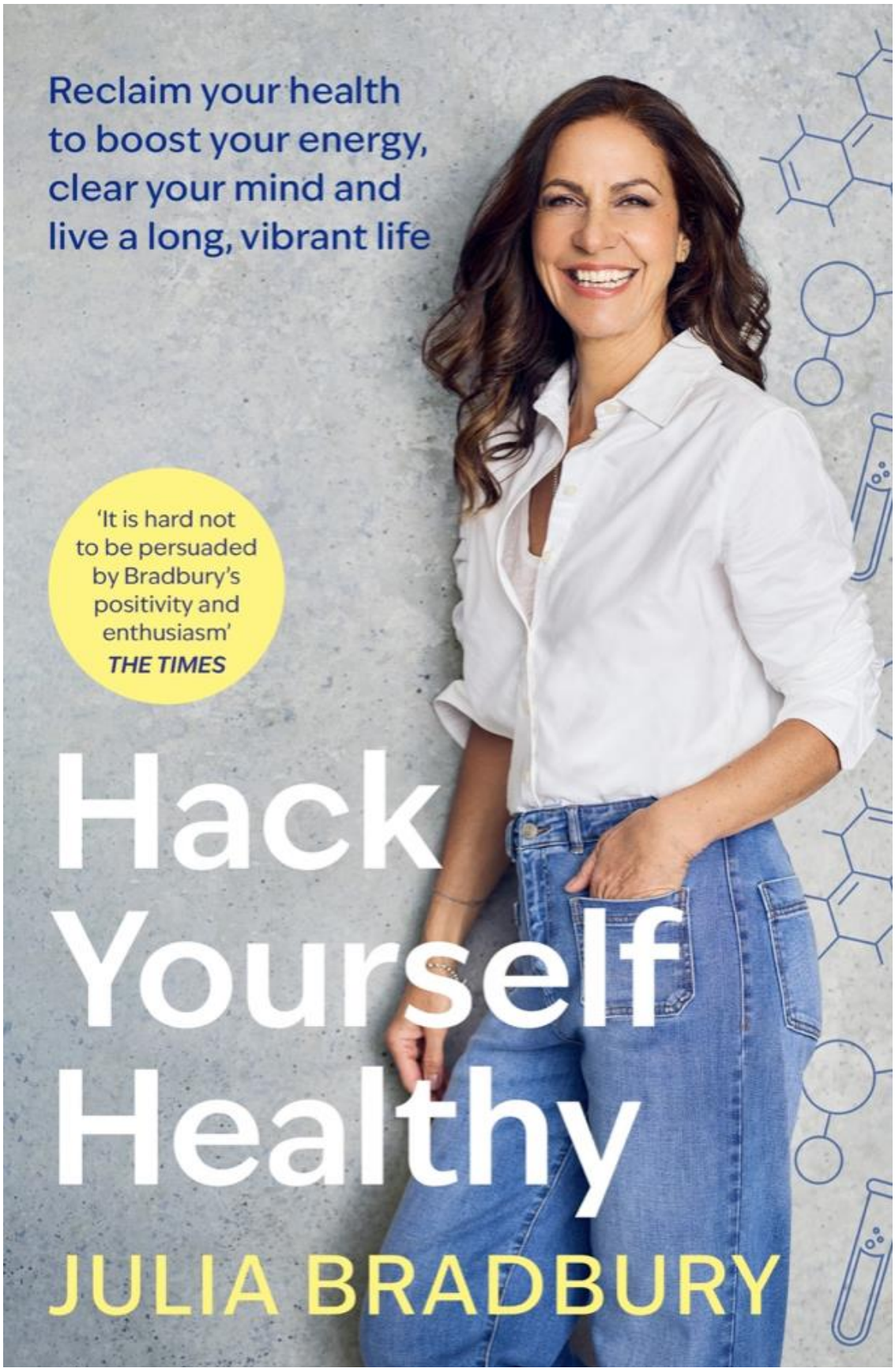
Reclaim your health to boost your energy, clear your mind and live a long, vibrant life
'It is hard not to be persuaded by Bradbury's positivity and enthusiasm'
THE TIMES
Hack Yourself Healthy
JULIA BRADBURY

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Reclaim your health to boost your energy, clear your mind and live a long, vibrant life

JULIA BRADBURY
WITH SARAH OLIVER

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PIATKUS

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To my parents, Chrissi and Michael, who have given me and my sister, Gina, unwavering support and love throughout our lives. To be loved unconditionally provides an invaluable foundation of sureness and security. Thank you for being amazing parents.

'Stir well the cocktail of life, but make sure you avoid the dregs.'

Michael Bradbury

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Perspective

I climbed the biggest hill I could find
each step evacuating
my over cluttered mind

breath falling into rhythm
lungs billowed full sized
like sails at full mast
to ride with the tide

and with each step
and with each breath

I scaled further away
from my life and its worry
until perspective shifted
and cropped out the hurry

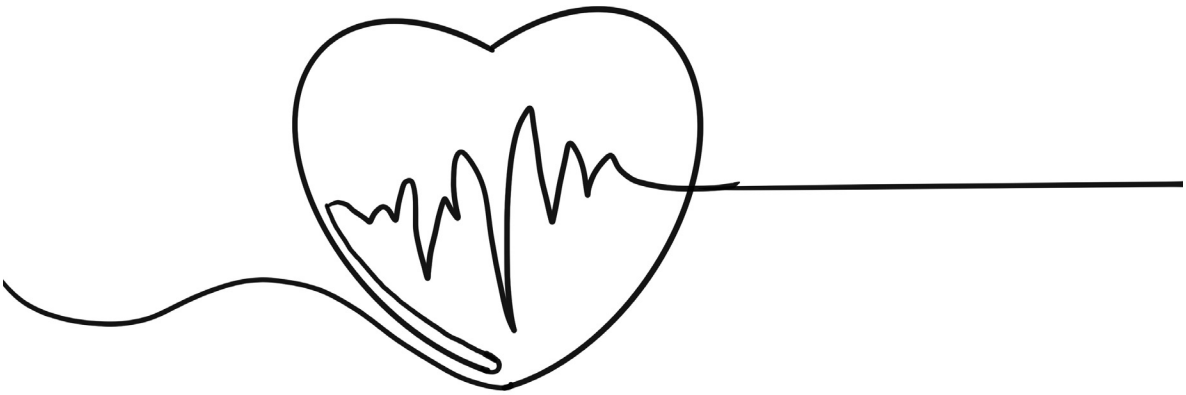
until this life looked very small
and I could *see*

the only thing which needs
to be moved, is me

everything I truly need
grows amidst the leafy trees
and ebbs and flows

in carefree breeze.

by Donna Ashworth



Introduction

My name is Julia and I'm dying.

So are you, dear reader.

There's nothing we can do about that. But the human body is a marvel of biological engineering, constantly renewing itself by killing off old cells and generating new ones. This continuous cycle of cell death and regeneration is crucial for maintaining our health and function, and it's something we *can* influence.

I've had cancer, I'm a mother to three young children and I couldn't be more invested in staying alive and living my healthiest life. That's why I've set out to improve my healthspan, which, I think, is subtly different from longevity.

According to the *Oxford Dictionary*, longevity means 'long life' or 'the ability to last for a long time'. (The word comes from the Latin *longaevitās*.) But I don't just want to endure, I want to be able to run around after my children for decades to come and, if I'm lucky, after my grandchildren too. I want to be able to lift and carry things and continue to leap up the stairs two at a time. I want to get better at tennis, not worse, and be strong enough so that if I stumble or fall, I can steady myself or get up relatively unscathed.

That's healthspan, not lifespan: being strong enough to handle life's knockbacks with resilience, hopefully well into older age (or the wisdom years, as I like to call them).

Running to my publishers recently (late again!), I tripped on the voluminous legs of my floaty silk trousers in Regent Street in

central London. I slammed down onto the pavement, sliding forwards on my stomach in an ungainly kind of football dive, but I managed to put out an arm to save myself – and my teeth – from serious damage. I was bruised and embarrassed but able to get up and gallop on. My shins were turning blue with new bruises but I wasn't seriously hurt.

If that happens when I'm 80, I want the same outcome. I don't want to end up in hospital with a broken hip, destined to become an old-age statistic: someone who never fully recovers and dies within a year. The charity Age Concern says that falls are the most common cause of injury-related deaths in people over 75 in the UK. The government estimates the cost to the country of fractures from falls at £4.4 billion annually, with a quarter of that spent on the social care people need afterwards. In human terms, it's the end of your independence – but enough scaremongering.

Here in *Hack Yourself Healthy* I'm putting myself up as a 'crash test mummy' to trial lifestyle changes that promise to extend healthspan. I'll be taking you through them with experts who, I promise, have an excellent bedside manner. Most are things that you can try at home, in the gym, or outside in your garden or local green space. There will be tests you can have on the NHS, plenty of stuff that's free and, yes, some bits and pieces that you might want to invest in, but which don't cost the earth. (Actually, some of them *do* cost the earth, because they're niche and pioneering. I'll be telling you about those too, because they're the future of this kind of preventative medicine.)

In Chapter 6 I talk to Professor Satchin Panda, a world-renowned expert on circadian rhythms and sleep, and in Chapter 3 you can find age-defying Dr Kara Fitzgerald telling us what we should be eating to turn back our biological clocks.

I've travelled to the Himalayas to find a sanctuary called Ananda and learn more about Ayurveda, the oldest medical system in the world (practised for the last 10,000 years), to ask

what it can offer the West. Read about that in Chapter 11. Here in the UK, I have sat on a machine I nicknamed the 'orgasmatron' to strengthen my pelvic floor (and, no, it doesn't do anything more exciting), gone naked (apart from a hat and gloves) in Europe's coldest cryotherapy chamber (-140°C, since you ask), and exercised to my body's fail point, wearing a mask that makes me look like Mrs Hannibal Lecter, to test my VO2 max. VO2 max is one of the best predictors of longevity we have, and you can learn how I got on at London's pioneering personalised health clinic, Hooke, in Chapter 1.

Lots of me have been examined and analysed, from my brainwaves to my breasts: I have been poked, prodded and stuck with needles; I have given plenty of blood (I'm blood type A RhD positive, which is not rare) and I've shared my poo; a saliva test enabled specialists to decode my DNA – not to trace my ancestry, but to work out what diseases I'm susceptible to; and even my emotional health and psychological resilience – both surprisingly significant in human healthspan – have been picked apart. There really has been nowhere to hide.

As always, I've been heartened to reaffirm how important it is to have nature in our lives, every day. It has a tangible impact on our well-being that must not be overlooked. Feeling the sunlight on your face, breathing in fresh air, hugging trees, walking, looking at the colour green: these all create proven physiological change for the better in our bodies.

My physical and mental responses to 'vitamin N' have been measured in a series of experiments specially conducted for *Hack Yourself Healthy* by Ben Wheeler, a professor at the European Centre for Environment and Human Health at the University of Exeter. You'll be staggered by the amount of money I save the NHS because of the time I spend in nature – and you could too. In a London park, I managed to uplift my HRV levels (heart rate variability) to Jedi status, leveraging the power of birdsong. And in North Yorkshire, on the 2,500-acre estate of Broughton Sanctuary, I learned more about the

spiritual connection we all have to nature, and how it's possible for land and people to be rewilded together, nourishing the body, mind and soul.

All the how-tos and the why-tos are laid out in this book so that you can join me on this quest to 'make the best of the rest'. I hope my experiments and enquiries will serve as a blueprint for you as you think about what healthspan means in terms of your own life.

In terms of my own, it has produced a stunning revelation: I have a cyst deep in tiger country: smack bang in the centre of my brain.

Head case

OK, so I wasn't expecting that.

My decision to become the 'crash test mummy' and have myself examined all over, inside and out, including a state-of-the-art body and brain MRI scan, revealed a cyst smack bang in the centre of my brain. It was ironic really, because they were focusing on my breast region, given my cancer diagnosis in 2021.

It's a pineal cyst located in what the neurosurgeon, Kevin O'Neill, described as 'tiger country', after looking at my scan.

