supply of nutrients, minerals and vitamins. Good nutrition is vital to keep your cells healthy and help them function properly. A survey[26] in 2018 by the Centers for Disease Control and Prevention found that less than 12% of the adult population of America had the recommended amount of fruit and vegetables. That's shocking – but are you really surprised? Be honest with me, do you eat enough fruit and veg? Do you know how much you should be eating in the first place? I'll tell you what you should be eating after a cancer diagnosis in Part IV.

We also know that people who eat a healthy diet are more likely to maintain a healthy weight and less likely to have chronic inflammation, which decreases your cancer risk. There are only three food types directly linked to cancer formation – red meat, processed meat and ultra-processed foods when eaten in large amounts. Let's look at them in turn.

Red meat

Red meat, like beef, lamb, pork and venison, has been classified as a Group 2A carcinogen. This means there is convincing evidence to show that it probably causes bowel cancer. There are naturally occurring chemicals in red meat that make it carcinogenic, like haem. When this is broken down in your gut, new chemicals are formed called N-nitroso compounds. These can damage the cells that line your bowel, leading to bowel cancer. The risk increases when you eat more than 500 grams of cooked red meat a week.[27]

If you do like eating meat, you don't need to remove it from your diet altogether. It's a good source of protein, iron, zinc and vitamin B12. Instead, limit yourself to three portions a week, and no more than 500 grams in total. As a guide, an average sirloin steak is 200–250 grams.

Processed meat

Processed meat has been classified as a Group 1 carcinogen, meaning that it definitely causes cancer, particularly bowel cancer. However, just because it's in the same group as tobacco and alcohol, it doesn't mean it's as dangerous. The classification tells us how strong the evidence is that it causes cancer, not how big the risk is.

Processed meat is anything that has been salted, fermented, cured or had things added to it. Examples include ham, bacon, salami, chorizo and frankfurters. Like red meat, processed meat contains naturally occurring chemicals that are carcinogenic. But it also has extra chemicals like nitrate preservatives, which are added when the meat is processed. These chemicals make it more carcinogenic.

Your risk of bowel cancer goes up 1.18 times for every 50 grams of processed meat you eat per day.[28] Now that's a very small increase in your risk. An average rasher of bacon weighs 8–10 grams. You would have to eat five or six rashers every day to increase your risk. But if you are overweight, drink alcohol and don't exercise as well, it can all add up.

Processed meat has also been linked to stomach, pancreatic, prostate and breast cancer, but the evidence is not as strong.

As with red meat, if you like eating it, you don't need to remove it from your diet altogether. Just limit how often you have it, and how much you have at each meal.

Ultra-processed food

The dangers of ultra-processed food have hit the headlines in recent years. Newspaper articles, books and podcasts warn us not to eat it. But what is it, and can it really cause cancer?

The term comes from the NOVA food classification system,[29] which was developed in Brazil. NOVA divides food into four groups depending on how much processing was involved producing them.

Unprocessed or minimally processed foods

This is anything that is eaten close to its natural state with no added ingredients. It includes fruit, vegetables, milk, fish, eggs, meat, grains, nuts and seeds.

Processed ingredients

These are things that we add to other foods that aren't eaten by themselves. It includes salt, sugar, butter and oils.

Processed foods

These are foods made by combining things from the first two groups in a way that you could do yourself at home. It includes jam, pickles, salted nuts, cheese and homemade bread.

Ultra-processed foods (UPFs)

These typically have more than one ingredient that you wouldn't find in your kitchen. They also tend to contain additives, preservatives, emulsifiers,

artificial colours and flavourings and have a long shelf-life. They include ice cream, processed meat, mass-produced bread, breakfast cereals, biscuits, sodas, flavoured yoghurts, plant-based meats and vegan cheese, instant soups, whisky, gin and rum.

However, not everyone uses or agrees with this classification. There are people who say that milk is processed because it's been pasteurised in a factory. There are UPFs that can form part of a healthy diet, like bread and yoghurts, which have been put into the same group as cakes, bacon and crisps.

Do UPFs cause cancer?

There are several large studies that have confirmed that a diet high in UPFs does increase your risk of developing cancer. But what is the actual impact on your cancer risk?

A study in *The Lancet*[30] from 2023 looked at over a quarter of a million European adults. Those who ate the most UPFs had a 10% increased chance of developing cancer in their lifetime. However, it was only animal-based products and artificially sweetened drinks that increased the risk. Breads, cereals and plant-based UPFs had no impact.

In simpler terms, if a woman lives until she's 80, her lifetime risk of getting cancer is 40%.[31] If she ate a lot of UPFs, her risk increases from 40% to 44%. That's an extra four in 100 people who would get cancer if they regularly eat a lot of UPFs.

The authors of the studies said that they couldn't prove that UPFs were the only cause for the increase in cancer rates. We don't know if the people in the study were eating the same type of UPF. A burger from a restaurant is very different from a burger in a fast-food store, which is different from a cheap frozen burger at a supermarket, and yet they can all be UPFs.

There are several other studies[32,33] that have shown a link between high UPF consumption and an increase in cancer risk of around 10%. Again, these are observational studies, based on people remembering what they ate and recording this maybe once a year for the duration of the study. It's not

an accurate representation of someone's dietary habits – we all have 'good' days and 'bad' days.

So, although UPFs have been linked to an increase in cancer, these studies cannot prove that UPFs alone are the cause. There may be other factors at stake. And there are lots of different types of UPF. Not all of them are bad for us.

Do we need to ban UPFs from our diet?

In an ideal world, everyone would cook their own food from scratch, make their own ketchup and mayonnaise, bake bread and never have pudding, chocolate, ice cream or anything that comes out of a packet. But we don't live in an ideal world. We'd probably be miserable. We'd need time, energy, money, willpower and an understanding family. Life is short and we need to give ourselves a break.

Not all UPFs are bad. They are processed for a reason. Some have preservatives added to them so they have a long shelf-life. When you don't have the time to do a daily food shop or make your own bread, they can be a life-saver. Ready meals are convenient and cheap. And for many people who live alone, like my dad, a ready meal with protein, carbs and veg means he's getting a good supply of nutrients, compared to the cheese sandwich he would otherwise eat. Recipes are rarely written for one person, and it's hard to buy one chicken breast or half a cauliflower in a supermarket. Not everyone wants to batch cook and eat the same meal four days in a row. However, ultra-processed foods are normally higher in salt, sugar and fat to make them taste good, and this could be a problem if they were all you ate.

What we can do, however, is try to limit the amount of sugary, fatty and salty snack foods we eat. They should be the exception, not the rule. Make them an occasional part of your weekly shop and enjoy them when you have them. I talk about my 80:20 rule in Part IV, or 'Fuel, Fun and F*ck it'. At least 80% of what we eat should be fuel – tasty, healthy, nutritious. Up to 20% should be fun – all the things we know we shouldn't eat all the time. Whether that's chocolate before you go to bed or an indulgent brunch at the weekend. I know that I enjoy my guilty treats more when I know it's okay

to eat them every once in a while. The final tiny part of our diet is the f*ck it bit, when we need to throw the rules out the window to soothe our soul when things don't go according to plan.

Try to choose the healthier options when there is a choice, like wholegrain bread and sugar-free breakfast cereals.

We don't have enough research to prove that UPFs cause cancer. It could be that people who eat a lot of them are more likely to be overweight and inactive, which both increase your cancer risk. There is no need to completely exclude them from your diet if they make your life easier and less stressful.

Being tall

This may surprise you, but there is strong global evidence[34] to show that tall adults are more likely to develop ovarian, prostate, bowel, kidney and breast cancer. And as someone who is tall, this scared me a bit. And it's not as if I can suddenly take five inches off my height. So how tall is tall, and how does it increase your risk?

Scientists think it's not your height itself, but the things that happened to make you tall. Think of it as a combination of factors – like the genes you inherited, your childhood diet, things that might have affected you when you were in the womb, a baby and going through puberty, how early you went through puberty. They all work together to increase your risk of getting cancer.

How tall is tall?

Using US data from the Centers for Disease Control and Prevention, the average height for a man is 5 feet 9 inches (175cm) and for a woman, it's 5 feet 4 inches (162.5cm). For every extra 5cm in height, your cancer risk goes up by 5–10%.

Do you need to panic?

The actual impact on your individual risk of getting one of these cancers is small. A 5–10% increase in risk doesn't mean you have a one in 10 chance of getting ovarian cancer if you're tall.

If we look at ovarian cancer, your lifetime risk is 1 in 87, or 1.15%. If you're tall, a 10% increase in that risk is now 1.25%. It's a very small impact on your lifetime risk. Let's take breast cancer, where your lifetime risk is much higher at 1 in 8, or 12.5%. If you're 10cm taller than the average woman, it goes up from 10% to 13.75%. It's still a very small increase in risk over your lifetime. And doing things like eating well, cutting back on alcohol and exercising will all reduce your risk.

And anyway, you can't alter your height. I would tell any parent reading this that you don't need to worry about how tall your children will be. There's a book by a US breast surgeon called Kristi Funk (she was Angelina Jolie's surgeon) who said that parents should stop giving their daughters milk in order to stunt their growth and reduce their risk of breast cancer. I was horrified! Milk is an important source of calcium that every child needs for their growing bones. Please don't do this. The impact of height on one person's cancer risk is very small, and by adopting healthy lifestyle habits we can more than undo the effect of being tall.

Breast implants

In 2016 scientists discovered that some textured breast implants can cause a very rare type of blood cancer called a breast-implant-associated anaplastic large cell lymphoma (BIA-ALCL). It's a cancer of the immune system. The first symptom is a very large swollen breast due to a build-up of fluid.

The risk of developing it is very small, but it can be aggressive and fatal if not treated properly.[35] Latest data from Australia and New Zealand puts the risk of BIA-ALCL in women with textured implants at one in 3817 (0.03% of women) to one in 60631 (0.002%), depending on the type of implant.

The risk is higher for textured surface implants versus smooth surface implants, and most surgeons only use smooth implants and expanders since

this cancer was discovered. If you are concerned, you should contact your breast surgeon for more information.

Hormonal replacement therapy (HRT)

Now this is a really controversial topic. HRT is an excellent drug for the many women who struggle to get through the menopause. I'm not knocking it. However, there is some evidence that HRT increases the risk of breast cancer and possibly ovarian and endometrial cancer. When I say HRT, I'm talking about oestrogen (unopposed HRT), or oestrogen and progesterone (combined HRT) that women take as a gel, patch, tablet or cream. I'm not talking about testosterone and I'm not talking about vaginal oestrogen. And some of that research was done several years ago, using different HRT preparations to the ones prescribed today.

There is also old research that shows taking HRT after treatment for hormone-sensitive breast cancer will increase the risk of recurrence by up to 30%. It's not great data, but it's all we have. And the problem is that hormonal treatment to stop your cancer coming back can give you symptoms that are worse than a normal menopause. Nothing about this is fair. There are lots of other ways to treat these symptoms, including a variety of drugs. And that's a topic for a whole book in itself.

International guidelines recommend that HRT should only be prescribed as a last resort for women who've had breast cancer. You need to have a sensible discussion with your oncologist about the benefits, risks and all other options. It's called informed consent and I'll talk more about that in Part III. If your risk of recurrence is small, then a 30% increase in that risk is also small. But when breast cancer comes back it can no longer be cured.

But let's get back to HRT causing cancer in healthy women. This is a complex field, and I'm definitely not an expert. That's why I'm going to tell you what the British Menopause Society says in its 2023 Consensus Statement[36] about the risks and benefits of HRT for healthy women who haven't had cancer.

The first thing to say is that any increase in cancer risk from HRT is small, and this should not be used as a reason for doctors to avoid

prescribing it. Most women won't get breast cancer, and the risks are far smaller than those due to being overweight, not exercising or heavy drinking. There isn't a lot of evidence to tell us the impact of HRT on cancer risk in women who are inactive or obese. And that means it's hard to tell any woman what her increase in breast cancer risk is just from taking HRT.

Breast cancer

The BMS reviewed the latest evidence and says that the risk of breast cancer is greater with combined than unopposed HRT. If 1,000 women in their fifties took combined HRT for 14 years, an extra 10 women would be diagnosed with breast cancer. There is no increase in risk with five years of combined HRT. When you stop taking HRT, your breast cancer risk returns to normal. The benefits of HRT generally outweigh the harms of taking these extra hormones, but you should be guided by your own doctor.

Ovarian cancer

There are some studies that showed combined and oestrogen-only HRT can slightly increase your risk of ovarian cancer. This increase happens within the first five years of taking HRT. However, other studies found the opposite. At the moment there is no strong evidence[37] to prove that HRT increases the risk of ovarian cancer. And because the evidence is unclear, I can't tell you how big that potential risk might be.

Endometrial cancer

Oestrogen-only HRT slightly increases your risk of developing endometrial cancer[38] (cancer of the womb lining). This is why it should only be prescribed for women who have had their uterus (womb) removed, called a hysterectomy. The risk is greater the longer you are on HRT, and that risk remains increased for several years after you stop HRT.

The oral contraceptive pill (the Pill)

There are two types of oral contraceptive pills (OCPs) – the combined pill, which contains oestrogen and progesterone, and the progesterone-only or 'mini' pill. There is some research[39] that suggests women who use the combined OCP for more than 10 to 15 years have a small increased risk of developing both breast cancer and cervical cancer. Ten years after stopping the Pill, the risk returns to the pre-Pill level.

If you take the Pill in your teens and twenties, your risk of breast cancer is very small, less than one in 1,000 women. If you use the Pill for 15 years, an extra eight in 100,000 women would get breast cancer. So again, the actual impact on a woman's individual risk is very, very small. Getting breast cancer should not be a reason to avoid the Pill.

However, taking the Pill can reduce your risk of getting ovarian cancer.[40] If you take it for more than five years, it can cut that risk in half. There is also research to show that taking the Pill for more than four years can cut your risk of getting endometrial cancer in half, and this protection lasts for up to 10 years from the date you took your last Pill. But remember that your risk of getting both of these cancers is already very small.

The benefits of the OCP far outweigh this tiny increase in breast cancer risk. Getting pregnant and terminating a pregnancy both carry potentially serious health risks. The Pill can be a great treatment for acne, migraines and other medical conditions. If you're worried about the tiny increase in breast or cervical cancer risk, you can change your lifestyle with exercise and a healthy diet to counteract it.

The Bottom Line

Cancer is complex and complicated. All of the things listed in this chapter can increase the chance of a DNA mutation, which increases your risk of getting cancer – sometimes by a lot, sometimes by a little. Some things you can control, some you can't.

There will be people who smoke, drink, are overweight, live off bacon sandwiches and don't exercise who never get cancer, and people who are fit, active, vegan teetotallers who get cancer at a young age. All I can do is make sure you know the facts so you can then make decisions about how you live the rest of your life. And in Part IV I'll tell you what you can do to reduce the chance of your cancer coming back.

8. Things That Don’t Cause Cancer

Now it’s time to talk about some of the things that don’t cause cancer. As I said earlier, newspaper headlines, podcasts and videos use scare tactics to shock us into reading more. It’s a very long list, believe me, and it’s easy to be drawn in.

I’ve chosen some of the commonest myths that I’ve been asked about. I’ll tell you how the rumour started and go through the evidence to show you that it’s false.

In Part III I’ll give you some tips you can use when you come across something yourself. You can also check out these excellent websites[1] [2] [3], who have paid people to do the research so you don’t have to.

Sugar

During chemo I lost my sense of taste. I can’t tell you how wonderful it was when chocolate tasted like chocolate again. I don’t have a particularly sweet tooth, but it was lovely to actually enjoy what I was eating, and I’ll do anything for a cinnamon bun. But then I saw a video from an alternative medicine doctor called Mark Hyman (more on him later) that said sugar causes cancer, and it made me stop and think. I’d never been told that during my medical training, but maybe things had changed. Was there new research that I wasn’t aware of? It was time to find out.

What is sugar?

Before I begin, I need to explain what sugar really is. It's not just the stuff that we sprinkle on our cereal and add to our coffee. Sugar is the simplest form of carbohydrate. All carbohydrate sources, including fruit, vegetables, dairy, legumes and grains, contain sugar. There are three types of naturally occurring sugar – glucose, fructose and galactose. These sugars clump together in larger molecules to make complex carbohydrates, like starchy potatoes. The sugar we use in baking and cooking is called sucrose. This is a combination of fructose and glucose. The sugar found in milk is called lactose. It's made up of glucose and galactose. Every sugar and starch-containing product is broken down in your body to these three simple sugars.

Why do people think that sugar causes cancer?

It began in the 1920s when a German scientist called Otto Warburg discovered the Warburg effect.[4] He was studying rat cancer cells in his laboratory and noticed two things. Firstly, the cancer cells used a lot more glucose for fuel than healthy cells. Secondly, they weren't using oxygen to break down glucose for fuel, whereas the healthy cells were. He called this 'the Warburg Effect'. He later went on to win a Nobel Prize for his work on cellular respiration. I mention this because a Nobel Prize is often quoted on alternative medicine websites to make their claims seem more trustworthy. I'll talk more about this in Part III. His work led to people believing that sugar caused cancer.

A popular alternative medicine doctor in America called Mark Hyman was interviewed for a YouTube channel and said that '70% of cancer is caused by food.[5] Sugar is the number one culprit.'

Now that's a terrifying thing to hear, especially if you've got a sweet tooth. And you'll be grateful to hear that none of this is true. But in order to explain why, I need to tell you how your cells get their energy.

Where do we get our energy from?

Your body breaks down complex carbohydrates into simple sugars like glucose. This is then turned into a molecule called ATP (adenosine

triphosphate). It happens through a complex process called oxidative phosphorylation (OxPhos). Mitochondria (mini-organs inside your cells) use oxygen to turn one glucose molecule into 36 ATP molecules. ATP is the main energy source for every cell in your body.

When your cells don't have enough oxygen, like a sprinter gasping for air as they reach the finish line, they have to make ATP in a different way. This is called anaerobic glycolysis. One molecule of glucose is used to make two molecules of ATP and two molecules of lactic acid. When lactic acid builds up in your muscles it causes a burning sensation which makes you want to stop running and take some deep breaths.

Why don't cancer cells use oxygen to turn sugar into energy?

Dr Warburg thought that the reason cancer cells didn't use oxygen was because they had faulty mitochondria. They were only getting two molecules of ATP from every glucose molecule, instead of the 36 molecules that healthy cells were getting. That's why they needed more sugar for fuel.

He said that cancer is a metabolic disease, not a genetic one. If this were true, it would mean that everything I've told you about how cancer forms is a lie. This is one of the cornerstone beliefs of functional medicine. That's a branch of alternative medicine which I'll talk more about in Part III. Practitioners believe that cancer is an evolutionary process inside all of us, because of our damaged mitochondria.

Do faulty mitochondria cause cancer?

Scientists have now shown that it's a mutation that makes cells switch to making ATP from glucose without oxygen in their mitochondria.[6] The Warburg Effect is a consequence of that mutation. We also know that 30% of cancers don't have this mutation.[7] They continue to make ATP normally using oxygen. And many cancer cells have normal mitochondria that haven't been damaged at all.

Why do cancer cells get their energy without oxygen?

I struggled to understand how this mutation helps the cancer cells to grow. Why would they choose the most inefficient way to get energy? Cancer cells are constantly growing and dividing. They need a huge amount of fuel. After a bit of digging, I found the answer. It's because it's much faster to make ATP without oxygen.

Bear with me. In the time it takes a healthy cell to make 36 ATP from one glucose molecule, a cancer cell can make 22 ATP and 22 lactic acid molecules from 11 glucose molecules.

Yes, that's still less than 36. But this is the thing. Lactic acid can be directly converted to ATP. That means a cancer cell has made 44 ATP molecules compared to the 36 a normal cell would make, in the same amount of time. Turning glucose into fuel without oxygen is a faster way of getting energy. But cancer cells need more glucose to do it. They need 11 glucose molecules instead of one, and that's why they use more sugar.

There's another reason why cancer cells make their energy this way. It's because they are constantly growing, so they need more building blocks than normal cells. And that means more carbon. It's the backbone of almost every molecule our cells need to divide. When a cell uses OxPhos, most of the carbon is turned into ATP. But with anaerobic glycolysis, only a small amount of carbon is used for fuel. That means there's plenty left over to make the building blocks. It's actually really clever.

There's a third survival advantage for cancer cells to make ATP without oxygen. Any lactic acid molecules that aren't used for fuel are pumped out of the cell. This makes the surrounding environment more acidic. Normal cells don't like acidity. It can damage them. It also causes chronic inflammation and keeps immune cells away that could otherwise kill the cancer cells.

The Bottom Line

Sugar doesn't cause cancer. There is no scientific evidence to prove that it does. While eating a lot of sugary foods will increase your risk of cancer, that's not what this rumour is about.

In Part III I'll explain why cutting sugar out of your diet won't cure cancer either.

A's story, as told by a friend

A was diagnosed with breast cancer in her fifties, back in 2016. She chose a mastectomy but turned down radiotherapy, chemotherapy and hormonal therapy with the philosophy that a positive mindset and juicing would cure her. At some point she was doing a detox protocol with no sugar, and hours of yoga a day. She lived a very healthy life. By May 2017 her cancer had metastasised to her sternum, so her ayurvedic medicine hadn't worked. She started a GoFundMe to raise $28,000 for an alternative medicine clinic for infusions. I think she raised half the money.

When her cancer came back, A's doctors told her, 'If you don't want to do anything, then good luck.' I believe if someone had been more compassionate it might have been really different for her.

*A didn't have treatment for the metastatic sternal disease. She just kept doing her juicing protocol and used Rick Simpson oil. She truly believed that if she visualised her cancer going away, it would. There's a whole lot of f*cking judgement in that alternative community. If it comes back, it's because you didn't do enough. You haven't dealt with your issues.*

A then went to a Chinese medical person who said she had no cancer in her body. Within a couple of months, she was scanned, and it had spread to the liver. She tried Ivermectin at the end. She was trying to raise money to go to another clinic that promised they would cure her. She never made it.

Underwired bras

If you wear a bra, I'm sure you've had days when you wanted to rip it off and throw it in the bin. The wires dig in, it keeps moving around. You just feel uncomfortable. Been there, done that, got the T-shirt. The mental pain

when you've spent a fortune on a beautiful, sexy, lacy concoction that you never wear. The truth is that most of us don't wear the right size. When you do get one that properly fits, it feels incredible. Trust me. I thought I was a 34A, but when I got measured properly, I was actually a 30D. Complete game-changer.

Going braless became popular during the pandemic. We were all working from home and women everywhere were letting their breasts hang free. Ban the underwires. Who needs them? Well actually, your breasts do. They can be really heavy. A 36C breast weighs 500 grams. Underwired bras give your chest wall the extra support to carry the weight. They can also delay that inevitable moment when your breasts start to head south for winter.

However, some people will tell you to ban underwired bras because they cause breast cancer. Now this is definitely not true. Bras are completely safe. But I did a bit of research to see how the myth began.

Why do people think that bras cause breast cancer?

It began in 1995 when a book called *Dressed to Kill*[8] was published. It said that wearing a bra for more than 12 hours a day greatly increased your risk of getting breast cancer. This was based on a series of interviews with American women. The women who didn't wear a bra all day long were less likely to have breast cancer. The authors said this was because underwired bras restrict lymph drainage in the breast tissue. They claimed this led to a build-up of toxins in the breasts, which in turn caused cancer. This theory was picked up by people all over the world.

It all sounds very believable if you're not an expert in how the body works. And it's frightening to hear if you've been wearing a bra for most of your adult life. But if underwired bras really did cause breast cancer, wouldn't they come with a health warning? Shouldn't our parents and teachers tell us what would happen if we wore them? Wouldn't we need to be over 18 to buy them?

Why don't underwired bras cause breast cancer?

Firstly, lymph fluid in your breast tissue travels up and out to the lymph nodes in your armpit, not down towards the underwire. Secondly, lymph fluid is just the waste products of metabolism, bacteria, viruses and damaged cells. There are no toxins. It's filtered in lymph nodes that trap or destroy anything harmful that the body doesn't need, like bacteria, and the waste products are then reabsorbed back into the bloodstream where the liver and kidneys deal with them. Finally, toxin build-up doesn't happen. As long as your liver and kidneys are working properly, your body will get rid of anything it doesn't need automatically. I'll talk more about detoxing in Part III.

If an underwired bra fits you properly, it will sit beneath your breast, not on the breast tissue. If it digs in or leaves a mark at the end of the day then your bra doesn't fit you properly. It is not causing a toxin build-up. And if you get a sore spot from a wire that's broken through the material, it will not cause cancer. Your bra just needs to go in the bin.

Finally, the research in the book was flawed. There would have been several reasons why some of the interviewed women had breast cancer, like drinking alcohol, not exercising regularly, being overweight. The more you weigh, the more likely you are to have large breasts, and the more likely you are to wear a bra for most of the day. The study was simply an observation, nothing more. Just because the women who wore a bra all day were more likely to have breast cancer, it doesn't automatically mean that bras were the cause. I'll explain this more in Part III.

The Bottom Line

Every major international breast cancer charity and cancer health organisation states that bras do not cause breast cancer. If you want to wear a bra, pick one that fits you, makes you feel good and look good. Wear it for as long as you want. Many women sleep in them for the added support at night. I promise you they are safe.

Toxic thoughts and stress

One of the founding beliefs[9] of functional and naturopathic medicine (see Part III) is that toxic thoughts and negative emotions are part of the 'root cause' of cancer. You have to address your issues before you can be cured. If we can simply think more positively, our body will be in a better place to heal.

Now this floored me. I've had mild depression for most of my adult life. I had serious depression as a consultant surgeon before I had cancer. I know that mental health is an illness. It's not my fault that I got it. Forget depression and anxiety for a moment. Surely everyone has had a negative, low or angry moment at some time in their life? Surely this couldn't be true?

And what about after you've been diagnosed with cancer? Whilst you will have good days, hopefully many of them, there will also be days when you hit rock bottom. I know I did. Some of them are completely out of the blue. Days when you feel guilt, envy, grief and loss, or worry about scan results and the fear of recurrence. It is all completely normal. Cancer is an emotional rollercoaster. I've had counselling twice through my local Macmillan centre to help me cope, and I can highly recommend it. If you're struggling, please ask your team for help.

But if a low mood can cause cancer, does that mean that my 'scanxiety' is the reason my cancer came back? I want you to know that none of this is true. Any negative thoughts you have are natural, and will not make your cancer come back. Trust me. But let's find out where this myth started, so we can put it to bed once and for all.

How do negative thoughts cause cancer?

Dr Hamer, a German physician, was one of the first to explain how this happens. His son was killed in a shooting accident. A few years later, Dr Hamer developed testicular cancer. He then studied all his cancer patients and noticed they'd all had trauma in the preceding years. He claimed that the type of trauma determined which cancer a patient got. This led to his six stages of stress:[10]

1 – Inescapable shock

This happens two years before a diagnosis. A traumatic event affects your deep sleep and causes unusual brain activity. The cancer you get depends on which bit of your brain is affected.

2 – Low adrenaline levels

High levels of stress hormones block adrenaline production. This causes lactic acid to build up, creating an acidic environment for a cancer fungus to develop from microorganisms.

3 – The cancer fungus

A cancer fungus ferments in this acidic environment and releases toxins which cause mutations.

4 – Vitamin B3 (Niacin) deficiency

Low adrenaline levels lead to depression. Your brain makes serotonin to make you happy. This lowers vitamin B3 levels, which are needed for cell respiration, and leads to more mutations.

5 – Low vitamin C

Low adrenaline levels lead to a decline in vitamin C levels. This causes mitochondrial damage and even more mutations.

6 – Immune suppression

Stress causes depression, which makes you tired. This shuts down your immune system, meaning the cancer fungus can keep growing.

Dr Hamer said that anyone who didn't get help for anxiety, depression or stress would get cancer. But if you did get treatment, you could potentially cure your cancer. However, he didn't go on to cure thousands of patients. His medical licence was removed in 1986 for malpractice and he was imprisoned in several European countries. The Swiss Cancer League described his theory as 'dangerous, especially as it lulls the patients into a

false sense of security, so that they are deprived of other effective treatments'. And yet his theory still stands.

An alternative medical provider called Nasha Winters writes in her book *The Metabolic Approach to Cancer*[11] that cancer comes from the body being neglected at some level via nourishment, physical stress or psychological stress. The theory is that mainstream doctors like me can't cure our patients because we don't deal with the root emotional cause. We should be sending our patients to therapy, not chemotherapy.

And this makes me want to cry. Anyone reading this will think that their cancer is going to come back because they haven't been dancing from the rooftops. Having cancer is hard enough without having that extra layer of guilt thrust upon you.

So, what's the truth?

Stress and negative emotions do not cause cancer. I think some of us want to believe it because it ties into our need for control. If we know what caused our cancer, we can do something about it. We can all find areas of stress in our lives. If we could only remove them, maybe the cancer would never come back?

But stress is one thing you can't control. You have no idea what is going to happen in the next hour, let alone the next 10 years. Our body needs a certain level of stress to function properly. And while high stress levels are bad for us, especially if it goes on for a long time, it doesn't cause cancer. Feeling sad or having negative thoughts are a normal part of life, whether there's an obvious reason for them or not.

There is no evidence that high stress levels increase your risk of cancer. An analysis[12] of 12 European studies found no link between work stress and lung, bowel, breast and prostate cancer risk. The British Psychological Society said there is no evidence[13] that people living with clinical depression are more likely to develop cancer. There are several studies[14,15] that have shown that negative emotions have nothing to do with cancer survival and outcomes.

The Bottom Line

Your negative thoughts, past life stresses or personality are not the cause of your cancer. Staying positive after a cancer diagnosis will not stop your cancer coming back. A cancer diagnosis comes with a wave of negative emotions – guilt, fear, anxiety, panic – and can lead to clinical depression. This is normal whilst we come to terms with everything that is happening to us and it can take many years to get yourself into a better head space.

Staying positive will help you eat better and exercise more, and these can have a big impact on your life ahead. But it's what you eat and how you move that is having the effect, not what you're thinking. The bad days will pass, and remember that most people diagnosed with cancer will be cured.

Deodorants and antiperspirants

Every week I get people asking me if it's safe to use deodorants and antiperspirants. I had no idea people thought they were dangerous until someone sent me a video on TikTok saying that anti-perspirants cause breast cancer. Let's do a deep dive to see how the myth began.

What is the difference between a deodorant and an antiperspirant?

Before I begin, let's go over what a deodorant and an antiperspirant is – something I wasn't clear on until I wrote this book. Sweat is a clear, salty liquid that has no smell. It's your body's way of cooling you down when you get too hot. When sweat mixes with the natural bacteria on your skin, it can start to smell.

Deodorants work by masking that smell with a more pleasant scent. Antiperspirants contain aluminium salts that dissolve in sweat. This creates a thin gel coating that covers the sweat glands for a couple of hours and stops sweat being released.

How did the myth start?

It began with a viral email in the late 1990s[16] claiming that antiperspirants are the leading cause of breast cancer. It's all based on a bad understanding of biology. The author of the email believed that toxins are eliminated in our sweat. Because antiperspirants block sweat, they believed this led to a build-up of toxins in the lymph nodes in our armpits. But sweat glands have nothing to do with toxins or lymph nodes. Your nodes, or glands, are clusters of white blood cells that are part of your immune system. They filter your lymphatic fluid and destroy bacteria and viruses. They do not get rid of toxins and they are not connected to sweat glands.

The email's final proof was that most breast cancers are found in the upper outer part of the breast, closest to the lymph nodes, because of all the toxins that can't escape. While it is true that over half of all breast cancers are in the upper outer part, it's not because of blocked toxins. Your breasts are shaped like a teardrop, with a tail of tissue that reaches up to the armpit. It's simply because that part of your breast has the most breast tissue.

But what about heavy-metal poisoning from aluminium?

This was another myth that led to many people avoiding antiperspirants that contained aluminium and buying 'natural' ones instead. We are told that dangerous heavy metals like aluminium can be absorbed through the skin. When this happens, the aluminium acts like oestrogen and causes breast cancer.[17]

If you shave your armpits, you create tiny little cuts in the skin. This means that more aluminium can be absorbed. And the final reasoning is that breast cancer is only rare in men because they don't shave their armpits. The aluminium in antiperspirants only reaches the hair, not the skin.

Can aluminium cause cancer?

The answer is ‘yes’, but only in very high concentrations when it can damage your DNA. However, it is very hard to absorb from your gut, and your kidneys get rid of any excess in the urine. So, if your kidneys are working properly, you don’t need to worry.

Aluminium is found in your natural diet. Antiperspirants aren’t the only source. It’s taken up from the soil by certain plants and found in tea leaves, cocoa, spices and herbs, tobacco, cereals, vegetables like mushrooms, spinach and lettuce, and some dairy and soya products. It’s also used in food additives and colourings.

Does aluminium act like oestrogen?

When aluminium salts are applied to human breast cancer cells grown in a laboratory, they can alter the function of the oestrogen receptors on the cells. It has been suggested that this could stimulate the growth of some breast cancers. However, a study that looked at the concentration of aluminium in the breast found no difference between breast cancer tissue and healthy breast tissue. And remember that oestrogen is a natural hormone and the impact of having extra oestrogen as HRT or the Pill only has a slight increase in your cancer risk.

Finally, applying a high concentration of aluminium salts directly to breast cancer cells is very different to what happens naturally in the body. There is no evidence that your skin absorbs a significant amount of aluminium from antiperspirants. One study[18] showed that only 0.012% of the aluminium salts on the skin was absorbed. That’s far less than the amount of aluminium you get naturally from your diet. It also means that if you did cut yourself when shaving, it won’t have any effect on the amount of aluminium you absorb.

Is there any evidence to show that antiperspirants cause breast cancer?

No. In fact, the research shows the exact opposite. One study[19] compared almost a thousand women with and without breast cancer. There was no difference between those who used antiperspirants and those who didn’t.