These cysts are rare but usually benign guests in the pineal gland. The epiphysis cerebri, as it's also known, is connected to our eye function and plays a role in the production of melatonin, the hormone that regulates our sleep–wake cycle. Mine has a lump in it, approximately 6mm (millimetres) by 10mm, and the shape of a 'half-sucked Murray mint', apparently.

I was every bit as terrified as you might expect to discover this, but in the two years that it's taken me to write *Hack Yourself Healthy*, there's nothing – nothing – that has come closer to proving to me that preventative medicine is the way forward. There isn't a better path to building a longer, healthier life than getting to know your own body.

For me, that means having a second MRI scan in six months' time to ensure that there has been no change in my cyst's size or characteristics. (It's currently a smooth and well-defined lozenge.) If that's the case, I can relax and accept that it's stable and symptomless, and there's every chance that I can live safely with a cough sweet inside my head.

Apparently, 1 per cent of us do – it's just that we don't know until and unless they start to cause trouble.

If you think of your brain as a 3-D dartboard, the pineal gland is situated at the bullseye. 'This central location means that it's near a lot of critical neurological structures, so you don't want to do anything to it unless you really, really have to,' says Kevin, who is best known as the hero surgeon who operated on the brain tumour of my friend and fellow TV presenter, Davina McCall.

If my cyst grows, it could potentially:

- Block my cerebrospinal fluid pathways.
- Create pressure on my surrounding brain structures.
- Cause me headaches or neurological symptoms.

Surgery to remove it risks leaving me with movement-control issues, visual disturbances, deficits to my motor skills (and we all know I'm already so clumsy that I can trip over my own trousers) and, in very rare cases, neurological damage.

Kevin, however, stresses that there is zero need to panic or intervene, because, for me, this is a natural part of my anatomy: I was born with it. When I have my follow-up, he will check for any tiny changes that might ring an alarm bell and ensure that there's baseline data for future comparisons.

He doesn't prescribe any lifestyle modifications – but he does warn me to take the best care I can of my brain. That means prioritising good-quality sleep, taking regular exercise, maintaining a balanced diet and taking targeted supplements. (In my

case omega-3s and vitamin D3 with K2.) Lots of exercise, a good diet and supplements are part of my life already, the first one, sleep, I'm working on.

If anything is going to make me redouble my efforts, however, it's finding out that I have a hard-to-reach cyst in my brain.

Kevin is a huge believer in preventative medicine. 'Ignoring your health is like leaving unopened bills on the kitchen counter,' he says. The problems don't disappear, they just grow larger and more complicated. Just as those unopened envelopes accumulate interest and penalty charges, unaddressed health issues can silently escalate, transforming minor concerns into major medical challenges.

So, er, yes, I have a cyst in my brain, but I know that I have the measure of it, literally: I can monitor it, optimise my health to protect my grey matter and take action in the future if I need to.

Thanks to my neighbour, Lizzie, for suggesting the scan. No, really. I don't know about you, but I'm definitely in the 'What you know empowers you' camp, not the 'I don't wanna know' faction. As Benjamin Franklin once said, 'An ounce of prevention is worth a pound of cure.'

As you read through *Hack Yourself Healthy* I'll be describing all the different ways that we can build healthspan, as introduced above, and each chapter ends with some simple ways that you can help yourself: my Happy Hacks.

I hope you'll enjoy the journey with me.

Julia

Chapter 11

Ananda: The Healing Himalayas

Driving up through the lower Himalayas, you get your first glimpse of Ananda from the Ganges valley. Mostly, you see the dense green of the sal forests (the *Sharia robusta*, a tree native to India), the grey slabs of mountain, and the crimson sky of northern India. But every now and again, the sunlight flickers onto a lemony building held aloft by a great Himalayan crag. You climb and climb until your ears pop and the bends in the road become proper hairpins, and then you see it in all its loveliness.

We are heading for one of the world's leading Ayurvedic clinics, Ananda, where the ancient Indian medical system is used for 21st-century healing. The sanctuary is in the foothills of the Himalayas, located in two historic palaces, the oldest was built for a maharaja, the other was built by him to accommodate a viceroy during the days of empire.

It is 100 acres of idyllic surroundings: dense vegetation and beautifully manicured gardens; monkeys potter along the walls; deer come to drink from the water that surrounds a white marble music temple; and a colony of bees makes honey from the sal blossom, wild curry leaf and wild basil. At night, I would walk through the grounds in wonder, absorbing the multitude of smells and sounds, reflecting on our symbiotic existence with nature. Our own health and planetary health are so intricately linked, and abundantly green, nature-rich places amplify this.

I haven't come for the views, however (well, maybe a little), or

the wildlife, or even the honey, although it is remarkable (curry leaf doesn't taste of curry, by the way: it has a musky citrus flavour). I'm not even here for the oldest billiards table in India, or to see a laughing thrush, which sings like someone laughing, and looks like Rod Stewart. I'm here because Ananda is a place of pilgrimage, healing, learning and wellness, that draws everyone from British royals and Hollywood A-listers to scholars and yogis.

Ayurvedic medicine is a very different discipline from Western medicine and, as I recover from cancer and work out how to be the healthiest I can be, I want to know what lessons there are for me here.

Ayurveda is about cleansing, rejuvenating and revitalising for health, healthspan and longevity, and it's been successfully practised for the last 10,000 years. What interests me more than anything is that it considers mental well-being as important as physical health: the two are totally entwined. Whereas I have worked hard to rebuild my body following my mastectomy and breast reconstruction, I am coming to understand that my emotional health is another story.

I will be in the care of Dr Sreelal Sankar, Ananda's head of Ayurveda, and it's going to be an intense seven days of treatments. I will eat a diet prescribed according to my body type, or *dosha*, and follow Ayurvedic principles of sleep, sunshine and exercise. I will deepen my yoga practice and understanding of breathwork and study a little *vedanta*, an ancient Indian philosophy, which teaches students how to live a life of both mental peace and dynamic action. (*Vedanta* is a Sanskrit word meaning 'end of knowledge', though this is a very literal translation. Think of the word 'end' more in terms of 'fulfilment', and you'll get the idea.)

Finally, I will also go on one of the hikes of my life, climbing a modest mountain from where I can gaze on the sacred beauty of the snow-capped high Himalaya, and the gateway to Tibet.

The basics of Ayurveda

According to Ayurveda, the universe is made of five primordial elements: earth, air, fire, water and ether. These elements individually are inanimate but, in combination, they give rise to three different biological forces in the human body. They are called '*doshas*' and, although every human being has a different balance of elements, one *dosha* is typically predominant in each of us and it dictates both our character and our constitution.

Me, myself, and *vata*

Dr Naresh Perumbuduri is a senior physician at Ananda, a fourth-generation Ayurveda medic from a family in southern India. I meet him in a wood-panelled consulting room where his aura of calm well-being highlights my un-calmness. I am talking to Dr Naresh about *vata*, my own *dosha* (my body type) and he's giving me the skinny on the other two: *pitta* and *kapha*.

We're born with a unique combination of three 'bio-energies', and although we all have one predominant *dosha*, everyone has a little of the other two. Dr Naresh likes to explain the characteristics of each *dosha* with metaphors from the animal kingdom. 'No person is 100 per cent *vata*, *pitta* or *kapha*,' he points out. 'If they were 100 per cent *vata* they would be like a monkey: quick and fickle, both physically and mentally. Someone who was 100 per cent *pitta* would be like a ferocious animal: a tiger, if they were to get angry. If 100 per cent *kapha*, that would be like an elephant: slow, in a good way, not over-stimulated and rarely provoked.'

He describes the different *doshas* as follows:

Dr Naresh Perumbuduri talks about the *doshas*

Vata

Naresh: *Vata* people are often dark complexioned, they can be tall or short, but their hands and feet will be always cold. They don't like extreme weather, not too much cold, not too much heat, they want to be in a mid-zone all the time. Often they have dry skin. Simple dietary changes give them constipation, they have an irregular appetite and digestion, sometimes a very good appetite, sometimes very poor which makes them feel either light and well, or bloated; it's fluctuating and unpredictable.

About 70 per cent of this chimes with me. I always have a good appetite; I do have a sensitive stomach, but I like it both very hot and very cold, which reflects another *dosha*.

Naresh: Mentally, *vata* are very energetic, eccentric, enthusiastic, multitasking, creative, talkative, hyperactive, jolly, friendly people; they forgive and forget very fast. They need others around them, or they go crazy. If there is any imbalance in *vata*, it is that simple things make them nervous unnecessarily. They start worrying about something that might happen or might not, and too many things buzz around in their head. It's difficult to shut down their mind. Although they want to focus on certain things, they keep shifting their attention and end up doing something else – and that's where they create stress and anxiety-related issues for themselves and end up losing sleep. They are very light sleepers. When they're lying in bed, they sometimes remember irrelevant things, and then struggle to fall back to sleep. Ayurveda divides the night into *vata*, *pitta* and *kapha*; 2am to 6am is a *vata* time. Those who have a *vata* imbalance always end up getting disturbed after 2am or 3am.

Yes, yes, yes! (Apart from the forgiveness bit. I'm working on that.)

Pitta

Naresh: The *pitta* person is moderately built, often fair of complexion and can suffer from premature greying of the hair, they can lose their hair earlier too. Their hands and feet will be always warm – they like cold weather and hate humid, sweaty conditions, which make them irritable. They have sensitive skin. *Pitta* people have a very good appetite, digestion and metabolism. They don't gain weight quickly until and unless they completely deviate from their lifestyle.

Mentally, they're very organised. They always live by a plan (whether they follow it or not, that's different), but they need some structure to go forward. They set rules in their life and never cross them. They have a typical routine, and they don't alter it often. They expect others to follow some routine in their life too – if they don't, then a *pitta* person will get agitated. 'Why don't you follow this? It makes your life easy,' that's what they keep telling other people. It can make them aggressive by nature, although they don't react to every situation. They are very analytical, trying to understand people, tasks and situations, which means that they can handle life very well. They're good at handling one task at a time; however, they can also multitask when required. In fact, they work efficiently under stressful conditions: it motivates their personality, plus they have good concentration. They always care about quality and will not jump on to a second thing without finishing the primary one. They always prioritise.

They have a good but selective memory. If they feel something is relevant, they remember it forever. They're very, very picky with people, brands, possessions, restaurants, foods – if they like it, they will go to the same restaurant again and again. If they don't, however, it's gone, and they never think about it again. Usually, they're highly goal-oriented: they go aggressively and forgo anything to achieve their goals. When you have a mild imbalance of *pitta*, you will become more

instructive, giving instructions to people: try to do this, try to do that, in the home or outside. Where there is a drastic imbalance of *pitta*, they always end up having inflammatory conditions like soft-tissue disorders such as tonsillitis, polyps and piles, digestive disorders, skin issues, etc.

Kapha

Naresh: The *kapha* personality is very hefty; they have good stamina, radiant skin, and they like things a little on the cooler side. They have a good appetite, but slow digestion and a very slow metabolism, so they gain weight quickly, and it's very difficult for them to lose it, even after doing an intense workout and following strict dietary guidelines. They're very slow and methodical, they take their own time to understand things. They need time to execute any task, and they need their own space too. They don't like too many people around their introverted, reserved personalities, and they don't often get angry, because they don't want to be involved in any troublesome situations.

If they see trouble, they just walk away from it. Polite, loving, compassionate and sensitive, they get attached to people, places and pets. They are very consultative, they always take the opinions of others. *Kapha* people have good memories. They're stable mentally and physically, but if there is any imbalance in *kapha*, they will become lazy and lethargic, even calling someone to fetch the TV remote for them or to bring them a glass of water when there is one within reach. If there is an imbalance of *kapha*, most people end up having a metabolic disorder that results in obesity, diabetes and high cholesterol, and they are prone to depression. They're so sensitive and emotional that if something happens to people they love, they truly feel lost. Even if it is a pet, they feel that their pet is for their lifetime and they will never have the same connection, never be able

> to give the same kind of a love and affection to another animal. They can be opinionated, and if you don't share their opinions, they don't trust you, but if they connect with you, they will be loyal – there's no grey area.

I know a few *kaphas*, but I won't call them an elephant to their face.

What *dosha* are you? You can find out through various online questionnaires, but obviously, seeing your own Ayurvedic doctor or healer is the best way to explore your Ayurvedic type.

My *dosha* decoded

I am a *vata* with a *pitta*, apparently. At Ananda everything I eat, every treatment I have, and every moment of my daily routine – starting with which tea I am allowed to drink with my breakfast – is prescribed for my *dosha*. I was scrubbed, touched, massaged and moved in ways I never thought possible, taking me to a place of deep union between my body and my mind.

The one I'll remember with a smile was an extraordinary movement treatment. I was lying on my back on top of a young, supremely cheerful therapist. As she lay underneath me, her arms were hooked under my armpits and her legs wrapped around my thighs, stretching me firmly in opposite directions. Then she rolled me over and started prising my legs apart using her heels while tugging my arms the other way. 'How old are you?' she enquired.

'Fifty-four,' I replied.

She looked surprised. 'You are the same age as my mother, but very flexible!'

Afterwards, I felt like a rusty lock that had been unpicked and re-oiled.

The one I won't be rushing back to do was a nasal detox. Warm, medicated oil is dropped into both nostrils, you inhale gustily and then attempt to cough it out. You follow the oil with rasping smoke. I'm sure it's beneficial, but I have two words for you: curried tonsils.

I wish I had enjoyed it more because *nasyam*, as it is called, is a pillar of Ayurvedic therapy, designed to remove toxins from the head and neck area. It reduces inflammation and clears the nasal passages, relieves headaches and sinusitis, and balances the three *doshas* (*vata*, *pitta* and *kapha*).

The very efficient enema My *sneha vasti* oil enema wasn't uncomfortable, just a little awkward – having your rear end pipe-cleaned is bound to be. Once the medicated pippalyadi oil had been gently inserted with a plastic funnel, my legs were pumped like a baby's, so that it could take full effect. And it did. For some days afterwards, including up a mountain with no en suite. Like *nasyam*, the nasal detox, *sneha vasti* is a core Ayurvedic technique prescribed to balance the vata and flush out toxins at a cellular level.

The thing I brought home Days at Ananda start in the garden, chanting. I now chant most mornings at home too, having adopted a new mantra *sadhana* I learned there. Chanting isn't about religion for me, it's about sound-energy vibrations. It was a nice mental challenge to learn some Sanskrit verse, and I find the rhythmic pattern of the words soothing and calming. The well-established benefits include better cognitive function, improved mood and reduced fatigue and anxiety (very similar to walking). It's also said to improve one's focus and concentration, and it helps us balance our emotions. Importantly, it's another free thing that we can all do. (Calling it a hack somehow sounds wrong.)

My morning (and sometimes night-time) chant is a Vedic chant dedicated to Lord Shiva and known for its protective and healing powers. The mantra is believed to grant liberation from death and promote spiritual growth. Its chanting evokes divine

energy, fostering peace and well-being – and who doesn't need a bit of that?

Pyjama party

The reconciliation of a peaceful mind and a healthy body begins at check-in at Ananda when you're given a pair of dazzlingly white *kurta* pyjamas to wear for the duration of your stay. Most guests wear nothing else, even at dinner. When I sent a picture home, a friend joked that we looked like we'd joined a cult, in our matching outfits with our long strings of *rudraksha* seed necklaces swishing about. But here's the thing: the PJs are comfortable and simple, and they take away a superfluous layer of thought and decision making. It's a tiny tweak which puts a huge distance between the external you with your 'floordrobe' at home and your inner self.

That's the space I was in when I met Blossom Furtado, Ananda's emotional wellness consultant, who does for the mind what Dr Naresh and Dr Sreelal do for the body. She wore a warm, cheerful smile and the eyes looking at me through gold-rimmed glasses were just as kindly. But I guessed, rightly as it turned out, that this was going to go deep.

Full blossom

Before taking me through a visualisation journey, Blossom explained a few home truths. Our 40 trillion cells soak up every bit of trauma, all the emotions, good and bad, that we experience in our lifetimes. We have approximately 60,000 thoughts per day, and because of our negative bias, a large majority, up to 80 per cent, tend to be negative. A significant portion are repetitive too. This constant barrage of negative and repetitive thoughts can significantly impact our mental health, happiness

and overall quality of life. Very few of us make a conscious effort to switch off from this, even for a few minutes.

Yet, if we all put aside just ten minutes a day for mindfulness or meditation that would equal just 0.69 per cent of our 24 hours.

We've become human doings, not human beings. Add to this the traumas and challenges that we all encounter in our lives and then consider this: how does this constant onslaught affect us? How does our nervous system cope? These are things that I have only just started thinking about and trying to address in my own life post-cancer as I look ahead to my healthspan and longevity.

I told Blossom my worries about handling my diagnosis, feeling short of time, my family issues, some concerns for my children, and an ugly work situation.

'The mind, body and soul is a divine trinity,' she told me. 'Awareness, acceptance, action, that's the AAA framework and it can help you work through change and tackle negative thought patterns. But it requires time, and space and some reflection. Can you give yourself that gift, Julia?'

I wasn't sure, but I knew I'd like to try.

The essence of AAA is that you can't create change without awareness. Understanding your situation, feeling it and approaching it with curiosity and openness, is the first step. It's only when you can accept who you are in the moment, and don't resist, that you can move forward. Acceptance doesn't mean agreement, but resistance indicates an absence of alignment between your mind, body and emotions. Action can only follow acceptance.

I have now started to ask myself questions when I'm facing a challenge, and these include:

- What am I really feeling right now?
- What is this situation or person telling me about myself?
- What is good about this situation that I'm not yet understanding?
- What is the next logical step and the path of least resistance?

Next, Blossom led me through a guided visualisation in which I ended up sitting on an imaginary white bench talking to people I chose to sit with me. I was asking for their help, sharing emotions and off-loading my thoughts. Tears streamed down my face, even though I didn't feel sad; it was an eruption of emotions I had clearly been holding on to.

It was as if many of the emotional cuts and bruises I'd gathered in half a lifetime had been released in one satisfying emotional burp. I would go on to spend more hours with Blossom, in her room with its picture windows and glorious Himalayan garden view, and I believe that they have helped me build greater healthspan for myself.

If you want the science-based explanation: it's impossible to stay healthy if your body and mind are in a constant state of 'fight or flight'. This doesn't have to mean running from the proverbial tiger, it could be a moment of road rage, a nasty text, a new deadline from the boss, a stroppy child, or just a massive pile of PE kit to launder for tomorrow. Genuine physical changes occur when we're in this state. Adrenaline increases the heart rate and blood pressure, increasing blood flow to the muscles and brain (to help us run). The neurotransmitter and hormone responsible for our flight-or-fight response, noradrenaline, has similar functions, and cortisol (the primary stress hormone) increases blood sugar levels and the availability of substances that repair tissues. They're brilliant physiological responses to stress and danger, but they're a disaster if you live mostly in this state. Your body and your emotions literally get worn down by them all.

I am now ready to accept what I struggled to before: that you can love your life, your family and your work, but even when everything is running smoothly, you're not impervious to their jolts and stresses.

Physical and emotional recovery from a mild stressor, such as road rage or cross words with a colleague or loved one, can take anything from a few minutes to a few hours. It's wise to remember that these smaller events can impact your entire day

unless you learn some coping mechanisms. Breathwork, movement, cold water and rest, can all help. If someone cuts me up when I'm driving or queue jumps, I take a couple of calming breaths and don't let it ruin my day.

So my answer to Blossom's question is: yes.

Yes, I can gift myself 0.69 per cent of my own day. Maybe even a little more.

Stillness and serenity

I have a few new habits about which I can now say, 'I do this every day.' Meditation is one of them. I'm not professing to be a guru, but I put aside 10 to 15 minutes every night to meditate. Which means that I lie down, legs up against the wall (to help ease anxiety and relieve the pressure of the day) and I do a guided meditation or I 'go within', as author and guru Deepak Chopra teaches. At the very least I'm creating 'quiet', which I didn't give myself before, and every time I swipe away a thought and try to get back to my mantra or sound, I feel a sense of achievement. I'm choosing to do this over something less productive, such as watching Netflix, because I know it will aid my sleep, improve my mental health and help me to be still.

I don't think of meditation as an escape from the spinning world but an invitation to step inwards, into the rhythms of my own being – to listen, reflect and discover what lies beneath the surface of my mind. Meditation is not about banishing thoughts but observing them, to try to become more aware of their tapestry. Through meditation, we can learn to sit with our emotions and impulses and, over time, we become more skilled at reading these inner patterns. It's no coincidence that rivers and water metaphors are widely used in mindfulness and meditation guides. It makes sense to me, because when I meditate I really do feel like an observer watching the currents of a river, without judgement or resistance.

I have been meditating with more intent since 2021. I probably commit a little more than 0.69 per cent of my day as prescribed by Blossom, because I try to do something every morning and then always before bedtime to anchor myself. During daytime meditation, I generally sit in the traditional cross-legged lotus position with my hands in Chin Mudra: folded index fingers touching the inside base of the thumbs, the other three fingers straight, palms facing upwards. This mudra is believed to enhance concentration, memory and mental clarity. I have added some things that Blossom taught me, and I am following the teachings of Malati Mehrish, Ananda's head of yoga and meditation expert. Here is her beginner's guide to meditation, written specially for *Hack Yourself Healthy*.

Meditation: a journey within

Malati explains how meditation reaches a deeper part of yourself.

Imagine yourself as a swimmer who has spent your life on the surface of the ocean, only to discover that there's an entire world of wonder that lies beneath the waves. Meditation offers a way to dive deep beneath physical experiences into the depths of consciousness itself. Think of it as a powerful path that allows you to go beyond the limitations of your identifications in life and connects you to something deeper.

What is meditation?

In the yogic tradition, meditation is known as '*dhyana*': a state of complete awareness, attention and absorption. The winds of life blow into the mind through the windows of the senses. There is a constant stream of information flowing in from the outside world. Meditation begins with gently closing these windows and turning your attention inwards. You turn away from the sensory inputs – not to escape them, but to discover what lies beyond them. It's important to know that meditation isn't about

controlling your mind, but it is about bringing together its wandering tendencies. The mind, like a scattered beam of light, gets transformed into a laser – it is the same energy, but concentrated and infinitely more powerful.

Being the witness

One of the most essential aspects of meditation is learning to separate yourself from your experiences. Like a viewer watching a movie, you might get completely absorbed in the story, but you know that these are actors on the screen. Similarly, meditation teaches us that we are not our thoughts, sensations or experiences – we are the witness that observes it all. When we turn inward, we begin to see our own thoughts, memories, dreams, and moods – like watching a private screening of our internal world. In the state of *dhyana* (true meditation), we go beyond both of these states, to a point where both inner and outer projections cease.

Evolution of consciousness

When you're not meditating, you are like a traveller lost in a bustling marketplace, distracted by countless sights, sounds and sensations. Meditation is your compass pointing homeward: it brings you closer to your true self. It is a communion with your inner being. Meditation isn't about shutting down the mind, but of transforming it into something greater. Just as a caterpillar transforms into a butterfly, regular meditation practice can help your mind to evolve into what ancient yogis called a 'super mind': a higher state of consciousness and awareness. Through regular meditation practice, we make a profound discovery: the source of our problems and unhappiness isn't in the external world – it's internal. Meditation teaches us to dive beneath the surface turbulence to find the inherent stillness that was always there. Meditation invites us to return to our essential nature: the simple truth of who we really are beyond all our experiences and perceptions.

Brain box

You can see, I hope, why meeting Malati had such an influence on my own practice. Meditation might seem difficult to access in the beginning, but I have found it worth pursuing. Additionally, brain scans have shown that long-term meditators tend to have increased grey-matter density in regions of the brain, including the hippocampus, which is important for memory and emotional regulation, and the prefrontal cortex, which is responsible for executive function.[1] Studies have also found a decrease in the volume of the amygdala, the brain region associated with processing emotions such as fear and anxiety. Perhaps this is another reason why people like Oprah Winfrey, Ariana Huffington, tennis player Naomi Osaka, and LinkedIn founder Jeff Weiner all meditate.