They also showed that shaving your armpits made no difference to your risk of getting breast cancer. A smaller study[20] from Iraq of 50 women with and without breast cancer actually showed that the women who did use deodorants were less likely to get breast cancer.

If antiperspirants are safe, why are you told to avoid them when you have a mammogram and radiotherapy?

Aluminium salts in antiperspirants can show up on a mammogram as tiny white specks. These can mimic the white microcalcifications which are a sign of breast cancer. Avoiding antiperspirant stops any confusion when your mammograms are being interpreted.

During radiotherapy, we suggest you use aluminium-free, non-scented products because your armpit skin can become very sensitive and sore. Using gentler products whilst you're having treatment can stop your armpits stinging when you use them. That's it. Once the skin has healed, you can use whatever you like.

The Bottom Line

You don't need to change your deodorant to stop you getting cancer. In 2020, the European Scientific Committee on Consumer Safety looked at all the evidence. They published a report[21] that confirmed aluminium is safe in all cosmetic products and stated that it does not cause breast cancer. You can safely use any deodorant or antiperspirant and know that it will not do you any harm. If you want to use a natural, metal-free product, go for it. But it won't reduce your risk of getting breast cancer in the future.

Root canal surgery and amalgam fillings

I must admit to being a bit surprised when I saw a video saying that root canal surgery caused cancer. Dentists have been safely doing these procedures for years and years. Then I heard someone else say that anyone with amalgam fillings should have them removed because the mercury in them wasn't safe. As I'm sure you can guess, there is no truth to either of these rumours, and I'm going to tackle each of them in turn. Let's start with root canal surgery.

Why do people need root canal surgery?

It's done when you have an infection in the centre of your tooth, called the pulp. If the bacteria aren't treated, they can destroy the pulp and the tooth has to be removed. Dentists get rid of the infected pulp tissue and seal the tooth with a crown to stop it happening again.

Why do people think it can cause cancer?

It all started in 1922 when a dentist called Weston Price said that dental surgery caused a variety of illnesses.[22] He removed teeth from people with medical problems who'd also had root canal work done and implanted the teeth into rabbits. He claimed that a tooth from a person who'd had a heart attack made the rabbit have a heart attack a few weeks later. He said that root canal surgery didn't get rid of all the bacteria and toxins. When the teeth were implanted into the rabbits, the remaining bacteria could travel around the body and cause cancer. You won't be surprised to know that his research was badly performed and has never been repeated. And yet the idea had taken hold that root canal surgery spreads dangerous bacteria around the body.

Fast forward to 2019 and a documentary called *Root Cause* which claimed that root canal surgery can't remove all the bacteria in the teeth, leading to chronic inflammation and cancer. A high-profile American osteopath called Joseph Mercola took the claim one step further. He claimed[23] that 93% of breast cancer patients have had root canal surgery, therefore root canal surgery caused their cancer.

Is there any evidence to prove that root canal treatment causes cancer?

No, there isn't. Every international dental association[24] states that root canal treatments do not cause cancer. The film *Root Cause* has now been removed from streaming websites like Netflix.

Do we need to worry about amalgam fillings?

Amalgam is another name for a mixture or blend. The fillings contain elemental mercury and a powder of several other metals like tin, copper and silver. They're used all over the world to treat tooth decay. Mercury is the most toxic heavy metal in the environment. It's naturally found in soil, water and the air. Most of us have a tiny amount in our bodies and it's harmless at that concentration. There is no definitive proof that mercury exposure causes cancer.

Why do people think that mercury fillings cause cancer?

In the 1970s an American dentist called Hal Huggins linked amalgam fillings to multiple sclerosis and cancer without any robust evidence.[25] He started removing amalgam fillings and extracting teeth that had been treated with root canal surgery. In 1996 his licence to practise dentistry was revoked, but he still continued to work.

In 1990, a documentary called *Is There Poison in Your Mouth?* interviewed several private dentists. They said removing mercury fillings cured their patients' medical problems. The idea that mercury fillings were dangerous was now all over the internet. There are now hundreds of holistic dentists and alternative medical practitioners urging you to have your mercury fillings removed so your body can fight cancer properly.

Can we absorb mercury from fillings?

We all have a small amount of mercury in our body. Every day, we absorb nine millionths of a gram of mercury from our food and the environment. And while tiny amounts of mercury can escape from amalgam fillings and enter our bloodstream, it's a sixth of the amount we naturally absorb.

Do mercury fillings cause cancer?

There is absolutely no evidence that amalgam fillings cause cancer. The American Dental Association, the Oral Health Foundation,[26] the British Dental Association and the World Health Organization, to name a few, all agree on this. You don't need to have your fillings removed to stop you getting cancer.

Parabens and endocrine disruptors

I had no idea what a paraben was until I started researching this book for cancer myths. I fell down a rabbit-hole. Parabens are apparently everywhere in everything and should be avoided at all costs. I started panicking. Had I missed something? What were parabens and do they really cause cancer?

What are parabens?

So, let's start with the basics. Parabens are preservatives. They are naturally found in fruit like blueberries and grapes, as well as rivers, soil and house dust. There are also manmade parabens used as preservatives in our cosmetics, toiletries and food.[27] They extend the shelf-life of these products. They also stop bacteria and mould growing in these products. Now this is important for people like me who don't always wash our hands thoroughly before scooping some face cream out of a pot.

Why do people think they cause cancer?

It started with a now-deleted Facebook post[28] that said '99% of cancer is caused by parabens found in beauty products, skin products and home fragrance'. That's a really scary thing to read. It would make me want to throw everything in my bathroom away and buy paraben-free products. Where was the evidence to back up that claim?

It came from a study in 2004[29] published by Professor Philippa Darbre. She looked at 20 breast cancer samples and found they contained parabens.

This was wrongly interpreted as proof that parabens caused breast cancer, and started a global panic. But Professor Darbre's research did not prove that parabens cause breast cancer. She only noted that they were found in breast cancer cells. She hadn't looked at normal breast tissue. To try to stop the mass hysteria, she published a statement saying she'd never claimed that parabens cause breast cancer. But the damage had been done. American retailers like Target and Sephora now have 'clean' beauty aisles where products with parabens are banned. Is there any evidence that parabens actually cause cancer?

Are parabens endocrine disruptors?

The reason people think parabens cause breast cancer is because they've been shown to mimic the action of oestrogen[30] in cells. Anything that can do this is called an 'endocrine disruptor' – another scary term. Why would I want to put something on my face that could disrupt my endocrine system? The theory is that the more parabens you absorb from your cosmetic products, the greater the chance you will develop cancers that are stimulated by oestrogen, like breast cancer.

But if this was true, wouldn't every company stop putting parabens in their products? Whilst a few studies in rats have shown that parabens can act like oestrogen, the parabens in our cosmetics are 10,000 times less potent than the oral contraceptive pill.[31] And as I said earlier, even if you take the Pill for 10 years, your actual increase in breast cancer risk is tiny. The most potent paraben, butylparaben, is 100,000 times[32] less oestrogenic than the natural oestrogen we produce. Just because a paraben given in very high doses to rat cells in a lab causes cancer, it doesn't mean that it will have the same effect in humans.

Endocrine disruption is not something you need to worry about, despite what cosmetic companies and influencers tell you. You're exposed to natural endocrine disruptors every day. Parabens and phyto-oestrogens are found in plants like soybeans, cabbage, garlic and coffee. The effect of the phyto-oestrogens we eat is over a million times stronger than the effect of parabens in our make-up and shampoo. And none of these foods have been linked to breast cancer development.

Is there any evidence to prove that parabens cause cancer?

No, there isn't. You don't need to throw away all your toiletries and cleaning products. The American Cancer Society, the US Food and Drug Administration, the Cosmetic Ingredient Review organisation, the Scandinavian Society of Cosmetic Chemists and CRUK have all reviewed the available literature and concluded that parabens are safe and do not cause cancer. If you've still got questions, read this excellent blog[33] on the Oncology Nurse Advisor website.

Are paraben-free products safe?

Although it doesn't matter what cosmetics and toiletries you use, you do need to take extra precautions if you buy products that don't contain parabens. That's because they have to use alternative preservatives. Most companies use acids like formaldehyde, benzoic acid and potassium sorbate. These can cause serious allergic reactions. Other companies use natural preservatives like citric acid, ascorbic acid and rosemary extract. Although these preservatives work well in a lab, they are less effective in real life. The other option is grapeseed oil, which can interfere with the actions of some drugs.

The real danger, though, is that these other preservatives only work on fungi and mould. Bacteria can still grow in your mascara and moisturiser, and can lead to infections. It also means that the shelf-life of paraben-free products is much shorter. You need to replace them more frequently to try to avoid bacterial contamination. So, these natural, clean and chemical-free alternatives might not be as natural, clean or chemical-free as we're led to believe. If you do use them, always check the expiry date and make sure your hands are clean before you use them.

Part III

What Treatment Do I Need?

I'm going to run you through the principles of cancer treatment. And by that, I mean mainstream treatment, recommended by doctors like me, all over the world, based on hundreds of evidence-based trials to cure millions of people.

I'll also talk about the complementary therapies that can help you cope mentally and physically with treatment and side effects.

Then I'll explain the world of alternative medicine and all the treatments that aren't backed up by robust data and cannot cure you. I'll explain why their claims of cures shouldn't be trusted, show you how they trick us into believing they can cure you, and help you work out for yourself whether a cancer cure is bogus or not.

Finally, I'll show you how easy it is to be waylaid by something you see or hear. You'll see how misleading the internet can be, and I'll point you towards the websites I trust to get sensible information.

9. Mainstream, Complementary and Alternative Medicine

I'm going to make a general assumption that if you have cancer and you're reading this book, you were diagnosed by a doctor and offered treatment in a mainstream hospital. At some point in the future, or maybe even now, you might want to consider alternative options. Is there something better out there than what your doctors are offering you? Do they really know everything? It can be hard to know what's right and wrong when you start to dip your toes into the online cancer space.

What I'm going to do is explain what different doctors do, and what the different branches of medicine can offer and provide. This will make it easier for you when you have to make decisions.

What is a doctor?

There are actually three different types of doctor. The first is a doctor who's completed a formal medical degree, and I'm going to refer to them as mainstream doctors for the rest of this book. This extensive training earns them the right to put letters after their name. In the UK, we use MBBS (Bachelor of Medicine, Bachelor of Surgery). Some universities award MBBCh or MBChB, using the Latin Baccalaureus Chirurgiae instead of BS. In the US, they use MD, which means Doctor of Medicine.

As doctors go through their training, they take further exams, certificates and diplomas. This leads to more letters, and you might see these after your doctor's name on your medical letters. Some doctors choose to look after

you in the community. They are called primary care doctors or GPs (general practitioners). Others decide to specialise in one particular area of medicine. You could split us up into the surgical specialities, the medical and paediatric specialities, the x-ray and radiology specialities, and the laboratory-based specialities like the pathologists. We work in secondary and tertiary centres. The higher the centre, the more specialised it is.

I'm a breast surgeon, and my qualifications are MBChB, FRCS, PhD, PGDip (Oncoplastic Surgery). In the UK, surgeons aren't called 'doctors'. We go by our formal titles of Mr, Miss or Mrs. It dates back to the 1800s when the first surgeons didn't have a medical degree.

If the person treating you doesn't have MD, MBBS, MBChB or MBBCh after their name, then they've not had the four or five years of professional medical training that all mainstream doctors have had.

The second type of doctor is doctor of philosophy. It's the highest post-graduate degree you can earn, and you get to put the letters PhD after your name. Students normally take three to four years to produce significant and original research in one particular area in any field. I'm a double doctor as I have a PhD, and my research was in thyroid cancer development.

The third type is more common in the US. People working in professions associated with medicine, like chiropody, podiatry, osteopathy and naturopathic medicine, are sometimes called doctors when they qualify. A doctor of chiropody is an expert in foot and ankle conditions. A doctor of naturopathic medicine, called an ND, has a naturopathic medical degree, not a mainstream one. The two degrees are very different. I'll explain what naturopathic means in a bit. This is where you need to be careful because some of these doctors could use their title of 'doctor' to mislead cancer patients into thinking they're mainstream doctors who have studied medicine and oncology. It's important that you check the qualifications of anyone you pay to treat you outside of your mainstream oncology team.

What's the difference between mainstream, complementary and alternative medicine?

There are several branches of medicine, and the lines can get blurred between them.

Mainstream medicine

Mainstream medicine, also called conventional, traditional or Western medicine, is what most doctors around the world practise. It's based on the most conclusive, scientific evidence. Patient safety and clinical excellence are the cornerstones of modern medicine. Doctors are held accountable for everything they do. They aim to give you the highest quality care, measured against the latest guidelines and standards. They have to review and audit everything they do and stay up-to-date with the latest clinical developments.

The global medical community follows the ethical principles in the Helsinki Declaration.[1] This states that when 'an established, effective treatment for a condition is already available, withholding such treatment is unethical in most circumstances'. It means that we can only recommend treatments that have been proven to increase your chance of a cure. And if a newer, better treatment turns up, we have to tell you about it. And this is important because you might come across articles and videos talking about miracle cures that your doctors aren't telling you about. You now know that if a miracle cure did exist, we have to tell you about it.

Complementary medicine

This is a branch of medicine that is aimed at helping you holistically. It will not treat you or cure you. Complementary therapies are often used at the same time as conventional medical treatments, and recommended by mainstream oncologists to help with any side effects and improve your quality of life. They should not interfere with the benefits of standard treatments like chemotherapy and radiotherapy. Many cancer centres offer complementary therapies. They can help you to switch off and relax at a turbulent time, and many people find that they can help with the side effects of treatment. For example, acupuncture can help with menopausal hot flushes.

Over a third of people living with cancer use complementary therapies. They include meditation, yoga and tai chi, acupuncture, massage, reflexology, counselling and talking therapies like CBT, hypnotherapy and aromatherapy. I used acupuncture for my hot flushes – one of the side effects of my hormone-blocking drugs. It didn't work for me, but having an hour alone with the therapist was certainly worth it. Just being able to switch off and not have to worry about anyone else for those precious minutes made a big difference to my mental health. I've had talking therapies through all of my treatments and they definitely helped me come to terms with what has happened to me.

If you want to try complementary therapy, ask your cancer team or check out your local cancer centre. In the UK it could be the Macmillan centre in the oncology unit, or a separate building like a Maggie's centre. It's important that the person you see knows how to treat cancer patients and how to adapt any therapy so it doesn't interfere or interact with your mainstream cancer treatment.

Alternative medicine

There are several different branches of alternative medicine, and I'll cover them in the following pages. What they all have in common is that they have very different belief systems to mainstream medicine. They offer alternative treatments to the ones your oncologist recommends.

Alternative medical practitioners do not have to follow the Helsinki Declaration guidelines. The treatments are not based on robust evidence or patient trials. The doctors giving you these treatments do not have to monitor their results and publish them. They can give you 30 different treatments at the same time without any studies to say that this is safe and that they don't interact with each other. They don't have to audit or publish their complications. They can use testimonials given after a couple of weeks or months to prove that their cancer patients have been cured, without ever following them up to see if they are still alive.

Cancer treatments include vitamin infusions, dendritic cell vaccines, cancer diets, bioenergy treatments, ozone and oxygen therapy, and emotional healing. The list is endless, and every alternative treatment comes

at a cost. If you do decide to try an alternative therapy at the same time as your mainstream treatment, please tell your oncologist. We know that many patients are scared of being judged, and mainstream doctors can be very dismissive of alternative therapies. I've been guilty of this in the past. However, they need to know what you're doing so they can try to prevent you from coming to harm.

The Food and Drug Administration (FDA) in America has debunked[2] more than 187 bogus cures, calling them a 'cruel deception'. I love this quote[3] by Professor Edzard Ernst, one of the leading researchers in complementary and alternative medicine. 'It is clearly not an alternative. If a therapy does not work, it cannot possibly be a reasonable alternative to an effective treatment. And if it does work, it simply is part of medicine.' Or, as Tim Minchin succinctly puts it in his beat poem 'Storm': 'Do you know what they call alternative medicine that's been proven to work? … Medicine.'

I will admit to being biased against alternative medicine. I've lost several friends who said no to conventional treatment that could have cured them, chose the alternative route and died at a young age, leaving young families behind. I strongly believe that doctors should 'do no harm', and yet there are doctors all over the world charging vulnerable people tens of thousands of pounds who end up causing a great deal of harm. I've had to pick up the pieces when patients with a good chance of a cure who chose the alternative route have come back to see me with incurable disease. These are the stories we never hear about. The people who died when alternative medicine failed. I'm grateful to several of their relatives who kindly shared their stories with me. You will find them throughout the book to help you learn what can happen when mainstream medicine is turned down.

Functional medicine

This was invented in 1991 by a businessman called Jeffrey Bland[4] who sold dietary supplements. He created The Institute for Functional Medicine as part of one of his companies. He describes it as a 'systems biology-based approach that focuses on identifying and addressing the root cause of disease. The precise manifestation of each cause depends on the individual's genes, environment, and lifestyle, and only treatments that

address the right cause will have lasting benefit beyond symptom suppression.' Functional doctors believe that we get cancer because of an imbalance in our body. We are all walking around with tumours inside us. We just don't know it.

Functional medicine practitioners don't believe in the principles of traditional medicine. Dr Mark Hyman, a prolific functional doctor on social media with a huge following, is one of the board members. He's said[5] that mainstream medicine 'is as obsolete as bloodletting'. Functional doctors believe that cancer is due to seven core imbalances that each of us has. These are hormonal, oxidation-reduction, detoxification, immune and inflammatory, digestive, structural, and mind–body imbalances such as toxic emotions. Many functional doctors haven't had medical training. They are doctors of chiropody or osteopathy, and yet they are treating cancer patients and prescribing vitamins and infusions.

They describe our bodies like a tree. If the 'soil' is bad – our sleep, exercise, diet, stress levels, relationships and genetics, then the 'leaves' will develop symptoms. The 'roots' turn the soil bad – with mental, emotional and spiritual triggers and influences, and our attitudes and beliefs. It's where the term 'root cause' comes from. Other practitioners describe the body as a terrain, and urge you to boost the soil to get well again. They believe that if the root cause isn't fixed, then cancer can never be cured.

They might order hundreds of blood tests to work out why you have cancer. They will treat root causes that don't exist in mainstream medicine, like adrenal fatigue, or identify conditions you don't have, like heavy metal and fungal poisoning. Professor David Gorski, an American oncologist, reminded me that many of the companies who sell the blood tests have a get-out-of-jail warning. They say 'the tests we offer are not intended to diagnose or treat disease' or 'these statements have not been evaluated by the Food and Drug Administration', or 'this product is not intended to diagnose, treat, cure or prevent any disease'. And yet 'functional doctors' are using these tests to do precisely that.

Functional medicine can seem very appealing. Their doctors pride themselves on treating the whole person, not just your symptoms. They say that they spend time with their patients. They listen to their stories. Doesn't that make you want to be seen by them? Someone who really cares about you? And yet, that's exactly what mainstream doctors do. They spend time

with their patients. They don't always have the luxury of an hour to take you through your diagnosis and treatment plan. I used to get 10-minute slots to break bad news. They do listen to your stories. It's how they diagnose you. They do treat you as an individual based on your unique set of circumstances and your type of cancer. The only difference is that they're not shouting about how great they are on social media.

Integrative medicine

This was invented 15 years ago by a mainstream doctor called Dr Andrew Weil[6] to incorporate elements of complementary and alternative medicine into mainstream medical practice. He describes[7] it as a whole-person approach addressing the mind, body and spirit, using the slogan 'the best of both worlds'. It aims to focus on health and healing rather than diseases and treatments. Integrative medicine took off in America and it's now a recognised medical speciality.

Now some of the integrative medicine practices are sensible. Its doctors pay attention to lifestyle factors like sleep, diet and exercise. We know these can have an impact on physical and mental cancer outcomes, and they are all part of mainstream medicine, it's just that your oncology team doesn't always have the time in their clinics to go over these factors in detail with you. Their advertising can turn you against your oncology team. Integrative doctors say they are holistic, empathetic and treat patients like people. Well, so do mainstream doctors.

When we start to look at the actual treatments that 'integrative doctors' provide, away from the lifestyle advice, it starts to look more like a rebranding exercise for alternative medicine. Everything they recommend must have a little evidence behind it, but they don't need to have robust data to prove their alternative therapies can cure you. A small mouse study could be all the evidence they need to prescribe a vitamin infusion supplement to thousands of patients.

David Gorski, an American surgical oncologist and editor of *Science-Based Medicine*, says[8] that integrative medicine is just 'an attempt to bring pseudoscience into academic science-based medicine'. Arnold Relman, a former editor of *The New England Journal of Medicine*, had this to say,[9] 'There are not two kinds of medicine, one conventional and the other

unconventional, that can be practised jointly in a new kind of "integrative medicine". In the best kind of medical practice, all proposed treatments must be tested objectively. In the end, there will only be treatments that pass that test and those that do not, those that are proven worthwhile and those that are not.'

Naturopathic medicine

Naturopathic medicine[10] is another branch of alternative medicine that uses non-invasive, natural products to heal. It's based on folk medicine and the belief that our body can heal itself with a supernatural vital energy that guides your body's processes. Cancer arises when the body has been neglected by poor nourishment, physical and psychological stress. Naturopaths assert that diseases are the body's effort to purify itself, and that cures come from increasing your vital force. They stimulate the body's natural healing processes by ridding it of waste products and toxins. Medical treatment is less important than rebalancing the body. Its ethics have been questioned and there is no solid evidence base that it works.

High-profile 'naturopathic doctor' on social media Nasha Winters sums it up by quoting[11] Hippocrates, the 'Father of Medicine'. 'Illnesses do not come upon us out of the blue. They are developed from small daily sins against Nature. When enough sins have accumulated, illnesses will suddenly appear.' However, Hippocrates died in 370 BC and many of his beliefs were based on incorrect anatomy and physiology.

Whilst some of the recommended remedies, like psychotherapy, can help with the mental and emotional side effects of cancer, they cannot cure you. Naturopaths advise you to avoid vaccines and traditional cancer treatments like surgery and chemotherapy that have been proven to work. Instead, they recommend therapies like homoeopathy that have been widely discredited as cancer treatment.

Naturopathic medicine is banned in three American states and it is not regulated in the United Kingdom. There are naturopathic medical schools, but their doctors are not accredited and have no scientific medical training. They are not allowed to work in a clinical hospital environment. The US Department of Health, Education and Welfare said in a report[12] that 'Naturopathic theory and practice are not based upon the body of basic

knowledge related to health, disease and healthcare which has been widely accepted by the scientific community. Moreover, irrespective of its theory, the scope and quality of naturopathic education do not prepare the practitioner to make an adequate diagnosis and provide appropriate treatment.'

C's story, as told by a friend

C was diagnosed with bowel cancer. I know that he came to a point where he felt he had to make a choice between mainstream or alternative medicine. I know there are various groups on Facebook where you can find things once you start searching for alternative cures. You find people who believe what you want to believe don't you?

My suspicion with C is that somebody convinced him that alternative medicine was the only wise thing for him. He was a very sensitive, spiritual soul and I understand why mainstream medicine could have been problematic for him.

I think what he chose was mostly dietary based, no surgery. We just witnessed C getting weaker and weaker. He literally just wasted away before our eyes. He just fell for that line. He believed in alternative medicine.

The important point is that near the end he changed his mind and wanted to go back to mainstream treatment, but it was too late. Maybe when he was sold the line about alternative medicine, maybe he felt that he could always go back, and that he would try this first. He could have been cured. It's just so sad.

10. Why Do People Turn to Alternative Medicine?

When it comes to our health, no-one wants uncertainty, and yet it's a natural part of our life. Our bodies are constantly changing, minute by minute and day by day. And yet we ask for certainty from our doctors. When you're faced with a life-changing diagnosis like cancer, you're desperate for something to hold on to. Hope that you will be one of the many lucky people who is cancer-free after treatment. The motivation to keep living, searching for one thing that will guarantee that you're cured.

That's where alternative medical providers seem so seductive. They offer certainty and seemingly guaranteed success backed up by testimonials of patients who they claim to have cured. Their treatments, they claim, are safe and effective. Side effects are rarely mentioned. It's all about the positives, leaving you with hope for the future. Suddenly the need for evidence and proof goes out the window. One testimonial can be enough to convince you that it's worth turning down conventional cancer treatment and risking it all on a natural miracle cure.

But when it comes to cancer, no-one can predict the future. There is no test that can tell you for certain whether your cancer will come back. No-one can guarantee that you'll be cured, despite what alternative doctors might say. I've spoken to the relatives of several people who died when they rejected mainstream treatment and chose alternative medical therapies instead. Their stories are heart-breaking. You'll be able to read for yourselves the grim reality of alternative medicine that rarely makes the headlines.

Now I'm an unusual cancer patient. I have expert inside knowledge. I knew the statistics about my chance of being alive in 10 years after

chemotherapy, surgery, radiotherapy and hormonal treatment. But I also knew what happens when these treatments stop working and cancer is no longer curable. I've seen it happen in patients who had good odds of survival. I saw my own mum die from cancer. I know that feeling of not wanting to accept that mainstream medicine is all there is. But I also know that alternative medicine doesn't work and that's why I stick with the doctors that I trust.

Some people will choose this route because alternative medicine providers say that they'll treat you as an individual. To them, you're not just a patient or a set of symptoms. But every mainstream doctor does this too. It's just clever marketing to make you think that doctors like me are cold and heartless and don't really care about you. This couldn't be further from the truth.

For other cancer patients, it comes down to money. Every alternative medical treatment has a price, sometimes tens of thousands of pounds. In the UK we're lucky to be treated for free on the NHS. It can be eye-wateringly expensive to follow the lure of a cure. However, in other countries where you pay for your health-care, if you don't have or can't afford health insurance, mainstream cancer treatment can cost hundreds of thousands of pounds. Now alternative medicine is the much cheaper option.

You might go to an alternative doctor for a second opinion. I wanted a second opinion on whether I needed a second round of chemotherapy for my first recurrence. My oncologist was completely honest with me and said she wasn't sure whether I should have it or not. It might stop it coming back again, but there could be some difficult and permanent side effects to deal with. I spent hours trying to work out who to see. This was the rest of my life I was dealing with, and I didn't want to waste my money by seeing the wrong doctor. I had four or five options and I didn't know which doctor to choose.

And that's when it hit me. I should take the advice from the doctor who would tell me what I needed to hear, not what I wanted to hear. There's a subtle difference. If I want to do the opposite of what my doctor recommends, even if it could lower my chances of survival, am I going to keep paying to see specialists until I see someone who agrees with me? This reminds me of Elle Macpherson, the Australian supermodel, who wrote that she saw 32 different doctors to help her decide what to do after breast

cancer surgery for pre-invasive breast cancer. The alternative is to be prepared to hear the uncomfortable truth and do what they say.

My husband Dermot, who's also a surgeon, and I thought long and hard about what we should do. I didn't have the energy to keep shopping for oncologists until I found one who could promise that my cancer wouldn't come back, and I'd have no side effects. I needed an expert to tell me what to do based on the latest evidence and their experience of looking after patients like me. I was still in denial, fighting to come to terms with what had happened and scared about what might happen next. I asked one of my old bosses who she would trust and made an appointment.

Dermot and I agreed what we would do before we went into the room. If she agreed with my oncologist I would have radiotherapy. If she said 'no', then I would say 'no' as well. That doctor agreed with my oncologist. I had the radiotherapy and the unpleasant side effects, and I know it was the right choice for me. Despite being forced to retire as a surgeon because my left arm was weak and stiff, despite the chronic pain and scarring I was left with, I gave myself the greatest chance of a cure, based on the evidence available.

In the alternative medical field, second opinions can come from strangers in Facebook groups and online videos. Glowing testimonials on YouTube and clinic websites. The pressure to choose this route can also come from our family and friends with their own strong opinions. It can be very, very hard to say 'no' to them. After all, what have you got to lose? I remember my mum saying to me when I was first diagnosed that if there was a clinic in Mexico that could promise you'd be cured, she'd find the money to send me there. And I get where she was coming from. The pain of watching her daughter go through chemotherapy was too much to bear. The offer of natural remedies that avoid toxic side effects can be very persuasive when chemotherapy is on the table.

I spoke to Alan Levinovitz, author[1] of *Natural: How Faith in Nature's Goodness Leads to Harmful Fads, Unjust Laws and Flawed Science*, about this. He said there are studies of perceived risk of foods where if a food is understood to be unnatural it's more risky, whereas if the food is perceived to be natural, it's less risky. People can't think clearly about the risks that are posed by natural interventions. I also think if they're using a

natural/unnatural binary choice they're going to think that mainstream cancer treatments are riskier than they are.

We chatted about how we live in a world with very little idea of how things work – our computers, our electric cars, our mobile phones … and we accept that. But when it comes to our bodies, we want to understand cancer. If our cancer was caused by an unnatural world, then the only way to heal it is a return to naturalness. Alan went to a Florida clinic as research for his book after hearing about a child with curable leukaemia who had died after going there. The clinic was 'curing' cancer patients with wheatgrass. He said that the people going there to be treated were intelligent. They weren't cult-ish. It's just that they needed the logic of naturalness at a time when they needed that kind of comfort.

He reminded me that mainstream doctors don't have enough face-to-face time with their patients. But with natural health practitioners, not only are they giving them a worldview that makes sense and explains their suffering, but they're also giving them time. That combination is tremendously powerful. He thinks that when faced by a crisis, people just want hope and certainty. There's nothing more certain than unnatural is bad, natural is good. I mean, short of 'God and Satan' it is the most ubiquitous simple binary explanation in the world. Everyone latches on to it for everything.

I wonder whether people turn to natural remedies that offer hope and certainty because deep down we're all scared of dying? I know I was, even though it's the only true certainty we have. How are you meant to move forward after a cancer diagnosis when your doctor can't guarantee a cure? Perhaps it's our way of dealing with the grief that comes with the loss that cancer can bring. The loss of our body image, identity, fertility, sexuality, mobility, job, financial stability, social status, friends and relationships? Alternative medicine providers offer us a chance to regain control over our lives. To take action. They tempt us with something new. Something different. Something our doctors don't know about.

There's something about getting a great deal, in this case the promise of a cure, that can feel exhilarating and soothing at the same time. Just buying a product can make you feel amazing. I know I'm not the only one who's dressed up to go to a beauty counter hoping for a branded bag full of samples. Mission accomplished, I come home beaming with my collection

of serums and cleansers that will have gone off by the time I get around to opening them.

I've fallen prey to the power of clever marketing. In my twenties I spent hundreds of pounds on miracle face creams that promised to undo the ravage of night shifts and my terrible diet. I was drawn in by the photoshopped images of women with glowing skin wearing clothes I dreamed of owning. If I bought the cream then I too would look like them. The reality was that while my face was slightly less dry, nothing else had changed. I still did night shifts and lived off ready meals. I wore clothes from the supermarket to work because they were easy to clean if a patient vomited on them. Without the skills of a make-up artist and clever lighting I was never going to look like the women in the adverts. I wanted an easy win. I didn't have the time, energy or motivation to overhaul my lifestyle. And that's what a lot of alternative treatments are. They're a quick fix, not a permanent cure.

The vast majority of alternative medicine doctors, influencers, clinics and supplement companies use clever marketing tools to encourage us to buy their products. Their livelihoods depend on them making the sale. They know the magic words to entice you, and I'll cover the red flags you need to watch out for in Part IV. The power of a testimonial from a cancer patient who says they've been cured is often enough to make us say 'yes'. We don't even think about whether there's research to back up the claim or what our doctors would say. We want to be part of that world. We want our chance of a cure.

The author Tim Caulfield[2] told me that in recent years this marketing has shifted. 'In the old days, it used to be a different way of knowing. It's a philosophy. It's spiritual, right? Now they root their justifications in science. They say "My cleanse works because it benefits your microbiome which helps boost your immune system which helps you fight cancer", or "We're going to test your genetics and find out what kind of supplements you need". And in some ways, I think that that helps us because as soon as you start talking that way, it's entirely legitimate to critique you based on science, right? I call it science-ploitation. When a supplement company says that because there have been over 700 studies that looked at cannabis, it must be true. They don't tell you that they're all in cells or mice. It's not the same as a peer-reviewed journal. But for you to counteract it, you've then

got to dig up all the research and do the work to say, actually, this isn't true. And then still people don't listen because we're the bad guys.'

Tim went on to talk about the imagery that alternative medicine companies use. 'They have sunflowers, people running on the beach and people holding hands. Underneath it though is this darkness and fear in the marketing. It's really about fear-mongering, despite the imagery. They try to make it sound like they're here for you. They're selling you a new life. But that's not the case if they're taking your money. And in order for that to work, they have to demonise the current system, society and science.'

The truth is that if any of these alternative treatments worked, they wouldn't be alternative. They would be embraced by mainstream doctors all over the world and routinely offered to cancer patients as part of their normal treatment. But they're not, and for good reason, as you'll see later.

The Bottom Line

As a mainstream doctor I am obviously going to recommend that you stick to the treatments that your cancer team recommends. They will be based on the latest evidence and guidelines with data from thousands of patients proving that they increase your chance of a cure. If you want to try complementary therapies to help you cope with the side effects and improve your quality of life, then go for it. Check out your local cancer centre or ask your team for recommendations.

When it comes to everything else, I would urge you to tread carefully. There is no proof that alternative treatments can cure you. There is very little evidence to show that they are even safe or what the long-term side effects might be.

11. How Is Cancer Treated?

In this chapter I'm only going to refer to mainstream oncology treatments that are recommended based on robust evidence and trial data. There are national and international guidelines based on the latest evidence that suggest how each cancer should be treated. Your cancer team has concrete proof that these treatments will either cure you, or decrease your risk of recurrence. They assess you, your overall health and lifestyle, to ensure that the benefits are greater than the risks. They will help you decide if the side effects and collateral damage of each treatment are worth it for the chance of a cure.

There is no standard treatment for any one cancer. Everything your cancer team does is tailored to your individual cancer size, grade, receptors, how fast it is growing, what mutations it might have, whether the local lymph nodes are involved and whether it has spread.