One hill closer to heaven: my Himalayan walk

O dear Himalaya . . . why are you so amazing, can I kiss your peak or can I just let your silence speak . . . O dear Himalaya . . . (Santosh Kalwar)

Dawn is breaking as we roll out of bed and start the drive into the Shivalik Range (the name means 'tresses of Shiva'). We pass through snoozing villages and up, up onto forested slopes. Mostly, it's a forest of Himalayan oaks. Water washed through their roots is said to aid digestion, making the natural springs around here very popular. (I don't think the locals call this 'biohacking', but it kinda is.) Among the oaks are hundreds and hundreds of elegant pines, their tops fluffy post-monsoon, as if they've had a bouncy blow-dry.

This is the road to Tibet, just 200 miles away. At 1,800m (metres) we stop and tuck into breakfast, eating while our guide, Manish, tells us about the mountain opposite, which was once

home to seven sister fairies who may or may not have made a flute player disappear. The Himalayas is that sort of place.

We lace up, and turn and climb, quickly leaving the road behind us and walking onto the mountainside, tussocky and steep, and looking, it has to be said, a lot like Switzerland at its picture-postcard best. Huge rhododendron trees cling to the slopes, with junipers dotted here and there. Iridescent-feathered pheasants whirr from the ground in front of us at almost every step, crying out in surprise, for the trail we are on is little known, and little used, other than by local people walking from one village to another.

We walk and talk, and climb and pause to look, and then, just as we start to summit, Manish runs ahead of us. 'Give me a minute,' he cries and disappears. We gratefully take a break until we hear his voice summoning us from the cool grey mist ahead. A moment or two later we join him. 'I wanted to check . . .', he says and gets no further before we turn to see what he's pointing at. And there they are: the snow-capped peaks of the upper Himalayas, as fierce, as white, a awe-inspiring, and as breath-taking as you could ever imagine, standing sentinel over us.

It feels surreal basking in the sunshine – and technically we are in someone's back garden – looking at this. I feel blessed and deeply lucky, for these early days post-monsoon have remained hazy this year and a clear view is vanishingly rare. About the back garden: we aren't trespassing; the family who live up here with their cow and their bean patch have invited us in so that we can see better. This view is theirs every day.

We take some pictures, but I know that there's nothing I can film on my phone that will do justice to this, and that when I want to remember it, I'll be looking at it in my mind's eye, not on my camera roll. An hour later, we hike another 250m up to what is technically the top, and begin our descent, plunging down a pebbly path through a forest of highly scented deodor cedars. They're named after the Sanskrit term '*devadāru*' which means 'wood of the gods', a blend of *deva* (god) and *dāru* (wood and tree).

Back at the bottom, I crank the handle of a well, pump out some ice-cold water with which to wash my dusty hands, and then go to hug the biggest pine I can find. He is huge. I wrap my arms around him and cuddle my face into his rough red bark. The friend I was with took a picture of us embracing. If it looked like a real love story, then yes, it was, between me and my mountain and the trees.

Feed well, live long

Diet is a huge part of Ayurvedic medicine. The basic Ayurvedic food principles are set out below, although they may well look familiar to you, as they share many Western principles of healthy eating. I loved everything I ate at Ananda, with the exception of the morning I was given vegetable porridge. Broccoli, yes, oats, yes, just not in the same bowl.

- Eat fresh, whole fruits, vegetables, grains, legumes (peas, beans and lentils), nuts, seeds and herbs.
- Minimise processed foods, which are often high in calories, fat, salt and sugar.
- Eat warm, cooked foods, which are easier to digest than raw.
- Pay attention to the taste, smell and texture of your food, and eat in a calm place without distractions.
- Eat seasonally and focus on foods to match your state. In Ayurvedic medicine foods are referred to as 'heating' or 'cooling'. Certain foods are recommended depending on the time of year, your Ayurvedic constitution and your current state of imbalance. See theayurvedacentre.com/cooling-and-heating-foods/ for a list of foods, and search www.anandaspa.com (Wellbeing Blog / Healthy Cuisine) for articles on Ananda's *Ayurveda*-based cuisine.
- Eat three meals a day at fixed times, ideally without snacking in between.

Before I got to Ananda, I underwent a purifying process called *ama-pachana*, which is intended to clear toxins and kindle your digestive fire. I'm reproducing it here because it's easy to do and I found it beneficial.

Morning elixir Start your day with a morning elixir of cinnamon, cumin and ginger tea. Put a small piece of cinnamon stick, a small piece of peeled fresh ginger and ⅓ teaspoon cumin seeds in a saucepan, and add a glass of water. Boil for 2 minutes, filter and drink warm.

Cleansing herbal water Drink plenty of warm water or this cleansing herbal water throughout the day to flush toxins out of the body through the urine. Put 3 thin slices of peeled fresh ginger, ¼ teaspoon ground cumin, ½ teaspoon fennel seeds and 2 black peppercorns in a saucepan and add 1.5 litres water. Boil for 2 minutes, then add 2 leaves of fresh mint and let it steep for 3–5 minutes. Pour it into a vacuum flask and sip it throughout the day.

The medicine chest in the garden

I meet chef Diwaker Balodi not in the restaurant at Ananda or even in the kitchen, but in his herb garden. We wander between *kalmegh* (a leaf more bitter than quinine, with multiple medicinal uses), snakeroot (good for blood pressure), *partharchatta* (helps with kidney stones), *brahmi* (for the memory) and *nagarmotha* (for gargling away a sore throat). You get the picture: it's like walking through a pharmacy. There's a lot more besides, including an insulin plant, which is related to ginger, and is believed to help control glucose levels.

Together we pick turmeric, carom and clove leaf, which we crush and turn into tea when we get back to his kitchen. As we chat, Diwaker rolls up the sleeves of his whites and starts to

demonstrate some of his skills. His menus for Ananda are elaborate and delicious but feature very little added sugar (usually just dates, prunes, figs and honey) and no beef or pork; lamb occasionally and a little chicken and fish.

Watching him work is fascinating, because so much of what he makes is fat-free, gluten-free and not overly sweet and, erm, it's all incredibly moreish. For example, he's experimenting with mung beans – a high source of nutrients including manganese, potassium, magnesium, folate, zinc and essential B vitamins – plus they're full of protein and dietary fibre. Diwaker uses them for muffins to make his version of an eggs Benedict (served with mushrooms and an eggless hollandaise) but is planning to try them in a high tea as scones and as a dessert, in place of profiteroles.

'You eat 21 meals in a week. If you eat red meat and sugar in two or three of them, that's fine,' he says. 'But they're ingredients you should keep in a cupboard marked "rare". We eat for more than for health, it has to be a joy, but the smartest thing to do is to associate joy with healthy eating.'

One of the things we made together was Date, Fig and Lemon Ladoo. We loved them so much that Diwaker made another batch as a goodbye gift, which we discovered only when we opened our packed dinner in the airport at Dehradun on our way home.

Diwaker's Date, Fig and Lemon Ladoo

Serves 7

5g ground ginger
5g ground cinnamon
zest of 1 lemon
zest of 1 orange
1g salt
150g dried figs
150g dried dates
60g porridge oats
a few lemon basil leaves, or camphor basil or lemon balm, or a mixture of all three

1 Put all the ingredients in a blender and whiz to combine.
2 Make small hand-rolled balls from the mixture and leave to air-dry until firm.
3 Store in an airtight jar in the fridge.

Thank you, Diwaker.

Ananda. The word itself means 'happiness' or 'bliss state' in Sanskrit. Was I happy there? Yes. Deeply. Seven days was not enough to change the habits of a lifetime (some people move in for a month), but it served as an introduction to a way of life that deeply resonated within me. I left with as many questions as I had when I arrived, but feeling calm, enthused and inspired. Almost a year on, to borrow a Himalayan analogy, I'm still in the foothills of my learning, but I'm climbing with energy, purpose and confidence.

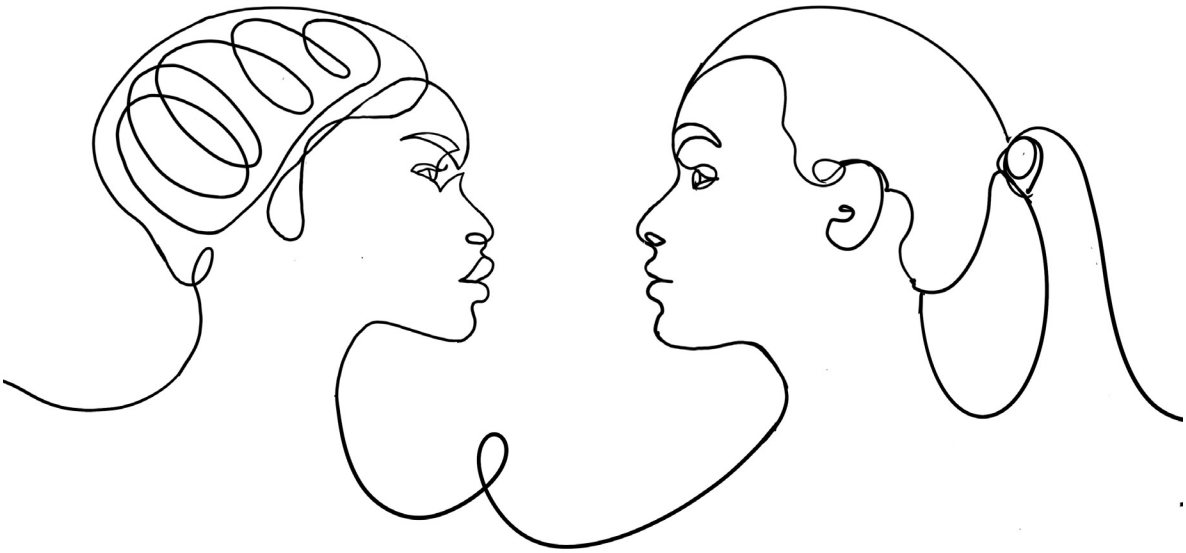
Happy hacks

(The first three come with my thanks to UK Ayurvedic practitioner Dr Sam Watts.

- **Embrace your circadian rhythms** Ayurveda has an entire discipline devoted to this, called '*dinacharya*'. The simplest way to train our circadian rhythms is to maintain consistent waking, eating and sleeping times, and also to get out into natural light within 90 minutes of sunrise (see also Chapter 6). The 21st-century addition to *dinacharya* is blue-light-blocking glasses to reduce the impact of screens and indoor lighting, things that we didn't have to deal with until relatively recently.
- **Experiment with self-*abhyanga*/massage** In Ayurveda, a daily self-massage is a cornerstone of self-care, said to boost immunity, reduce inflammation, reduce stress and increase the secretion of feel-good hormones. Simply warm a few tablespoons of

a pure oil, such as almond or sesame, and gently massage your whole body (or at least your feet) in a slow, rhythmic and mindful way for five minutes each morning.

- **Use detoxifying spices** Add ginger, turmeric, coriander, fennel and fenugreek to your meals. In Ayurvedic medicine, these spices are believed to support the flow of toxins from the skin, urinary tract, colon and liver.
- **Always leave a quarter of your tummy empty** after meals to give your digestion the space it needs to do its job.
- **Practise meditation** for just ten minutes a day – give yourself the gift of time, as suggested by Blossom.
- **Breath, bend, believe**: a yoga hack. I did some wonderful yoga with Malati at Ananda, and it's worth adding that the origins of yoga in Rishikesh (the nearest town) are deeply rooted in spiritual practice, not fitness. Rishikesh itself has been a hub of spiritual learning and yoga practice for centuries. The physical postures we now associate with yoga (*asanas*) were originally minimal and designed not for exercise but to strengthen the spine, calm the nervous system and prepare the body for long periods of seated meditation (often in lotus pose under austere conditions). Only a few poses were emphasised, and they were typically static and grounding. The evolution of yoga, influenced by Western ideals and a growing wellness industry, has seen a big shift from a spiritual path to a workout routine. I have practised yoga for most of my adult life, but what I learned at Ananda has changed what I do, and how I do it, and it might be helpful for you too. I focus on the slower, purposeful, more mindful Hatha yoga, which is taught at Ananda. I also learned a technique that finally helped me to make a connection between my mind and body. When I move into each *asana*, I do it first with my eyes open, and then a second time with them closed. On my third go, I visualise myself in the pose, seeing myself in my mind's eye. It makes such a difference.