Before I explain what all the treatments are, I want to talk about the process every mainstream doctor has to go through when they recommend a treatment. It's called informed consent.

Informed consent

Before a healthcare professional can do anything to you, they need to get your consent.[1] For something simple like having your blood pressure taken, the fact that you've rolled up your sleeve and offered your arm is taken as consent for the procedure. When it comes to cancer treatments that have potentially serious side effects, like having surgery, chemotherapy or

radiotherapy, for example, your doctor needs to follow a more formal process.

Informed consent is an ethical and legal obligation. As a surgeon, I cannot do anything to you without it. I have to give you all the relevant information: the benefits, the risks and the side effects, and how likely they are to happen. Only then can you make an educated decision about whether to go ahead. If you are too ill, physically or mentally, to decide what to do, your medical team makes decisions on your behalf based on your best interests. Your family can only decide for you if they have a legal document called a Lasting Power of Attorney for Health and Care Decisions.

Why do we need informed consent?

There is no cancer drug, procedure or treatment that is completely risk-free. Everything has the potential to cause side effects. Complications happen. Some of them can be serious, even fatal. Treatments don't work and some cancers come back. You need to know all of this to help you weigh up whether the risk of having the treatment is better than the risk of doing nothing.

What are the principles of informed consent?

I'm going to use chemotherapy as an example. Before you can fully consent to having treatment, you must have been told in simple jargon-free language, and be able to understand the following:

- Why is it being recommended and what are the benefits? You need to know why your doctor wants you to have it. Is it to cure you, or to reduce the risk that it will come back in the future? You can ask your doctor what evidence they have to show that it will do what it's meant to.
- What does it involve? How are the drugs given? How many times will you have them? Will you have them at home, in a clinic or on a hospital ward?

- What are the side effects and complications? You need to know what the common side effects are, as well as the rare ones that could be life-threatening. Your doctor should tell you how likely you are to get them, whether they will be permanent or not, and how they will help you manage them.
- What are the alternatives? Finally, you need to know about all the other options, if there are any. You also need to know what is likely to happen if you decide not to have chemotherapy.

After all of that, it's up to you. You know the pros and the cons, the risks and the benefits, and what is likely to happen if you do or don't go ahead with treatment. You have been properly informed. You can never know if a cancer treatment will cure you. All you can do is make decisions using the most up-to-date evidence that your doctors have.

What I now realise is that the problem with informed consent is that it's very negative. Most of the time is spent talking about problems and complications and side effects. I came away from my chemotherapy discussion feeling distraught about everything I was about to lose – my hair, my fertility, my taste buds, my energy. The list of potential side effects was unpleasant and I spent hours worrying about how bad they would be.

Very little time was spent talking about how great chemotherapy is. I think it's because, as doctors, we assume that our patients trust us to only recommend the most effective treatment. Oncologists don't always have the luxury of time to cover the good stuff in more detail. To tell us about the trials that have shown people are living longer and longer because of these chemotherapy drugs. And let's be honest, it's going to be incredibly hard for a doctor to be excited about the fact that they get to give you chemo. Especially when they can't promise that it will cure you. It all comes down to risk, and they have no way of knowing what will happen to you in the future.

What happens when we contrast this with alternative medicine providers. They are under no legal obligation to go through informed consent. They have the luxury of time, which you are paying for. They make you feel like they really care about you. They can focus on all the positives of the treatments they recommend. They don't have to tell you about the other

options (like chemotherapy and surgery). They don't have to tell you about the side effects and complications. They don't have to look after you if their treatments don't work. They can guarantee a cure, even if there's no real evidence to prove it. They offer certainty and hope. It must be a very different experience, and I can see why it might be so compelling compared to the doom and gloom of a chemotherapy consultation.

It is your decision what treatments you decide to have. No-one can judge you because they're not in your shoes. You only have one life. However, if you are considering leaving mainstream medicine behind, I would urge you to continue reading to the end of Part III to help you decide who to trust and who to give your money to. Ask your oncologists for their opinion. Let them know what you're thinking of doing.

Now they might be dismissive, like I used to be. You might think they're being cruel, callous and cold-hearted. But trust me, it's only because they've looked after the people who've come back with incurable cancer when these other treatments failed. I know how awkward it can be when you have questions about the treatments being offered. I had to ask my own oncologist about a trial I knew she hadn't heard of. I was so scared going into that room, thinking that I knew more than she did.

But when you have cancer, it can become a full-time job. You become fully invested in searching for anything that will keep you alive. I would encourage everyone to go to their oncologists with a list of questions. That consultation is for you, after all. You could even email them in advance so your doctor has time to do some research first. It is your body and your choice. Please don't let the warmth and positivity of holistic practitioners lead you into thinking that they care more about you than your oncologist does. This may sound harsh, but they just want your money. Your oncologist just wants you to live.

12. Mainstream Cancer Treatments

In this section I'm only going to talk about the mainstream cancer treatments that your surgeon or oncologist will recommend. However, there are other treatments that can have a big impact and can lower your risk of recurrence. I'm talking about lifestyle factors, especially exercise. There is enough evidence to show that it should probably be the first treatment that every cancer patient is prescribed, and I'll tell you why in Part IV.

Surgery

Surgery is another word for an operation. Most operations involve removing the cancer from your body. For the majority of solid tumours, this is the main cancer treatment and it gives you the best chance of a cure.

You might have other treatments before surgery, such as chemotherapy and targeted therapy to shrink a cancer and make it easier to remove. This is called neoadjuvant treatment. You might have treatments after surgery to reduce the risk of your cancer coming back. This is called adjuvant treatment and can include chemotherapy, radiotherapy and hormonal therapy. The aim of this treatment is to reduce the risk of a recurrence.

Not everyone is suitable for surgery. It depends on many things, such as the size of your cancer, where it is, whether it has grown into neighbouring organs or tissues, and whether you are strong enough to tolerate the operation and recover afterwards. Your surgeon will try to remove the entire cancer. If that's not possible, they will remove some of it (called debulking) or perform procedures like a colostomy to ease symptoms from a blocked bowel, for example.

If your cancer has spread to other organs at the time you were diagnosed, you will probably be started on treatments like chemotherapy to slow down the growth. I'll cover why and how often this happens in Part IV. In this case, your surgeon might not recommend an operation to remove the initial tumour. This is because the aim of surgery is to cure you, and metastatic cancer can't be cured. There are also potentially serious side effects from an operation. However, some surgeons will remove the cancer to reduce the amount of cancer in the body and give other treatments the best chance to prolong your life. It depends on your cancer type, your symptoms and your general health. There are no fixed guidelines for cases like this, and your surgeon and oncologist will work together to give you the best treatment plan.

You will probably come across stories of cancer patients claiming they were cured with special diets and supplements. Most of the time, however, they had surgery first, which gave them the greatest chance of a cure. It is therefore impossible for them to prove that their diets and supplements had a greater impact than their surgeon did when it comes to a cure. Having said that, simply eating a lot more fruit and vegetables and cutting out salty and sugary snacks (the premise behind most cancer diets) will make most people feel healthier and want to exercise. And as you'll learn in Part IV, eating a healthy diet and exercising can reduce the risk of a recurrence. It's just that these influencers are packaging common sense into cancer cures and making money from them.

H's story, as told by a friend

In Indonesia there's a big mistrust of medicine in general, of doctors in general, this myth about cancer where it says that if you operate on the cancer, it will spread more easily than if you don't operate.

One friend from work, H, died last year. She was diagnosed with breast cancer, and she didn't tell her family. I think a week before surgery her family found out, and they told her not to get surgery. So, she didn't go. She cancelled the surgery and went down the homeopathy route for about a year. Her cancer got so big that it broke through her skin. H's husband

drove her to the A&E with an open wound. She then had surgery, chemo, radiation, the whole package. A couple of months later she had her blood work taken and all the cancer markers were through the roof. Three weeks later H was dead.

Chemotherapy

Chemotherapy is a systemic treatment that uses strong drugs to kill cancer cells, it travels through the bloodstream and affects all the cells in the body, and it's given for several reasons. The commonest reason is to reduce the risk that a cancer will come back. This is called adjuvant treatment. It is used to try to cure blood and immune-cell cancers like lymphoma. It can also be given before surgery to shrink a cancer, monitor how it responds to treatment and give the greatest chance of a cure. This is called neoadjuvant therapy. It is also used as part of a bone marrow or stem cell transplant. Finally, chemotherapy is a common treatment for some metastatic cancers that have spread. Your doctors hope that it will shrink the cancers and stop them growing.

Chemotherapy drugs work by killing cells that are actively dividing. Cancer cells grow far more quickly than healthy cells, so more of them are destroyed. But some healthy cells (like hair, nails and the lining of our gut) will be killed as well. That's why chemotherapy has so many side effects. Your body should eventually repair or replace the normal cells, while the cancer cells are permanently destroyed.

You might be wondering why chemotherapy isn't given to everyone. It's all to do with the side effects. I've had chemo, and it's not fun. They can be permanent, like hair loss, numbness in your fingers and toes. There is also the risk of death from a simple infection, because your immune system is so weak. You have to be well enough to tolerate the side effects, and the benefit has to be greater than the risks.

This means that if you have a small, slow-growing cancer with a very low risk of recurrence, it is not worth risking your health to give you chemotherapy. However, if you are young with a large aggressive cancer and a higher chance of recurrence, it is definitely worth giving it to you.

No-one can guarantee that chemotherapy will work for you. All we have is trial data. It tells us that if we give chemotherapy to 100 people with your exact cancer, a certain number will still be alive in five or 10 years' time. The more people chemotherapy will cure, the greater the potential benefit to you.

The drugs are given as an infusion into your vein through a cannula, PICC line or a port, or you swallow a tablet. There are over 100 different chemotherapy drugs in use at the moment, and your oncologist will recommend the drugs shown to have the best results for your cancer. Some people get one drug whilst others get a combination that works in slightly different ways.

Stem cell transplants

A stem cell is a blood cell at its earliest stage of development. They're made in your bone marrow. Stem cell transplants are used to treat lymphoma, myeloma and leukaemia. After high-dose treatments like chemotherapy and radiotherapy, your damaged bone marrow is replaced with a donor's healthy one. This new immune system will hopefully kill any remaining cancer cells. The aim is to put your cancer into remission.

Radiotherapy

Radiotherapy uses ionising radiation in the form of high-energy x-rays to treat cancer. It is used to decrease the chance of a recurrence after surgery, for example, in breast and some gynaecological cancers. If your cancer has spread to your organs, bones or brain, it is used to shrink those areas, and to help symptoms like bone pain.

The radiation damages the DNA inside the cells that are targeted. It can take several weeks for the DNA damage to build up, and cells continue to die for several months after your treatment ends.

Radiotherapy takes a lot of careful planning. You have a detailed scan so your team can map out exactly which bit of your body they need to target, and which dose to use. The beams are intensely concentrated on the area where your cancer is, or was (before surgery), but some normal cells are affected as well, and that is why there are side effects in the area that was treated, which can continue for a long time for some people.

Most people have external beam radiotherapy. This is when you lie on a radiotherapy table and the beams go through your skin to reach the target area. You may have pin-prick-sized permanent tattoos to help the team line up the lasers accurately every time you have a treatment.

Some cancers are treated with internal beam radiotherapy, where the radiation source is put inside your body and the beams go directly to the cancer site. If probes, seeds, capsules or ribbons are used to deliver the radiation, it is called brachytherapy. It is commonly used to treat head and neck, cervix, prostate and eye cancers.

If you have thyroid cancer, your radiotherapy is given as a radioactive iodine solution which travels through your blood and targets thyroid cancer cells. If you have this, your urine, sweat and saliva will be radioactive for a while. You have to stay in hospital for this treatment to prevent you harming anyone you might come into contact with.

If you have leukaemia, lymphoma or myeloma, you could be offered total body irradiation to prepare you for a stem cell or bone marrow transplant. It’s often given at the same time as chemotherapy to kill cells in your bone marrow, and like thyroid radiation, you stay in hospital for this treatment.

Targeted therapies

Targeted therapies (sometimes called biological therapies and immunotherapies) are drugs that target proteins that control how your cancer cells grow, divide and spread. They can also stimulate your immune system to attack cancer cells.

Monoclonal antibodies

The commonest type of targeted therapy, these are proteins designed to attach to specific targets on cancer cells. Some make cancer cells easier to identify by your immune system. Others stop cancer cells growing by blocking growth signals or stop them forming blood vessels. Some make them self-destruct and others carry chemotherapy or radiation directly into cancer cells. Normal cells aren't harmed.

Immunotherapy

This is a targeted therapy that helps your immune system specifically destroy cancer cells that have found a way to avoid being killed. There are four different types of treatment. Some allow your immune system to go into overdrive to attack cancer cells instead of being kept in check. Another therapy takes white blood cells called T-cells that are found near your cancer and boosts them in the laboratory to supercharge it. The cells are then given back to you as an infusion so they can find and destroy the cancer cells. This is called CAR-T cell therapy. Others mark cancer cells with a protein so they are easier to find.

There is also research looking at developing vaccines to increase your immune system's response to the cancer cells and there are several trials looking at advanced melanoma and breast cancer. This is in a very early stage. There are no vaccines that can treat or cure cancer at the moment, so if a clinic tells you they have them, they are lying. Immunotherapy doesn't work in everyone and at the moment we don't know why.

Hormonal therapy

A hormone is a protein that tells certain types of cells what to do. There are sex hormones like oestrogen and testosterone, and other hormones like insulin, cortisol and adrenaline. Some cancers, like breast, prostate, endometrial (womb lining) and some adrenal cancers, depend on hormones to grow. Hormonal therapy aims to block or alter how these hormones work

or stop your body making them, in order to slow down or stop cancer growth. It is also used to help with the symptoms of prostate cancer in men who aren't well enough to tolerate surgery and radiotherapy.

There are three types of hormonal therapy. The first are tablets, like the breast cancer drugs Tamoxifen, Letrozole and Anstrazole. Tamoxifen stops breast cancer cells recognising oestrogen. Letrozole and Anastrazole stop your body making oestrogen after the menopause. The second is an injection, like Zoladex. This switches off your ovaries and stops them producing oestrogen. The third form is an operation to remove your ovaries or testicles that produce sex hormones. This is permanent.

Some patients will be given hormonal therapy before cancer surgery, some will have it instead of surgery and some will have it after surgery.

The type of hormone therapy you get depends on what kind of cancer you have, whether it has spread and your general health. Some people with early breast cancer may be given hormonal blockers for five or 10 years, whereas people living with advanced prostate cancer may be on therapy for life.

Hormonal therapy has significant side effects because your sex hormone levels have been drastically lowered. Common ones include hot flushes and night sweats, mood swings, breast pain, bone thinning, loss of libido, fatigue and difficulty getting an erection. Some hormone blockers also have a small risk of causing endometrial (womb lining) cancer. Most patients find that the symptoms settle down after a couple of years. However, the side effects can make you miserable and wonder whether it's worth staying on the drugs. I'm now on my fourth hormone blocker and nine years of menopausal side effects, and there are days when I feel very, very sorry for myself.

It's because of the long list of side effects that hormonal therapy is only given for five or 10 years to people with early cancer. At that point, the risks start to outweigh the benefits. Your medical team will be able to recommend other drugs that can help with some of these side effects. And if you are struggling to cope, please let your oncologist know. They may be able to switch you to a different type of therapy, lower the dose, recommend a treatment break or help you decide whether to stop taking them based on your individual risk of recurrence.

Photodynamic light therapy

This treatment uses a drug that's activated by a light like a laser to produce free-radicals that can kill cancer cells. It is used to treat some skin, oesophageal and lung cancers and to relieve symptoms.

Laser therapy

A laser is a focused beam of light that can destroy tiny areas of tissue, called laser ablation. It can kill small patches of pre-cancerous cells in the cervix, vulva and vagina, shrink and destroy some cancers and relieve symptoms due to a blockage or bleeding.

Cryotherapy

Cryotherapy freezes small patches of cancer and pre-cancerous tissue to destroy them. We use liquid nitrogen for basal cell skin cancer. To treat cervical pre-cancer, a probe is inserted inside the cervix and argon gas is used to freeze the cells.

Electrochemotherapy

This treatment combines chemotherapy with a small electrical current to treat cancers that have started in the skin, or spread to the skin and can't be surgically removed (like breast, and head and neck cancers). The electricity helps to get the chemotherapy drugs directly into the cancer cells.

13. What's the Harm in Using Alternative Cancer Treatments?

Whilst there are some alternative cancer therapies that probably won't do any harm in the short term, there are others that could cause serious harm. The problem arises when people with cancer turn down mainstream medicine and rely only on alternative cancer treatments.

Now this may shock you, but there are two studies[1,2] that have proven that people with cancer who turn down mainstream treatment and only use alternative therapies are more likely to die. Dr Skyler Johnson and his team reviewed the data from almost two million potentially curable American cancer patients. Those who rejected mainstream treatment and only used alternative therapy were more than twice as likely to die than those who stuck with conventional treatments. Let me say that again – patients with potentially curable cancer who chose alternative treatments instead of traditional ones had double the risk of recurrence and death. They were also more likely to refuse conventional treatment, and this was one of the reasons why the death rate was so high in this group of people.

When they looked at specific cancer types, women with breast cancer who only used alternative therapies were nearly six times more likely to die in the next five years. For bowel cancer, the death rate was four and a half times higher. And these were people with potentially curable disease. What stood out to me from the study was that most of the people opting for alternative cures were female, younger and highly educated, with disposable income to spend.

I spoke to Skyler, an assistant Professor in Radiation Oncology at the University of Utah. He thinks that people are looking for that alternative information because they're in a vulnerable situation looking for hope,

autonomy and to be in charge of their own health. What's the harm? In some situations, it might be nothing, but in others it could interact with cancer therapies. It could result in delays or interruptions. It could result in some direct toxicities, indirect toxicities, financial toxicity. So, there are very real consequences that need to be considered.

When he was doing the initial studies about the number of people who survived after choosing alternative treatment, he saw the numbers were much lower than patients who stayed with their oncology team. And then he realised that these points on a graph were real people. People with families who made a decision that ended their life prematurely. That's what continues to drive him to work in this field of counteracting misinformation. People's lives are at stake.

And, as Skyler said, death is not the only harm that can come from choosing alternative cancer treatments.

Psychological harm

The stress of choosing a treatment that your doctor hasn't recommended can be huge, especially if your family and friends disagree with you. Relationships can break down at a time when you need them the most. That stress increases drastically if the alternative treatment doesn't work and the cancer comes back. Most clinics don't offer your money back when this happens. Some will even blame you for leaving it too late to come to them. They might say that the chemotherapy you had first has caused too much damage to your immune system for the infusions and light waves to work. Patients will blame themselves for not trying hard enough or being strict enough with the diet when they are now facing incurable cancer.

False hope is the cruellest form of advertising used by alternative medicine providers. It lures patients away from effective treatment. Even when people have incurable disease, it's still used to promise a miracle cure. This can be devastating when the inevitable happens. Instead of being supported to accept and prepare for death by their medical team, patients remain in denial. Wills aren't written. Advance care plans aren't considered.

Final visits with loved ones aren't made. They end up wasting the little time and money they have left on the promise of a lie.

Financial harm

Whilst some alternative treatments cost tens or hundreds of pounds, there are clinics who charge thousands of pounds to cure you. One Mexican clinic charges $38,000 for a three-week stay, and they recommend weekly top-ups every couple of months.

These clinics will help you to find the money, recommending crowdfunding sites or asking your friends, family and church for donations. They will suggest you cash in your pension or remortgage your house so you can be treated. A study[3] in the *British Medical Journal* found that over £8 million had been raised on UK crowdfunding websites between 2012 and 2018 for alternative cancer treatments. That number is getting higher by the day.

Vulnerable cancer patients are bankrupting themselves. It's the grieving families who have to pick up the pieces of this massive debt when the treatments don't work. Clinics don't offer a money-back guarantee.

In the UK, everyone is treated for free on the NHS, but in countries where you have to pay for your cancer care, chemotherapy can cost hundreds of thousands of dollars if you don't have insurance. I cannot imagine being in the position that you can't afford the treatment your oncologist says you need. But I now understand why alternative medical clinics would seem more attractive at a fraction of the cost.

Making conventional cancer treatment less effective

In an ideal world we would get all the vitamins and minerals from our diet, but taking a generic multi-vitamin every day can make sure you're not

missing out.

Some cancer patients are prescribed supplements by their oncologists. For example, breast cancer patients taking a type of drug called an aromatase inhibitor can develop osteoporosis. To prevent this, they're prescribed a calcium and vitamin D tablet to boost their bone strength.

However, some cancer patients take supplements to help them cope with the side effects of treatments, such as hot flushes and brain fog. And while the majority of supplements sold online are probably harmless in healthy people, they could interact with normal cancer drugs and make them less effective, increasing your risk of recurrence and death. Here are just a few examples.

Tamoxifen is a drug widely used to prevent breast cancer recurrence. It is metabolised by a group of enzymes that turn it into a much more active form of the drug. But those enzymes are also needed to metabolise a wide variety of supplements, like St John's Wort and turmeric. This means that there aren't enough enzymes left to break down Tamoxifen and it stops working.

Radiotherapy works by creating free-radicals in cancer cells to destroy them. If you are taking very high doses of antioxidant supplements like vitamin C, far higher than the safe daily upper limit, they can stop radiotherapy working and increase the chance that a cancer will come back.

Alternative treatments interacting with each other

There are clinics in Mexico that will recommend a combination of over 30 different infusions, supplements, enemas and vaccines all at the same time. There are no studies that have looked to see if it's safe to do this. We have no idea if they interact with each other or any other medications you might be taking. We have no idea if one supplement cancels the other out, or increases the risk of serious side effects.

B's story, as told by a friend

B was diagnosed with bowel cancer. He had ignored his symptoms for a long time. He was eventually diagnosed but he wouldn't engage with proper treatment at all. He wanted to go to Mexico for juice cleanses and detox to flush the toxins out of his system.

He went twice over a period of about three months and came back looking worse. He wanted to go again but he was too ill to travel. He just rejected everything that might be remotely sensible, and even in the face of his own deterioration he was convinced that this was the way to go. You couldn't reach him at all with any kind of logic.

B thought that his doctors were being paid by Big Pharma and believed other nonsense that you see online. And so, he chose to go to Mexico, borrowing thousands of pounds that he didn't have. I think that he re-mortgaged his house. And then he deteriorated really quickly.

Right at the very end you know, in the last couple of days, I think he got to that point, suddenly thinking, 'Oh shit. If only. What have I done?'

Before his diagnosis, there was nothing in his day-to-day behaviour that would make you think that he was someone who would take his health seriously. But I also think he might have had a sort of conspiracy, anti-establishment type mindset. And I think once people are in that vein of thinking about one thing, then it's incredibly easy for it to proliferate across to health, you know?

What's sad is that he had children and was about to be a granddad, and he's missed all of that. I genuinely don't know whether B ever did believe that it was going to make him better or whether it was just a distraction from the reality he was facing? He just didn't want to hear it, and now we'll never know.

14. Things That Don’t Cure Cancer

There are so many alternative treatments out there that I could fill another two books explaining what they are and why they don’t work. What I’ve done is concentrated on the ones I regularly get asked about, and the ones you’re most likely to have heard of. I’ve divided them into two sections – diets and supplements. I’ve left out the biomagnetic resonance therapy, dendritic cell infusions and infra-red lasers. However, at the end of this section I’ll leave you with a couple of websites where you can get accurate information about these alternative cures.

Cancer diets

I had no idea that cancer patients wanted to know what to eat once they were diagnosed. I just thought that everyone knew what to eat. I was wrong. Cancer diets are everywhere. The diet industry is worth $60 billion. It’s big business. There are over 10,000 cancer diet books on Amazon.[1] Newspaper headlines, podcasts, videos and social media posts offer simple dietary solutions to stop our cancer coming back.

I spoke to Dr Idz, a doctor with a masters in nutritional research and author of the book *Saturated Facts*[2] about why there is so much misinformation when it comes to nutrition. This is what he said.

‘People are very emotionally tied to their diets and their reasoning around what they eat. It almost becomes a personal insult to them when you tell them that. A lovely analogy I love to use is this. You won’t find people arguing online about the best way to build a skyscraper or the best way to build a plane, because unless you’re a professional engineer you’re not

going to talk about it. But for some reason, everyone loves to argue or debate around the best way to eat, or the best diet to have, or the best way to live your life. And because everyone eats, they think their own personal opinion gives them expertise. It doesn't.'

He's right. What we eat or don't eat is very personal. We make individual choices every day based on what we think is the right thing to do. Maybe that's why it's easy to be influenced by the promise of a cancer diet?

In Part IV I'll tell you exactly what you should be eating to reduce your risk of recurrence, but for now let's start tackling some of the commonest cancer diets.

Sugar and the keto diet

I talked in Part II about sugar and the Warburg Effect. You now know that sugar doesn't cause cancer. But many alternative medicine doctors still think it does. And that's why they say that you need to cut sugar from your diet if you want to be cured.

Let's revisit the Warburg Effect. It's a phenomenon that belongs to some cancer cells. They use a lot more sugar (glucose) for fuel than healthy cells. This is the basis of a positron emission tomography (PET) scans. They use that high sugar uptake to look for, and monitor, signs of cancer recurrence. A radio-labelled marker is attached to glucose molecules which are injected into your bloodstream. In the scanner, cancer deposits show up as bright spots because they use more of the glucose compared to the rest of the body.

Does cutting sugar starve cancer cells?

Functional medicine doctors use the PET scan as proof that cancer cells can only use sugar for energy. It therefore makes sense that if you starve the body of sugar, cancer cells will die. It's quick and easy. Compared to chemotherapy, it seems like a no-brainer.

But we know this isn't true. Cancer cells can use proteins and fat for energy when sugar runs out. Promoters of the diet haven't distinguished between sugary cakes and pastries and the natural sugars in broccoli and bananas. And as every carbohydrate contains sugar, cutting it out of our diet would be very unhealthy, with considerable side effects. You'd need to stop eating all fruits, vegetables, nuts and seeds. I dread to think what that would do to your gut microbiome and your bowel habit. You would also need to take a handful of supplements to replace the essential vitamins, minerals and fibre that you're not getting from plant-based foods.

If you did cut out sugar from your diet, you'd end up starving all your cells, not just the cancer cells. When this happens, your body uses carbohydrate stores called glycogen. When they run out, it uses your fat and muscles instead. Your body does this because it has to keep your blood glucose levels in a very narrow range (unless you have diabetes). If your glucose levels are too high or too low, you can die. That's why people on a hunger strike or an extended religious fast don't drop dead. Fats are made up of fatty acids which are broken down into ketone bodies and used for energy. This is where the word ketosis comes from, and it leads us nicely to the keto diet, another 'cancer cure'.

What is the keto diet?

On the original ketogenic diet you get 80% of your daily calories from fat, 15% from protein and 5% from carbs. It was originally designed to help people lose weight. Your body has to put more energy into getting fuel from fats and protein which means you burn more calories. As your body now has more energy than it needs, the extra ketone bodies are excreted in your urine – hence the ketogenic diet.

When did it become a cancer cure?

An American science professor called Thomas Seyfried in 2012 wrote a book called *Cancer as a Metabolic Disease*.[3] In it, he said that the keto diet can cure cancer and extend your survival time. His version of the diet was even stricter, with only 2% of your daily calories coming from

carbohydrates. You also drop your calories to 30–40% of your normal allowance to aggressively trigger and maintain ‘therapeutic ketosis’.

In a recent YouTube interview[4] titled ‘Shocking Truth About Cancer: Fix Your Diet & Lifestyle to Starve It for Longevity’, with Dr Rangan Chatterjee, a British doctor with a massive following, Professor Seyfried claimed that his ketogenic diet is better than standard oncological treatment, including chemotherapy. He explains how cancer is due to damaged mitochondria. Misinterpreting the Warburg Effect (see Part II), he goes on to explain that cancer cells cannot use oxygen to make energy. Instead they use glucose to get their energy from fermentation. A very low-carb ketogenic diet can stop this fermentation and kill cancer cells. The video has had over two million views.

Professor Seyfried has said in the past[5] that ‘the reason why the ketogenic diet is not being prescribed to treat cancer is purely economical. Cancer is a big business. There are more people making a living off cancer than there are dying of it.’ This ties into the Big Pharma conspiracy theory that oncologists are making millions prescribing drugs that don’t work. I’ll talk about this later, but I hope you believe me when I say this isn’t true. The first rule of medicine is ‘do no harm’. And although cancer drugs do cause harm, and I say this as someone who has had quite a few of them, doctors prescribe them based on many trials that show the benefits outweigh the harms – the chance of a cure or reducing the risk of recurrence. We don’t prescribe these treatments lightly.

Nasha Winters, a naturopathic doctor I mentioned in Part II, has said that the ketogenic diet is a powerful diet for cancer patients to implement. She is still stunned that cancer treatment centres offer patients sugary treats.[6] Now, I was grateful for those biscuits when I sat in the chemo chair, and the boiled sweets the lovely receptionist called Carol gave out to patients as we sat waiting to be called through. They were a little bit of joy on what was otherwise a bad day. What we eat should be 80% fuel and 20% fun. A couple of biscuits did not cause my cancer and they are certainly not going to stop me from being cured.

Is the ketogenic diet safe for cancer patients?

You won't be surprised to read that it's not. There are serious issues regarding the lack of nutrients, vitamins, minerals, fibre and protein, which we all need to recover and heal from cancer treatment. The diet will also damage your gut microbiome, weaken your immune system and lower your levels of calcium and vitamin D.

An average woman needs 2,000 calories a day, and on the keto diet we're only allowed 1,200 calories a day for the rest of our life. Trust me, that's not a lot. This can lead to extreme weight loss and muscle breakdown, which can be lethal. Losing just 5% of your body weight can increase your risk of dying from cancer.

There are unpleasant side effects, including diarrhoea and constipation (due to the lack of fibre), vomiting, tiredness and abdominal pain. Most people who've tried it end up giving up after a few weeks or months. And this can cause anxiety as they live with the fear that their cancer will come back because they didn't try hard enough.

Can the keto diet cure cancer?

There are no large human trials that prove the keto diet can cure cancer. Most of the research comes from laboratory and rodent studies. One study[7] asked 16 patients with metastatic cancer to follow the keto diet for eight weeks, and monitored them for three months. Two died, five couldn't tolerate it and three had tumour progression. That doesn't make me want to try it.

Professor Seyfried uses two studies as proof. One study[8] is a case report from 1995 about two girls with inoperable brain tumours. They ate a 60% fat diet for eight weeks. One died. The other study[9] is a case report of one woman with a brain tumour. She had chemotherapy and radiotherapy, and followed a ketogenic diet. Her cancer had a mutation that meant the chemo drug was more likely to be successful, and she had a complete response. This was attributed to the diet, not the chemo. Sadly, her cancer came back a few months later.

So, in total, three people with different brain tumours followed the ketogenic diet. One died and one had a recurrence. That is not proof that the keto diet can cure brain cancer, let alone every cancer. It is certainly not

enough to suggest anyone should turn down traditional cancer treatment and follow his diet instead.

The Bottom Line

There is no evidence to prove that the ketogenic diet can cure cancer. It has serious, and potentially lethal, side effects. Every major global cancer organisation firmly states that the ketogenic diet is not recommended for cancer patients or to prevent cancer. Whilst eating a wholefood-based diet can help you to lose weight and reduce the risk of recurrence in the future, this is not the way to do it.

Juicing

Now I'll admit that towards the end of chemo I fantasised about living off juices for a while. My body craved fresh fruit and vegetables that I just couldn't tolerate. Extreme nausea, damaged taste buds and a sore mouth meant I lived off a very bland, carb-heavy diet. Juicing and smoothies can be a great way to boost your daily nutrient intake. But two people took juicing to another level and claimed it can cure you.

The Breuss diet

An Austrian naturopath called Dr Rudolf Breuss[10] believed that a strict 42-day diet of natural vegetable juices and herbal teas would nourish the body whilst starving cancer cells of the protein found in solid foods that they need to survive. This is the exact opposite of the functional medicine theory that cancers feed on sugar. You are forbidden from having traditional cancer treatments whilst you are following the diet.

He claimed to have cured over 45,000 cancer patients, but the evidence was never published. There was only one small trial of eight metastatic cancer patients who were treated with his diet. One died during the trial and two died shortly after. Many people who follow the diet experience life-threatening malnutrition. A review[11] of cancer diets in 2014 said there was no benefit from following the diet and his theory is 'not compatible with scientific concepts of cancer'.

Gerson therapy

A German-American doctor called Max Gerson[12] originally developed his diet in the 1920s to treat tuberculosis, but then he used it to treat cancer patients. You drink 13 juices a day, made from 9 kilograms of organic fruit and vegetables. The juices must be freshly prepared and you drink one every hour during the day, which severely restricts your lifestyle. You must also give yourself five coffee enemas a day to get rid of liver toxins, and take a variety of supplements as well.

He believed that the human body has too much salt and too little potassium. The juices reset your metabolism, help your body destroy cancer cells and heal itself. There is no scientific evidence to back up any of these claims and this diet has been widely discredited. However, despite the lack of evidence and the inherent dangers of these diets, juicing continues to gain popularity in the online cancer space.

Have people really been cured by juicing alone?

The internet is full of testimonials of cancer patients who claim they've cured their cancer with juicing. The most prolific person is an American called Chris Wark,[13] a.k.a. ChrisBeatCancer. He was diagnosed with stage 3 bowel cancer in 2003 when he was 26 and he admits to having a very unhealthy lifestyle at the time. After surgery to completely remove the tumour, he was offered chemotherapy to reduce the risk of it coming back. Chris said 'no', and opted for juicing, prayer and other alternative therapies instead. He now runs a massive business selling courses, books and coaching to help cure cancer patients with his juicing programmes.

He drank eight glasses of carrot juice every day for many years, which turned his skin orange. He thinks our bodies are overloaded with toxins and we only absorb a tiny fraction of nutrients from the food we eat. Juicing delivers anti-cancer nutrients directly to the cancerous cells. He believes that juicing, not surgery, is the reason he's still alive today. As a surgeon, I'd say the opposite is true. Chris is highly critical of both the cancer and the pharmaceutical industries. On his website he states: 'Doctors do not control your life, you control your life.' After giving you medical advice to avoid chemo and follow his juicing protocol, he covers himself by saying that he's not a doctor and can't give medical advice.

Is there any proof that juicing can cure cancer?

I'm sure you won't be surprised to learn that there are no trials to prove that juicing can cure cancer. What juicing can do is help you feel better simply by increasing the amount of fruit and vegetables you eat every day. If your fridge hasn't seen a carrot for years, juices will give you a boost of nutrients that your diet was missing. You're now following the dietary guidelines for cancer patients and will probably start to eat more whole fruit and vegetables as well. It's a win–win. And eating a healthy diet can help with sensible, controlled weight loss which will reduce the risk of your cancer coming back. I'll explain more in Part IV.

Is juicing safe?

It can be incredibly dangerous if juices are the only thing in your diet. This was highlighted in the media in 2023 when a former model called Irena Stoynova[14] almost died when she tried to cure her non-Hodgkin lymphoma with juicing. She turned down chemotherapy and followed the advice of an influencer who claimed that the body can 'heal itself' with radical diet and lifestyle changes. He told her that people who have chemotherapy are 'lazy' and don't want to put the work in that holistic treatment needs.

She followed a juice diet for two and a half years and spent thousands of pounds on equipment, taking two to three hours every day to prepare all the drinks. She lost 20 kilograms in weight and started to hallucinate. She was

finally admitted to hospital just days away from death. She eventually agreed to have chemotherapy, and after 50 days in hospital, Irena is now in remission.

She wrote that 'the side effects of chemotherapy are a piece of cake compared to the side effects of holistic treatment. When you have Instagram, Facebook, or even Google, there are going to be millions of people who are going to say that they healed cancer holistically with organic carrots and parsley and celery. It's great to have beliefs, it's great if they're backed by science, but please don't cut off your consultants. I cut off my consultants and everything connected with standard medicine and I almost lost my life.'

You cannot get all the nutrients and fibre you need from juicing alone. Your body needs protein and fat to function, recover and heal. Without them, you will become seriously malnourished and risk losing your life.

The Bottom Line

There is no scientific evidence to prove that juicing cures cancer. The patients who claim that it cured them have nearly always had mainstream cancer treatment as well, like Chris Wark and his bowel surgery. Irena's story tells us the reality of what happens when juicing is the only cancer treatment.

By all means add in juices as part of your daily routine if it helps you get more fruit and vegetables into your diet. Go one step better and have them as a smoothie where you get the fibre as well. But don't have them because you think they will cure your cancer.

Fasting diets

A fast simply means not eating for a certain period of time. We all naturally fast when we're asleep. Fasting is also done for religious reasons, for example during Ramadan. While certain types of fasting can be a great way to lose weight and reduce the risk of recurrence, and I'll talk more about that in Part IV, extreme fasting is being promoted as a cancer cure.

What are the three types of fast?

Intermittent

Intermittent fasting is when you drastically cut your calories for two to three days and then eat normally for the rest of the week. The best-known regime is the 5:2 diet. You're only allowed to eat 500–600 calories on the fasting days. It's often used to help kick-start weight loss and maintain it.

Time-restricted

Time-restricted fasting is when you're only allowed to eat for a small number of hours in a day. The theory is that you'll eat less because you can only eat within a short timeframe. One example is the 16:8 diet, where you are only allowed to eat for eight hours in a day, for example between 10 a.m. and 6 p.m. There is no official calorie restriction with these diets, but the theory is that you will naturally eat less. Again, this has been shown to help people lose weight.

Fasting-mimicking

On the fasting-mimicking diet, you drastically cut your calories for a five-day period to encourage your body to enter a 'fasting mode', before eating normally again. This protocol has been promoted by Professor Valter Longo (more later), who believes it's the key to curing disease.

Why do people think that fasting can cure cancer?

It started with a Facebook post that showed a picture of the Japanese cell biologist Yoshinori Ohsumi. The caption said that Professor Ohsumi had discovered the cure for cancer. If you fast for 12 hours a day, you use up

your energy stores. With time, as your hunger increases, your body starts to eat the cancer cells. Professor Ohsumi was actually awarded the Nobel Prize in Physiology or Medicine in 2016 for his research on autophagy. That's when cells remove and recycle damaged parts to make way for new ones. It's like an internal recycling system and is essential for every cell to function. He never made those remarks about fasting and cancer.

Professor Valter Longo,[15] an American biologist, believes that his fasting-mimicking diet can treat many cancers, including those that have spread. Fasting starves cancer cells of essential nutrients, so they eventually die. In his book *The Longevity Diet* he says that healthy cells have a 'magic shield' that protects them from starvation. This is also the reasoning why he promotes fasting before chemotherapy to make it more effective.

Is there any proof that fasting cures cancer?

Many alternative medicine doctors promote fasting during treatment. Nasha Winters, a naturopathic oncologist, quotes a study that analysed women with breast cancer.[16] The women who didn't fast for more than 13 hours at night were apparently 30% more likely to have a recurrence. She recommends that cancer patients start fasting for 10 hours a day, building up to 18 hours at least three times a week to rewire all of your metabolic patterns.

Professor Longo urges anyone having chemotherapy to fast before they start. It is meant to boost your immune system and help your body switch its focus from digesting food to killing cancer cells. It is also meant to lower your blood sugar, insulin and hormone levels, and reduce inflammation.

The study[17] that Nasha Winters quoted got its fasting data from a single phone call at the start of the study, and then at one and four years later. Most women were followed up for seven years, but we know that breast cancer can come back up to 30 years later. And while the women who thought they fasted for less than 13 hours every day were 30% more likely to have a recurrence, the actual increase in risk was tiny. It comes down to relative and absolute risk again. If a woman's risk of recurrence is 10%, a 30% increase takes that to 13%, not the one in three that you probably

thought. This is just one example where a small study with inconclusive results is used as evidence that fasting can save cancer patients' lives.

Does fasting make chemotherapy more effective or more tolerable?

There are some small laboratory and rodent studies that suggest fasting could make chemotherapy more effective. However, other rodent studies showed that it doesn't make a difference. There have been a few human studies, including a randomised clinical trial[18] with breast cancer patients. There was no difference in the chemotherapy side effects between the fasting and non-fasting groups; however, normal breast cells in the fasting group had less chemotherapy-induced damage.

Five out of the nine studies that have looked at fasting around chemotherapy saw a high drop-out rate. People simply couldn't tolerate the extreme fast. Our bodies need energy to recover and repair normal tissue before the next cycle starts. Also, the few days before treatment are when your taste buds wake up again, so you really want to eat decent food. There are also concerns that fasting during chemotherapy could trigger mutations in cancer cells that help them to find new ways to cope when glucose supplies are scarce. This could make them more aggressive and more likely to spread. Now this is just a theory, and that's why we need proper trials with 5–10 years follow-up to see what the long-term impact of a fast actually is.

I remain open-minded that fasting may have an impact on how drugs like chemotherapy work. As I've said before, there is still a lot to learn about what makes cancer cells tick, and fasting may become another tool we can throw at them. But it has to be done safely, with an evidence base behind it to show which drugs it works with and which cancers it can help.

There are several fasting trials that are recruiting patients at the moment, so we'll have to wait and see. But, for now, the evidence is inconclusive. Before your oncologist can recommend fasting before chemotherapy, they need to know for certain that it works, which cancer types will benefit, and what the dangers are.

Is fasting dangerous?

If you're fasting sensibly by cutting back calories like the 5:2 diet that I mentioned earlier, or eating within a 10- or 12-hour window, then it could be a good way to lose weight. Both my mum and dad used it to great success. Losing weight can reduce your risk of recurrence, which I'll talk more about in Part IV. There are studies looking at the effect of the 5:2 diet in breast cancer patients who have finished active treatment to see if it can help them reach and maintain a healthy weight.

However, there are real risks with the longer five-day fasts that Professor Longo recommends. The first is malnutrition. During the fast, you won't get the essential fuel, vitamins and minerals that your body needs. You might feel wobbly, weak and dizzy. Rapid weight loss can increase fatigue and the time it takes to recover from surgery, chemotherapy and radiotherapy. If you're struggling with nausea, vomiting and diarrhoea because of chemotherapy, fasting will make it even harder to get the nutrients you need. You also won't have the energy to exercise. I'll explain in Part IV how important exercise is to reduce your risk of recurrence.

The second risk is that you'll break down your essential muscle and fat stores. Your heart is a muscle and it needs glucose to survive. Weight loss is a bad thing during active cancer treatment. There are studies that show that cachexia (losing your fat and muscle tissue) and sarcopenia (losing your muscle tissue) can affect how much cancer treatment you can tolerate. When people are dying from cancer, they lose their appetite, but the cancer is still growing. When it can't get its fuel from food, it starts breaking down fat and muscle stores, and that includes the muscles in their hearts and lungs. One third of all cancer patients die due to heart and lung failure because of cachexia. And extreme fasting can trigger a similar state.

The Bottom Line

There is no scientific evidence to prove that extreme fasting can cure cancer. Whilst there are ongoing studies investigating whether controlled fasting can help during chemotherapy, the data is inconclusive, and it could be dangerous. If you need to fast during chemotherapy for religious purposes, there are

alternatives to spiritual fasting, and you should always talk to your religious leader for other ways to observe the fast. If you want to try fasting during cancer treatment, please check with your oncologist for their advice first.

However, if you have finished hospital treatment and want to lose some weight, intermittent and time-restricted fasting are good options, as long as you are getting all the nutrients that you need. And I'll tell you what they are in Part IV.

Detoxification

Detoxification means avoiding, or getting rid of, toxins or unhealthy substances in your body. There are three types. The first is what your body does naturally to get rid of toxins with its own built-in system. The second is a medical procedure performed in hospitals and clinics for patients who have life-threatening addictions to alcohol and drugs. The third is the one promoted by the wellness industry and alternative medical practitioners, and it's this detox that I'll be focusing on in this chapter. While there are times when our bodies could do with a little help, like getting rid of a hangover with a supplement or herbal tea, detoxing to cure cancer is very different.

Why do people think detoxing can cure cancer?

The first theory is that toxins play a major role in the development of cancer. The second is that cancer cells themselves produce a huge volume of toxins which can damage healthy tissues. The larger your cancer, the more toxins there are, which lowers your odds of fighting the disease. The third theory is that chemotherapy and radiotherapy kill cancer cells which then release toxins into your body. If you don't get rid of these toxins, chemotherapy and radiotherapy won't work.

Alternative doctors recommend their detox programmes to remove these toxins naturally and keep your healthy cells intact. They say that your body is being poisoned by the heavy metals and chemicals in your drinking water, medicines and the environment. They claim this is weakening your immune system. When faeces (poo) builds up in your bowel, it stops you absorbing nutrients and releases toxins into your blood.

What is a cancer detox?

A typical cancer detox programme involves an organ cleanse using herbal preparations, supplements and juicing, together with lymph drainage and infra-red saunas to help you sweat out toxins. This is followed by a series of enemas to clear out your bowel. Some clinics add in chelation therapy. This involves injecting chemicals into your blood to remove toxic organic acids and heavy metals.

Can you detoxify your body?

Yes, you can. It happens automatically without you thinking about it. Your body has its own six-part detox system. The first part is your skin. It's a waterproof barrier protecting you from bacteria, viruses, chemicals and heavy metals. You do not get rid of toxins in your sweat. The second is your respiratory system. The fine hairs in your nose trap dirt from the air you inhale when you breathe. Anything that makes it into your lungs is removed in your snot. The third is your immune system. It's a complex network of blood cells that recognise, destroy and eliminate toxins, cancer cells, bacteria and viruses.

The fourth part is the lymph nodes in your bowel which can get rid of parasites and other toxins. The fifth is your liver, and this is the main detox organ. It breaks down metals like copper and zinc, and neutralises toxic metals like mercury, cadmium and lead so they can safely be eliminated. It also produces enzymes that help you metabolise drugs like alcohol and other harmful chemicals. The final part is your kidneys. They are incredibly efficient at filtering waste products and toxins from the blood and excreting them in the urine. This is why urine tests are used to screen for drugs.

There are no pills, infusions, saunas or enemas that can do a better job than your body. However, some supplements can give it a helping hand. When you're hungover, your liver is working hard to break down the alcohol into products it can remove. Detox teas act as laxatives to speed up the process.

Is there any proof that detoxing can cure cancer?

The UK Charity Sense About Science[19] asked the manufacturers of 15 detox products for evidence to prove that their supplements, smoothies and shampoos actually worked. None of the companies could explain what 'detox' meant or what toxins their products were meant to remove.

There is no evidence that detoxing can cure cancer. Toxins can't build up because your body is so efficient at removing them, and cancer doesn't happen because of a toxin build-up.

Can detoxing be dangerous?

If you take detoxing to extreme measures with extreme fasts and colonic cleanses, it can be dangerous. You risk all the side effects of fasting that I covered earlier. Colonic enemas strip your bowel of the healthy bacteria that form the microbiome, and we are learning more and more about how important that is. And if you don't know what you're doing, you could make a hole in your bowel when you give yourself an enema, and this can be life-threatening. I've had to remove a large section of bowel on a patient who did this, leaving them with a permanent stoma.

Is a wellness detox worth it?

When most people say they're going on a detox, they normally mean a 'health kick'. I've done this in the past after a horrendous month of night shifts and takeaways as a junior doctor. It generally involves eating a lot more fruit and veg, which gives us more energy and makes us feel better. We drink less alcohol, sleep better and start to exercise again. There's also the lovely feeling that comes with doing something 'good', 'natural' and

‘clean’ which can make you feel better about yourself as well. And if you like yourself more, you’re more likely to look after yourself, by continuing to eat well and stay active. And all of these have been proven to reduce the risk of your cancer coming back, as I’ll explain in Part IV.

The Bottom Line

There is no evidence to show that detox diets actually remove toxins from your body. Your body’s a natural detox machine. There is no pill or potion, infusion, enema or light-source that can make it work better. If you want to give your liver and kidneys a break, drink less alcohol and eat a healthy diet. That’s the easiest way to detox.

The alkaline diet

The alkaline diet is based on the theory that our bodies are too acidic. This drains the energy from every cell in our body and causes a long list of symptoms, including fatigue, frequent colds, weak nails, dry skin, headaches, joint pain and heartburn. Now I’m willing to bet that you’ve had at least two of those symptoms. I know I have. To restore the balance, and your health, you’re meant to eat more alkaline foods. This will give you more energy, lower your blood pressure, help you lose weight, improve your sleep, and prevent and cure cancer.

Before I can explain why this isn’t true, I need to cover some basic physiology.

What is an acid and an alkali?

An acid is something that is acidic, and an alkali is something that is alkaline. Acidity and alkalinity refer to the concentration of hydrogen ions in a solid or liquid. They are measured on a pH scale of 0–14. A pH of seven is neutral. Acidic things, like lemon juice, have a pH less than seven, and alkaline things, like bleach, have a pH greater than seven.

Why do people believe the alkaline diet can cure cancer?

It began in 1912 when a paper[20] was published describing the 'acid ash hypothesis'. When food is burned it leaves behind a residue or ash that is either acidic, neutral or alkaline. Therefore, when our body digests food, the waste products would also be acidic, neutral or alkaline.

A psychic called Edgar Cayce picked up on this in the 1940s. He believed[21] that changing the pH of the body with a diet based around alkaline-forming fruit and vegetables would reduce the risk of heart disease and cancer. The alkaline diet came into vogue again in the early 2000s when a naturopath called Robert Young wrote a best-selling book called *The pH Miracle: Balance your Diet, Reclaim your Health*.[22] It sold millions of copies and had many celebrity endorsements.

What is the alkaline diet?

The diet involves eating only alkaline and neutral foods. Foods are classified as acidic, neutral or alkaline according to the amount of acid your kidneys have to deal with when you digest them. It has nothing to do with the acidity of a food before you eat it. Although citrus fruits like oranges and lemons are naturally acidic, when you digest them there is hardly any acid left, so they are called alkaline foods.

You're allowed to eat most fruits and vegetables, soybeans, tofu, some nuts, seeds and legumes, as well as natural fats, oils and starches, which are neutral. You have to avoid acidic foods, which includes red meat, poultry, fish, dairy, eggs, grains, alcohol, coffee, cocoa, sugar, chickpeas, canned and tinned foods, snacks and convenience foods.

To check that the diet is working and your body is now alkaline, you buy litmus test strips to check your urine. The strips change colour depending

on the pH. Red is acidic and blue is alkaline. If the strip is blue, then you know you're in an alkaline state.

Can you really make your body more alkaline?

It is impossible to change the pH of your body naturally. To understand why, I need to explain how your body regulates its pH. Some parts of your body are naturally acidic, like your stomach, with a pH of 1.5–3.5. It is loaded with hydrochloric acid, which is essential to break down the food that you eat.

Your skin and your vagina (if you have one) are slightly acidic with a pH of 4–6.5 to provide a protective barrier against microbial overgrowth.

Your blood is slightly alkaline, with a pH of 7.36–7.44. This is tightly regulated by the kidneys and the lungs because this pH is essential for life. Regardless of what you eat or don't eat, the pH of your blood remains the same. It cannot be altered. Just a small change above or below those numbers, to 7.2 or 7.6, for example, can be life-threatening.

If you eat a lot of acidic foods, your kidneys get rid of the excess in your urine. It's the same with alkaline foods. The pH of your urine is simply a reflection of what you've been eating. It's normally anywhere between 4.5 and 8, and has nothing to do with the pH of your blood. The litmus test strips only tell you that your kidneys are working.

Is there any proof that the alkaline diet can cure cancer?

There are no robust trials that have shown beyond reasonable doubt that the alkaline diet is better than surgery, chemotherapy and radiotherapy.[23] And that isn't surprising when we now know that you can't alkalise your body. There are a handful of laboratory studies that found some cancer cells thrive in an acidic environment. And while these cells do grow faster in acidic environments, it's the cancer cells themselves that are producing the acid as a by-product of their metabolism. Scientists have also shown that cancer cells in the lab will die in an alkaline environment. A petri dish is not the same environment as the bowel or the breast.

And although there are lots of glowing testimonials from people who were cured after following the diet, when you dig a little deeper, most of them had mainstream cancer treatment as well.

Mr Young advised one young woman with cancer to turn down conventional treatment and only follow his diet. When her cancer came back, he was ordered to pay $105 million in damages. He also offers intravenous bicarbonate of soda infusions to increase the alkalinisation. A young woman in her twenties with terminal breast cancer crowdfunded tens of thousands of dollars to spend three months at his ranch. She died shortly afterwards and Mr Young was sent to prison for treating people illegally without a medical licence.[24] His book has now been widely discredited. Despite that, it is still a best-seller on Amazon.

Is the alkaline diet dangerous?

If you follow it to the letter, you run the risk of malnutrition with a lack of essential proteins, vitamins, minerals, fibres and fats. Because dairy products are banned, there is a danger that you won't get enough calcium in your diet and your bones will start to weaken. Vegans know what plants to eat to ensure they get enough calcium, or they take calcium supplements instead, but followers of this diet could develop osteoporosis in the future.

The Bottom Line

There is no scientific literature that establishes the benefit of an alkaline diet for the prevention of cancer at this time. There is no evidence to prove that diet can manipulate the body pH, or that it has an impact on cancer survival and outcomes. While loosely following the diet by eating more fruit and vegetables will make you feel better, have more energy and reduce your risk of a recurrence, it has nothing to do with the pH of the food you are eating or the effect it has on your body.

Supplements

Supplements are everywhere these days. There are health-food shops on every high street. Supermarkets and pharmacies have rows and rows of them, and that's before we get to the supplements sold online. Now I don't take supplements. I never have and I probably never will, and there are three reasons. The first is that I just don't think I need them and I don't believe they work. The second is that I'd rather save my money for holidays and yellow things. I never wore yellow until Mum was diagnosed with bone cancer. Instead, I lived in black and navy. But yellow was her favourite colour and now it's mine too. I have to control the urge not to buy something just because it's yellow. My husband is very understanding. The third reason is that I don't like taking tablets. I already take a handful of tablets every day to try to stop my cancer coming back and help with the side effects that I just can't stomach taking any more.

I can't comment on whether supplements can actually make you feel better. That's not the scope of this book. I know several people who swear by them for their insomnia, mood, brain fog and to help with the side effects of treatment. I drank ginger tea to help with my nausea during chemo. My menopausal friends use collagen to help with their thinning hair. I'm not going to criticise you if that's your thing. What I will do is talk about how supplements are made, whether they can cure cancer, and show you how to check if they're safe to take and won't interfere with your other cancer treatments.

As far as I know, there is no supplement that can cure cancer. If there was, your oncology team would automatically give it to you. However, some cancer patients are prescribed supplements for particular side effects. One example is people with oestrogen-sensitive breast cancer taking aromatase inhibitors. Because these can make your bones weaken and cause osteoporosis, patients are prescribed calcium and vitamin D supplements to prevent this happening.

I've chosen to focus on some of the cancer supplements that I get asked about the most, like turmeric, medicinal mushrooms and vitamin C. But before I do, I want to talk about the supplement industry itself.

How big is the supplement industry?

Forget about Big Pharma. Big Wellness is even bigger. In 2023, the UK vitamin and supplement industry was worth £1.6 billion.[25] In the US it was worth over $35 billion.[26] It's estimated[27] that over 70% of the population in these countries take supplements, many on a daily basis. Americans are spending almost $160 billion every year. That's big business. But do we actually know what we're taking?

Can supplements be sold as cancer cures?

It is actually illegal[28] for a supplement to be advertised saying it can prevent, treat or cure cancer. However, there are companies that get around this. They tell us that low immunity can cause cancer, and their products will boost your immune system.

Do supplements contain what they're meant to?

You might be surprised to learn that the supplement industry isn't regulated by law. And that's because they're classed as food, not medicine. When you buy a pack of paracetamol, it is a legal requirement that each tablet must be identical and the ingredients of every tablet must match what's on the label. However, with supplements, it is up to each manufacturer to check that their products contain what they're meant to, and do what they're supposed to. No-one checks to see if this has been done. I could create my own fake supplement for pennies in an Eastern European factory and market it as a breast cancer cure without ever having to prove a thing. Dr Jen Gunter, a Canadian-American gynaecologist, pain-medicine physician and best-selling author often tackles menopause myths online. She dipped her toe in the murky waters of supplement factories to see just how easy it was to make her own fake menopause supplement. You can read all about it in her blog.[29]

In 2022, a study[30] analysed the ingredients of 30 immune-boosting supplements sold on Amazon. Only 13 passed the test. Seventeen were wrongly labelled. Thirteen had ingredients on the label that weren't found in the actual supplement. Nine contained chemicals that weren't on the

label. Fifteen said they were ‘research-based’ but there was no scientific evidence to back up the health claims.

Ideally a supplement should be labelled like any medicine. It should list every ingredient and the amount of each ingredient you get per serving. The website ConsumerLab does independent testing of many supplements to confirm if they’re the real thing.

They have a list of red flags that you should check before you buy one:

- Does the label tell you exactly how much of the active ingredient is in each pill, or does it just say a ‘proprietary formula’?
- Are there meaningless claims like ‘pharmaceutical grade’ or ‘clinically tested ingredients’?
- Does it claim to cure or prevent a disease?
- Is it a gummy formula? Some ingredients are less stable in a gum form, and gummies are even less regulated than tablets and capsules.

Do you actually need a supplement?

I think many of us are aware of how unhealthy our lifestyles are. Who honestly has the time, energy and money to cook fresh, healthy food from scratch every day? If your diet isn’t great then a basic multi-vitamin makes a lot of sense. Taking a supplement can make you feel better about yourself. You’re doing something good to make you healthier. It’s a quick, easy fix.

When I spoke to Sarah Cawood, the television presenter who’s had breast cancer, she said that before she was diagnosed, she would literally just eye-roll at people that were eating clean and taking supplements. ‘I’d think yeah, yeah, yeah, go and have a McDonald’s, love. And now I’m in it and I’m like, oh I must do yoga every day. I must eat clean. And I think it’s going too far. We’re living in a new age where we blindly trust people who ask us to trust them. I like to think I’m relatively educated, I’m the daughter of a scientist. I’m not stupid but what about people that really don’t have a clue? They’re really being mugged off – do you know what I mean? We’re literally only one very famous breast cancer sufferer away from annihilation basically.’ And I think she’s right, based on the worldwide chaos that Elle Macpherson created overnight when she shared her breast cancer story from

eight years ago prior to the launch of her memoir. After breast cancer surgery, Elle told a journalist that she saw 32 doctors before turning down chemotherapy and choosing naturopathic solutions to stop her cancer coming back. Suddenly the world was discussing how irresponsible she had been. And while I stand by her choice to say 'no' to chemo, I was worried that other men and women would follow suit and needless deaths would follow.

It transpired that Elle had DCIS. It's the earliest stage of breast cancer. It cannot spread. No mainstream doctor should recommend chemotherapy as part of their treatment. We may never get to the bottom of what actually happened, and it's none of our business, but the ripple effect from a celebrity story like this can be dangerous.

There is also something called the placebo effect. Taking a supplement might be the kick-start you need to start jogging every day, and it's actually the exercise that's making you feel better, not the tablet. As long as you're not expecting them to cure you from cancer, there's probably nothing wrong with taking them, but you have to double-check that they won't interfere with your other cancer treatments. I know I keep saying this, but it's really important.

Is there any harm in taking them?

Basic multi-vitamin supplements are completely fine. But once you move into the realm of high-dose powders and pills, there are risks involved. Some supplements can increase the chance of you bleeding during an operation. Others can cause skin reactions during radiotherapy. Some increase the side effects of chemotherapy and make it less effective. Others can actually increase your risk of getting cancer, like beta-carotene and lung cancer in people who smoke.

Several supplements can interact with cancer drugs like Tamoxifen. It's a drug used to reduce the risk of some people's breast cancer coming back. However, because of the way it's metabolised by your body, many natural supplements like St John's Wort can actually stop it working. And the problem is that supplement labels don't tell you what drugs they interact with. It is up to you to do your homework.

In an ideal world you should always ask your oncology team whether it's safe to take a supplement. There is a chance that they won't have heard of it, so they won't know whether it's okay for you to take it. I've lost track of the number of people who have asked me though social media whether a supplement is safe. I can't give you personal medical advice. Instead, I recommend these websites[31],[32] to find out more about the supplement you want to take.

There's also the financial harm that comes with taking supplements. I spoke with David Robert Grimes, an Irish scientist and author of *The Irrational Ape*,[33] who talked to me about the social determinants of health. 'The people that will be most affected, with the most health anxiety and who will waste the most amount of money on supplements, are probably the most disadvantaged. They have the lowest knowledge of the evidence. They often have the lowest socio-economic standing and they have trusted figures that they have powerful online social relationships with, telling them they need to buy their supplements. That's not acceptable. To me it's an ethics thing.'

The cost can be huge, especially if you're taking several supplements a day. Hundreds of pounds a month. Now, I'm never going to criticise anyone about how they spend their money, but if their hard-earned savings are essentially going down the toilet on something that cannot cure their cancer or stop it coming back, I have to say something.

The Bottom Line

If you follow the dietary advice in Part IV, you'll get all the vitamins, minerals and nutrients you need to keep you healthy and boost your chance of a cure. The only supplement you might need is vitamin D if you spend a lot of time indoors. If you need anything else to deal with the side effects of treatment, your doctor will prescribe it. Supplements can't make up for a bad diet,[34] but they can give you a boost.

If you do decide to take one, think about why you want to take it. Is it a quick fix for something you know you really should be

doing, like eating more vegetables or being more active? Can you really afford to spend that money every month? Do you really believe it's going to help you? Are you prepared to take it for six to 12 months to give it a chance to work? I say that, because that's how long you need to take a collagen supplement before you notice a difference in the thickness of your hair.

If the answer is yes, please check with your doctor to make sure that they're safe to take with your ongoing cancer treatment. I know how hard it can be to drum up the courage to do this. Write down the questions you want to ask before you see them. They may be able to find other ways to help you. If you're struggling with a side effect, they may have a different solution. If you've got a query about a diet, they may be able to refer you to a dietician instead.

If you can't or don't want to get hold of your team, you can look the supplement up on one of the websites at the end of this section. Buy them from a reputable source like a chemist or health shop, not a third-party provider like Amazon. And finally, check the label thoroughly. It should list the exact amount of the active ingredient in each capsule or pill together with an expiry date. And if you ever see a website that claims its supplement can prevent or cure cancer, you can tell the ASA[35] in the UK and the FDA[36] in the US.

E's story, as told by a friend

My friend E found a lump in her breast a month after she got married. She ignored it for ages, before she was diagnosed. She turned down all the treatment that was offered – mastectomy, chemotherapy, hormone therapy, the works.

She finally agreed to have a mastectomy a year later, when the cancer had grown to 12 centimetres and her lymph nodes were involved. She told me that her team were begging her to have treatment, but she couldn't do it.

I think it was partly because of her long hair. She couldn't bear to lose it. She said she wasn't strong enough to cope with chemo.

She sent me a spreadsheet of all the alternative treatments she was having, recommended by some guy on the internet. She was supposed to collect 200 points a day by eating masses of vegetables and nuts, drinking Essiac tea, apple cider vinegar and aloe vera juice, and having mistletoe infusions. She was taking loads of supplements – turmeric, sorrel, turkey tail, bitter lemon, magnesium, apricot kernels and a load of off-label drugs like metformin, loratadine and mebendazole. She spent hours on positive affirmations and visualisations hoping she could think herself to a cure. She felt she wasn't strong enough to have chemo but she was strong enough to do all of this.

A couple of months later it had spread to the lymph nodes in her neck, her liver, her ribs, shoulder and her spine. She was having trouble walking and was in a lot of pain, but she still said no to biopsies, radiotherapy and chemo. She was using charcoal poultices to draw the cancer out. It took another couple of months before she finally agreed to an oral chemo tablet, but by then it was too late. She was dying.

She was just such a lovely woman and an amazing vibrant person, and it's just a real shame. I really wish I knew more about why, but all she would say is that she didn't feel like she was strong enough, that's all she would say.

Vitamin C

Vitamins are a group of compounds that are needed for cell growth, function and development. There are 13 essential vitamins and vitamin C is one of them. It's found in fruit and vegetables like oranges, kiwis, strawberries, blackcurrants, peppers, broccoli and kale.

Your body needs vitamin C to make collagen, heal wounds, repair bones and teeth, and help your body absorb iron. It's also an antioxidant. Antioxidants are chemicals found in fruit and vegetables that can stop some of the DNA damage caused by free-radicals. Free-radicals are naturally produced when you digest your food. They can increase the amount of

oxygen in your cells, produce energy and help kill bacteria. But if there are too many free-radicals, they produce too much oxygen, which is harmful to cells and their DNA. That's where the antioxidants come in handy. They neutralise the extra free-radicals in your blood.

Why do people think vitamin C can cure cancer?

In the 1950s, a Canadian doctor called William McCormick[37] came up with the theory that a vitamin C deficiency damages the collagen in cancer cells and this is why cancers metastasise.

In the 1970s, an American chemist and double Nobel Prize winner called Linus Pauling worked with a Scottish surgeon called Ewan Cameron. They thought that high-dose vitamin C could stop cancers growing, and that's because in very high doses vitamin C produces a free-radical called hydrogen peroxide. This is normally broken down by healthy cells using an enzyme called catalase. However, some (not all) cancer cells don't have catalase, and the hydrogen peroxide kills them.

They gave massive doses of vitamin C to 100 people with metastatic cancer who had run out of treatment options.[38] Their appetite improved, they were more alert and had less pain. Some of them lived longer than similar patients who weren't having vitamin C, which was used as proof that it worked. However, their study was flawed. Dr Cameron was known for declaring his cancer patients as terminal far earlier than his colleagues. This means they would naturally live longer than patients in the control group. And in a cruel twist of fate, both Linus Pauling and his wife died of cancer despite taking huge doses of daily vitamin C.

The Mayo Clinic in America tested their theory that vitamin C could cure cancer with three double-blind studies involving almost 400 people with advanced cancer. What they found the exact opposite.[39] High-dose vitamin C did not extend the lives of metastatic cancer patients. There is also some laboratory evidence[40] to show that hydrogen peroxide may actually help cancers to grow. Some cancer cells produce their own hydrogen peroxide, which appears to work as a fertiliser to encourage tumour formation, growth and metastasis. So, high-dose vitamin C could actually be doing more harm than good. We just don't know. And despite there being no proof

that high-dose vitamin C can cure cancer, there's been a resurgence in its popularity in the last couple of years.

Vitamin C clinics

These are now springing up everywhere. There's even a drip bar in my home town. Many are advertised as spas, offering calm, luxurious environments for you to relax and rejuvenate whilst you get your infusion. Some clinics say it's safe to have them during chemotherapy, and it all comes at a cost. A single drip can cost anything from £200–400, and most clinics recommend you buy a course.

Chris Wark, who I mentioned earlier in the juicing section, used vitamin C as part of his healing protocol.[41] His website states that 'there's been tons of ground-breaking research on high-dose vitamin C's powerful healing and anti-cancer effects'. He spent up to $300 every week on high-dose infusions. And although he says he can't give medical advice, he recommends you get a high dose at home using his vitamin C powder protocol. You take an increasing dose every two hours whilst you're awake, stopping when you reach a dose high enough to give you diarrhoea.

Are vitamin drips dangerous?

Now dangerous is a strong word to use, but vitamin clinics aren't as safe as you might think. Whenever you have a drip in a hospital, it has to be prepared in a sterile setting so there is no chance of an infection. The nurse administering it will use sterile, disposable equipment. Everything is checked and double-checked to make sure you are getting the right medicine. If you get a drip in a clinic, you do not have the same level of certainty.