Chapter 15

Breast Cancer, Drugs and DNA

What if I told you that there was a way to find out which medications work for you, how stress might impact your physical and mental health, or even if you're likely to have fertility issues? Well, there is a way.

When I was diagnosed with breast cancer in 2021, I wanted to learn as much as possible, not just about cancer but also about health overall. Suddenly, healthspan became important to me, which led to *Hack Yourself Healthy*. I started diving into books and asking lots of questions. My curiosity steered me towards Dr Nasha Winters (and many other of the experts who have shared their knowledge with me in this book). She is the co-author *The Metabolic Approach to Cancer*, and *Mistletoe and the Future of Integrative Oncology*.

A cancer thriver herself (after being sent home to die with stage-4 ovarian cancer aged 19), Nasha has made integrative oncology her life's work. She is one of the founders of the Metabolic Terrain Institute of Health (a non-profit organisation focusing on research and patient access to integrative care) and Metabolic Regen (an educational platform), whose mission is to transform cancer care, focusing on prevention, personalised treatments and addressing the root causes. Her vision is to create a global whole-person approach to cancer treatment that becomes a standard of care.

Many doctors and health professionals have trained as Integrative Metabolic Oncology specialists – I've worked with one over Zoom

based in South Africa, Dr Jen Levin. Now I'm working with Jo Gamble who you will read more about in this chapter.

I've got to know Nasha over four years; her opinions are controversial to some, and what follows are some of the topics we've covered while we've been discussing my case. **Please note, however, that what follows is not medical advice and it relates to my case only. I have included details so that you can get a first-person insight into what is involved and what the tests can show. If you are considering any tests yourself, please first consult with your doctor who is aware of your medical history and your current situation.**

Before we dive in, you need a little understanding of something called SNPs (single nucleotide polymorphisms). Think of them as the building blocks of our DNA. (See a full explanation in the Appendix, page 310, where you will find the Lifecode Gx DNA test I have taken too.) Personally, I think that getting your DNA tested is one of the best tests we can all do, because our DNA doesn't change – it is therefore a lifetime test. These fragments of DNA – SNPs – can subtly influence how your body works. Nasha started educating herself about SNPs in 2003 and began teaching others about them in 2009.

Even though I am talking about breast cancer specifically here, this conversation is about so much more than that. It demonstrates how a whole-person approach, taking into account personal history, testing and exploring the link between conditions can create a personalised effective treatment plan for many health problems. It gets technical, and you may want to skip parts, but I think there is a lot of valuable information tucked into these pages.

SNPs, breast cancer treatment and endometriosis – my conversation with Dr Nasha Winters

Julia: During one of our meetings you said to me, 'For you tamoxifen would do one of two things: not do very much at all, or actually cause problems in addition to the known side effects.'

Why wouldn't tamoxifen have worked for me?

Nasha: Firstly, they wouldn't have offered you tamoxifen, because you were post-menopausal; secondly, your (Lifecode Gx) DNA test revealed that you are what is known as a poor metaboliser (explained below); and thirdly, you've had endometriosis.

Tamoxifen (a medication used to treat certain types of breast cancer that works by blocking oestrogen) would have added insult to injury to a uterus that has already been overgrowing for years because of your history of endometriosis. You already have a vulnerability to hyperproliferative patterns in this part of your body. One of the things we have learned is that women should be screened for endometrial thickening before they are put on tamoxifen. We are told as patients that there is a 'slight' risk increase of endometrial hyperplasia – but it's not slight in my experience, and this can lead to endometrial cancer.

Endometriosis – still no fix?

Julia: Let's talk more about the treatment of endometriosis. Globally, an estimated 10 per cent of women of reproductive age (around 190 million women), are affected by it, and it still takes about eight years to diagnose.

Nasha: The inflammation caused by endometriosis can lead to an imbalance in the immune system, and women with endometriosis have a higher risk of developing an autoimmune disease. It is now recognised as more than just a hormonal or gynaecological condition. Instead, we need to understand its metabolic and immune-system involvement. Chronic inflammation, gut dysbiosis (an imbalance in the gut micro-organisms), and environmental toxin exposure play significant roles in its development and progression.

Rather than defaulting to symptom suppression with hormonal therapies or surgery alone, women should take a wider approach. You know that I'm going to talk about testing: comprehensive testing can help to identify immune dysfunction, any inflammatory markers, and metabolic imbalances that could be contributing to the endometriosis. Taking care of the gut and optimising microbiome health is key. Gut issues drive systemic inflammation, which can exacerbate symptoms. Stool-testing, microbiome support and personalised nutrition can be game-changers.

I'm a little slow . . .

(Relevant SNP: CYP2D6)

Julia: My DNA test showed that I'm a 'slow metaboliser' of tamoxifen – what does that mean and why should I care?

Nasha: Doctors can now assess how your body is likely to process tamoxifen. If you're a slow metaboliser like you, they might adjust your treatment plan and choose a different medication to ensure the best possible outcome. This is a perfect example of personalised medicine in action: tailoring treatment to your unique genetic terrain.

Tamoxifen works by blocking oestrogen's effect on cancer cells, but here's the catch: it's not fully active at the point when you take it; your body needs to convert tamoxifen into its more powerful form, called endoxifen, to make it work effectively. This conversion is done by an enzyme in your liver, which is produced by the CYP2D6 gene.

If there's a SNP (a small variation) in your CYP2D6 gene, it can change how well your body produces or uses this enzyme. People can fall into different groups:

- **Normal metabolisers**, who convert tamoxifen into endoxifen efficiently, so the treatment works as expected.
- **Poor metabolisers**, who have a less-active version of CYP2D6, so they produce much less endoxifen. This might reduce the effectiveness of tamoxifen.
- **Ultra-rapid metabolisers**, who convert tamoxifen very quickly, which might cause side effects or other unexpected responses.

For you, Julia, tamoxifen (if you weren't already post-menopausal) would do one of two things: not do very much at all or actually cause problems in addition to the known side effects. And another interesting discussion is that drugs such as SSRIs (selective serotonin reuptake inhibitors – a class of antidepressant) can also impact the response to drugs such as tamoxifen because they share the same drug detox pathway.

In the US, if you have particular SNPs, they give you endoxifen instead of tamoxifen, which doesn't use that same pathway – that's a rational choice, and woman should have that choice.

What's really cool is that there is even a new study about baby tamoxifen: a lower dose, taken from the standard dose of 20 to 25mg (milligrams) a day to 5mg a day. In fact, you could take 5mg every other day and get just as good a benefit. That's what I've been telling my patients to do for 20 years. Today, we have the evidence to support it.

Sad effects

Julia: Lots of women are put on SSRIs/antidepressants along with tamoxifen to help them to manage the emotional impact of a cancer diagnosis, so are you saying that they might be working against each other?

Nasha: Certain SSRIs block CYP2D6 activity. If you're already a poor metaboliser and then you take one of these SSRIs, the problem will get worse and your body might not activate tamoxifen effectively, thereby reducing its ability to prevent cancer recurrence.

Some SSRIs, such as citalopram (Celexa) or venlafaxine (Efexor), don't significantly inhibit CYP2D6. Choosing these alternatives ensures that the SSRI won't interfere with tamoxifen activation.

One more thing on cancer

(Relevant SNPs: ESR1 ESR2)

Julia: Before we move on, can similar testing be done if aromatase inhibitors are suggested?

Nasha: Aromatase inhibitors (AIs, for example: anastrozole, letrozole, exemestane) work by blocking the enzyme aromatase, which converts androgens (the hormones that trigger male characteristics) into oestrogen. This reduces oestrogen levels in the body, depriving oestrogen receptor-positive (ER+) breast cancer cells of the fuel that they need to grow. This would be your option as a post-menopausal woman with an oestrogen-positive cancer. (Folks with clotting history/disorders should not use these drugs, however, because there is a much higher risk of blood clots.)

We can check SNPs to test the suitability. We look at the ESR (oestrogen receptor) SNPs. It's called pharmacogenomics – the study of how a person's DNA affects their response to drugs.

Some SNPs are associated with higher oestrogen-receptor activity, potentially making AIs less effective (because even small amounts of oestrogen can continue to drive cancer

growth). Other SNPs might reduce receptor sensitivity, which could enhance AI effectiveness.

SNPs in ESR1/ESR2 may also affect how women tolerate AIs, influencing risks such as bone loss, joint pain or cardiovascular changes. For example:

- ESR1 variations linked to bone density might worsen AI-induced osteoporosis.
- ESR2 SNPs affecting vascular function could exacerbate cardiovascular side effects.

ESR SNPs, for the most part, quite simply make AIs ineffective. Patients with ESR1 mutations often experience poorer outcomes and shorter progression-free survival (PFS) when treated with AIs. Therefore, detecting these mutations (you don't have any, by the way) can help guide treatment decisions and lead to the consideration of alternative therapies. These include selective oestrogen receptor degraders (SERDs) like fulvestrant or newer oral SERDs, or a combination of therapies involving endocrine agents and targeted therapies, such as CDK4/6 inhibitors.

Infertility and IVF

(Relevant SNP: CYB1B1)

Julia: I had four rounds of IVF, which gave me beautiful twin girls. Could that have been a driver of my breast cancer in your opinion?

Nasha: It certainly increased your risk. Your CYB1B1 SNP combined with a ton of others means that you were not the person designed to take exogenous hormones (hormones taken through medication, for example) because you weren't even processing your internal ones well.

Most women I work with have their beautiful children, but now they're afraid that they're not going to live to see their children grow up. You're good. You're clear of cancer, but do you know how many aren't? I want people to know that this data is life-changing and life-saving.

The effects of IVF

Julia: What else, with hindsight, could I have done to counteract the effects of IVF?

Nasha: We would have really adjusted your metabolomics (see below). We would have tested your liver, we would have worked on those things so that your body could process this and head things off at the pass.

Meta-whats?

Nasha: Metabolomics is like a snapshot of how your body is functioning at a microscopic level. It's the study of metabolites, which are tiny molecules produced when your body processes food, hormones and chemicals during normal metabolism. It's another route to help us understand how well your body is producing energy, balancing hormones, detoxifying harmful substances, managing inflammation, and responding to stress. You can use things like the DUTCH test to assess this (see Appendix).

Diet and lifestyle: the conductors of your metabolic symphony

The beauty of metabolomics is that it shows us how diet and lifestyle choices directly impact your metabolic and hormonal health. Here's how you can fine-tune the symphony:

1. **Eat nutrient-dense foods** A diet rich in whole foods such as vegetables, fruits, healthy fats and lean proteins provides the raw materials your body needs to create energy and to balance hormones. It's possible to manage aromatase levels and the reabsorption of harmful 4-OH oestrogens on your own by incorporating plenty of foods rich in phytoestrogens, such as cruciferous vegetables, broccoli, cabbage, brussels sprouts and berries. These compounds have been shown to inhibit aromatase activity and lower oestrogen production in the body.
2. **Support detoxification**
   - Include cruciferous vegetables (such as broccoli and kale) to help detoxify harmful hormone metabolites. Eating plenty of fibre can also enhance oestrogen detoxification. This shift promotes a healthier oestrogen balance and reduces the risk of DNA damage, oxidative stress and cancer progression.
   - Drink plenty of water to flush out waste products.
3. **Balance blood sugar** Focus on low-glycemic foods such as berries, greens and nuts to keep insulin (a key hormone) steady and to reduce inflammation.
4. **Prioritise gut health**
   - A healthy gut microbiome helps metabolise hormones and eliminates excess oestrogen through the digestive system.
   - Add probiotics, prebiotics and fibre to your diet.
5. **Get quality sleep** Sleep restores hormonal balance and allows your body to repair metabolic pathways.
6. **Manage stress** Chronic stress disrupts hormonal and metabolic harmony. Incorporate mindfulness, yoga, or other relaxation techniques, to calm the system.
7. **Move your body** Exercise improves insulin sensitivity, supports hormone balance and reduces toxic metabolites.