In 2021, the FDA released a statement[42] raising concerns about medical offices and clinics when a 50-year-old woman was taken to hospital with septic shock after having an intravenous vitamin infusion at home. The infusion was prepared in the clinic in a room that had dirty equipment, peeling paint and air vents covered in dust. Several of the ingredients used to prepare the infusions had gone past their expiry date.

If you decide to have an infusion, you need to do your research. Check that the person preparing and setting up the infusion has been properly trained. Do they always use sterile, disposable equipment? If the infusion is made in the clinic, has it been done under strict aseptic conditions and does it actually contain what it's meant to? You have to make sure that there's no risk of getting an infection, especially if your immune system has been weakened by other cancer treatments.

Can your body absorb high doses of vitamin C?

There's actually a limit to the amount of vitamin C your body can absorb. Once that limit is reached, the excess is excreted in your urine. The recommended daily dose is 75 milligrams for women and 90 milligrams for men, which you can easily get from a plant-based, balanced diet. The adult upper limit is 2,000 milligrams a day.

Some vitamin C drip bars are selling people drips with 25,000 milligrams, and most of that will end up in the toilet a few hours later. People often feel better because they've been given a litre of saline to rehydrate them. Let's be honest, most of us don't drink enough water. I know I don't, and I'll cover this in Part IV.

Does high-dose vitamin C have any side effects?

The trials that do exist have shown that high-dose vitamin C is fairly safe and unlikely to cause harm, unless you have kidney disease, an inherited disorder called G6PD deficiency or haemochromatosis. However, it can reduce the amount of vitamin B12 and copper that you absorb. Oral vitamin C supplements are strong laxatives and can cause diarrhoea in high doses. This can dehydrate you, making you dizzy and weak. And this could be dangerous if you're having other treatments like chemotherapy. There is also the risk of a serious allergic reaction, which could be fatal if the clinic staff aren't up-to-date with their basic life support skills and how to manage anaphylactic shock.

Vitamin C can also interfere with other cancer drugs like Cisplatin, Doxorubicin and Tamoxifen and make them less effective. It could stop

radiotherapy treatments working and interact with other supplements you might be taking.

Is there any proof that vitamin C can cure cancer?

Because of the popularity of vitamin C as a cure, there have been several studies to see if this is true. Most of them have been done on cells in a lab or with rodents. One human study[43] showed that high-dose vitamin C reduced the side effects of chemotherapy for a small number of women with ovarian cancer. However, other studies found no benefit, and some had to be stopped early due to the side effects of vitamin C itself. Again, maybe it's the extra litre of fluid that was making the women feel better. We now know that most of that vitamin C ended up in the toilet. A systematic review[44] in 2014 concluded that high-dose vitamin C 'might' delay the time it took for metastatic cancers to spread, as long as it was given together with chemotherapy.

Most of the evidence used as proof actually comes from online testimonials and videos of people claiming they've been cured. I have yet to find a single reputable study that proves that high-dose vitamin C can cure cancer or make cancer treatments more likely to work.

The Bottom Line

At the moment there is no robust, scientific data to prove that vitamin C has any effect on cancer survival. The potential harms in getting unregulated doses of intravenous infusions from high-street clinics far outweigh the benefits, and most of the vitamins in high-dose drips end up in the toilet.

Turmeric

Turmeric is a bright orange spice that's commonly used to add flavour and colour to Asian recipes. It's the main ingredient in curry powder, and it comes from the root of a plant called Curcuma Longa, which is part of the ginger family. The active ingredient in turmeric is called curcumin, a type of chemical called a polyphenol. It's found in the turmeric root, and only 2–5% of the root contains curcumin.

Why do people think turmeric can cure cancer?

There have been a small number of laboratory studies[45] that have shown that turmeric can kill cancer cells and slow down their growth. The active ingredient curcumin has antioxidant and anti-inflammatory properties which could both prevent and repair DNA damage. There are claims that it can make chemotherapy more effective and protect healthy cells from radiotherapy damage.

There are now hundreds of companies selling turmeric and curcumin supplements and powders aimed at cancer patients. If you want a really high dose, there are clinics selling curcumin drips for £400 to help you fight cancer.

Can you absorb high doses of turmeric and curcumin?

The truth is that both are very poorly absorbed. The daily recommended dose of turmeric as a cooking spice is around 0.2 grams. Supplement companies recommend 1–8 grams a day. However, like vitamin C, most of this will end up in your urine a few hours later. Only a tiny amount of turmeric actually enters your bloodstream. To get 1 gram of the active ingredient curcumin, you'd need to swallow 30 grams of turmeric powder. That's a whole jar of turmeric powder every day. To get 8 grams, that's five jars of turmeric powder a day, most of which will end up in the toilet.

To get around this, supplement companies mix curcumin with phospholipids, phosphoric acid and fats, which can allegedly increase the amount you absorb ten-fold. But animal studies have shown that this doesn't increase the amount of curcumin in the blood. Next, they tried combining curcumin with piperine, the active ingredient in black pepper.

It's meant to slow down curcumin metabolism in the gut so more is absorbed. However, studies have shown that two hours after taking a curcumin-piperine supplement, it was no longer detectable in the blood.

That led to clinics offering turmeric infusions. One London clinic says it's the best way to ensure 100% absorption, and they promise it won't turn your skin yellow. But now I am worried about turning yellow. I looked at several clinics and they all recommend a different dose and regime. Compare that to chemotherapy where the dose is calculated based on your body weight.

Is curcumin safe for cancer patients?

In high doses, curcumin can stop your blood clotting properly. This means you're at a higher risk of bleeding during surgery. The European Food Safety Authority recommends a daily intake of no more that 3 milligrams per kilogram of body weight. If you are taking more than that, you should probably stop taking it at least two weeks before any planned operation. Laboratory studies have shown that it interacted with the chemotherapy drugs Doxorubcin, Cyclophosphamide and Paclitaxel.[46] We don't know the significance of this as there haven't been human studies, but it's something to think about if you're planning on supplementing during chemo. We also know that curcumin is an antioxidant which can mop up free-radicals, but radiotherapy produces free-radicals to kill cancer cells. We don't know what the highest safe dose is as there haven't been any trials. There is no standard dose when it comes to the supplements available.

Finally, turmeric, curcumin and piperine can all stop the breast cancer drug Tamoxifen working properly.[47] They're all metabolised by a family of enzymes called the cytochrome P450 (CYP3A) system. Tamoxifen is turned into a far more potent compound called Endoxifen. If you have a large amount of curcumin and piperine in your blood, the CYP3A enzymes will metabolise those instead of Tamoxifen, meaning Tamoxifen is less effective.

Do turmeric and curcumin supplements have side effects?

It is safe to use turmeric as a spice when you cook as part of a varied diet. What we don't know is how safe the high-dose supplements are because of the limited data. The scant research we do have suggests that it is probably safe, although we don't know what happens if you have it in large doses for a long period of time. People have reported stomach pains and skin rashes. Some people have died after turmeric infusions when their red blood cells were destroyed.

Is there any evidence that it can cure cancer?

There is no robust scientific evidence to prove that turmeric or curcumin can cure cancer or make other cancer treatments more effective. Cells in a dish in a laboratory are very different from those in cancer patients. The dose given directly to cancer cells is far, far higher than the amount you would get from a supplement, and we know that most of that ends up in the toilet. Some small studies have suggested a positive effect for curcumin in bowel and prostate cancer patients, but these studies were small and badly designed and have not been reproduced on a larger scale.

The Bottom Line

Turmeric is a fantastic spice to use when you cook. If you don't regularly use it, you will still get antioxidants from the other fruit and vegetables in your diet. There is no evidence to show that it can cure cancer or stop your cancer coming back.

If you do decide to take it, make sure that it won't interfere with your other cancer treatments.

Medicinal mushrooms

There are hundreds of different species of medicinal mushrooms. They are known for their antioxidant and anti-inflammatory properties, and are regularly used in Eastern medicine practices to treat a variety of illnesses. I'm just going to focus on Turkey Tail and Lion's Mane, as these are the commonest ones used to treat cancer. They're both sold as concentrated extracts and powders.

Why do people think they can cure cancer?

The mushrooms contain long sugar chains called polysaccharides. Laboratory research has shown that they are directly toxic to breast cancer cells.[48] In a mouse study, medicinal mushroom extracts did shrink cancers, although the mice were given more than their body weight in mushroom extract. The human equivalent dose would be over 100 capsules a day.

Fungi enthusiasts believe that medicinal mushrooms can block a cancer's blood supply, slow down their growth and stop them from spreading. They quote a systematic review[49] from 2012 as proof, which found that patients in Asian cultures who used medicinal mushrooms had a 9% greater chance of making it to the five-year survival mark. However, three separate studies couldn't replicate this survival advantage. Another small study[50] assessed nine women having chemotherapy and radiotherapy to work out the correct dose of Turkey Tail extract. Two of the women had serious side effects, and yet the study claimed that mushroom extracts were well tolerated. It concluded, based on these nine women, that medicinal mushrooms may boost the immune system in cancer patients, and therefore every cancer patient should take them. A market research company estimates that the global medicinal mushroom market will grow from $8 billion in 2020 to $19.3 billion by 2030.[51] High-street stockists have seen a huge surge in the number of products being bought.

Paul Stamets, a mushroom expert, has devoted his career to exploring the healing power of mushrooms. During his TEDMED talk,[52] which has had almost one million views, he described how he used 8 grams of daily Turkey Tail extract to help cure his mother's metastatic breast cancer. Following the release of his film *Fantastic Fungi*, Facebook groups appeared full of cancer patients claiming that they'd been cured by Turkey

Tail extract. However, what Paul actually said is that there was some research to show that mushrooms might make chemo more effective. His mother died a few years after the video was filmed.

Are medicinal mushrooms safe to take?

Medicinal mushrooms have side effects. The most serious one is an allergic reaction which can be lethal if not promptly treated. Other common side effects include skin rashes, indigestion, bloating and nausea, constipation, low blood pressure, low blood sugar and heart palpitations. They may interact with other medications and you shouldn't take them if you are living with diabetes, pregnant or taking blood-thinning tablets.

Also, the powders and supplements will contain hundreds of different chemicals, depending on how they were manufactured. Some mushroom supplements have been tested[53] and there was no trace of mushrooms in the products.

Is there proof that medicinal mushrooms cure cancer?

There is not enough evidence to prove that medicinal mushrooms have any impact on cancer outcomes. Most of the studies that do exist have been done in a laboratory or with rodents, and those results cannot be extrapolated to cancer patients. The few human studies that do exist are of a very poor quality and have not been reproduced. A review[54] to analyse the research showing that mushroom polysaccharides can reduce the side effects of bowel cancer chemotherapy and radiotherapy did not find any evidence of a benefit.

Medicinal mushrooms have not been approved by the FDA as a cancer treatment. And under UK law, it is illegal to label a foodstuff product as capable of preventing, treating or curing cancer.

The Bottom Line

There is no conclusive evidence that medicinal mushrooms have any impact on a cancer outcome. However, many people use them as a wellness supplement or to cope with the side effects of cancer treatment, such as menopausal symptoms. Mushrooms have been reported to improve gut health, improve your focus and cognitive function, and boost your immune system. I don't know if there is evidence to support these claims as it's not my area of expertise. You may find that they work for you and help you cope with the side effects of cancer treatment. Everyone is different and what works for you won't necessarily work for someone else. From what I've read so far, they are probably safe to take, as long as you've checked they won't interfere with any other cancer treatments.

Cannabis and CBD

The cannabis plant, also called marijuana, is a class B drug. It contains hundreds of different chemicals. The two that produce most of the effects are delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). THC is the psychoactive substance that alters how the brain works and makes you feel 'high'. CBD is not psychoactive. It can decrease anxiety and might help reduce pain and inflammation.

Your body produces natural cannabinoids that work through the endocannabinoid system. They target receptors in your brain and immune tissues and help control and regulate things like sleep, memory, learning, inflammation and pain control. THC and CBD work by interacting with these receptors.

What's the difference between CBD oil and cannabis oil?

CBD oil comes from the flowers of the cannabis plant. Because it has no psychoactive substances, it can be sold as a food supplement. It comes in

many forms including bath soaks, supplements, drinks and gummies. This cannabis product is not sold as a cancer cure.

Cannabis oil, however, is marketed as a cancer cure. It comes from the flowers, leaves and stalks of the cannabis plant and often contains high levels of THC. It's illegal in many countries. There is a highly potent form called Rick Simpson Oil that was created by a Canadian engineer called Rick Simpson.[55]

Why do people think cannabis oil can cure cancer?

Rick claims that he had skin cancer on his arm. He made the oil using a recipe based on a 1975 study that showed cannabis could kill cancer cells in mice. He applied the oil, bandaged his arm for four days and the cancer miraculously disappeared. Following that, he claimed that his potent cannabis oil can cure every type of cancer. This is backed up by testimonials on his website, although many of these patients had already had chemo and radiotherapy.

What are the side effects?

The side effects are the same as the come-down from a cannabis 'high'. They include memory loss, a dry mouth, diarrhoea and drowsiness. At very high concentrations you might have a panic attack, hallucinations or paranoia. If it's taken for many years it can cause permanent heart, liver and brain damage, as well as the risk of developing an addiction.

Is cannabis oil safe?

There is some evidence to suggest that cannabis compounds could block enzymes needed to metabolise traditional anti-cancer drugs, particularly immunotherapy. This would make them less effective and more toxic. It could also increase the brain fog experienced during chemotherapy. Finally, if you use cannabis oil, research has shown that you are far more likely to have a car accident than someone who doesn't use it.

Is there any proof that cannabis oil can cure cancer?

A large US study and a couple of very comprehensive reviews of the available literature by CRUK in the UK and the National Cancer Institute in the USA have found that there is no evidence to prove that either CBD or THC products can cure cancer.[56]

Can cannabis help with cancer symptoms?

There is some evidence to show that THC can help with severe drug-resistant nausea, particularly in patients with advanced disease. Although some patients take it for pain relief, four randomised controlled trials showed that it didn't provide a significant benefit. It is not recommended by mainstream doctors as a first-line treatment to help with pain or to boost your appetite.

The Bottom Line

There is no evidence to show that cannabis oil can cure cancer, and it is not recommended for symptom control, although there are patients with advanced cancer who do find it helpful. When it comes to CBD, many people take it as a wellness supplement and, again, this isn't my area of expertise. It's probably safe to take if you find it helps you. Just remember that it won't have any impact on your survival from cancer, and check that it doesn't interfere with your other cancer treatments.

15. Do You Need a Cancer Coach?

It can be incredibly confusing keeping track of everything that is happening to you. Family and friends often end up acting as our advocates to help us navigate our way through treatment. I couldn't remember my own name at times during chemotherapy. It's hard keeping track.

I had to do this with Mum when she was diagnosed with bone cancer. Because it's so rare, she ended up having treatment in three hospitals with three different IT systems. It was a full-time job keeping track of all the dates and times for scans, treatments, blood tests, appointments and Zoom calls. It was hard at the best of times, and I knew how to work the system and who to call for help when Mum was struggling. Not everyone has a cancer surgeon in their back pocket.

To help make our lives easier, hospitals now offer the services of cancer navigators. They are attached to oncology units and they're trained to help you and your family and carers cope with the medical, financial and emotional issues that come with a cancer diagnosis. I think this is a brilliant idea. Your specialist nurse will know whether your hospital has them. If they don't, then go to the Macmillan centre in the oncology unit or your local cancer support centre (like Maggie's centres) where trained staff will be able to help you.

However, there are cancer coaches working in the alternative cancer space who offer a very different set of services at a far greater cost. They don't have medical training, and you don't pay them to treat you. Instead they research all the available treatments out there and recommend those that would work for you. Why spend hours scouring the internet when there are experts who will do it for you?

First, I approached an online service that would recommend the treatment they thought I needed, a bit like an alternative medicine concierge.

Heal Navigator

This is an American website[1] that helps you pick the ‘perfect’ alternative cancer clinic. They offer free consultations with holistic clinics all over the world. They get paid via referrals and tele-health consultations. I spoke to one of their experts via Zoom, who was half my age. I explained that I’d had breast cancer three times and would do anything to stop it coming back. She knew I was currently cancer-free, and recommended three clinics.

The first was in America that cost £45,000 plus accommodation expenses for a month-long stay where I’d get dendritic cell therapy, peptide therapy, vitamin C and Laetrile, amongst others. I’d be sent home with a suitcase weighing 30 kilograms full of intravenous infusions and supplements that I’d have to take at home over the next three months.

The next two were both in Mexico. One offered a three-week stay where I’d get dendritic cell therapy, hyperthermia, chelation therapy, immune stimulation and sodium bicarbonate infusions, with a three-month protocol to follow at home. The cost was £38,000. They recommended that I come back at least once for another week, for a package costing £50,000. They promised to increase my survival by 300%. I have no idea what this means. It doesn’t even make sense. When I was first diagnosed in 2015, I had a 60% chance of survival. A 300% increase means I am 180% likely to survive. This is just a meaningless figure to persuade me to say ‘yes’ to the clinic.

Meanwhile, I discovered a Facebook group for the relatives of cancer patients that have died after visiting this clinic and it makes for some pretty distressing reading.

The second Mexican clinic offered a three-week stay for only £19,000, but I would have to pay for every treatment I wanted. They suggested bio-emotional balance therapy, hyperthermia, pulsed electromagnetic field therapy and dendritic cell therapy.

I asked my Heal Navigator for proof that these incredibly expensive clinics actually cure cancer patients. She said that statistics and success rates don’t exist as the clinics are using up to 21 different therapies. Then she offered me advice about crowdfunding to help me find the money to pay for them all.

Online cancer coaches

Then I emailed three online cancer coaches to see what they would recommend I did to stop my cancer coming back.

The first was Dr Veronique Desaulniers,[2] who calls herself the Breast Cancer Conqueror. She's a chiropody doctor who's based in Australia. She sells coaching plans to take you through her seven steps to get to the root cause of your breast cancer. These include reducing your toxic exposure, balancing your energy and healing your emotional wounds. She also sells supplements, blood tests, electromagnetic field home protection, bio mats and hydrogen water to help with the process. Only then can you be cured. Her online course costs £150, group coaching is £1,000 and private coaching costs £2,000. When I asked her what I should do to stop my cancer coming back, her secretary told me it was because I hadn't established and corrected the root cause. I'm sure you can imagine what I thought when I read that.

The second was Chris Woollams,[3] a British biochemist based in Thailand. For £595, he will build you a personal prescription. That includes identifying the cause of your cancer and recommending what alternative clinics, treatments, diets and supplements you need, based on his extensive research. He does suggest you consult with your own medical team before following his advice. He says that his plans work, but you must be determined to follow them. When you pay him, you agree that you will not hold him liable for any decisions or course of action you make if you choose to follow the plan. Basically, this means that if you die, Chris can't be blamed. And people do die, as you'll read shortly.

The third was Grace Gawler,[4] who is also based in Australia and is the founder of the Grace Gawler Institute to help you navigate the cancer maze. Grace prides herself on her weekly rigorous research into treatments that aren't normally offered to patients as part of their standard cancer care. She has no medical training, but she'll recommend alternative medicine specialists and clinics around the world, and broker treatments on your behalf. She says that even doctors struggle to understand her new way of thinking about cancer care. And she's right. I do. The proof that her guidance works comes from just three testimonials on her website. Her

basic plan gives six hours of service over six months for £600. It's £2,000 for 20 hours.

The Bottom Line

I understand why these cancer coaches are so appealing. They will listen to you. They'll do the hard work on your behalf to find the personalised treatments that your own doctors haven't heard of. And if your cancer does come back, they will keep looking for a miracle cure, at a considerable cost.

But if we take a step back, oncologists give every cancer patient a personalised treatment plan. No two cancers are the same. There isn't a one-size-fits-all cancer treatment. The only real difference between traditional doctors and cancer coaches is that the treatments we recommend are based on years and years of trial data to prove they are safe and that they do increase your chance of a cure. We don't rely on testimonials written one week after a visit to a clinic. We have data from thousands of patients that shows us the best way to treat you. And we will continue to look after you if the treatments stop working and your cancer comes back.

If you do use a cancer coach, think about what you might be losing if you choose the treatments they recommend over those your doctor prescribes. Make sure you know what you're signing up for, and what to do if it doesn't work out.

W's story, as told by a friend

W was diagnosed with bowel cancer three years ago. He had surgery, followed by chemotherapy. During chemo, W did a 30-day juice fast and got into sea moss. He met another man with bowel cancer who told him

about Chris Woollams. W had a consultation with Chris and he told him to rent a bio-resonance machine, take a lot of supplements and to completely change his diet. No dairy, no meat, avoiding certain types of fruit and veg. It was all very complex. Chris isn't a doctor but he told him, 'Nobody has ever died under my watch'.

One year later, his cancer had come back. He developed tummy pain which turned out to be lesions on his liver. His oncologist started him on more chemo again. W paid for another call with Chris. Chris told him to use the bio-resonance machine at night as well to balance out all his energies. He said that he would adapt his supplements and diet and that would stop the cancer growing. However, his liver got worse and he ended up in hospital. There was nothing more that the doctors could do.

W rang Chris again and he told him to contact a clinic in Glasgow for a cancer-killing drug and to start taking it immediately. I can't remember what it was, but it cost £200. By this point he was jaundiced but he was adamant that he was going to take those tablets.

He ended up in the hospice where the doctors confiscated Chris's tablets and supplements. Several of them were really bad for W's liver and were making him worse. He died a few days later. I know it was W's determination to live, to try anything and everything, but he was listening to people that didn't really have a clue. It's so sad when someone tells you 'No-one dies on my watch', and then they do. He put so much hope into those strict diets when he should have been eating whatever he wanted. He should have been living the life of Riley.

I think when it's close to you, you don't see it. Instead of accepting and preparing for what was going to happen, W was convinced that he would be fine because Chris had told him he would be. He believed that he was going to be that miracle patient. I'm actually in awe of him, because no matter what anybody said, he believed that till the very end.

16. How Can You Find Trustworthy Information Online?

You can find anything online. I used to tell my patients not to google because there was a lot of dangerous misinformation and some scary patient stories that I knew they weren't ready to hear, and yet it's the first thing I did when I was diagnosed. I did it again when Mum was diagnosed with cancer. I had no idea how big the online cancer space was, or how misleading, scary and dangerous it could be.

There are excellent websites hosted by charities and national cancer organisations full of well-researched and up-to-date information, and I'll share those with you at the end of this chapter. But there are even more that aren't. The wrong advice could potentially kill you. And I do mean kill. As I mentioned in a previous section, people who turn down mainstream cancer treatment and use alternative therapies instead are up to six times more likely to die from their cancer in the next five years compared to people who don't. There are no laws about what you can and cannot post online. Social media and podcasts make it really easy for anyone to spread conspiracy theories and make money selling products and treatments that won't cure you. Vloggers and influencers are passionate about the cancer cures they endorse, and it's hard to work out whether they really believe in them, or they're just doing it to inflate their bank account.

Freedom of speech is important. So how do you know who to believe?

I spoke to David Robert Grimes, a scientist and author of *The Irrational Ape*[1] who is renowned for debunking cancer myths online. He said that 'If an alternative cancer cure is on social media, if it's trending, there's a good chance someone is taking advantage. They're either looking for your eyeballs, your clicks and your money, or they have a narrative of an

ideology they really want to promote. Young people in particular get a lot of their information from TikTok and Instagram. That's the worst place you could get your news from. I know that there's a lot of problems with conventional media but at least they have some degree of fact-checking and accountability. There is no such protection when you are on the Wild West of social media. Anyone can say anything and go viral and suddenly make an absolute fortune and we know the more extreme and the more confident your claim is, particularly the more fear-inducing it is, the more it will get shared.'

Dr Skyler Johnson, a radiation oncologist, looked at ways to improve communication between doctors and patients when faced with alternative cancer claims.[2] These claims are not going away, and a survey[3] by the American Society of Clinical Oncology found that almost 40% of American adults believe that alternative cancer treatments, used on their own, can cure cancer.

Firstly, I need you to remember that anything you read online, hear in a podcast, read in a newspaper and, yes, even in this book should *never* replace the personalised medical advice you will get from your own physician. They know you. They know exactly what cancer you have. They know about your other medical problems (if you have any) and all the treatments and tablets you are taking.

And that includes me. I am not your doctor. Legally, I cannot tell you what to do. Even though I write articles and share videos based on the latest scientific evidence and have spent a year researching this book to make sure that it's a resource you can trust, it is still general advice. It might not apply to you and your own unique set of circumstances. Never get your medical advice from the internet.

I'd also say that you cannot be your own doctor. You can try to be, and many of us do with Dr Google in our pockets, but it's not good for us. We do not have the years of training and experience that doctors have. This is something I learned the hard way when I was dealing with the side effects of chemotherapy. I suffered with crippling constipation and painful bleeding piles for 10 days before I thought about asking my oncology nurse for advice. She told me off for not calling her sooner. I just thought chemo was meant to be unpleasant and the constipation was just something I had to

deal with. Luckily, I didn't come to any harm, but I narrowly avoided a potentially serious complication. And I have a medical degree.

You can become so convinced that X or Y is good for you because of how bad you feel that you can't see the other side of the coin, or accept that they could be harmful. You are too involved to think logically or take a step back. It's our 'act now, think later' response when we are desperate. And having cancer does make you desperate. I know. I've been there.

Now this is different from being an expert in your body. You have to make the choices and live with the consequences. But you need a mainstream doctor to give you all the information, good and bad, so you can make an informed choice.

The problem with search engines like Google is that they know what you're looking for. A friend was searching for a pregnancy test. She then went to another website to buy a bikini for a holiday, and already that store was recommending pregnancy jeans in the adverts on the side of the page.

Search engines show you what they think you want, not what you need. It's all to do with the words that you enter. If I typed 'vitamin C cancer cure' I'd be shown lots of websites saying that it does, together with shopping options to buy capsules and powders. Some companies will spend huge amounts of money to get their websites sponsored so they appear on the first search page. If I typed 'Is it true that vitamin C cures cancer?' I'm more likely to be shown the truth. Websites like CRUK would pop up that would show me all the evidence to prove that it's not a cure.

In 2016, more than half of the 20 most shared cancer articles on Facebook consisted of medically discredited claims.[4] A review[5] by NBC in December 2019 found that much of the most viral health misinformation was about cancer, citing headlines such as 'Ginger is 10,000x more effective at killing cancer than chemo' that generated more than 800,000 engagements. *The Wall Street Journal*[6] has reported on social media cancer scams, including millions of views of YouTube videos claiming cancer can be cured by black salve, a highly corrosive product described as 'dangerous and life-threatening' by the U.S. Food and Drug Administration (FDA).[7]

A study[8] from 2023 looked at the amount of cancer misinformation people were exposed to on social media. One in four American adults were shown content about alternative cancer cures on Facebook, YouTube,

Instagram and TikTok. Over 70% of the people shown this content thought it was true, and more than half were likely to share it with their friends.

Dr Skyler Johnson and his team reviewed[9] cancer content on social media. Most posts had 30–80% of false, inaccurate or misleading content that could worsen a cancer patient's chances of survival. These posts were also more likely to get views, clicks and shares than sensible cancer information. Adults with cancer were more likely to believe they were true. Three out of four people were interested enough to investigate or pursue these claims.

Although YouTube can be a good source of accurate health-related content, a review[10] in 2022 found that it contains a wide variety of potentially harmful videos, many with over 1 million views. Sadly, the number of views and likes a video gets is taken as proof that it's scientifically accurate. Since the review was published, YouTube has created a Health Shelf. Videos relating to a search topic from trusted health content creators like me should come up at the top of the feed. I hope that in time we will be able to filter through the noise. They are trying to counteract misinformation and admit that their systems aren't perfect.

A study[11] in *The Lancet* found that many people in alternative medicine Facebook groups are illegally promoting and advertising products. They tell new members not to trust their mainstream doctors and to listen to them instead. There is a huge conflict of interest in these groups. Companies are setting up Facebook groups to help them drive sales, getting influencers to help with affiliate marketing codes that give them a cut of the profit. They may have never used it or know what it is. None of that matters in the online space. And I know this is true because I've had companies offer to send me kitchen appliances for free. If I make three videos using the products, they will pay me an influencer fee. I said no. It doesn't sit right with me, but it's how the online marketplace works.

Are Facebook, Google and GoFundMe killing cancer patients?

A paper[12] in 2023 by Marco Zenone et al. analysed how alternative cancer clinics advertised themselves on Meta's social media platforms. Even though it's illegal in the UK and the US to advertise cancer cures, they found 310 paid ads from 11 cancer clinics on Facebook, Instagram and Messenger all selling alternative cancer treatments, approaches and care. One in four ads directly stated that the treatment could cure cancer or prolong life.

And although Meta's advertising policy[13] states that 'ads must not contain deceptive, false or misleading claims … that set unrealistic expectations for users', their advertising set-up allows these clinics to promote their scientifically unproven treatments and services. These clinics are paying Meta to run the adverts. They can use Facebook to target and track a defined audience interested in cancer for relatively little effort and expense, and some of these people will die because they saw one of these ads and acted on it.

Marco ran another study[14] looking at alternative cancer clinics that are advertising on Google. They pay Google to appear at the top of the first page of results. We are dazzled by 5* reviews of patients who say they've been cured, and we know how powerful a testimonial can be. But this doesn't reflect the reality of what happens. Google does not have safeguards in place to ensure that only truthful reviews are posted. How many people scroll down and down to see the 1* reviews to read about the loved ones who died within weeks of returning home?

I spoke to Marco and he said that GoFundMe was just as bad. A lot of cancer patients are hoping to raise $30–400,000 to access treatment, and GoFundMe takes a slice of the revenue from all those donations. Like Meta and Google, GoFundMe is passively involved in the exploitation of cancer patients.

Is it legal to advertise alternative cancer cures?

I've said before that it's illegal to advertise cancer cures. In the UK, the 1939 Cancer Act[15] bans anyone advertising cancer treatment to the general public. Let me say that again. It is illegal for a UK company to advertise a

product that can cure cancer. And yet social media is full of video ads saying just that. It is impossible to police every website, and so these companies get away with breaking the law.

Under US federal law, it is illegal to advertise a dietary supplement as a cancer cure. And yet I've lost track of the clinical websites doing this. The Australian Health Complaints Act bans health-service providers from making unsubstantiated claims about products that can cure cancer or help with symptoms. And yet again, I've found several websites selling spurious treatments for hundreds, if not thousands of dollars.

Top tips when searching for a cancer cure online

Let's say that you've come across a new cancer cure in a video and you're thinking about trying it, but you want to know more. Is it safe? Will it work? Should you really take it? These are my tips to help you get a little bit of grounding before you reach for your wallet.

Ask your doctor

If your mainstream doctor hasn't recommended a particular diet, treatment or supplement then you can be pretty sure that there's no evidence to prove it works. Doctors work to national guidelines based on the latest evidence and trials. If your doctor has never heard of the treatment, it is unlikely to cure you.

Do a sensible online search

Look for proof that it doesn't work. You need to know the good and the bad before you can make an informed decision about your future health. Depending on the alternative cure, you might need to scroll through several pages to find the information you need.

Check with trusted independent websites

The American Cancer Society, the US National Cancer Institute and CRUK pay people to study the evidence about alternative treatments. If they say there is no proof that mistletoe cures cancer, you can trust them. The Sense about Science website[16] has some excellent guides to help you understand cancer treatments, screening, testing, risks and research.

The website ScienceUpFirst[17] is another great resource. It was started by Tim Caulfield, the author I've mentioned before. It's run by emerging scholars and it's trying to be more positive and use diverse voices from different communities to help explain science to the general public.

The website Quackwatch[18] is an excellent resource that spends a lot of time and effort to expose people and treatments that are harming cancer patients globally. The Memorial Sloan Kettering Cancer Centre website page 'About Botanicals, Herbs and Other Products'[19] is a great place to see if the supplement you want to take will interfere with other medicines you might be taking, and warn you about the side effects.

17. Red Flags That Will Tell You a Cancer Claim Is False

You might think that 'quackery' – selling cancer cures that don't work – is easy to spot. Trust me, it's not. Alternative medicine providers are brilliant salespeople that use the same tricks to convince you to buy their products in the hope of a cancer cure. They prey on our emotions, and it works. The American Council on Science and Health drew up a list of red flags[1] that should make us all think twice before handing over our money.

A study[2] in 2021 called 'The Science of Spin' noted 28 tactics used by the tobacco and coal industries to misinform us into believing that their products were safe and didn't harm the environment, and these are now used by people selling alternative cancer cures. The website Quackwatch[3] has a list of 30 tricks that are used to convince us to buy these products.

In this section, I'm going to go through some of them in turn. This should help you be more wary of any cancer cures you find online. But first, I'm going to share with you a quick and easy checklist that will give you a good heads-up. It's Skyler Johnson's CRAP test[4],[5],[6] and it's brilliant.

- **C** – Conspiracy theories or claims too good to be true
- **R** – Requests for money, either for a treatment, product or access to information
- **A** – Anecdotes to support claims as opposed to real data
- **P** – Publishers' websites come from questionable sources and end in .com rather than .org or .edu

These are the red flags you need to look out for:

This treatment can cure/treat cancer

Cancer is not one disease. There are over 200 diseases of many different cell types with many different causes and mutations.

This treatment can cure several diseases

Whenever you read that a treatment can cure cancer, asthma, diabetes, high blood pressure and arthritis be suspicious. Asthma and high blood pressure don't start because of mutations of your lung and heart cells, and you don't get cancer from wear and tear of your hip and knee joints. They all happen for very different reasons. You wouldn't expect a heart disease specialist to treat your bowel cancer. We need to hold alternative medicine providers to the same scrutiny.

Natural remedy

This is a huge buzzword at the moment. Hospital treatments are labelled as toxic and unnatural, whilst supplements are 'natural' and therefore better for you. However, many 'natural' plant-based supplements are processed and mixed with chemicals to produce tablets, gels, capsules and liquids, and many natural products and treatments can kill if taken in high doses. The herb comfrey causes cancer and apricot kernels cause cyanide poisoning.

We really care about you! We treat the whole patient

One of the selling points of holistic, integrative and functional medical providers (see Chapter 9) is that they treat the 'whole' patient. They care about all of you, whereas doctors like me are only interested in your cancer or your money. I would say that the opposite is true.

Doctors are trained in every aspect of medical and physical health. Whilst I may only operate on a person's breast, I can't do that without considering their other medical problems and their own wishes and concerns. We are not the callous, cold-hearted people that some alternative influencers make us out to be.

Do you really think the person or clinic cares about you as an individual patient more than your medical team does? Do they really have your best interests at heart and want to do everything they can to help you? Or do they just want you to sign up for their mistletoe infusion?

Money-back guarantee

This is a huge red flag. In one sentence you hear that a treatment will cure you, but in the next you'll get your money back if it doesn't work. But hang on – you've just told me it will work. If they're so certain, why would they need to offer a money-back guarantee? It makes you feel safer when you're spending hundreds of pounds on infusions and supplements. These providers know that most people will not have the physical or mental strength to demand their money back at a time when they are going through treatment and its side effects.

Medical disclaimer

If you scroll down to the bottom of alternative therapy and supplement sellers' websites, after reading about all the wonderful benefits and how it will cure your cancer, you'll find in very small print a medical disclaimer. It will say something like this: 'We cannot offer medical advice. Please talk to your doctor if you have a pre-existing medical condition.' And yet they have offered medical advice by telling you that their turmeric supplements can prevent cancer.

Many cancer patients turned businessmen, like Chris Wark (see Chapter 14), give out medical advice telling you to refuse chemotherapy and to juice instead, before saying that they cannot give you professional medical advice. It's another get-out-of-jail-free card to legally protect them if you follow their advice and your cancer comes back. Would you buy a car or a house like this?

Positive testimonials

I know you've seen and read enthusiastic testimonials from cancer patients who tell you they've been cured. One is often enough to persuade you to sign up. One person. That's it. Never mind the countless trials involving thousands of patients that have to prove a new chemotherapy drug works before conventional doctors like me offer it to our patients. One testimonial can have the power to make you throw caution to the wind and throw your money, and even your life, away.

But when you watch a video or read a three-sentence testimonial ask yourself these questions:

- Is there any proof that this person actually had cancer?
- Did they have normal treatment as well, like surgery and chemotherapy?
- How long did they have the treatment/follow the diet for?
- How soon after starting treatment did they film/write the testimonial?
- Were they given treatments at a reduced price or gifted treatments in exchange for a positive testimonial?
- Is the person actually real, or is it a stock photo and a faked testimony from the person selling you their products?
- Are they still alive today?
- And if they are still alive, can the person who gave them the treatment actually prove that it's their miracle cure that worked, or is it something else, or maybe just good luck?

I accept that testimonials play a huge role in most of our commercial decisions. Whether it's choosing a restaurant based on TripAdvisor reviews to booking a room on Airbnb, we trust that people are telling us the truth and not exaggerating. But when it comes to your health, testimonials cannot be trusted. It's why they are forbidden in scientific studies and cannot be used by scientists to say if a new drug is legally safe and can be marketed as a cancer treatment.

Finally, it's important to question where the negative testimonials are. There must be people who weren't cured with cannabis oil. You need to hear from them so you can make a balanced decision. Doctors do this when they consent you for a procedure. They tell you the benefits and the risks,

even the really scary ones, so you know what you are signing up for. Trust me, there will be many failures, but the dead can't speak.

Act now!

Anyone telling you to act now and to hold off traditional treatment because you have time to wait is giving you bad advice. Whilst most cancers are not medical emergencies, delaying treatments that have been shown to work to try a diet or vitamin infusion for several months could be dangerous. Your cancer could continue to grow and by the time you realise and go back to your doctor, it may no longer be curable.

Secret ingredient or miracle cure

This is never true. There are no secret ingredients and there are no miracle cures. If these products really were as good as they're meant to be, then doctors like me would be handing them out like sweets. Believe me, I live for the day when cancer is abolished.

The one thing your doctors/Big Pharma are hiding from you

This is another good one. It comes from the conspiracy theory that doctors are working with Big Pharma to make a lot of money, especially in America where people pay for their healthcare. People believe that researchers don't want to find a cheap cancer cure because the pharmaceutical industry will lose billions of pounds in profit. Conventional doctors are charging you a fortune for chemotherapy drugs when you could go and buy baking soda for a fraction of the price. Now talking about the cost of new cancer drugs and the profit pharmaceutical companies make is a topic for another book, but trust me we are not hiding a cure for cancer. I don't recommend chemotherapy lightly. Your doctors know it can have unpleasant side effects. I've had it myself. I know how tough it can be. But we also know it works, and that the benefits are worth the risks. We want to cure cancer. If baking soda worked we'd give it to everyone. But it doesn't. So, we don't.

These are the facts. Yes, 'Big Pharma' is big.[7] In 2021 it was worth over $1.42 trillion. That's huge. But it's nothing compared to 'Big Wellness'. In 2022 the Global Wellness economy was valued at almost $5.6 trillion.[8] That's four times higher than Big Pharma. That's where all your money is really going.

And what makes me angry is that these conspiracy theories assume that the thousands of scientists, researchers, staff and donors don't give a toss about curing cancer. They want you to believe that we're in it for the money. It's insulting. You ask any cancer surgeon or oncologist and we'll all say the same. We dream of the day when cancer can be cured. To never give someone chemotherapy or tell them that they're incurable. Do you really believe that doctors are hiding the cure so we can continue to cause unnecessary suffering to the vulnerable people in our care?

100% safe

'Alternative' methods are often described as safe with no side effects. Nothing in life is 100% guaranteed. And if a cure had no side effects, I'd have to ask, is it really working? Cancer is an aggressive disease. I'd expect some side effects from any drug that was killing cells inside my body.

How do you know that the treatments you are choosing are safe, have been rigorously tested in clinical trials and backed up by research? Is the dose guesswork or has this been calculated based on earlier studies? Is a lone surgeon in his seventies in a clinic in Germany offering 'intra-tumoral chemotherapy' really worth trusting when no-one else in the world is using this technique? Where is the proof that ethics committees were involved in the decision to give this new treatment to cancer patients?

We treat the root cause of your cancer

This is another phrase used by integrative, functional and holistic doctors. They say that doctors like me can't cure you because we are only treating the cancer, not the 'root cause'. They would have you believe that it's your fault you got cancer because of your unhealthy lifestyle, thousands of toxins

in your environment, energy blockages, nutrient imbalances, and your negative thoughts and feelings.

None of this is true. Cancer is mainly a disease of chance, as I explained in Part II. The 'root cause' theory is an excuse to sell you multiple courses, supplements and detox equipment that you don't need.

Finding other ways to say 'cure'

This is a get-out-of-jail-free card. It is illegal to advertise a product that can cure cancer. So instead, companies promise to cleanse, heal and detoxify your body and return it to the state that nature intended. It's also impossible to measure how 'toxic' or 'dirty' you are, so there is no way of proving that the treatments you've bought have worked.

Hinting at a cure

Companies use research studies testing their products on cells in a lab, or mice and rats with tumours, to persuade you that the product works in humans. Anytime you see the words 'may', 'might', 'possibly' and 'could' – run away. This is not medical proof. I don't remove someone's breast because it 'might' cure their breast cancer. Don't abuse your body with supplements and infusions based on chance and animal studies. Rats are not little people.

Blinding you with scientific jargon

This is really common. Websites will often blind you with pseudoscience, listing enzymes and co-factors you've never heard of, all to fool you into thinking that the evidence is real. They'll tell you that there are over 500 studies looking at vitamin X. What they don't say is that they were all done in mice and none of them worked. The review they proudly quote as proof could be 20 years out of date and paid for by the company selling the product.

If the research isn't there, they'll tell you that 'studies are underway', assuming there are studies underway and they haven't just made it up. This

creates a sense of urgency. You have to start vitamin X now – it must work because they're testing it. But would you swallow rat poison if I said there were studies being developed to see if it can cure cancer?

Nobel Prize winner

Whenever you hear the words 'Nobel Prize winner' you need to be cautious. While it's reassuring to know that the evidence behind a new treatment came from someone who won the Nobel Prize, it's not automatic proof that it can cure cancer. Remember Otto Warburg from Part II? I have a bronze award in disco dancing. Does that make my work more credible?

The Bottom Line

I know how easy it is to be fooled by a flashy website and clever marketing tricks. I've fallen prey to scam artists myself when I'm driven by emotions instead of rational, logical thought. I thought I was buying a second-hand Peloton bike on Facebook Marketplace. It was an offer that seemed too good to be true, and it was. There was no bike. Instead, the seller bought £2,000 worth of goods on my credit card.

Please promise me that the next time someone sends you a link to a video or website with a new cancer cure you will take a moment to analyse what they're telling you. If you see any of these red flags, think twice before handing over your money for a cancer cure.

The National Cancer Institute has a report[9] called 'Health Misinformation on Social Media'. It outlines some of the most effective ways to address misinformation on social media. Another great resource is the National Cancer Institute's webpage[10] 'How to Find Cancer Resources You Can Trust'.

I know this all seems like a lot of work, but I'm talking about your body, your health and how long you will live for, not

deciding whether to buy a handbag. If you're willing to spend your savings on supplements and infusions and clinics and cancer coaches, then it is probably worth doing a little probing to make sure that the benefits outweigh the risks. If you take a gamble and it doesn't pay off, so your cancer does come back, can you live with the guilt of what might have been?

Part IV

What Can I Do to Stop Cancer Coming Back?

The knowledge that your cancer might come back is frightening. You might be terrified. I certainly felt like that at times. To know that despite all of the treatment I'd had, all of the side effects I'd suffered and the lingering collateral damage, it might have been in vain. It is very easy to get lost down a rabbit hole of despair without seeing the bigger picture.

But why does cancer come back after conventional treatment? Your first thought might be that your surgeon didn't do their job properly and left cancer cells behind. Or maybe that it's your fault that you couldn't tolerate the full dose of chemotherapy and that's why it came back? Maybe you blame yourself for not eating properly, or not exercising enough, or you've been told you haven't processed past traumas in your life.

In this section I'm going to explain what a recurrence is. I'll tell you why it can happen and what happens if it does. I'll also tell you what you can do to reduce the risk of it happening. You really can take control and make a difference by following what I say. It's not sexy or exciting and it does take a bit of hard work, but eating well, drinking less alcohol and moving more give the treatments you've had the best chance of keeping you alive.

18. Can Cancer Ever Be Cured?

There is still so much we don't know about cancer, but in this new world of molecular medicine, where drugs and immunotherapies and vaccines are available to target specific mutations and give personalised care, we are curing more people than ever before. And by cure, I mean that a cancer patient dies from something else, not their cancer.

We should be shouting from the rooftops that more people are surviving cancer every year. In the UK, overall cancer survival has doubled in the last 50 years.[1] The five-year survival rate rose from 47.9% in 2005 to 55.7% in 2016. And half (50%) of all people diagnosed with cancer are still alive 10 years later. If the cancer is easy to treat and detect, that number increases to 80%. It's not every cancer. Some cancers are naturally more aggressive, harder to detect and harder to treat.

In the US, it's estimated that the number of cancer survivors living for five years or more will increase by 53% in the next 15 years.[2] In 2022, 70% of all cancer survivors were still alive five years later, and the cancer survival rate has increased by 33% in the last 25 years. However, cancer survival is generally lower in people living in more deprived areas. Some countries don't do as well as others, but on the whole there is hope.

There is a huge variation in the number of people who are cured after cancer treatment, and I don't want to scare you by talking about the cancers with the worst outcomes. I don't know what your individual circumstances are and how likely you are to be cured. Knowing more about your cancer may reduce your anxiety as you analyse your options and begin your treatment. However, survival statistics can be confusing and frightening. And that's why I think it's a discussion you should have with your oncology team, so they can gently take you by the hand and tell you what the future might bring.

The latest data is already five or 10 years out of date. If we take a new chemotherapy drug, for example. If we want to prove that it keeps more people alive for 10 years, it will take at least that time to recruit patients, follow them up, analyse and publish the data. New drugs are being discovered all the time, so for most cancers your prognosis is the worst-case scenario. That's not always true for the rarer cancers, like sarcomas and brain cancers, that don't hit the headlines and don't get an equal chunk of the research money. I hope in the future that every cancer will get an equal share of the funds. Rare cancers need more.

19. What Is a Recurrence?

Before I tell you why cancers can come back after treatment, I wanted to explain some of the terms that you might see and read when we talk about metastatic disease.

Once you've finished cancer treatment, your doctor might describe you as being in remission, cancer-free or being NED – no evidence of disease. Those terms all mean that at that moment in time, any blood tests or scans that you've had are unable to detect signs of cancer.

I've used the words 'come back' throughout the book to describe when a cancer has spread beyond the original site. It feels friendlier to write than the alternative words such as stage 4, advanced, distant recurrence or metastatic. Doctors don't use all of these terms with bone marrow and brain cancers as they're a bit different. And because nothing to do with cancer is simple, there are also two other types of recurrence that are potentially curable.

Bone marrow cancers

For cancers like leukaemia and myeloma, once you've been treated with chemotherapy or a stem cell transplant and there are no cancer cells left in your blood, you are officially in remission. If cancer cells start to grow in the bone marrow again, this is called a relapse. Your doctors will treat you to try to get you into remission again.

Brain cancers

Brain cancers very rarely spread outside of the brain and that's why they aren't staged. If a brain cancer starts to grow again after treatment, it is called a recurrence.

Solid cancers

For solid cancers like breast, lung and bowel, there can be several types of recurrence, depending on which bit of the body the cancer cells have decided to grow. The different types are local, regional and distant. Local and regional recurrences are treatable and potentially curable. Distant recurrences are the same as late, advanced or metastatic disease and these cannot be cured.

Local recurrence

This is when cancer cells grow in the same area or very close to the area where they were initially found. This happened to me in 2023 when I noticed a small red spot above my mastectomy scar. I'll admit to being really scared. Some cancers just don't play by the rules. I was worried that it might be in my bones, liver and lungs as well, but thankfully the scans were clear. It happens in about 5% of breast cancer patients despite radiotherapy and hormonal therapy. It can be treated and potentially cured with a combination of surgery, radiotherapy and other drugs, depending on what you had before.

Regional or loco-regional recurrence

This is when cancer cells start to grow in the tissue or lymph nodes near where the original cancer was. This was my first recurrence. I'd noticed a hard nodule of tissue in my armpit, and just thought it was scar tissue. Now this really frightened me. It was only two and a half years after I'd finished chemotherapy. I felt sick. Thankfully it hadn't spread anywhere else, and I had more surgery and radiotherapy, and touch wood that area is still cancer-free.

Distant recurrence

This is when cancer cells have travelled through the blood or the lymph system and have started to grow in lymph nodes far from the original site, other organs (like your liver and lungs) and your bones. Some people already have a distant recurrence when they are diagnosed, and this is called *de novo* metastatic cancer. This is why it is so important to check yourself regularly. The earlier a cancer is detected, the less likely this is to happen. If you do have distant metastases, it means that your cancer can be treated to slow down the growth or stop it growing. It can't be cured, and I'll explain why in a bit.

20. Why Does Cancer Come Back?

Cancer cells are a moving target. They can move around the body freely and enter your lymph vessels and bloodstream. That's why it's hard for any treatment to capture and kill every cell. It's why you might have several treatments that work in different ways to increase your chance of a cure. For most of us, these extra treatments work. But for some of us, those floating cancer cells manage to escape everything we throw at them. No matter how good medical science is, we can't beat bad biology.

Cells are left behind after surgery

Cancer cells are also tiny. They are invisible to the naked eye. A 1 millimetre area of cancer can have over 100,000 cells. The smallest lesion a CT scan can see is about 3 millimetres, depending on which bit of the body it's in, which could have millions of cells. For a cancer to be large enough to cause symptoms, or become a lump you can feel, it would have billions of cells.

This is one of the reasons why surgery doesn't always work. For some cancers, like bowel cancers, it is easier for your surgeon to remove the whole tumour. If they are small, they have defined edges, and are well-contained within the bowel itself. Your surgeon removes the part of the bowel with the cancer as well as some healthy tissue from either end. However, for other cancers, like breast cancer, there isn't a well-defined border. The cancers are irregular, and despite taking a rim of healthy tissue in some cases there will be cells that have been left behind.

When I worked as a breast surgeon doing an operation called a mastectomy to remove the whole breast, I would follow a tissue plane between the fat under the skin and the breast with my scalpel. I'd make sure that I'd removed all the breast tissue I could see and feel. But there would inevitably be cancer cells left behind. It's a bit like peeling an orange and trying to remove every tiny piece of pith. Any cancer cells that are left behind will die, as they no longer have a supply of food and oxygen, or our immune system will destroy them. We recommend treatments like radiotherapy to mop up any cells left behind and prevent them entering your bloodstream.

Cancer cells hibernate in your body

With any invasive cancer, no matter how small, there is always the chance that cancer cells have left the tumour and pushed their way into neighbouring blood vessels. The bigger the cancer, the greater the chance this will happen, and that's why tumour size is one of the factors used to help your doctors decide whether to give you chemotherapy.

When they enter your bloodstream or lymph vessels, one of four things can happen. The first is that they're killed by treatments like chemotherapy. The second is that they're detected and killed by cells in your immune system. The third is that they remain dormant. They may never be triggered to grow, but if they are they are also killed by your immune system.

The fourth is when these dormant cells wake up, start to grow and evade your immune cells. They set up camp in your organs and bones, and continue to mutate and evolve. This is what happens when your cancer comes back.

Cancer cells develop resistance to treatments

Cancer cells are constantly mutating and evolving. They can develop ways to avoid the drugs we take, called resistance. They can repair the DNA

damage caused by chemotherapy. This is why a cancer can come back if someone is taking hormone therapy, because the cells have found a way to bypass the effects of the drug.

21. When Does Cancer Come Back?

All the studies to date have noticed that cancers are most likely to come back in the first two to three years after you were diagnosed.[1] We don't know for certain why this happens. It could be that these fast-growing cancers are mutating so quickly that they develop resistance to the treatments someone gets. For every year you stay cancer-free, the less likely you are to get a recurrence, although it is different for every disease and every patient. It's important that you are aware of your body and let your doctor know about any worrying new symptoms, just in case.

Why bother with mainstream treatments like chemotherapy if they don't always work?

This is a great question and one that isn't easy to answer. Your doctor will recommend these treatments to give you the best chance of a cure. They should tell you what the pros and the cons are, and what might happen if you turn a treatment down. It's then up to you to make the right decision based on the risks involved.

I chose chemotherapy. I didn't want it. I didn't enjoy having it. I also knew that after my mastectomy it would give me the best chance of a cure when combined with radiotherapy and hormonal therapy. I wanted to accept everything that was offered to keep me alive for as long as possible. Now my cancer has come back, twice. Did chemo fail me? Was it just that those cells were sleeping and only woke up years after chemotherapy had finished? I would still have it again in a heartbeat.

Other people feel very differently. Some can't bear the thought of having chemotherapy. Many people can't bear the thought of losing their hair, although cold-capping can help most people save some of their hair. Others want to pursue more natural treatments that they believe will work, despite the evidence to the contrary. They want to be the miracle patient who makes it.

If we stick with chemotherapy, the problem is that no-one can tell you whether it will work for you. There are three possible outcomes. One, you have chemo unnecessarily as your cancer was never going to spread. Two, you have chemo and it cured you and stopped your cancer spreading. Three, you have chemo and it was never going to work because your cancer is too aggressive or has developed resistance to the drugs. The third option doesn't happen very often, and targeted therapies looking at gene mutations will help to lower the odds of it happening. But when you are faced with those options, it can be hard to decide. Endless worry can drain people of energy they need to help cope with the illness. If you find yourself unable to move beyond this question, talk with your cancer care team. You may need a referral to a mental health professional who can help you work through these feelings.

All your doctors have is the benefit of years of experience and data from hundreds of thousands of patients in trials and molecular profiling (depending on your cancer) to help them decide what your individual benefit is. It's up to you whether you trust them or not.

22. Will It Happen to Me?

Will my cancer come back? How do you know that I'm cured? These are the questions we all want the answers to, and they are impossible to answer. The only way to know for certain if someone is cured is when they die because of something else.

The likelihood that you will be cured is called your prognosis. You might want to know what the odds of a recurrence are, but your oncologist can't predict the future. What they can do is make an estimate based on the data they have about people with cancer like yours. The chance of a recurrence happening depends on your own unique set of circumstances and the cancer you have, as well as a bit of bad luck, and your oncologist will be able to tell you more.

How will I know if my cancer has come back?

The follow-up you have will depend on what cancer you had, what stage it was, and the likelihood that your cancer might come back. It will happen automatically. Most breast cancer patients have yearly mammograms for five years. Lung cancer patients might have x-rays and scans every three to six months. Bowel cancer patients might have yearly colonoscopies, CT scans and blood tests. The blood tests often look for tumour markers. These are proteins in the blood that are produced by a small number of cancers, including ovarian, testicular and liver. If they suddenly start to rise, it could be an early sign of a recurrence.

Now this might seem strange, but I struggle every time I find out that my scans are clear. There is a sense of relief that my cancer hasn't come back,

but there's the persisting fear that it might happen in the future. Cancer cells are invisible to the naked eye. There may be a handful here or there that are hibernating, or some that are growing but they are still too small to see on a scan.

I hope that everyone has good news forever, but we know that doesn't happen. You need to know what the signs and symptoms of a recurrence are. Get better at checking your body. I know how easy it is to bury your head in the sand and hope it will never happen to you, and I hope with all my heart that it never does. But I want to empower you to be brave and find out what to do if you notice something unusual.

Every major cancer charity has leaflets that will explain what signs and symptoms you need to look out for with your own particular cancer. You might have been given one when you got your results. I threw mine in the bin as I wasn't ready to read it, but you can find all the information online.

Every cancer has its own unique way of spreading and its favourite targets. The cancers that tend to spread to the bones are breast, lung, thyroid, kidney, lymphoma and prostate cancers. Liver metastases are common with bowel, lung, breast, pancreatic, stomach, melanoma and oesophageal cancers. The cancers that favour the brain include lung, breast, bowel, melanoma, kidney and thyroid cancers.

However, my basic advice is this. If you notice new symptoms, like a cough or a painful hip, make a note in your diary, and a reminder to check it in a couple of weeks. Treat it with cough medicine or pain-killers, like you normally would. If when you check again it's still there, it hasn't gone away and you can't explain it, then you need to see your doctor to get it checked out. You are not wasting anyone's time, I promise you. I've had to do this several times and I felt like a fraud. The truth is that most of us will need a scan to see if something is going on, and oncologists take any new symptom seriously. There are heartbreaking exceptions to every rule. No doctor is perfect. Not every recurrence is easy to find. But if you notice something different, please get it checked out.

At the moment there is no single blood test that can accurately say that a cancer has come back. There is a lot of ongoing research to develop and test liquid biopsies. These are blood tests that are looking for cancer cell DNA in your blood. We predict that these biopsies will tell us someone's cancer has come back at a very early stage, before they start to get symptoms.

Doctors then have to work out how to treat you without knowing where the cancer is. But it’s exciting to know that tests like these are just around the corner.

23. How Is Metastatic Cancer Treated?

While every cancer can be treated, most metastatic cancers can't be cured. That's a hard thing to write, and, as a cancer patient, I know it's even harder to read. However, there are lots of treatments available and for some cancers people are living for another 10 or 15 years once their cancer has spread. The treatments they have keep their cancer in check. Many people with metastatic cancer are really living. Whilst the mental and physical side effects of permanent treatment are tough, to say the least, they're working, travelling and having fun. Science is progressing at an incredible rate and none of us know what the future holds.

The treatment you have depends on where your cancer has spread to and how big the deposits are. Some people are offered surgery to remove the tumours, like bowel cancer patients with liver metastases, to delay further spread. Some may have targeted radiotherapy to the brain and liver to shrink a lesion, or to the bones to help with pain and/or breaks. Most people are offered chemotherapy and targeted therapies to try to shrink the cancerous deposits. These are referred to as first, second and third line treatments that you make your way through as cancer cells eventually mutate and develop resistance to each new drug.

The aim of all these treatments is to slow down or stop the cancer's growth, relieve pain and any other symptoms to keep you alive for many years to come. Many metastatic patients are asked to join clinical trials to investigate new drugs and treatments that hold promise for the future. It is often a balance between what is technically possible and the side effects you're willing to tolerate. There are millions of people living very full lives with metastatic disease, leading busy jobs and literally climbing mountains. Whilst there are low days, there is also hope and joy to be found.

Eventually, maybe after many years, there will come a time when cancer has fought off every treatment we throw at it. Your quality of life then becomes more important than the side effects of treatment, or you've just simply had enough of hospitals, tests and scans. This is when someone living with advanced cancer is called terminal. You will still be treated by your oncologists and the palliative care physicians, possibly in a hospice or at home. They look after you physically, mentally, spiritually and emotionally to make the end of your life as peaceful as it can be.

24. What Can You Do to Reduce Your Chance of a Recurrence?

Although no-one can predict the future, there are actions you can take that have been proven in trials to reduce the risk of a recurrence. They're not sexy and they're not quick fixes, but eating a healthy diet, keeping your weight in a healthy range and exercising five times a week can all decrease your risk by up to 20%. And when you do all of them, the risk of a recurrence falls even more.

Now there is no way of knowing if they will definitely work for you. I was a fit triathlete who barely drank and my cancer came back twice, despite all the treatments. You might think, 'F*ck it. What's the point?' But there is a point. Staying healthy will keep your body and mind strong for whatever the future holds. If your cancer did come back, you'll be in a better place to cope with the treatments and the side effects. You're less likely to develop diabetes or heart disease in the future. You will be stronger and fitter and recover more quickly from treatments like surgery and chemotherapy.

For me, it was also about control. Everything was being done to me. Eating well and exercising was something I could do. Walking the dog in a muddy field was my form of mindfulness. I could get out of my head and focus on the now, and not what the future might hold. When Mum got sick, I started swimming, well dipping, in my local rivers with a local group. I can't explain how peaceful I felt as I bobbed in the water watching swans paddling past at dawn, or bats skittering around at sunset. When I had my third recurrence I headed straight to the river. I feel so alive when I come out, and the endorphins last for hours. Wild swimming reminds me that I'm more than my cancer.

Cancer is hard, even if it's been years since you finished treatment. Life can throw us a curveball at any moment in time. Whilst the things I'm going to tell you are recommendations, and in an ideal world we'd follow them to the letter every week of our lives, we don't live in an ideal world. Give yourself a break if you have one of those days when it all seems too much. Good is better than perfect, and something is better than nothing.

Eat well

I've spent a lot of this book telling you about the diets and supplements that can't cure you. The rise in cancer diets has grown in the last decade and there are over 10,000 cancer diet books on Amazon.[1] The 20 best-sellers are not written by mainstream doctors or registered dieticians. Instead, they come from naturopaths, integrative physicians and herbalists, doctors of biochemistry, chiropody and osteopathy, and cancer patients.

Now it's time to tell you what you should be eating after a cancer diagnosis, based on the latest evidence. It's not a strict diet. It's just a set of guidelines that will make you feel better in yourself, improve your quality of life and help you maintain a healthy weight, which will reduce your chance of a recurrence. You probably already know some or even most of what I'm about to tell you. And despite that, a lot of us struggle to eat consistently well, and that includes me. The moment my husband goes away on a work trip I revert back to eating beige food again. I just can't be bothered to cook a fresh meal from scratch, even though I know I'll feel better if I do.

The following advice[2] comes from the World Cancer Research Fund. It's a charity whose aim is to prevent cancer and save lives, and it was started to create awareness of the link between diet and cancer. An international panel of experts collate and analyse all the global research on the links between diet, weight, exercise and cancer, and use that to develop scientifically proven global recommendations for anyone to use. Their advice is meant to be culturally relevant around the world. I trust them completely. They've done the research so I don't have to.

The American Cancer Society recommends[3] that every cancer patient who has a good state of health after finishing treatment should follow these guidelines. And, like I said, I try to follow them most of the time. But life can be hard. Things go wrong. One of my biggest downfalls is when I'm on a train.

I travel to London a couple of times a month, and have got into the habit of having a hot chocolate, a large pack of crisps (chips if you're in the US) and a bag of peanut M&M's. Both ways. Just because I'm bored. That's an extra 1,600 empty calories on top of the three meals I would normally eat that day. It soon adds up, and it's a world away from the guidelines I'm meant to be following. Something had to change. I can't write a book about eating sensibly after a cancer diagnosis unless I practise what I preach.

I have a personal trainer called Clara who helps me get strong in the gym, and she gave me this brilliant piece of advice. Everything I eat should belong to one of three groups – Fuel, Fun and F*ck It.

Eighty per cent of what we eat every day should be fuel. The nutritionally dense foods we should all be eating, and I'll tell you what they are in a moment. Fuel doesn't have to be boring. Bright colours, spices, seasonings and sauces can easily liven things up.

Twenty per cent is fun. A glass of bubbly to celebrate a milestone just because I like the taste. A gooey chocolatey pudding at the end of a meal. An ice cream with sprinkles or a cocktail on holiday. Food is a big part of our social lives and we don't need to deny ourselves every time we go out. But we shouldn't be eating fun foods at every meal on every day of the week.

Ideally there would be no 'F*ck it' foods, but, as I said before, life can be tough. When I find myself reaching for the pack of chocolate biscuits intending to eat them all in an afternoon, I now stop and think. What emotion am I really feeling? Am I bored? Sad? Stricken with grief? Feeling sorry for myself? Angry? Pissed off? What else can I do to deal with that emotion instead of reaching for the biscuit tin? Do I just need to get off my backside and go for a walk? Phone a friend? Listen to a song on repeat whilst I have a good cry? Sometimes there will be days when the thing I really need is a chocolate biscuit, and that's okay. But I'm now more likely to have two or three instead of 10 or 20.

The World Cancer Research Fund guidelines

These are the key recommendations[4] that we should all be following, both before and after a cancer diagnosis. As a rough guide, half your plate should contain fruit and vegetables. Start with this and you won't go far wrong. A quarter of your plate should contain grains and carbs like potatoes, rice and pasta. The other quarter should have your protein. If you've cooked a meal like spaghetti Bolognese, have a side salad as well.

Eat a diet rich in vegetables, fruit and beans

You should aim to eat at least 30 grams of fibre every day from plant sources. Most of your meals should include a variety of whole grains, non-starchy vegetables (like carrots and broccoli), beans, pulses and fruit. Starchy vegetables are things like potatoes, sweet potatoes, root vegetables and sweetcorn. You should eat these as well, but you need extra vegetables with your meals to balance them. You should aim to have at least five portions of non-starchy vegetables and fruit every day in a rainbow of different colours. One portion here means 80 grams, so you need to be eating at least 400 grams of plant-based food a day. But what does a healthy meal actually look like? It can be hard to know where to start. What does breakfast look like with 20–30g of protein? How do you add more vegetables to a risotto or pasta dish? Why is it so hard to work out what to eat for lunch? If you stick to the basic formula – half a plate of fruit and vegetables, and a quarter of a plate of protein and carbs, you won't go far wrong.

A portion would be half a medium-sized carrot, two spears of broccoli, three heaped tablespoons of peas or sweetcorn, two satsumas and an apple or a banana. The NHS Eatwell Guide[5] has a list of fruit and veg portion sizes if you want more information.

Try to have two different colours of vegetables every day. This helps make sure you get all the different vitamins and minerals you need. Some people say we should eat a rainbow of fruit and veg, but purple sprouting broccoli is expensive and I've never been able to cook an aubergine properly. Bags of frozen mixed veg are great as they have carrots,

sweetcorn and beans. That's three colours right there. Throw in a tomato or two at lunch and you're covered.

Plant-based foods are relatively unprocessed and rich in nutrients, including the essential vitamins and minerals that you need to survive. If the bulk of your diet is plant-based, you are less likely to eat ultra-processed foods high in fats, refined starches and sugars, which can reduce the risk of developing obesity.

Eat more whole grains

There is strong evidence that eating whole grains can reduce your risk of getting bowel cancer, and that a diet rich in fibre can help prevent weight gain and obesity, therefore reducing your risk of getting cancer or your cancer coming back.

Fibre is also important to keep your gut microbiome healthy. Your bowel contains trillions of natural bacteria, over 1,000 different species in total, called the microbiome. To keep it functioning, you need to eat a plant-based diet full of fibre. The bacteria break down and ferment fibre. This releases antioxidant nutrients from fruit, vegetables and whole grains that we need to stay healthy and boost our immune system. It also makes the inside of your large bowel slightly acidic, which prevents the growth of harmful bacteria that could cause food poisoning.

We should aim to eat 30 grams of fibre a day. Fibre is found in wholemeal bread and rice, non-starchy vegetables, beans and fruit, jacket potato skins and nuts like almonds. Smoothies will increase your fibre intake as well. If you had two slices of wholemeal toasted bread with a banana and a small glass of fruit juice, that would give you 9–10 grams of fibre. A jacket potato with the skin on is about 5 grams of fibre. A vegetable curry with wholegrain rice will give you another 9–10 grams of fibre.

Limit fast foods, ultra-processed foods and other foods high in fat, refined starches and sugars

There is strong evidence to prove that people living with cancer who eat a lot of ultra-processed foods are more likely to have a recurrence. A UK study[6] analysed the 24-hour dietary recalls of almost 200,000 people aged between 40 and 69 over a three-year period. They showed that for every

10% increase in UPF in your diet, the risk of dying from any cancer went up by 6%, with a 16% increased risk of dying from breast cancer and a 30% increased risk of dying from ovarian cancer.

These are scary statistics, but if we remember what we learned about relative and absolute risk, the actual increase in death rates from eating slightly more UPFs isn't as high as you thought.

Women have a lifetime risk of dying from cancer of 17%.[7] A 6% increase takes that to 18% – an extra one in 100 people who would die from cancer if they ate a lot of UPFs. The lifetime risk of dying from ovarian cancer is one in 130, or 0.7%. A 30% increase takes that to 1%. Scary statistics actually have a very small impact when we look at the absolute risk.