In short, metabolomics helps us to understand how our body is performing, and simple, intentional changes in your diet and lifestyle can fine-tune your metabolic and hormonal health, creating a symphony of energy, balance and vitality.

Nasha enlarges on IVF – injected with hope

Julia: How can women protect themselves during IVF?

Nasha: It's important to make sure that the organs of elimination (the kidneys, lungs, liver, skin and large intestine) are functioning efficiently. Ensure the liver is performing well by doing the hormone metabolite test (DUTCH test, see Appendix) to show how your hormones are being metabolised, so that you're not pushing a pedal in the wrong direction.

If a woman has a strong family history of cancer or a personal history of cancer, I would strongly encourage against IVF and would suggest choosing a different route.

This is a heavy and intense conversation, but also an ethical one; people need to be aware of it. Julia, you have a good story and these two beautiful girls, plus you have your health. But, as I said earlier, most of the people I have this conversation with don't enjoy the same positive outcome. And that is really hard.

Do IVF and HRT cause cancer?

(Relevant SNPs: COMT, GSTP1/GSTM1, VDR, CYP1B1, CYP1A1)

Nasha: When you have the SNPs above, which you do, Julia, it can impair your body's ability to process and eliminate hormones safely, potentially increasing the risk of carcinogenesis through the accumulation of toxic hormone metabolites or oxidative stress.

Rather than jumping into hormone therapies (including HRT and IVF) without understanding your genetic terrain, focus on modulating and supporting your hormonal health through diet and lifestyle. Strategies such as optimising liver detoxification, supporting methylation pathways (see box

below for an explanation of methylation), reducing inflammation, balancing blood sugar, and managing stress can naturally enhance hormone metabolism and reduce risks. By testing your SNPs, you can have a proactive way to tailor your approach to hormonal health, avoiding potential harm and fostering a more balanced, resilient system.

Methylation

Methylation is a biochemical process that takes place more than a billion times a second in every cell of the body. It's a bit like putting a stamp on a letter: a tiny chemical group – a methyl group – is added to your DNA, proteins or other molecules. This simple act changes how your body reads instructions. It's not rewriting your genes; it's changing how loudly (or quietly) they are read.

Methylation is at the heart of so many vital things. It helps your body to process nutrients and vitamins, especially B vitamins such as B12, B6 and folate (you might have heard of meythl B vitamins, perhaps). These nutrients are methyl donors: they hand over those little methyl stamps so that your body can keep running smoothly.

Every time your body wants to build brain chemicals, detox harmful substances, or even create energy, it needs methylation. It's involved in: detoxing your liver, balancing your mood and brain function, healthy growth during pregnancy, switching genes on and off (without changing the DNA itself), creating new cells and repairing damage.

If methylation isn't working properly – perhaps you're low in folate or B12, for example – you might feel tired, foggy or low in mood. Over time, poor methylation has even been linked to conditions such as heart disease or cognitive decline.

You're not saying that HRT or IVF causes cancer?

Nasha: No. To be clear – our endogenous hormones do not *cause* cancer. It is when they are *out of balance* that the terrain becomes vulnerable. Exogenous supplementation (such as HRT and IVF hormones), however, can be playing with fire, especially if there is already an internal imbalance at play. Today, we are swimming in a pool of endocrine disruptors (plastics, pesticides, cleaning products, birth-control medication) and that is adding complicated and confusing messages to our hormone receptors, making us more out of balance and more vulnerable than ever.

We didn't know this in the 1970s. We didn't know this when we started using IVF, and we didn't know that when we started pumping women with HRT how it would impact them individually, but now we do, and the data is compelling.

Why do you think that I needed IVF?

(Relevant SNPs: MTHFR)

Nasha: Well, in addition to everything above, you have the MTHFR mutation (which stands for methylenetetrahydrofolate reductase. It's known as the Mother F***er gene!) This gene is responsible for the production of the MTHFR enzyme, and a mutation causes a reduction in the production of the MTHFR enzyme. In your case, Julia, you have a 70 per cent reduction in the production of the enzyme because you're homozygous (there are two mutations).

It's complicated, but with a poorly functioning MTHFR enzyme, the body cannot efficiently convert folate into its active form (5-MTHF). Active folate is crucial for DNA production and repair, which are necessary for egg and sperm health, proper embryo development, and its implantation in the uterus. Poor MTHFR function can

lead to elevated homocysteine levels (homocysteine is a building block of protein, but elevated levels lead to ill-health), which can impair blood flow to reproductive organs, negatively affecting egg quality, ovulation and health of the uterine lining. There's an increased risk of miscarriage due to poor implantation or inadequate blood supply to the placenta and this creates oxidative stress and inflammation, damaging reproductive cells.

Julia: It sounds hopeless.

Nasha: Infertility is a symptom of a root pattern; it is an *expression* of the problem; *not* the problem itself. In my 17 years of private practice, if I get a woman's insulin under control, with cortisol modulated, oxytocin levels up and optimised D3, she will get pregnant or rid herself of her PMS and peri/post-menopause issues. We have focused on their terrain; we never needed exogenous hormone input. I have a best friend who has MTHFR mutations and also had fertility issues – we worked on her, and within three months she conceived after six years of previously trying. She now has two children.

How to address MTHFR-related infertility

(As stated previously, this is Nasha's recommendation to me and does not represent advice to others. If you wish to look into this subject for your own health, please consult your own doctor.)

1 Supplementation
- Use active folate forms such as 5-MTHF (instead of synthetic folic acid) to bypass the MTHFR enzyme and ensure sufficient folate levels.
- Include methylated forms of vitamin B12 (methylcobalamin) and B6 to support methylation and homocysteine metabolism.

2 Dietary support
   - Eat folate-rich foods such as leafy greens, avocados and lentils.
   - Avoid fortified foods with synthetic folic acid, which can build up and block active folate in people with MTHFR mutations.
3 Lower homocysteine Ensure adequate intake of nutrients such as magnesium, zinc and choline, which support homocysteine metabolism.
4 Improve detoxification Support liver health with antioxidants (such as glutathione, NAC) and avoid environmental toxins – for example, BPA, pesticides).
5 Stress and lifestyle management Chronic stress and poor lifestyle habits exacerbate methylation issues. Practices such as mindfulness, adequate sleep and regular exercise help to optimise overall reproductive health.

The bottom line

Poor MTHFR function affects fertility by disrupting folate metabolism, increasing homocysteine levels and impairing DNA repair, hormonal balance and detoxification. By identifying MTHFR mutations and addressing these pathways through diet, lifestyle and supplementation, couples can significantly improve their chances of conceiving and sustaining a healthy pregnancy.

Natural-born stressor

(Relevant SNPs: ADRB2 SNP, COMT)

Julia: I'm obviously a big advocate for nature as a healing source, I write about the science behind it, I live and breathe it, but the SNP science agrees doesn't it?

Nasha: You, Julia, are literally wired for stress! It can be your drive, but people with this SNP never turn off the stress, and they end up having heart attacks. You take stress right to the heart, so checking your stress response, managing your sleep cycle and circadian rhythm alongside light exposure are really important for you.

That's why walking in nature is so good: that's your antidepressant, alongside your breathwork and meditation.

You also have a slow COMT SNP, which means that your body is slower at clearing stress-related hormones, making you more reactive and sensitive to stress. This can enhance creativity, focus and drive, but it also makes stress-management essential. By balancing your lifestyle, diet and environment (which you're working hard on), you can help your body to process stress more effectively and build resilience.

Support this with magnesium and vitamin C. Magnesium is critical because you have an increased need to assist oestrogen detoxification. You're also not going to be good at processing caffeine, quercetin, green tea or wine, so it's a good job that you no longer drink alcohol! Don't have beta blockers any time soon, either, and work on calming that overzealous brain. You're a researcher and an over-thinker – always revving that sympathetic overdrive – and you might have some mood issues. Does this sound like you?!

Note: please remember that this advice is tailored for me and it won't be relevant for others. I have included these descriptions so that you can see how each individual differs in their needs for supplementation, for example, although the general advice about exercise, diet and finding ways to relax are essential for everyone to maintain good health, plus you can see that a tailored supplement regime can have huge benefits for the individual.

The menopause: how to benefit from the metabolic-approach way

Nasha lists below her tips for bone, heart and brain health:

As we transition through peri-menopause, the menopause and then post-menopause, supporting our bones, heart and brain isn't about replacing hormones but optimising our metabolic health and terrain. Rather than relying on bioidentical or conventional hormone-replacement therapy (bHRT/HRT), I focus on restoring cellular resilience through lifestyle, nutrition and targeted therapies.

- **Bone health** Strength training and eating adequate protein and essential nutrients (such as vitamins D3, K2, magnesium and boron) supports bone remodelling. Pairing this with metabolic strategies, such as therapeutic ketosis and fasting, enhances mitochondrial efficiency, reducing oxidative stress on the bone cells. (There are many books available that explain the benefits of therapeutic ketosis and fasting – I suggest you buy Nasha's, see page 251, if you would like to dig deeper.)
- **Heart health** Blood sugar regulation is the key to heart health. Avoiding insulin resistance through cyclical fasting (as mentioned above), low-glycemic nutrition and omega-3-rich fats (see Chapter 1) helps to maintain arterial flexibility and lowers inflammation. Stress management and circadian alignment also regulate blood pressure and cardiovascular function.
- **Brain health** The brain thrives on ketones (used for energy by the body). Implementing metabolic flexibility, prioritising sleep, and engaging in neuroprotective strategies such as cold therapy, sauna and mindfulness, all enhance cognitive function and neuroplasticity, reducing the risk of dementia.

Dr Mindy Pelz's approach (*The Menopause Reset* and *Fast Like a Girl*) deeply resonates with me, and aligns beautifully with my work on metabolic health and terrain-based healing. My

podcast, Metabolic Matters, and my books, offer a deep dive into optimising health beyond just menopause – addressing longevity, cancer prevention, and whole-body resilience.

Eyes and sleep

(Relevant SNP: SNP [CTH])

Julia: Why do I need reading specs and my phone torch to read labels at night now?!

Nasha: This SNP is your glutathione pathway and it plays a crucial role in eye health. The CTH enzyme contributes to the production of glutathione, which is your body's master antioxidant. Glutathione is especially important in the lens, retina and cornea to protect these tissues from oxidative damage caused by light exposure, ageing and environmental toxins. Keep on taking the vitamin E.

Sleep it off

(Relevant SNP: MTNR1B)

Julia: Sleep is such a big topic for so many people. I've been working hard on paying more attention to sleep and trying to improve the quality and duration of my sleep.

Nasha: (You have only just realised this – after almost 30 years of not giving it much attention at all!) The MTNR1B gene encodes for the melatonin receptor 1B. Your circadian rhythm, Julia, really needs to be dialled in. Time-restricted eating (no late-night snacking), light exposure, reducing exposure to EMFs (electromagnetic fields emitted from various sources,

from power lines and Wi-Fi routers to microwaves and mobile phones), all these things should be prioritised by you. This gene is linked to longevity, or a lack thereof.

Melatonin's dual role as a natural SERM (selective oestrogen receptor modulator, such as tamoxifen and raloxifene, which are both used to treat breast cancer in different ways) and AI (aromatase inhibitors, as explained on page 256) makes it a valuable tool in preventing and managing hormone-driven cancers. Its ability to block oestrogen receptors, reduce oestrogen production, and provide antioxidant and anti-inflammatory effects, positions melatonin as a holistic and integrative cancer therapy.

You might consider daily dosing of 20+mg melatonin at bedtime. I personally take between 60mg and 180mg for its therapeutic effects, depending on my schedule/travel/stress levels.

Look up Dr Shallenberger and Dr Russel Reiter and Doris Loh, who are big on melatonin. Your personal anti-cancer strategy, Julia, would be to take 150–180mg of melatonin every night.