The authors of this study could not prove that UPFs were the cause for the increase in cancer death rates. It was just an observation. It could be because people who eat a lot of UPFs are more likely to be obese. It's obesity that increases the risk of recurrence, and I'll cover this in more detail in the next section.

Eating processed and ultra-processed foods as part of a varied diet is fine. I covered this in more detail in Part II. Just try not to have them at every meal. While 80% of what we eat should be nutritionally dense, healthy fuel, we do need to bring some fun into our diet. That's where anything made from white flour (bread, pizza dough, pasta), French fries, potato waffles, chips and crisps, cakes, pastries, cookies, biscuits and all the lovely things you can buy in a bakery, and sweets, candy and chocolate come in. Limit them to no more than 20% of your diet. You don't need to avoid fats altogether. We need a small amount of fat every day, and some plant oils, nuts and seeds are an essential source of vital nutrients.

Have protein at every meal

You should aim to eat 15–30 grams of protein at every meal. It will make you feel fuller when compared to carbohydrates and can help reduce sugar cravings. A portion of protein is roughly the size of the palm of your hand and the thickness of a deck of cards. You can find protein in beans, pulses, fish, eggs, meat, nuts, oats and other products like tofu and seitan. If you eat fish, you should aim to eat one oily and one non-oily portion a week. Oily

fish include mackerel, salmon and sardines, and they are a good source of Omega 3 oils. One portion of fish is 140 grams, or a tin of tuna.

Limit the amount of red and processed meat that you eat

If you like eating red meat, you shouldn't have more than three portions a week, and no more than 500 grams in total. Ideally, we should choose lean cuts like a fillet steak instead of the fattier rib-eye. But fillet steaks are really expensive and it's the fat that has the flavour. If you're splashing out on a steak, then you should think of it as fun, and get the one you really want. However, you can get packs of lean mince in the supermarkets that have less fat and these are a great option. You could also swap it for turkey mince.

You should only eat very small amounts of processed meat. And that's because there is strong evidence that people who eat a lot of red and processed meat have a slightly higher risk of developing bowel cancer.

Limit the amount of sugary drinks you have

Try not to drink anything that's been sweetened with sucrose, corn syrup, honey and fruit juice concentrate. This includes fizzy drinks, sports and energy drinks, many flavoured waters, cordials and squashes, and the sugar and syrups you can add to your tea and coffee.

There is strong evidence that people who drink a lot of sugary drinks and fruit juices are more likely to be overweight and this increases the risk that they will get cancer.

Diet sodas and artificial sweeteners, on the other hand, do not cause cancer. There is no strong evidence to show that they increase the risk of cancer in humans.

Sugar-free drinks, cordials and anything sweetened with artificial sweeteners are alright in moderation, but, ideally, we should all be drinking plain water. Although I do remember during chemotherapy that water can taste disgusting, so you may need to add a sugar-free cordial to help you drink enough during the day.

Drink enough water

The rule that we should have six to eight glasses or 1.5–2 litres of water a day is simply an estimate. Some guidelines say you should drink 35 millilitres per kilogram of body weight, so a 70-kilogram woman needs 2.5 litres. That amount goes up if you're exercising or in a hot climate or having chemotherapy, for example. You get water from coffee, tea, juices, fruits and vegetables, which can be factored in. It's a myth that caffeinated drinks dehydrate you.

There is no 'one-size-fits-all' rule. You know you're drinking enough water when your urine is a pale, yellow colour.

The explosion in reuseable water bottles has helped a lot of us drink more, and I know I feel better for it. Aim to refill your water bottle at least once during the day, and sip from it constantly. If you wait until you're thirsty, you're already dehydrated. Finally, don't drink too much. Some people drink 4–5 litres of water a day thinking it will be better for them, but this can be dangerous. It can dilute the amount of sodium in your blood to a life-threatening level.

What does a healthy meal actually look like?

But what does a healthy meal actually look like? It can be hard to know where to go. How do you know what to eat for breakfast if you want an easy source of protein? What do you do if you want to get out of the 'cheese sandwich for lunch' rut? Who do you turn to for inspiration to stop you cooking the same seven meals every week? Let's see if I can make it simple for you.

Healthy breakfast ideas

Oats are a good source of protein, so porridge, overnight oats and bircher muesli are a good start. Add a handful of mixed berries (I keep a bag in the freezer) or a chopped apple and some nuts. Yoghurt is another good source of protein, so a dollop will help you get the amount you need. Omelettes, boiled or scrambled eggs with cheese, ham and chopped vegetables is another good option, with a piece of fruit on the side. I personally hate porridge, cheese and eggs, and I used to live off sugary cereals, so now I

have a chocolate whey protein powder and make a smoothie with some frozen fruit to make sure I get my morning protein fix.

Healthy lunch ideas

A simple option is to make a larger quantity of your evening meal so you can eat it as leftovers for lunch. Chunky soups with a salad or piece of fruit are a great option. Make a large salad, adding nuts, seeds and couscous or brown rice to last you the week and have it with a wrap or a baked jacket or sweet potato. If you only have time to grab a sandwich, try to add a bit of lettuce or tomato to it if you can.

Healthy evening meal ideas

Stews, curries and casseroles are always good as you can add extra vegetables into the cooking pot. If you're cooking a tomato-based sauce dish like Bolognese or chilli, include finely chopped carrots and celery and peppers. You could also throw in some grated carrots or a packet of lentils when it's nearly ready, which will help thicken the sauce as well. Try using courgette ribbons with the spaghetti to increase the amount of veg on the plate. And if that's too much faff, have a salad on the side.

If you're baking fish or chicken or peppers in the oven, roast some broccoli, cauliflower, peppers or squash at the same time. Try to have at least two different colours of vegetable on your plate.

There are so many different cookbooks out there covering many different cuisines and cooking styles that it's hard to know where to go for inspiration. Two great websites to start searching for recipes are NHS Healthier Families (www.nhs.uk/healthier-families/recipes) and BBC Good Food (www.bbcgoodfood.com/recipes). You can search by meal (breakfast, lunch, lunchbox and evening) and each recipe tells you how much protein, carbohydrate, sugar and fat it contains. These are a great base to start working out what you would like to eat, according to your own likes and dislikes.

I must have over 50 cookbooks but the ones I turn to the most are by Nigel Slater, Mary Berry, Anna Jones, Sabrina Ghayour and Diana Henry. I also like the Pinch of Nom books to learn how to make take-away-style food with half the calories. I use *Leon Happy Salads* for inspiration, and I

have just discovered the Bold Beans website (www.boldbeanco.com/blogs/beanspo-recipes). The Feast app by the *Guardian* is a great resource of recipes, especially as you can search by ingredient.

What about meal supplements?

There are several meal supplement powders on the market now, like Huel, that contain all the vitamins, minerals, protein, carbs and fibre that you should be having at every meal. If you don't have the time or energy to cook and you can afford them, they could be a good alternative. And if you're struggling to chew food or have a sore mouth, drinking a meal milkshake could be a great way to make sure you're getting all the nutrients you need.

Who should you trust for dietary advice?

In an ideal world, every cancer patient would be given the information above, about what they should be eating and drinking. However, most mainstream doctors and specialist nurses don't have the time to add this to the long list of things they need to tell you about your diagnosis and treatment. It's why so many people turn to the internet and social media to work out what to eat. Maybe changing their diet will increase their chances of a cure? In a world full of cancer nutritionists, nutritional therapists and dieticians, who should you believe?

This is what the British Dietetic Association says.[8]

Dieticians

Dietitians are the only nutrition professionals that are regulated by law and governed by an ethical code. They can assess, diagnose and treat dietary and nutritional problems based on a solid evidence base. You can only call yourself a dietitian if you are registered with a regulatory body. They all have a university degree in Dietetics. They cannot offer advice if it means they would benefit financially by selling you a product like a supplement.

Nutritionists

Nutritionists are only qualified to provide information about food and healthy eating. They are not trained to give dietary advice for medical conditions like cancer. They cannot work with sick patients in hospital or in the community unless they are supervised by a dietician. They do not have to be a member of a registered body, but many are, and can call themselves a Registered Nutritionist. A nutritionist doesn't have to be registered to be able to work.

Nutritional therapists and diet experts

Anyone can call themselves a nutritionist, a nutritional therapist or a diet expert without any accredited training as the title is not protected by law. There are courses available but these are not the same as formal degrees in nutrition or dietetics. They tend to see individuals on a private basis who want to try complementary/alternative/functional/integrative medicine. They can recommend diets, supplements, vitamin infusions, detox programmes and colonic enemas – the list goes on – that aren't approved by medical bodies like the NHS, and they get paid for recommending and often supplying them. Their opinions may differ from the widely accepted evidence base.

There are some excellent nutritionists and diet therapists who are giving sensible advice, but there are many who aren't. So, before you pay to be seen or treated by someone, do a bit of research first. Check their credentials and where they trained. See how different their practice is compared to the guidelines above and whether they have had any specific training in cancer nutrition from a mainstream organisation like the British Dietetic Association, not a functional or integrative one.

The Bottom Line

It's hard to eat well every day. I was exhausted during cancer treatment. I still get weeks when my energy levels plummet. I don't have a busy full-time job and I don't have children to

worry about yet I still find it hard to work out what to cook every day. Please don't be harsh on yourself if you don't follow these guidelines all the time. I don't – and I'm being honest here – and I'm the one writing the book telling you what to eat. Do what you can on the days that you can. Meal prepping and planning, frozen fruit and veg, using protein shakes to get your daily allowance when you can't be bothered to cook – look for the easy wins. Tomorrow is another day.

There is no magic diet, food or supplement that can guarantee that your cancer won't come back. Follow the guidelines the best that you can and don't worry or fret about those 'F*ck It' meals. Life is meant to be fun and food can be a huge part of that.

I'm going to leave you with one of my favourite quotes about food from Michael Pollan:

> 'Eat food. Not too much. Mostly plants.'
> – Michael Pollan, *In Defense of Food: An Eater's Manifesto*[9]

Drink less alcohol

Not only does drinking a lot of alcohol cause cancer, but there is some evidence[10] to suggest that it might increase the risk of it coming back. If you drink heavily it doesn't mean that it will happen, and if you're teetotal, it won't automatically prevent a recurrence.

Most of the evidence[11] we have is in hormonal (ER positive) breast cancer, bowel cancer and cancer of the head and neck. It looks like moderate and heavy drinking increase the risk of recurrence by 5–15%, but this is only from observational studies.

How does alcohol increase the risk of recurrence?

Alcohol can cause DNA damage and mutations in remaining cancer cells. It can also weaken the immune response which makes it harder for your body to find and attack cancer cells. In breast cancer we think it could be because alcohol increases the level of oestrogen[12] in the blood which could stimulate dormant cancer cells to grow.

How much should you drink after cancer?

The American Cancer Society (ACS) advises that women should limit themselves to one unit per day, and men should have no more than two.[13] There are no formal guidelines, but this is typically considered safe. Some organisations have suggested you limit yourself to five units a week.

The Bottom Line

Heavy drinking, over the recommended guidelines, probably increases the risk of cancer coming back. If this did happen, alcohol will not be the only cause. Lifestyle factors, how fast-growing your cancer was, bad luck and bad biology also play a part. So much of this is uncertain, which makes it really hard to get your head around it.

I'd advise you to stick to the ACS guidelines of seven units a week for women, and 14 units a week for men. If you like alcohol and it's an important part of your life, then you don't need to cut it out. Just drink sensibly and remember that cancer treatments can make your tolerance drop, and alcohol can make drug side effects worse, particularly those hot flushes.

Maintain a healthy weight

There is evidence[14] to show that if you are obese when you are diagnosed with cancer, or if you gain weight after your cancer diagnosis, it can increase the likelihood of your cancer coming back. Now I cannot possibly imagine how frightening it will be to read that if you are overweight. I'm truly sorry for scaring you, but I need to be honest and tell you this uncomfortable truth. These studies cannot prove that obesity was the only reason some people were more likely to get a recurrence. Cancer is complicated and there will be many factors coming into play to create an environment in your body where this can happen.

We also need to remember that cancer treatments can make some people gain weight. Steroids given during chemotherapy, hormone blockers and fatigue all have their part to play. I put on 10% of my body weight in the first year after treatment despite eating well and exercising. I was not amused. It took eating more protein and lifting weights for me to claim my body back.

Observational studies that have looked at lots of people with lots of different cancers found that the people who weighed more were up to 17% more likely to die.[15] Deep breath here. Remember, this does not mean you have a 17% chance of dying. It's a 17% increase in your risk of dying from cancer, which we hope was never going to happen in the first place.

Your doctor can't tell you what your own risk of dying is, and that's why this 17% statistic is meaningless. Some cancers have a very high risk of recurrence and others don't. It depends on all the things I talked about earlier, with a bit of good or bad luck. But to give you an idea of what that 17% increase might mean to you, I'll give you an example.

I treated a lady with breast cancer who has a 90% chance of still being alive in 10 years. That's not how likely she is to die, but that's the best figure I can give her about her outcomes. If she makes it to 10 years, her risk of dying from cancer will drop. The longer you live, the less likely it is to happen.

A 90% chance of being alive in 10 years means she has a 10% chance of dying in 10 years.

A 17% increase in that 10% takes her chance of dying to 11.7% and her chance of still being alive to 88.3%. Whether you think that's a big or a small drop depends on how you feel about your risk of dying from breast cancer and what you want to do to lower that risk. It could be enough to

make you take positive steps to lose weight. And you could have really rotten luck, lose weight and your cancer still comes back. There really are no easy answers.

But let's go back to what we do know from the evidence. Most of the trials were done for people living with breast, prostate and bowel cancer, presumably because they are the commonest and they have a high survival rate. This means that most patients will live for more than 10 years, so scientists can follow patients up for a decent length of time to see if obesity has an impact. The studies showed that the patients who weighed the most were slightly more likely to have a recurrence. They suggest that every extra five points on the BMI scale further increases that risk.

How does obesity increase the risk of recurrence?

Scientists think that it's a combination of factors. Fat cells release inflammatory cytokines and hormones that talk to cancer cells and boost their growth. It could also be due to lower levels of physical activity. Another reason could be the changes in the gut microbiome that happen in people who are obese. There is ongoing research to try to find out exactly why it happens.

Does losing weight increase your chance of a cure?

At the moment there isn't enough strong evidence to prove that losing weight does make a difference to cancer outcomes. The SUCCESS C trial[16] gave a diet and exercise programme to women with breast cancer who had finished chemotherapy. At two years, the women on the programme who lost weight had fewer recurrences than the women who weren't on the programme. Several trials are examining whether exercise with or without dietary intervention in obese or healthy weight cancer survivors could improve oncology outcomes.

What should you do if you are overweight?

Whilst we don't have the evidence to prove that losing weight does make a difference to your cancer outcomes, it will make a difference to your general medical health. The leading cause of death for most adults is heart disease, even for those who are living with cancer. Obesity will increase the risk of this happening, as well as increase the risk of conditions like diabetes.

In an ideal world cancer centres would offer structured exercise programmes combined with dietary support for anyone who needed it, but nothing about cancer is ideal. We know that exercise and dietary changes together have the best results when it comes to lowering inflammatory markers and hormone levels in your blood. Another option in the future could be injectable drugs that are approved for weight loss, like semaglutide (Ozempic) and tirzepatide (Mounjaro). We don't know whether they are safe to give to cancer survivors, but I'm certain that trials will follow to see if they can make a difference.

The Bottom Line

As hard as it is to read, obesity will increase your risk of recurrence. And yes, it's unfair that cancer treatments can make some people gain weight even when they are exercising and eating well. If you are struggling, talk to your family doctor and cancer team to see what help and support is available.

Move more

I'm going to go out on a limb here, but I think exercise should be the first treatment that every cancer patient is prescribed. Unfortunately, not every oncologist and surgeon knows about the power of exercise. And while the research is slowly filtering through the medical world of cancer, I want to empower you to start moving anyway.

From the date you get your biopsy or blood test results, you should be told to start moving and get active. In its simplest form it's free, there are no side effects (if you exercise sensibly) and it might just stop your cancer coming back. There is strong evidence[17] to show that exercise does reduce the risk of recurrence by 20–30%. That is mind-blowing.

An international roundtable of experts recommend that every cancer patient should be doing a minimum of three aerobic exercise sessions of 30 minutes each week at a moderate intensity, and two resistance-based exercise sessions of 30 minutes each week.[18,19] With a pair of trainers and half an hour a day you can take back control over your future.

I'll go into more detail about what this looks like in a bit. Now the 20–30% is the relative risk. If you only have a small chance of a recurrence, exercise won't have that big an effect. But when you add it to eating well and drinking less, it all adds up. Most of the evidence comes from common cancers like breast, bowel and prostate cancer. For breast cancer, a systematic review[20] of over 25,000 people living with breast cancer showed that the women who did the most exercise had a 40% lower risk of death from breast cancer in comparison to patients that were the least physically active. For bowel cancer survivors, there is evidence to show that regular exercise can lower the risk of death by 30%. Men living with prostate cancer who exercised vigorously for more than three hours a week can reduce their risk of recurrence by 30% and delay tumour marker progression.[21]

Exercise will also reduce your risk of getting or dying from heart disease, diabetes or a stroke.

There have been over 1,000 randomised controlled trials looking at the impact of exercise for cancer patients, and the evidence is there.[22] People living with cancer who meet the recommended guidelines, exercising five times a week with a mixture of aerobic and resistance sessions have fewer complications, recover more quickly, cope better with side effects and are more likely to be cured. I know. It's huge. Why wouldn't you exercise if it can do all of this? If it was a pill we would bottle it and sell it. These are the three biggest areas where exercise can help you during treatment.

Fatigue

I thought I knew what being tired meant. After all, I'd spent years doing night shifts desperately trying to stay awake. And then I had chemotherapy followed by radiotherapy and I really knew what fatigue was. Your mind and body don't want to play. It's a struggle to lift your phone up, let alone stand up. Over 90% of all cancer patients experience it.

The last thing I wanted to do was exercise, but my new cancer friends told me to, so I got off my bum and went for a walk. Some days it was only 10 minutes, stopping to be sick in a field. As my energy levels picked up I did a bit more, and I swear I felt better for it.

My friends were right. Randomised clinical trials[23] have proven that exercise programmes, done at home or supervised in a class, will improve the symptoms of fatigue. It is the last thing you want to do but it is the only thing that will help. Trust me, I've been there. Track yourself by time not distance. Go slowly. Today is not a day to push yourself. Do what you can, but make sure you do something. Then you've earned the right to spend the rest of the day recovering from chemo on the sofa. I promise you'll feel better for doing it. There will be certain activities that you can't or shouldn't do, depending on what treatment you're having or are recovering from. I'll cover them in more detail later in this section, but you should always check with your medical team that it's safe for you to build up from your daily walk and start exercising again.

Anxiety and depression

I had no idea how much of a mental rollercoaster cancer could be. Emotions would hit me out of the blue. I'd start crying in a supermarket, for goodness sake. Up to a third of all cancer patients experience anxiety and depression, and exercise has been shown to help improve your mood and make you feel better about yourself.[24] Getting outside for a 20-minute walk is an achievement you can be proud of on a wobbly day. It can help deal with the fear of a recurrence that we all have, deep down inside. It can get you out of your head and make you feel like yourself and not a cancer patient. When you're dripping with sweat on an exercise bike or lunging across your kitchen, it's very hard to feel sorry for yourself. Exercise can also help to lower inflammation and activate your endocrine system to increase

hormone production. The endorphins you release will boost your mood, and that effect can last all day.

General quality of life

Trials have shown[25] that regular exercise has been shown to improve the quality of life of bowel and breast cancer patients by up to 20%. Chemotherapy can biologically age you by up to 10 years, and exercise will help you get those years back.

There are three times in your cancer journey where exercise can make a difference. Well, actually it's all the time, as you'll see in a moment.

Prehab

This is the time between getting your diagnosis from a scan, blood test or biopsy and when you start active treatment, like surgery or chemotherapy. There is strong evidence[26] to show that fitter patients have fewer complications after surgery. They are less likely to get an infection and more likely to get home quicker. If you can't remember the last time you put on your trainers, just two weeks of going for a brisk walk every day can make a difference.

It can also help you deal with the emotions you'll be feeling, and help you sleep better as the nerves start to kick in.

During active treatment

This is the time you spend having treatment in hospital, chemotherapy and radiotherapy. There is strong evidence[27],[28] to show that moving and staying active will help with all the side effects of these treatments, including fatigue, depression and lymphoedema, and improves your overall quality of life.[29] Now there will be limits on what you can and can't do on any given day, depending on where you are in your journey, and I'll talk about that later. Your overall goal should be to stay as active as you can. The aim is to do five half-hour sessions each week, three aerobic and two resistance-

based. It's easy to say, but it can be very hard to do. I knew what I was meant to be doing and I still struggled during chemotherapy.

Try to walk for half an hour every day. It doesn't matter how far you go or how slow you walk. Don't compare yourself to yesterday's effort. Treatment can take its toll. I had one day every chemotherapy week when I struggled to get out of bed, let alone the front door. So, I let myself rest, knowing that tomorrow was another day.

When your energy levels do perk up, you can try to add in gentle resistance moves at home. Squats when you're on the toilet, press-ups against the fridge or the kitchen counter, shoulder exercises using cans of food.

Everyone can do some form of aerobic exercise and resistance training. Even if you use a wheelchair. Even people living with bone metastases.[30] What's important is how your cancer treatment has affected your body, and how exercise could potentially cause more harm than good.

Before you start, you must ask your medical team when it is safe to exercise. They might err on the side of caution if they don't know the latest evidence, and that's okay. Trained cancer fitness professionals are becoming more common, and many are linked to cancer centres. Getting advice from a physiotherapist or personal trainer who knows what you can safely do is really important.

After surgery

In the first few weeks after surgery, the most important thing is to keep moving. If you've had major bowel surgery it could mean moving from your bed to the chair with the help of a nurse or doing laps of the ward. If you've had a lumpectomy for breast cancer, it means going for a short walk several times a day. I know how strong the temptation is to lie on the sofa, and you will need an afternoon nap to recover from the effects of everything you've been through. However, surgery increases the chance that you could get a clot in your legs, called a deep vein thrombosis or DVT. This can spread to your lungs and be serious. It's why you're given tight stockings to wear and you might have a small injection to make your

blood less sticky. Walking keeps the blood flowing in your legs and prevents clots from forming.

You may also be given regular exercises to do to stop your joints getting stiff, like the shoulder exercises that breast cancer patients are shown. These are really important. If you don't do them regularly, you can get a stiff shoulder. You will see your surgeon for a follow-up appointment when they will check your scar and give you your results. If the scar has fully healed, and your surgeon gives you the go-ahead, you can now think about exercising properly. Remember that it can take up to six months to recover from a big operation. You may feel like you're taking one step forwards and three back. One great day means two in bed. This is normal, trust me. Move after breakfast so you can sleep in the afternoon.

You need to start gently and give yourself time to build up your mobility and strength. There will be some exercises that you can't do.

If you have had breast surgery, it is sensible to wear a sports bra or a post-operative bra to support your breasts when you go out for your daily walk. You might need to carry a small shoulder bag to carry a surgical drain. If you have had the lymph nodes in your armpit removed then you shouldn't spend long periods of time doing downward dog poses or planks in yoga. These can increase the risk of lymphoedema.

If you have had major abdominal surgery then it may take several months before your muscles have knitted back together and your core is strong enough to support you. Your cancer nurse specialists will be able to advise you about what you can and can't do in the early stages of recovery.

Your surgeon and oncologist may not be experts, but thankfully there are lots of trained cancer exercise professionals who can guide you. They will know what is safe and what isn't, and how to adapt an exercise to suit you. There may be a PT or physiotherapist linked to your oncology unit, and you can ask in your local gym. Getting advice from a physiotherapist or personal trainer who knows what you can safely do is really important.

If you've had abdominal surgery and have a stoma then you will need to adapt what you do in a gym. There will be things you can do whilst everything is healing, and that's where the experts come in. You will learn how active your stoma is when you walk and run and how to change it on the go. In time, anything will be possible, as Adele Roberts, the British broadcaster and TV personality showed when she beat the Guinness World

Record for the fastest female marathon time with an ileostomy just 18 months after her diagnosis. She ran it in 3:30:22.

Swimming is a great exercise for getting your arms and shoulders moving, and many leisure centres have women-only sessions.

Walking can be a great source of cardio if you're still a bit sore. I used to sprint walk between trees and lamp posts, and then get my breath back until I reached the next one. You could add ankle weights to give yourself a real workout. Indoor bike classes with Zwift and Peloton, if you have one, are also good to keep you active, especially if it's miserable outside.

There are also excellent online classes and programmes run by trained professionals that I'll mention in a bit. Please make sure that the person running any class you take knows you have had cancer and knows how to safely adapt the class for you.

During chemotherapy

Chemotherapy hits everybody differently. Please don't compare yourself to someone else. I aimed to walk for 30 minutes every day on my bad days. I had one day where I literally couldn't get out of bed, and that was okay. A friend was walking 10k every day, and it took a few months before I stopped beating myself up that I wasn't doing what she was. Some days it took me half an hour to walk half a mile, stopping to spit or throw up on the way. That was all I could do. Something was better than nothing, and as I started to feel better, I did a bit more. On my good weeks I started doing my local 5k parkruns and went to the gym. I even cycled (slowly) to chemo when the weather was good. I did less and less as I reached my last round of chemo and the fatigue built up, but I still did something.

You have to be careful when you're exercising during chemo. Firstly, you need to avoid anyone with a cough or cold. A mild infection for them could be dangerous for you because your immune system has been weakened. Don't go to the gym at a busy time. Think about wearing a mask. Secondly, your body is being slowly battered by treatment. If you are naturally sporty, don't expect to be hitting personal bests. Cancer is a complete reset. Forget what you could do before. Think of it as a chance to do the gentle base training. Body weight exercises like lunges and squats. Add in some

stretching to loosen up after all those hours on the sofa. The time for serious strength and speed work will come.

If you're having chemo through a PICC line, then you do need expert advice about what you can and can't do. Any exercise that involves moving your arm could dislodge the line. Ask your oncology team what you can and can't do. Chemo can also cause numbness in your fingers and toes, which can affect your balance. Again, a trained exercise professional can help you stay fit. If this happens to you from chemotherapy, you will need to adapt how you stay fit, and it can be done.

During radiotherapy

I wasn't expecting radiotherapy to make me feel so tired, and the exhaustion grew in the first couple of weeks when treatment ended. Friends told me to carry on walking and jogging, and it definitely helped. The problem with radiotherapy is that it can make your skin sore, like a sunburn. Wearing tight sports clothing or a sports bra might be out of the question, and getting sweaty could make things worse. The chlorine in swimming pools could also make your skin sting. You may need to switch to walking or cycling until your skin heals, and stick to body weight exercises at home in your pyjamas instead of hitting the gym. The therapeutic radiographers looking after you will be able to give you advice about how to look after your skin.

Rehab

This is the time when you've stopped hospital treatment. You may be having monthly injections or tablets at home to further reduce the risk of recurrence. This is all about learning to get your life back and get healthy again. It gives the treatments you've already had the best chance to work, and it lowers the risk that you might get a second, unrelated cancer. You need to exercise to strengthen your bones and your muscles, and help you to maintain a healthy weight when the menopausal side effects kick in. Like during active treatment, it will help with anxiety and depression, ongoing

fatigue and your overall quality of life. This is when you can start getting really fit and strong, and stay that way for the rest of your life.

If you still want more information, I highly recommend these two books. The first is *Moving Through Cancer: An Exercise and Strength Training Program for the Fight of Your Life – Empowers Patients and Caregivers in 5 Steps*[31] by Professor Kathryn Schmitz, one of the leading researchers in exercise oncology. Kathryn covers all the evidence behind the importance of exercise and how it will help you recover from treatment. She takes you through a 21-day resistance-based programme you can do at home using water bottles and resistance bands. The second is *Get Your Oomph Back: A Guide to Exercise After a Cancer Diagnosis*[32] by Carolyn Garritt, a cancer rehabilitation personal trainer. The book has clear photos that demonstrate aerobic and resistance exercises, including ones for wheelchair users, and she includes tips on how to prevent lymphoedema.

What exercise should you be doing?

The worst thing you can do is spend your days sitting on the sofa. If you've never exercised before, start slowly and build up the amount you do every week. Aerobic exercise means anything that gets your heart rate up. It could be fast walking, jogging, swimming, dancing, tennis … It helps if you can drag family and friends along to keep you motivated and on track. This made a huge difference to me. Before cancer, I trained by myself. It was easy to let weeks go by when I lost my mojo. Now I do parkruns every month through 5K Your Way with local cancer patients. If my husband gets up early to go to the gym, then I go as well. I arrange to meet my friends for a midnight dip at the local river. They keep me accountable.

The resistance training is almost more important though, as this keeps your bones and your muscles strong, especially if your aerobic activity is swimming or cycling, when you're pushing your body weight off the floor. It doesn't need to be in a gym, and you can split the 30 minutes up into snacks you do throughout the day. For example, I'll do squats before I get off the toilet and lunges when I'm waiting for the kettle to boil. I'll use cans of food or bottles of squash to do my arm and shoulder exercises. If I've got

a load of things to take upstairs, I'll take them one at a time. It really can be that simple.

How does exercise lower your risk of a recurrence?

The initial evidence that moving could improve your survival came from studies observing cancer patients who regularly exercised for more than three hours a week compared to those who didn't. We didn't know exactly how it happened, we just knew that it did and everybody should be doing it.

However, more studies are being done to give us the answers. Our muscles produce a range of hormones and cell signalling proteins when we exercise. They release proteins that are needed to repair DNA damage. It boosts our immune system by increasing the number of white blood cells we have and it stimulates antioxidant pathways. It also improves chronic inflammation. This is why resistance training is so important as part of your exercise regime.

The Bottom Line

It is never too late to start exercising after a cancer diagnosis. Even if you start with 10 minutes of walking a day, it will all add up. Don't be scared to push yourself. We want you to get sweaty. That's when the real benefits happen. Bring resistance training into your everyday life with exercise snacks. Find something you love to do, ideally with other people to keep you motivated. Get out there and have fun. Start to take back some control again.

Final Thoughts

There are no rules when it comes to cancer. The decisions you make today could be very different to the ones you make in five years' time. I know this is true because it happened to me. I had a large cancer in a small breast. A mastectomy was my only option. I couldn't bear the thought of going flat so I had an implant reconstruction. Five years later, after my implant was removed when my cancer came back the first time, I wished I'd just gone flat in the first place.

You can only make decisions based on the information you have. Every decision you make is personal to you, and I hope this book has been able to point you in the right direction. But I want to educate your doctors and nurses as well. They need to know just how big the alternative medicine media space is. They need to know what their patients are searching for, and how untrustworthy that information is. Doctors need to understand what a cancer patient is feeling. To try to get inside our heads and see the vulnerability, the anxiety and the fear. To recognise that we want answers and explanations, certainty and hope. While they are unlikely to get extra time to spend with their patients, it may help change how they communicate with them. To reinforce all the positives of mainstream medicine and remind us of all the patients that are cured.

I get angry when someone sends me yet another video, headline or podcast clip promoting the latest cancer cure. I used to stop what I was doing and start researching the evidence to prove why it didn't work. But it's draining, and there are so many out there that I can't keep up. That's another reason why I wrote the book, so I can link you to websites that are keeping up with the wealth of misinformation online.

When I spoke to Alan Levinovitz, he was curious about why I was so angry. He had a very different take on it. He suggested I think of alternative

treatments as secular prayers. As long as patients are going to their oncology doctor as well as their alternative ‘church’, does it really matter? What right do we have to criticise or condemn what one person believes will cure them?

He said that the moment a doctor comes down on a patient, like I did when my patient said no to radiotherapy, you risk alienating that patient. Instead, maybe I could have suggested she try a juicing diet at home that would be less expensive at the same time as having radiotherapy. She may need to believe that juicing works to get her through her diagnosis. This way she can still believe and have mainstream treatment as well.

Alan is adamant that we need to get rid of the anger when talking about health misinformation. When I say that there’s no evidence that the keto diet can cure cancer, I will be turning someone’s world upside down. He does have a point. If I flood social media with videos saying that turmeric doesn’t cure cancer, maybe people will only remember the words ‘turmeric’ and ‘cancer’. The two become inextricably linked. Instead, I should be talking about what does cure cancer. What has been proven to work. Call it pre-bunking, if you like.

It’s hard, isn’t it? One of the principles of medicine is ‘First, do no harm’. As long as people check that their supplements or infusions aren’t going to interact with their cancer treatment and their oncologists know what they’re taking, they probably won’t come to any physical harm. Financial and emotional? Who can say.

But when people choose between mainstream and alternative medicine, it can be fatal. People are dying because they left mainstream medicine and went down the alternative route. People with families and friends who could have been cured. The people in the stories you’ve read throughout this book. People who have spent hundreds and thousands of pounds on fake promises, and people who profited from these vulnerable, scared souls.

Trust me to guide you down the right path. Think twice about what you spend your time, energy and money on. You only have one life, and it’s too precious to throw away.

Notes

Introduction

1. Steven A. Rosenberg and John M. Barry, *The Transformed Cell: Unlocking the Mysteries of Cancer*

Part I – What Is Cancer?

1. What Is Cancer?

1. *National Library of Medicine*, 'The High Prevalence of Undiagnosed Prostate Cancer at Autopsy' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4485977/0)

4. How Are Mainstream Cancer Treatments Developed and Tested?

1. Cancer Research UK. Phases of clinical trials: https://www.cancerresearchuk.org/about-cancer/find-a-clinical-trial/what-clinical-trials-are/phases-of-clinical-trials

2. Cancer Research UK. Find a clinical trial: https://www.cancerresearchuk.org/about-cancer/find-a-clinical-trial

3. EU Clinical Trials Register: https://www.clinicaltrialsregister.eu/

4. National Library of Medicine. ClinicalTrials.gov: https://www.clinicaltrials.gov/

5. Australian Government. Australian Cancer Trials: http://www.australiancancertrials.gov.au/

6. Timothy Caulfield, *The Cure for Everything: Untangling Twisted Messages About Health, Fitness, and Happiness*

7. Cancer Research UK: https://www.cancerresearchuk.org/

8. American Cancer Society: https://www.cancer.org/

Part II – Why Do We Get Cancer?

5. Why Does Cancer Happen?

1. *World Cancer Research Fund International*, 'Cancer Prevention Recommendations' https://www.wcrf.org/preventing-cancer/cancer-prevention/our-cancer-prevention-recommendations/

6. What Is Risk?

1. *Daily Mail*, 'Eating burgers and hot dogs increases a woman's risk of breast cancer, Harvard study warns' (https://www.dailymail.co.uk/health/article-6232221/Eating-burgers-hot-dogs-increases-womans-risk-breast-cancer-Harvard-study-warns.html)

2. *Wiley Online Library*, 'Consumption of red and processed meat and breast cancer incidence' (https://onlinelibrary.wiley.com/doi/10.1002/ijc.31848)

3. *AHA/ASA Journals*, 'Ten-Year Differences in Women's Awareness Related to Coronary Heart Disease' (https://www.ahajournals.org/doi/full/10.1161/CIR.0000000000000907)

4. *Statista*, 'Distribution of the 10 leading causes of death among women in the United States in 2020 and 2021' (https://www.statista.com/statistics/233289/distribution-of-the-10-leading-causes-of-death-among-women/)

5. *Patient Info*, 'Calculating absolute risk and relative risk' (https://patient.info/news-and-features/calculating-absolute-risk-and-relative-risk)

6. *Risk Know-How*, 'Navigating Risk' (https://riskknowhow.org)

7. Things That Cause Cancer

1. *National Cancer Institute*, 'Age and cancer risk' (https://www.cancer.gov/about-cancer/causes-prevention/risk/age)

2. *The Lancet*, 'Differences in cancer rates among adults' (https://www.thelancet.com/pdfs/journals/lanpub/PIIS2468-2667(24)00156-7.pdf)

3. International Agency for Research on Cancer: https://www.iarc.who.int/

4. Cancer Research UK, 'Smoking and Cancer' (https://www.cancerresearchuk.org/about-cancer/causes-of-cancer/smoking-and-cancer)

5. *Science Direct*, 'Estimating lifetime and 10-year risk of lung cancer' (https://www.sciencedirect.com/science/article/pii/S2211335518301062)

6. *NHS*, 'Lung cancer overview' (https://www.nhs.uk/conditions/lung-cancer/)

7. Cancer Research UK, 'Causes of cancer and reducing your risk' (https://www.cancerresearchuk.org/about-cancer/causes-of-cancer/alcohol-and-cancer)

8. *MD Anderson Cancer Center*, 'How cancer affects the microbiome:' (https://www.mdanderson.org/cancerwise/how-does-alcohol-affect-the-microbiome.h00-159696756.html)

9. *Daily Mail*, 'A drink a day increases risk of breast cancer' (https://www.dailymail.co.uk/health/article-147128/A-drink-day-increases-risk-breast-cancer.html)

10. *World Health Organization*, 'Alcohol as a risk factor for breast cancer' (https://www.who.int/europe/news/item/20-10-2021-alcohol-is-one-of-the-biggest-risk-factors-for-breast-cancer)

11. *American Cancer Society*, 'Can infections cause cancer?' (https://www.cancer.org/cancer/risk-prevention/infections/infections-that-can-lead-to-cancer/intro.html)

12. *National Cancer Institute*, 'Scans and cancer' (https://www.cancer.gov/about-cancer/diagnosis-staging/ct-scans-fact-sheet)

13. *BMJ*, 'Global patterns of colorectal cancer' (https://gut.bmj.com/content/66/4/683)

14. *BMC*, 'Changes in cancer incidence' (https://bmccancer.biomedcentral.com/articles/10.1186/s12885-023-11140-6)

15. *The New England Journal of Medicine*, 'Body fatness and cancer' (https://www.nejm.org/doi/full/10.1056/NEJMsr1606602)

16. *National Library of Medicine*, 'Obesity and cancer' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9857053/)

17. Joshua Wolrich, *Food Isn't Medicine: Challenge Nutribollocks & Escape the Diet Trap*

18. Office for Health Improvement and Disparities, 'Update to the Obesity Profile on Fingertips' (https://www.gov.uk/government/statistics/update-to-the-obesity-profile-on-fingertips)

19. Cancer Research UK, 'Risks and causes of esophageal cancer' (https://www.cancerresearchuk.org/about-cancer/oesophageal-cancer/causes-risks)

20. *National Cancer Institute*, 'Obesity and cancer' (https://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/obesity-fact-sheet)

21. *National Library of Medicine*, 'Obesity and breast cancer' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8414651/)

22. *National Cancer Institute*, 'Physical activity and cancer' (https://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/physical-activity-fact-sheet)

23. *National Library of Medicine*, 'Cancer etiology' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7931121/)

24. *National Library of Medicine*, 'Exercise guidelines for cancer survivors' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8576825/)

25. *World Health Organization*, 'Physical activity overview' (https://www.who.int/news-room/fact-sheets/detail/physical-activity)

26. *Centers for Disease Control and Prevention*, 'Healthy diet' (https://www.cdc.gov/nutrition/media/pdfs/State-Indicator-Report-on-Fruits-and-Vegetables.pdf)

27. *National Library of Medicine*, 'Red meat and colorectal cancer' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4698595/)

28. *Oxford Academic*, 'Meat intake and cancer risk' (https://academic.oup.com/ije/article/49/5/1540/5894731)

29. *Mérieux NutriSciences*, 'Ultra-processed foods: NOVA classification' (https://regulatory.mxns.com/en/ultra-processed-foods-nova-classification)

30. *The Lancet*, 'Ultra-processed foods and cancer' (https://www.thelancet.com/journals/lanepe/article/PIIS2666-7762(23)00190-4/fulltext)

31. *American Cancer Society*, 'Lifetime risk of developing or dying from cancer' (https://www.cancer.org/cancer/risk-prevention/understanding-cancer-risk/lifetime-probability-of-developing-or-dying-from-cancer.html)

32. *The Lancet*, 'Food processing and cancer risk' (https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(23)00021-9/fulltexthttps://www.bmj.com/content/360/bmj.k322)

33. *BMJ*, 'Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santé prospective cohort' (https://www.bmj.com/content/360/bmj.k322)

34. *Nature*, 'Height and cancer' (https://www.nature.com/articles/s41416-018-0370-9)

35. GOV.UK. Breast implants: https://www.gov.uk/guidance/breast-implants-and-anaplastic-large-cell-lymphoma-alcl

36. *The British Menopause Society*, 'Benefits and risks of HRT before and after a Breast Cancer Diagnosis' (https://thebms.org.uk/publications/consensus-statements/risks-and-benefits-of-hrt-before-and-after-a-breast-cancer-diagnosis/)

37. *The Eve Appeal*, 'Ovarian cancer risk factors' (https://eveappeal.org.uk/information-and-advice/gynaecological-cancers/ovarian-cancer/)

38. *American Cancer Society*, 'Medical treatments affecting cancer' (https://www.cancer.org/cancer/risk-prevention/medical-treatments/menopausal-hormone-replacement-therapy-and-cancer-risk.html)

39. *The American College of Obstetricians and Gynecologists*, 'Hormonal contraception and the risk of breast cancer' (https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2018/01/hormonal-contraception-and-risk-of-breast-cancer)

40. *MD Anderson Cancer Center*, 'The pill and cancer' (https://www.mdanderson.org/publications/focused-on-health/birth-control-pill-and-cancer-risk.h28Z1590624.html)

8. Things That Don't Cause Cancer

1. *American Institute for Cancer Research*, 'Cancer myths and cancer facts' (https://www.aicr.org/cancer-prevention/healthy-lifestyle/other-%20lifestyle-risks/#1579806985911-7d17d394-0df1)

2. Cancer Research UK, 'Causes of cancer' (https://www.cancerresearchuk.org/about-cancer/causes-of-cancer/cancer-myths)

3. *American Cancer Society*, 'Risk and prevention' (https://www.cancer.org/cancer/risk-prevention.html)

4. *Macmillan Cancer Support*, 'Causes and risk factors' https://www.macmillan.org.uk/cancer-information-and-support/worried-about-cancer/causes-and-risk-factors

5. National Library of Medicine. Otto Heinrich Warburg https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2947689/

6. Dr Mark Hyman, 'What foods are killing you' (https://www.youtube.com/watch?v=zIbL7DvY_w8)

7. *The Physiological Society*, 'The Warburg effect' (https://physoc.onlinelibrary.wiley.com/doi/10.1113/JP278810)

8. *National Library of Medicine*, 'The Warburg effect' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5095922)

9. Sydney Ross Singer and Soma Grismaijer, *Dressed to Kill: The Link Between Breast Cancer and Bras*

10. Dr Mark Hyman, 'Cancer strategies' (https://drhyman.com/blogs/content/5-strategies-to-prevent-and-treat-cancer/)

11. *Nickerson Institute*, 'Emotional trauma and cancer' (https://www.nickersoninstitute.com/blog/psycho-oncology-how-unresolved-emotional-trauma-can-cause-cancer)

12. Nasha Winters, Jess Higgins Kelley and Kelly Turner, *The Metabolic Approach to Cancer: Integrating Deep Nutrition, the Ketogenic Diet, and Nontoxic Bio-Individualized Therapies*

13. *National Library of Medicine*, 'Work stress and cancer' (https://pubmed.ncbi.nlm.nih.gov/23393080/)

14. *Wiley Online Library*, 'Depression and cancer' (https://onlinelibrary.wiley.com/doi/abs/10.1002/pon.4084)

15. *National Library of Medicine*, 'Psychosocial factors and cancer' (https://pubmed.ncbi.nlm.nih.gov/18824713/)

16. *National Library of Medicine*, 'Emotional wellbeing and cancer' (https://pubmed.ncbi.nlm.nih.gov/17955501/)

17. *Snopes*, 'Anti-perspirants and cancer' (https://www.snopes.com/fact-check/breast-defense/)

18. *National Cancer Institute*, 'Risk factors' (https://www.cancer.gov/about-cancer/causes-prevention/risk/myths/antiperspirants-fact-sheet)

19. *National Library of Medicine*, 'Anti-perspirants and cancer' (https://pubmed.ncbi.nlm.nih.gov/11267710/)

20. *National Library of Medicine*, 'Anti-perspirants and cancer' (https://pubmed.ncbi.nlm.nih.gov/12381712/)

21. *National Library of Medicine*, 'Anti-perspirants and cancer' (https://pubmed.ncbi.nlm.nih.gov/17037719/)

22. European Commission, Scientific Committee on Consumer Safety: https://ec.europa.eu/health/scientific_committees/consumer_safety/docs/sccs_o_153.pdf

23. *Quackwatch*, 'My concerns about "holistic" and "biological" dentistry' (https://quackwatch.org/related/holisticdent/)

24. *JAMA Network*, 'Dental caries and cancer' (https://jamanetwork.com/journals/jamaotolaryngology/fullarticle/1752294)

25. *National Capital Poison Center*, 'Mercury poisoning' (https://www.poison.org/articles/do-fillings-cause-mercury-poisoning)

26. *Oral Health Foundation*, 'Amalgams health risk' (https://www.dentalhealth.org/dental-amalgam-policy)

27. *FDA*, 'Parabens in cosmetics' (https://www.fda.gov/cosmetics/cosmetic-ingredients/parabens-cosmetics)

28. *Full Fact*, 'No evidence that parabens in cosmetics cause 99% of cancers' (https://fullfact.org/health/parabens-cancer/)

29. *National Library of Medicine*, 'Parabens in breast tumours' (https://pubmed.ncbi.nlm.nih.gov/14745841/)

30. *Environmental Health Perspectives*, 'Parabens in breast tumours' (https://ehp.niehs.nih.gov/doi/10.1289/ehp.1409200)

31. *Science Direct*, 'Endocrine disruption' (https://protect-eu.mimecast.com/s/O494Cz7nOFRDJysxrW4n)

32. *National Library of Medicine*, 'Estrogenic preservatives' (https://pubmed.ncbi.nlm.nih.gov/9875295/)

33. *Oncology Nurse Advisor*, 'Parabens in cosmetics' (https://www.oncologynurseadvisor.com/home/headlines/parabens-in-cosmetics-what-is-the-connection-to-cancer/)

Part III – What Treatment Do I Need?

9. Mainstream, Complementary and Alternative Medicine

1. Wikipedia. Declaration of Helsinki: https://en.wikipedia.org/wiki/Declaration_of_Helsinki

2. *FDA*, 'Products claiming to "cure" cancer are a cruel deception' (https://www.fda.gov/consumers/consumer-updates/products-claiming-cure-cancer-are-cruel-deception)

3. *Science Based Medicine*, 'So-called alternative medicine for cancer' (https://sciencebasedmedicine.org/so-called-alternative-medicine-for-cancer/)

4. *Skeptic*, 'Why functional medicine is bugus' (https://www.skeptic.com/reading_room/why-functional-medicine-is-bogus/)

5. drhyman.com, https://drhyman.com/blogs/content/a-new-era-of-medicine-has-finally-arrived

6. Wikipedia. Andrew Weil: https://en.wikipedia.org/wiki/Andrew_Weil

7. *Dr Weil*, 'What is integrative medicine?' (https://www.drweil.com/health-wellness/balanced-living/meet-dr-weil/what-is-integrative-medicine/)

8. Wikipedia. Complementary or integrative medicine: https://en.wikipedia.org/wiki/Alternative_medicine#Complementary_or_integrative_medicine

9. *Quackwatch*, 'Be wary of "alternative," "complementary," and "integrative" health methods' (https://quackwatch.org/related/altwary/)

10. Wikipedia. Naturopathy: https://en.wikipedia.org/wiki/Naturopathy

11. Dr Nasha Wintersand Jess Higgins Kelly, *The Metabolic Approach to Cancer*

12. *Quackwatch*, 'The Hew Report' (https://quackwatch.org/related/naturopathy/hew/)

10. Why Do People Turn to Alternative Medicine?

1. Alan Levinovitz, *Natural: How Faith in Nature's Goodness Leads to Harmful Fads, Unjust Laws, and Flawed Science*

2. Timothy Caulfield, *The Cure for Everything: Untangling Twisted Messages About Health, Fitness, and Happiness*

11. How Is Cancer Treated?

1. *NHS*, 'Consent to treatment' (https://www.nhs.uk/conditions/consent-to-treatment/)

13. What's the Harm in Using Alternative Cancer Treatments?

1. *JAMA Oncology*, 'Refusal of conventional therapy' (https://jamanetwork.com/journals/jamaoncology/fullarticle/2687972)

2. *Journal of the National Cancer Institute*, 'Use of alternative medicine in cancer' (https://academic.oup.com/jnci/article/110/1/121/4064136)

3. *BMJ*, 'Is cancer fundraising fuelling quackery?' (https://www.bmj.com/content/362/bmj.k3829)

14. Things That Don't Cure Cancer

1. *National Library of medicine*, 'Starving cancer and other dangerous dietary misconceptions' (https://pubmed.ncbi.nlm.nih.gov/37922928/)

2. Idrees Mughal, *Saturated Facts: A Myth-Busting Guide to Diet and Nutrition in a World of Misinformation*

3. Thomas N. Seyfried, *Cancer as a Metabolic Disease: On the Origin, Management, and Prevention of Cancer*

4. Thomas N. Seyfried interview. https://www.youtube.com/watch?v=MakS2iRkj1Q

5. *Science Based Medicine*, 'Ketogenic diet does not "beat chemo for almost all cancers"' https://sciencebasedmedicine.org/ketogenic-diets-for-cancer-hype-versus-science/

6. *Epidemic Answers*, 'The metabolic approach' (https://epidemicanswers.org/suggested-books/the-metabolic-approach-to-cancer-integrating-deep-nutrition-the-ketogenic-diet-and-nontoxic-bio-individualized-therapies/)

7. *National Library of Medicine*, ''Effects of a ketogenic diet on the quality of life in 16 patients with advanced cancer' (https://pubmed.ncbi.nlm.nih.gov/21794124/)

8. *National Library of Medicine*, 'Effects of a ketogenic diet on tumor metabolism' (https://pubmed.ncbi.nlm.nih.gov/7790697/)

9. *National Library of Medicine*, 'Metabolic management of glioblastoma multiforme'' (https://pubmed.ncbi.nlm.nih.gov/20412570/)

10. Wikipedia. Rudolf Breuss: https://en.wikipedia.org/wiki/Rudolf_Breuss

11. *Anticancer Research*, 'Counselling patients of cancer diets' (https://ar.iiarjournals.org/content/34/1/39.long#T5)

12. Wikipedia. Max Gerson: https://en.wikipedia.org/wiki/Max_Gerson

13. *Chrisbeatcancer.com*, 'My cancer journey' https://www.chrisbeatcancer.com/

14. *Independent*, 'Model almost died after trying to cure cancer with online juice diet' (https://www.independent.co.uk/life-style/health-and-families/cancer-cure-juice-diet-irena-stoynova-b2531861.html)

15. *Professor Valter Longo*, 'Nutrition and fasting' (https://www.valterlongo.com/cancer/)

16. *Top Sante*, 'I Reversed My Stage 4 Cancer' https://www.topsante.co.uk/womens-health/i-reversed-my-stage-4-cancer-dr-nasha-winters-talks-holistic-healthcare-on-world-cancer-day/

17. *National Library of Medicine*, 'Prolonged nightly fasting and breast cancer prognosis' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4982776/pdf/nihms-782351.pdf)

18. *National Library of Medicine*, 'Fasting mimicking diet' (https://pubmed.ncbi.nlm.nih.gov/32576828/)

19. *Sense About Science*, 'Debunking detox' (https://senseaboutscience.org/activities/debunking-detox/)

20. *Journal of Biological Chemistry*, 'Acid and base-forming elements in foods' (https://www.jbc.org/article/S0021-9258(18)88738-5/pdf)

21. *Edgar Cayce's AR*, 'Acid/alkaline balance in the diet' (https://content.edgarcayce.org/about-us/blog/blog-posts/the-all-important-acidalkaline-balance-in-the-diet/)

22. Robert O. Young and Shelley Redford Young, *The pH Miracle: Balance Your Diet, Reclaim Your Health*

23. *BMJ*, 'Systematic review of the association between dietary acid load, alkaline water and cancer' (https://bmjopen.bmj.com/content/6/6/e010438)

24. Wikipedia. Robert O. Young: https://en.wikipedia.org/wiki/Robert_O._Young

25. *Ibis World*, 'Vitamin & supplement manufacturing market size' (https://www.ibisworld.com/united-kingdom/market-size/vitamin-supplement-manufacturing/)

26. *Glanbia Nutritionals*, 'The US supplement market' (https://www.glanbianutritionals.com/en/nutri-knowledge-center/insights/look-us-supplement-market-outlook)

27. *Natural Products Online*, 'The pandemic and supplement consumption' (https://www.naturalproductsonline.co.uk/health-nutrition/pandemic-pushes-19-rise-in-supplement-consumption/)

28. *JAMA Network*, 'The FDA and adulterated supplements – dereliction of duty' (https://jamanetwork.com/journals/jamanetworkopen/article-abstract/2706489)

29. *The Vagenda*, 'The money in menopause supplements' (https://vajenda.substack.com/p/the-money-in-menopause-supplements)

30. *JAMA Network*, 'Analysis of select dietary supplement products marketed to support or boost the immune system' (https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2794987)

31. *National Center for Complementary and Integrative Heath*, 'Herbs at a glance' (https://www.nccih.nih.gov/health/herbsataglance)

32. *Memorial Sloan Kettering Cancer Center*, 'About herbs, botanicals & other products' (https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs/)

33. David Robert Grimes, *The Irrational Ape: Why Flawed Logic Puts us all at Risk and How Critical Thinking Can Save the World*

34. *BDA*, 'Supplements' (https://www.bda.uk.com/resource/supplements.html)

35. *Advertising Standards Authority*, 'Make a complaint' (https://www.asa.org.uk/make-a-complaint.html#:~:text=You-can-complain-to-us-via-this-email-address)

36. *FDA*, 'Reporting serious problems to FDA' (http://www.fda.gov/Safety/MedWatch/HowToReport/default.htm)

37. *The International Society for Orthomolecular Medicine*, William J. McCormick, MD (https://isom.ca/profile/william-mccormick/)

38. *National Library of Medicine*, 'Supplemental ascorbate in the supportive treatment of cancer' (https://pubmed.ncbi.nlm.nih.gov/1068480/)

39. *National Library of Medicine*, ' High-dose vitamin C versus placebo' (https://pubmed.ncbi.nlm.nih.gov/3880867/)

40. *Taylor & Francis*, 'Hydrogen peroxide fuels aging, inflammation, cancer metabolism and metastasis' (https://www.tandfonline.com/doi/full/10.4161/cc.10.15.16870)

41. *Chrisbeatcancer.com*, 'The anticancer power of IV vitamin C' (https://www.chrisbeatcancer.com/ron-hunninghake-md-on-the-anticancer-power-of-vitamin-c)

42. US Food & Drug Adminisatration, 'FDA highlights concerns with compounding of drug products by medical offices and clinics under insanitary conditions' (https://www.fda.gov/drugs/human-drug-compounding/fda-highlights-concerns-compounding-drug-products-medical-offices-and-clinics-under-insanitary)

43. *Science Translational Medicine*, 'High-dose parenteral ascorbate enhanced chemosensitivity of ovarian cancer and reduced toxicity of chemotherapy' https://www.science.org/doi/10.1126/scitranslmed.3007154

44. *National Library of Medicine*, 'Intravenous vitamin C and cancer' (https://pubmed.ncbi.nlm.nih.gov/24867961/)

45. *National Cancer Institute*, 'Tumeric and cancer' (https://www.cancer.gov/about-cancer/treatment/cam/hp/curcumin-pdq#_59)

46. *Memorial Sloan Kettering Cancer Center*, Purported benefits and side effects of tumeric' (https://www.mskcc.org/cancer-care/integrative-medicine/herbs/turmeric)

47. *National Library of Medicine*, 'Impact of curcumin' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6468355/)

48. *National Library of Medicine*, 'Recent developments in mushrooms as anti-cancer therapeutics' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3339609/)

49. *Ingenta Connect*, ' Efficacy of Yun Zhi' (https://www.ingentaconnect.com/content/ben/iad/2012/00000006/00000001/art00008)

50. *National Library of Medicine*, 'Phase 1 clinical trial of Trametes Versicolor in women with breast cancer' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3369477/)

51. *Allied Market Research*, 'Functional mushroom market size' (https://www.alliedmarketresearch.com/functional-mushroom-market-A14273)

52. Paul Stamets at TEDMED 2011 (https://www.youtube.com/watch?v=pXHDoROh2hA)

53. *MDPI*, 'Mushroom-based supplements in Italy' (https://www.mdpi.com/2072-6643/15/3/776)

54. *Cochcrane Library*, 'Coriolus versicolor mushroom in colorectal cancer' (https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD012053.pub2/full#CD012053-abs-0002)

55. *Leafwell*, 'What Is Rick Simpson Oil?' (https://leafwell.com/blog/what-is-rick-simpson-oil-rso)

56. Cancer Research UK, 'Cannabis, cannabinoids and cancer – the evidence so far' (https://news.cancerresearchuk.org/2022/05/13/cannabis-cannabinoids-and-cancer-the-evidence-so-far/)

15. Do You Need a Cancer Coach?

1. Heal Navigator https://healnavigator.com/

2. Breast cancer conqueror https://breastcancerconqueror.com/

3. Chris Woollams profile https://www.canceractive.com/category/chris-woollams-founder-canceractive/1

4. Grace Grawler profile https://www.gracegawlerinstitute.com

16. How Can You Find Trustworthy Information Online?

1. David Robert Grimes, *The Irrational Ape: Why Flawed Logic Puts us all at Risk and How Critical Thinking Can Save the World*

2. *Science Direct*, 'Identifying cancer treatment misinformation' (https://www.sciencedirect.com/science/article/abs/pii/S1879850023000334)

3. American Society of Clinical Oncology, 'National survey reveals surprising number of Americans believe alternative therapies can cure cancer' (https://society.asco.org/about-asco/press-center/news-releases/national-survey-reveals-surprising-number-americans-believe)

4. Katie Forster, *Revealed: How Dangerous Fake Health News Conquered Facebook*

5. *NBC News*, 'Social media hosted a lot of fake health news this year' (https://www.nbcnews.com/news/us-news/social-media-hosted-lot-fake-health-news-year-here-s-n1107466)

6. *The Wall Street Journal*, 'Facebook, YouTube overrun with bogus cancer-treatment claims' (https://www.wsj.com/articles/facebook-youtube-overrun-with-bogus-cancer-treatment-claims-11562072401)

7. *FDA*, 'Do not use: black salve is dangerous and called by many names' (https://www.fda.gov/consumers/consumer-updates/do-not-use-black-salve-dangerous-and-called-many-names)

8. *National Library of Medicine*, 'Exposure and reactions to cancer treatment misinformation and advice' (https://pubmed.ncbi.nlm.nih.gov/37505790/)

9. *Journal of the National Cancer Institute*, 'Cancer misinformation and harmful information on Facebook and other social media' (https://academic.oup.com/jnci/article/114/7/1036/6323231?login=false)

10. *BMC*, 'Is YouTube a reliable source of health-related information?' (https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-022-03446-z)

11. *The Lancet*, 'Facebook groups for alternative treatments for cancer: advertising masquerading as community support' (https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(20)30457-5/fulltext)

12. *JMIR*, 'Advertising alternative cancer treatments and approaches on meta social media platforms' (https://infodemiology.jmir.org/2023/1/e43548)

13. *META*, 'Advertising standards' (https://transparency.meta.com/policies/ad-standards/)

14. *Nature*, 'Alternative cancer clinics' use of Google listings and reviews to mislead potential patients' (https://www.nature.com/articles/s44276-024-00071-9)

15. Wikipedia. Cancer Act 1939 (https://en.wikipedia.org/wiki/Cancer_Act_1939)

16. Sense About Science https://senseaboutscience.org/guides/

17. Science Up First https://scienceupfirst.com/

18. Quack Watch https://quackwatch.org/

19. *Memorial Sloan Kettering Cancer Center*, 'About herbs, botanicals & other products' (https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs/)

17. Red Flags That Will Tell You a Cancer Claim Is False

1. *American Council on Science and Health*, 'How to spot a fake science news story' (https://www.acsh.org/news/2017/01/31/how-spot-fake-science-news-story-10794)

2. *BMC*, 'The science of spin' (https://ehjournal.biomedcentral.com/articles/10.1186/s12940-021-00723-0)

3. Quack Watch https://quackwatch.org/

4. *Science Direct*, 'Identifying cancer treatment misinformation' (https://www.sciencedirect.com/science/article/abs/pii/S1879850023000334)

5. *University of Utah*, 'Consider the source: identifying cancer misinformation' (https://healthcare.utah.edu/huntsmancancerinstitute/news/2022/03/consider-source-identifying-

cancer-misinformation)

6. *National Library of Medicine*, 'Identifying cancer treatment misinformation' (https://pubmed.ncbi.nlm.nih.gov/36736620/)

7. *Drugwatch*, 'Big Pharma and medical device manufacturers' (https://www.drugwatch.com/manufacturers/)

8. *Global Wellness Institute*, 'Wellness economy statistics and facts' (https://globalwellnessinstitute.org/press-room/statistics-and-facts)

9. *American Public Health Association*, 'Health misinformation' (https://ajph.aphapublications.org/toc/ajph/110/S3)

10. https://www.cancer.gov/about-cancer/managing-care/using-trusted-resources

Part IV – What Can I Do to Stop Cancer Coming Back?

18. Can Cancer Ever Be Cured?

1. GOV.UK, 'Cancer survival rates improve' (https://www.gov.uk/government/news/cancer-survival-rates-improve-by-almost-10)

2. *National Cancer Institute*, 'Statistics and graphs' (https://cancercontrol.cancer.gov/ocs/statistics)

21. When Does Cancer Come Back?

1. Cancer Research UK, 'Why some cancers come back' (https://www.cancerresearchuk.org/about-cancer/what-is-cancer/why-some-cancers-come-back)

24. What Can You Do to Reduce Your Chance of a Recurrence?

1. *National Library of Medicine*, 'Starving cancer and other dangerous dietary misconceptions' (https://pubmed.ncbi.nlm.nih.gov/37922928/)

2. *World Cancer Research Foundation*, 'Preventing cancer' (https://www.wcrf.org/diet-activity-and-cancer/cancer-prevention-recommendations/)

3. *American Cancer Society*, 'Guideline for diet and physical activity' (https://www.cancer.org/cancer/risk-prevention/diet-physical-activity/acs-guidelines-nutrition-physical-activity-cancer-prevention/guidelines.html)

4. World Cancer Research Fund, 'New guidance for people living with and beyond breast and colorectal cancer' (https://www.wcrf.org/about-us/news-and-blogs/new-guidance-for-people-living-with-and-beyond-breast-and-colorectal-cancer/)

5. NHS, 'Eat well guide' (https://www.nhs.uk/live-well/eat-well/food-guidelines-and-food-labels/the-eatwell-guide/)

6. *The Lancet*, 'Ultra-processed food consumption, cancer risk and cancer mortality: a large-scale prospective analysis within the UK Biobank' (https://www.thelancet.com/action/showPdf?pii=S2589-

5370%2823%2900017-2)

7. *American Cancer Society*, 'Lifetime risk of developing or dying from cancer' (https://www.cancer.org/cancer/risk-prevention/understanding-cancer-risk/lifetime-probability-of-developing-or-dying-from-cancer.html)

8. *The Association of British Dieticians*, 'Dietitian or nutritionist?' (https://www.bda.uk.com/about-dietetics/what-is-dietitian/dietitian-or-nutritionist.html)

9. Pollan, Michael, *In Defence of Food*

10. *American Cancer Society*, 'Alcohol consumption and prognosis and survival in breast cancer survivors: The Pathways Study' (https://acsjournals.onlinelibrary.wiley.com/doi/10.1002/cncr.34972)

11. *American Society of Clinical Oncology*, 'Alcohol and cancer. A statement' (https://ascopubs.org/doi/10.1200/JCO.2017.76.1155)

12. *Journal of Clinical Oncology*, 'Alcohol Consumption and Breast Cancer Recurrence and Survival Among Women With Early-Stage Breast Cancer: The Life After Cancer Epidemiology Study' (https://ascopubs.org/doi/10.1200/JCO.2010.29.2730)

13. *National Cancer Institute*, 'Alcohol and Cancer Risk' https://www.cancer.gov/about-cancer/causes-prevention/risk/alcohol/alcohol-fact-sheet)

14. *National Cancer Institute*, 'Obesity and Cancer' (https://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/obesity-fact-sheet)

15. *National Library of Medicine*, 'Obesity and Cancer: A Current Overview of Epidemiology, Pathogenesis, Outcomes, and Management' (https://pmc.ncbi.nlm.nih.gov/articles/PMC9857053/)

16. *BMJ*, 'Rationale and description of a lifestyle intervention programme' (https://nutrition.bmj.com/content/3/2/213)

17. *National Library of Medicine*, 'Physical activity reduces the risk of recurrence and mortality in cancer patients' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7071977/)

18. *National Library of Medicine*, 'American College of Sports Medicine roundtable on exercise guidelines for cancer survivors' (https://www.pubmed.ncbi.nlm.nih.gov/20559064/)

19. *National Library of Medicine*, 'Exercise guidelines for cancer survivors' (https://pubmed.ncbi.nlm.nih.gov/31626055/)

20. *National Library of Medicine*, 'Physical activity in breast cancer survivors' (https://pubmed.ncbi.nlm.nih.gov/30780085/)

21. *Oxford Academic*, 'Why exercise has a crucial role in cancer prevention, risk reduction and improved outcomes' (https://academic.oup.com/bmb/article/139/1/100/6356430)

22. *BMJ*, 'Exercise improves quality of life in patients with cancer' (https://bjsm.bmj.com/content/50/13/796)

23. *Journal of Orthopaedic & Sports Physical Therapy*, 'Which Exercise Approaches Work for Relieving Cancer-Related Fatigue? A Network Meta-analysis' https://www.jospt.org/doi/10.2519/jospt.2023.11251

24. *National Library of Medicine*, 'Impact of exercise training on depressive symptoms in cancer patients' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9031941/)

25. *National Library of Medicine*, 'Physical activity and cancer care' (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9454950/)

26. *Macmillan Cancer Support*, 'Rehabilitation for people with cancer' (https://cdn.macmillan.org.uk/dfsmedia/1a6f23537f7f4519bb0cf14c45b2a629/1532-source/prehabilitation-for-people-with-cancer-tcm9-353994)

27. *American Cancer Society*, 'Physical Activity and the Person with Cancer' (https://www.cancer.org/cancer/survivorship/be-healthy-after-treatment/physical-activity-and-the-cancer-patient.html)

28. *Medicine & Science in Sports & Exercise*, 'Exercise Guidelines for Cancer Survivors: Consensus Statement from International Multidisciplinary Roundtable' (https://journals.lww.com/acsm-msse/fulltext/2019/11000/exercise_guidelines_for_cancer_survivors_.23.aspx)

29. *British Journal of Sports Exercise*, 'Exercise improves quality of life in patients with cancer: a systematic review and meta-analysis of randomised controlled trials' (https://bjsm.bmj.com/content/50/13/796)

30. *JCO Oncology Practice*, 'Exercise Recommendation for People With Bone Metastases: Expert Consensus for Health Care Providers and Exercise Professionals' (https://ascopubs.org/doi/pdf/10.1200/OP.21.00454)

31. Kathryn Schmitz, *Moving Through Cancer: An Exercise and Strength-Training Program for the Fight of Your Life*

32. Carolyn Garritt, *Get Your Oomph Back: A Guide to Exercise After a Cancer Diagnosis*

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