Melatonin, of course, isn't available easily in the UK, so you are going to stir up a hornet's nest.

Nasha: This is precisely the time to push back around the melatonin issue; it is such utter hogwash that this supplement is difficult to get, given that it is the most studied, second only to mistletoe, in oncology. To date, in PubMed there are over 3,700 studies on melatonin and cancer alone – and mostly are all favourable! Dr Russel Reiter is a world-renowned melatonin researcher (who's also on the staff at NASA). His research on melatonin protecting against radiation poisoning is vast. I would use this as an opportunity to question the rationale of keeping this from the UK public. It is used commonly around the globe. And there is no alternative.

There are studies showing melatonin as an alternative SERM dating back to 2008. Also, since 2006 it has had a role

as an aromatase inhibitor as well as supporting AI side effects – especially the musculoskeletal side effects of these drugs. It should be available in the UK. (See also Sleepy Foods, that contain melatonin, in Chapter 6.)

Iron (wo)man

Nasha: Your genetics show you have the gene for familial hemochromatosis, which means your body is naturally inclined to absorb more iron from your diet than most people's. Normally, this can lead to iron overload and might require you to have iron removed through phlebotomy (like a blood donation) to keep levels safe.

However, in your case, you also carry an SNP (single nucleotide polymorphism) in the TFR2 gene, which is linked to an increased risk of iron-deficiency anaemia. This means that even though your body has the *potential* to absorb too much iron, your iron transport and regulation system is also genetically wired in a way that could make it harder to actually hold on to enough iron for healthy function.

In other words, it's as if your body has its foot on the gas *and* the brake at the same time when it comes to iron levels – one gene tells your body to absorb more, while another may interfere with how that iron is managed and stored. You have to keep a close eye on your iron levels, as too much or too little iron can be problematic.

Julia: My Hooke report showed that I have low transferrin saturation levels at 18 (normal range is 20–55). This means there is not enough iron available in the blood to bind to the transferrin protein, which is responsible for transporting iron throughout the body, and could add to fatigue or sleep issues. They are suggesting a daily iron spray, but you're not convinced this is right for me?

Nasha: Your body has a complex relationship with iron. Direct iron supplementation can push your system toward iron overload (like stepping on the gas pedal), and it doesn't address how well your body regulates and uses that iron.

Instead, I would suggest that lactoferrin or IP6 (inositol hexaphosphate) are more aligned with your needs. Lactoferrin (found in bovine colostrum), for example, helps mobilise *and* regulate iron in the body, rather than simply adding more fuel to the fire. IP6 acts as a natural iron chelator, helping to liberate stored iron from tissues and making it available for the body to use appropriately. In essence, these help your body balance iron.

Finally, while it is important to recognise that iron is crucial for healthy red blood cell production and oxygen transport, it can also act as a double-edged sword in the context of cancer. Cancer cells often have an increased demand for iron because they rely on it to fuel their rapid growth and proliferation.

Several studies have shown that excess iron in the body – whether from high dietary intake or supplementation – can contribute to tumour growth and metastasis by:

- Generating **reactive oxygen species** (**ROS**) through the Fenton reaction, which can cause DNA damage and support cancer progression.
- Upregulating **transferrin receptors** on cancer cells, increasing iron uptake and promoting proliferation.
- Altering the **tumour microenvironment**, fostering angiogenesis and inflammation that aid tumour survival and spread.

Because of this, I generally recommend avoiding routine iron supplementation in people with active cancer unless there is a clear, confirmed iron-deficiency anaemia – and even then, we

approach it carefully, ideally by supporting the body's own iron regulation, as outlined above (e.g., with lactoferrin or IP6).

How to choose the most beneficial foods

Not all foods contain the same quantities of pesticide residues. An organisation called the Environmental Working Group in the US compiles a list that is updated each year of foods considered 'clean' or 'dirty' with regard to pesticide residues. (Note that this list relates to foods grown in the US, although it's relevant to the UK as well.)

The Clean 15 (produce with lower pesticide residues):
Avocado, sweetcorn, pineapple, onion, papaya, frozen peas, asparagus, honeydew melon, kiwi, cabbage, carrot, mushroom, watermelon, sweet potato and mango.

The Dirty Dozen (produce with higher pesticide residues):
Strawberry, spinach, kale, spring greens, peach, pear, nectarine, apple, grape, pepper, chilli, cherry, blueberry and green beans.

Should I go organic?

(Relevant SNP: PON1)

Julia: I try to follow the Dirty Dozen and the Clean 15 lists when I do my grocery shop, and buy organic where possible.

Nasha: You have a susceptibility to organophosphates, because of your particular mutation of this SNP, which protects against oxidative stress. That means you should try to avoid pesticides, because you have a reduced ability to

detoxify certain toxins, particularly pesticides and other chemical residues found in non-organic foods.

Julia: Eating organic is expensive and not possible when I travel for work. I do, however, soak my veggies in vinegar for 20 minutes or use bicarbonate of soda to try to reduce the pesticide residues.

Nasha: You can also use what are known as 'binders' with fulvic or humic acid, or something with a little charcoal, or you can take oral vitamin C to flush out the system. If you tolerate glutathione, you could also take that. Other than that: sweat it out, move it out, flush it out, sauna. And be careful with the hair dye – the dark colours are the worst!

Julia: I use a water-based organic dye that doesn't have PPD in it and has ingredients that are gentle enough for people to use during chemo. (PPD – paraphenylenediamine – is an oxidiser used in dark hair dyes and dark clothing dyes. A build-up in the body caused by frequent hair dyeing with dark colours – and always wearing black – can be dangerous, causing a range of serious allergic reactions.) My hairdresser also uses this great detox powder, which contains asorbic acid, after each session to close off the hair follicles and stop the colouring after the application. I use it on my girls when they've been swimming in chlorine too.

Nasha: Foods such as watercress, broccoli sprouts, and supplementing with sodium selenite would be really good ongoing tools to help you detoxify, because of your SNPs. If you have the double SNP (which you do) your children will have at least one variant; therefore it might be beneficial for everyone in your family to take sodium selenite: once a week for the children; three times a week for you.

The end but not the end

Nasha: Your case highlights a critical and often overlooked truth: genetics are not our destiny: our *terrain* determines our trajectory. In your case, Julia, despite having many SNPs that could have made you more vulnerable to severe COVID-19 complications, inflammation and hormonal disruption, your commitment to a metabolically supportive lifestyle appears to have overridden many of these risks. This is a powerful testament to the ability of epigenetics (which we discussed in Chapter 3) – through diet, lifestyle and environmental choices – to shape our health outcomes.

You're very lucky for lots of reasons. Your lifestyle and the changes you've made really speaks to the overriding of your SNP expression. I want to highlight that. It's not set in stone. This is testament to how clean living on all your levels can override these expressions.[1]

What the func?! – a dip into functional medicine

Hippocrates was on to something when he said 'all disease begins in the gut'. Functional medicine focuses a lot on the gut, which you've read plenty about in this book. It's also known as 'root cause medicine' – and, perhaps surprisingly, how we digest and absorb our food, how our enzymes are activated, and even how we poo, lie at the root of many seemingly disconnected health issues.

Rather than just treating symptoms, functional medicine aims to understand a person's individual health history and lifestyle. It's more personalised, and you often start by filling in a lengthy document to trace your health throughout your lifetime. My timeline shows: a near fatal stint in hospital aged 13 with salmonella food poisoning, continuous episodic tonsillitis, painful periods, endometriosis, multiple amalgam fillings, a miscarriage . . . the list goes on. Suddenly, more serious health issues

later in life don't seem so surprising when you see everything laid out like this.

A functional-medicine doctor will often try to find alternatives to pharmaceuticals, and will instead use personalised supplements and lifestyle modifications to address issues.

The road to health discovery

Jo Gamble is a metabolic practitioner, functional medicine practitioner and fellow in integrative oncology. She started working with autistic children at the age of 17. When her 19-month-old daughter became ill with multiple autoimmune diseases, which required a four-year chemotherapy regime, she wanted to support her but was told there was nothing she could do. That wouldn't do for Jo, so she studied nutritional therapy and took a fellowship in integrative oncology with The American Academy of Anti-Aging Medicine (a4m). Eventually, Jo became the first UK certified functional-medicine practitioner. She managed to support her daughter to full health, by the way, who is now 22 and has just graduated with a biochemistry first-class honours degree. As with so many in this world, Jo's research started with MeSearch.

What I'm learning as we work together is that, just like the landscapes we walk through, our bodies need balance, nourishment and care – and it begins in the stomach region. When we look after our inner ecosystem, we're laying the path for lifelong health vitality and resilience.

Jo talks about Julia

Julia and I first met at the first IPM (Integrated and Personalised Medicine) conference in 2023, when she was hosting and I was lecturing. The next year we were talking in the exhibition hall when I felt I should mention to her the coating that I had noticed on her tongue. The microbiome is

not just limited to the gut, but the mouth and oral microbiome is massively influential on our wellness, especially for those who have had cancer.

Julia was by now aware of metabolic health, but she hadn't gone deep enough into all areas of imbalance in her body, so I took on the baton and told her that we were going on a deep dive. I knew Julia was seeing Dr Victoria Sampson to explore her oral microbiome (see Chapter 5 and Appendix), but I wanted to get to her gut. She took the Invivo Clinical GI Ecologix test, which is a comprehensive stool test that analyses the gastrointestinal microbiome. The gut can impact inflammation, immune function, digestion and gut-barrier health. We looked at the bad bacteria, but just as importantly, the balance of the good bacteria.

Gut instinct

Here are a few highlights pertaining to Julia, but they are also relevant to most of us.

Julia had very low levels of *Bifidobacterium* (a healthy bacteria found in the intestine which helps to digest fibre, prevent infection and produce important compounds). A depleted gut microbiome, including low *Bifidobacterium* levels, can lead to increased inflammation, which can contribute to tumour growth and the reduced effectiveness of treatments. It also plays a role in oestrogen metabolism, which is particularly relevant for hormone-sensitive breast cancers.

Energy for gut cells

Julia also had a below-detectable level of *Akkermansia*. (Dr William Li speaks about the importance of this in Chapter 3.) This bacterium helps to reduce inflammation and strengthen the immune responses. It's important for all of us: it helps to strengthen gut-barrier function and promote

the production of short-chain fatty acids (SCFAs). SCFAs are crucial for gut health, providing energy for the gut cells – and they have known cancer-protective properties too.

Let it grow (but not too much)

Julia also had overgrowth of some opportunistic bacteria (*Citrobacter freundii*, *Enterobacter cloacae*, and *Klebsiella oxytoca* to name a few). When these bad-guy bacteria become overgrown, they can produce endotoxins. This can trigger a continual pro-inflammatory state, which can contribute to DNA damage and create a microenvironment that supports cancer (due to tumour-cell survival and proliferation).

Naughty bacteria

Testing also showed evidence of *Helicobacter pylori*. When *H. pylori* goes rogue, it is predominantly known for its role in gastric diseases, including stomach cancer. It can interfere with iron absorption (causing anaemia), disrupt the balance of the gut and cause chronic inflammation and therefore a number of diseases. Hormonal imbalances might contribute to an environment that could increase breast cancer risk, so it was important to address this.

The standard treatment for *H. pylori* infection is a triple therapy, which consists of two antibiotics and the use of a proton pump inhibitor (PPI).

We wanted to avoid antibiotics, because they kill gut bacteria indiscriminately, meaning that they wipe out not only the harmful bacteria causing infection but also the beneficial microbes that help with digestion, immunity and mood regulation. Julia did not use a PPI, as we didn't feel comfortable using a pharmaceutical acid-lowering medication when she was showing no symptoms. PPIs can reduce stomach-acid production, which can impair

the absorption of nutrients, particularly B vitamins (which are essential for methylation, the clearance of oestrogen and the breakdown of homocysteine), amino acids (which are incredibly important for muscle-building and muscle-repair – especially in post-menopausal women), and calcium and magnesium (which are needed for optimal bone density).

We used supplements from a trusted specialist dispensary called Amrita Nutrition UK, who we work with regularly. Firstly, we began an antimicrobial protocol over a two-week period using the following supplements:

- **Serrapetase** – a proteolytic enzyme to break down the biofilm (the protective shell around the bacteria).
- **Renew Gut** to support fortifying the gut lining and tight junctions (the junctions in the gut that act as a barrier) to promote a healthy intestinal mucosal barrier.
- **Astragalus** Used for thousands of years in traditional Chinese medicine, astralagus is known as a 'superior herb' to optimise white blood cells and to support the immune system.
- **Bio.Revive Mucin +** has been formulated specifically for the mucosal layer of the gastrointestinal tract and contains arionia berry, which has been shown to increase the healthy bacterium *Akkermansia*.
- **Pylori-X** contains mastic, bismuth, zinc-carnosine and berberine sulfate, which jointly kill off *H. Pylori*.

After the gut cleanse, we wanted to repopulate and rebuild Julia's gut microbiome to create a more balanced environment where the good bacteria outweigh the bad. To do that we used:

- **Astragalus** We continued using this for the cleanse. *Astragalus membranaceus* (or Huang Qi) has been used for thousands of years in traditional Chinese medicine for

its impressive abilities as an adaptogen (a substance that helps the body adapt to and manage stress) and an immune-system restorer.

- **Bio.Me Barrier** is a multi-strain live bacteria combination for the gut–brain microbiome and for intestinal barrier health.
- **Pylopass** (***L. reuteri* DSM 17648**) Each capsule delivers 5 billion CFU (colony-forming units) of the *Limosilactobacillus reuteri* strain (proven to survive through stomach acidity) to support the repopulation of good bacteria post-*H. Pylori*.
- **Polyphenol Booster**, by Pendulum, supports the diversity of the gut microbiome. Polyphenols are considered prebiotics (non-digestible dietary fibres to feed the good bacteria) and can benefit the good bacteria such as *Akkermansia*.
- **Tributyrin 350** to support diversity of the colon microorganisms because of its advanced colon bioavailability.

Moods, microbes and mayhem

In summary, you can see that gut health plays a pivotal and multifaceted role in our health. For Julia, certain bacteria can affect her protection against a breast cancer recurrence. There's a collection of gut bacteria called the 'estrobolome', which affect oestrogen metabolism and ensures that oestrogen is properly processed and eliminated. This is important for all women, and a specific issue for Julia (see the DUTCH test and DNA Test Lifecode Gx in Appendix).[2]

The breast-cancer link

This is key for reducing the stimulation of hormone-sensitive breast cancers. An imbalanced microbiome, or dysbiosis, can disrupt this delicate hormonal balance, and even alter the breast tissue microenvironment through changes in immune

> cell behaviour, which might facilitate metastasis. Additionally, a healthy gut enhances the efficacy of cancer therapies – particularly immunotherapies – by ensuring a robust immune response. Julia and I are continuing our work on repairing her gut, addressing vitamin absorption issues and dealing with her emotional health.

Functional practitioners currently don't work within the NHS in the UK (although more and more health coaches are being enlisted to help in similar ways); they can be found through the Institute for Functional Medicine (https://www.ifm.org).

Conclusion: From north to south

'Good mooooorning everyone, welcome to Marguerite Bay. Our coordinates are: 68 17' 36"S, 67 09' 21"W and right now we are the most southern passenger ship on the planet.' Expedition leader Brad Siviour's mellow Australian voice came over the ship's tannoy system, and a ripple of applause and some whoops rang out in the dining area.

In March 2024, I fulfilled a lifetime ambition to visit Antarctica, journeying there in my role as patron of Whale Dolphin Conservation, a charity dedicated to the protection of endangered whales, dolphins and marine areas around the world. It had already been a thrilling trip on the *Ocean Endeavour*. After crossing the Antarctic Circle on the first of the month, through the infamous Drake Passage with a storm licking at our heels (yes, I was sick), we set foot on Antarctic land at a promontory called Red Rock Ridge, which is home to a penguin colony.

We landed on the rocky shore in our Zodiac (a type of rigid, inflatable boat) under full instruction: stay five metres away from the penguins; no kneeling down for photographs; no eating; no placing anything down on the ground – not even a tripod or a backpack. Our boots had been disinfected in a walk-through dip

on the ship, and the day before we had hoovered out our kit to reduce the risk of any contamination.

I'll never forget taking those first steps, walking up to the crunchy ice and finding myself seconds later face to bill with some fluffy (they were moulting) juvenile Adelie penguins, which are only found in Antarctica. Almost everything here is named after an explorer or has a connection with one; Jules Dumont d'Urville discovered these sea birds in 1840 and named them after his beloved wife, Adele. They are so endearing that it is easy to get lost in their antics, and I almost forgot to look up.

When I did, I gazed out to the surrounding frozen mountains and took a deep breath in through my nose and then exhaled a long '*Wow!*'. I smiled to myself, my eyes scanning slowly from left to right taking in the dark, glassy water covered in tiles of floating white ice, the reflections of huge peaks, and icebergs shimmering across the surface. White, blue and even green, icebergs are mesmeric: how they float, move and crack, each one unique.

This ancient frozen landscape has been sculpted by wind and time, the great glaciers and rivers of ice are centuries in the making. This is one of the most extraordinary places on the planet. 'I've seen Antarctica,' I said to myself, and in that moment, despite being thousands of miles from home in an utterly alien place, I had never felt a closer sense of oneness with the earth.

Over the 14 days at sea and on other landings, we saw scores of humpback whales, showing off their tail flukes as they dived deep into the icy waters below, startling us with their trumpeting blowholes, sometimes close enough to touch.

We witnessed an extraordinary crabeater seal feeding frenzy of krill (they don't eat crab!), when hundreds of them churned up the waters, popping up with enormous curious eyes around us. We even had a rare sighting of two emperor penguins that had strayed into the bay.

It seems as if Antarctica is teeming with life, but you have to ask for how long, since every year the sea ice arrives later and

melts away sooner. The British Antarctic Survey (BAS) reported that the sea ice has now shrunk to record lows, startling even to the most seasoned scientists.

The impact of reduced sea ice over 20 years would be profound; influencing local and global weather patterns and the unique ocean ecosystem here (including, of course, the whales and penguins, and much more). It's estimated that around 230 million people living in coastal communities would be displaced.

On a social-media post just after my trip, I shared a sad story about more human damage inflicted on Mother Earth. Studies have revealed that microplastics have been found in penguin poo. This indicates the widespread presence of microplastics throughout the Antarctic marine ecosystem. We're only just beginning to understand how harmful these chemicals are (phthalates, bisphenols and PFAS (polyfluoroalkyl substances) to name but a few), so this is not good news.

I came home from Antarctica with a renewed determination to expose calamities such as this and highlight the link between planetary health and human health. You know me as a green (and blue) evangelist, not a violent activist, but I promise you, unless we make the Earth well again, our own health has little chance of survival in a way that we recognise today.

This book, I hope, highlights the very real connection between the two. From my nature experiments in Cornwall to my time at Ananda in the Himalayas, and even listening to birdsong at Wormwood Scrubs, the impact on our health is undeniable.

Briefly, here is another marvellous story. Stanford professor Dr David Furman has reversed his biological age by ten years through a radical lifestyle change. He traded in urban life for a forest cabin with his family, where they embraced nature, candlelight, organic food and screen-free living. After just three years, his biological age had dropped from 42 to 32. (His actual chronological age was 39.) Yet another testament to the power of Vitamin N.

So, the conclusion we must draw is that the natural environment is a powerful anti-ageing tool, and one we can all reach for

in our quest for healthspan. It's free and it is all around us, albeit diminishing rapidly (as re-emphasised by my findings with the penguins). It might seem that there is no connection between having your own veg patch, herb pot or flower bed and the white wastes of the icecap, but I promise they are all interlinked parts of one bigger whole – just like our bodies.

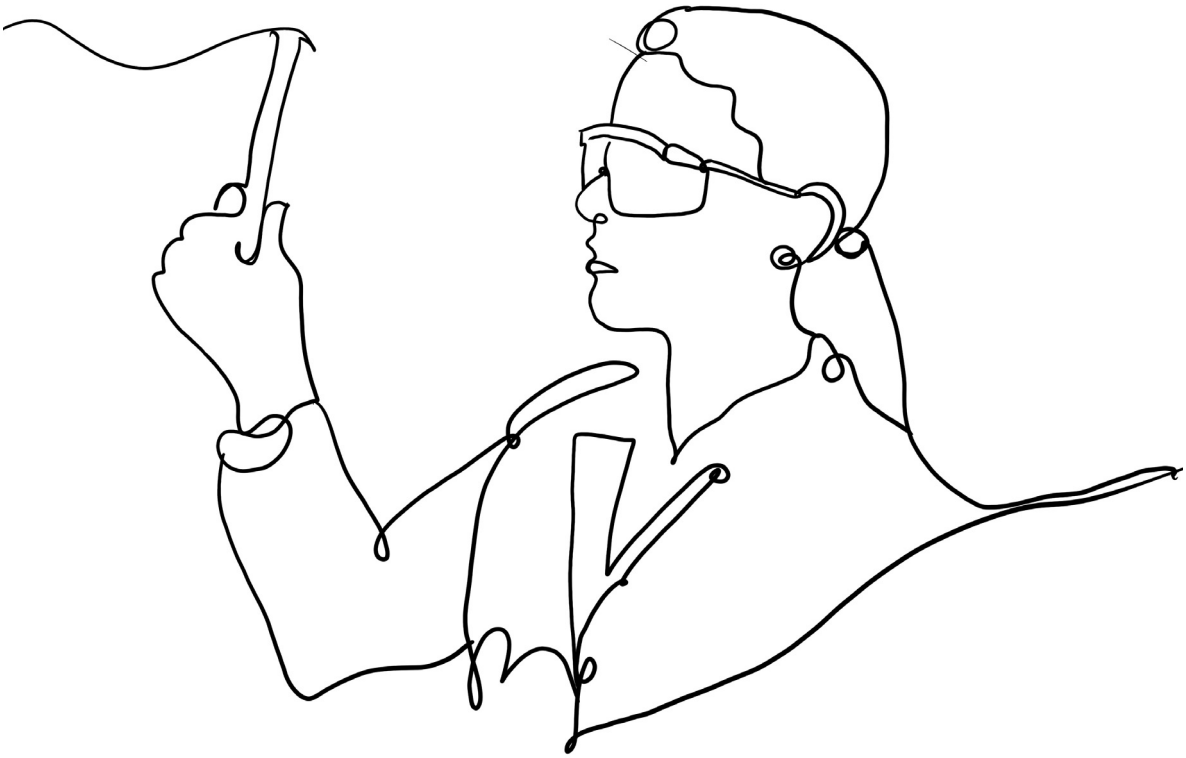
So, take care of all the green and blue spaces in your life and your community, as well as yourselves. I hope there has been plenty in these pages to help you.

I have undergone multiple tests and scans which I know are not accessible and affordable to all but, as I have said throughout, many of these pioneering procedures will become more normal and affordable in the not-too-distant future. A case in point is the emergence of a brand-new AI full-body scan backed by Daniel Ek, the entrepreneur who brought us Spotify.

Remember how novel it felt to be able to play your own music from a near-infinite back catalogue anywhere you wanted? That's what's going to happen to healthcare, and it's why I have written this book. (The scan is called Neko, which is Japanese for 'cat' (as in nine lives). It takes an hour and costs around £300.) Already there's a waiting list of tens of thousands of curious humans. In addition, the UK government recently announced that it will test the DNA of every newborn baby in England in a drive towards predicting and preventing illness, investing £650 million in DNA research by 2030.

If you remember, back in the Introduction, I had a full-body MRI scan that discovered a cyst bang in the middle of my brain. Luckily, it's benign, but something to watch and I'm glad I know it's there. As Joseph Malins suggested in his 1895 poem 'A Fence or an Ambulance', it is better to spend your efforts building 'a fence round the edge of the cliff' rather than having 'an ambulance down in the valley'.

Build your fence.



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