THE PARKINSON'S PROTOCOL

Blue Heron Health News

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Introduction - Hope

The day you were diagnosed with Parkinson's, you might have said to yourself: "This is the end of my life." But you have picked up this book because behind the fear there is hope.

The doctor told you there is no cure, and that all you can expect is a gradual worsening of your symptoms - a depressing prognosis that leaves little room for optimism. But there is reason to remain optimistic.

You might see yourself, a year from now, being unable to do things for yourself, being dependent on others, losing the faculties that others don't even think twice about. But the truth is there are things you can do right now to reverse your symptoms and significantly delay the progression of Parkinson's.

Maybe one day, doctors will have a cure, but at the time of writing, there is nothing like that available. That does not mean that Parkinson's is an automatic death sentence. In fact, life expectancy for Parkinson's patients is the same as other people. There is no magic pill, but there are lifestyle changes that slow the brain's degeneration, and can therefore improve your quality of life dramatically. These are most definitely within your reach. You'll find them outlined in this very book.

Some of these strategies, you might expect - for example relating to the kinds of foods you choose and the environmental toxins you come into contact with. But others might take you by surprise, and are groundbreaking - like the role your habitual thoughts, life view, and general mindset, plays on the physical health (or ill health) of your brain.

Parkinson's disease is caused by a loss of dopamine-producing brain cells and an overwhelming toxic load. By addressing these two key aspects, through nutrition, through detoxing, through mindfulness, through movement, you can reverse the symptoms of Parkinson's, and slow the progression of the disease for years. You can lead a productive, fulfilled and healthy life. It is never too late to begin.

In this book, you'll discover:

- What exactly is happening in the brain when you have Parkinson's
- The risk factors behind the development of Parkinson's
- Strategies to improve the symptoms of early onset Parkinson's
- The role of dopamine in your brain
- How our internal habits (thoughts) and external habits (diet, lifestyle) impact on our brain health, and how to change these to reverse Parkinson's
- How to boost your dopamine levels naturally
- The 12 daily habits that support your brain and delay the progression of Parkinson's
- Scientifically verified, evidence-based strategies to boost your levels of dopamine

- 13 easy, tasty, nutrient-dense recipes to support your body and your brain

A Parkinson's diagnosis is never welcome - but know that within this book lie strategies that can help you turn this situation around. Like they helped Brenda.

Brenda was diagnosed with Parkinson's at 73. She had always led an active life - hiking, biking- but things began going wrong. She started losing her balance while walking, she struggled to step down stairs, she didn't have any more energy for all the things she'd previously enjoyed. Some days her legs felt so weak she would just collapse. The diagnosis came as a huge shock. She saw herself in a wheelchair, a burden to her family, unable to remain in her home, having to leave her husband and her neighborhood. For Brenda, having Parkinson's meant the end of everything, life would never be the same again.

But Brenda was lucky, because her husband was determined that this would not be the end of her. Together, they began applying the strategies outlined in this book: they changed their diet, they stuck to a daily movement routine, they took brain-supporting supplements, and they did the inner work to positivize their mindset. A year on, Brenda's motor skills have improved to such a degree that she can go hiking again. And as a bonus, her husband's health, which had been a growing concern, improved.

Brenda is not the only success story - there are many others. I will share some these with you throughout the book. It can feel very lonely when you're faced with this disease. Take strength from knowing that others have walked this path before you, and many are walking it right now - you are not alone.

The first step to slowing down the progression of Parkinson's is to take a deep breath - do this now - connect with your inner self and know that there is hope, that this diagnosis is an opportunity to improve your health and your life.

With that belief held in your heart and your mind, it is time to begin.

Part 1:
Deep-Dive into Parkinson's

Parkinson's is one of the most common neurological diseases. And, globally, experts are calling it a pandemic. It is one of the fastest-growing conditions on the planet, with numbers predicted to go from 7 million to 14.2 million by 2040. A pandemic is usually associated with infectious diseases, but these days neurological diseases top the charts as the number one cause of disability in the world.

So you're definitely not alone. Your Parkinson's diagnosis is one of 60,000 new cases in America this year. Over 1 million Americans suffer from this disease, and this number does not include undiagnosed cases.

What has happened in our lives, and in our world, for Parkinson's to develop so rapidly? That's what we're going to explore in this section.

But first, what is happening on a physical level, when you have Parkinson's?

What Exactly is Happening in the Brain?

Parkinson's disease was first discovered in 1817 by Dr. James Parkinson, and was initially described as a "shaking palsy" because of the disease's characteristic tremors. It is a chronic neurodegenerative disease that involves both motor (physical) and non-motor (cognitive) features.

It all begins in an area of your mid-brain called the substantia nigra. This crescent-shaped structure controls reward signals and motor skills (movement, visual, auditory). Substantia nigra means "black substance" in Latin, because the neuromelanin present in its neurons appear darker than the surrounding brain. Some of your substantia nigra's cells make dopamine.

Dopamine is a neurotransmitter, which means it carries messages around your brain and body. For example, if you need to pick up a pen or walk down a step, dopamine carries the message to the nerve cell that triggers that movement. When all is working properly, you are able to move smoothly, without thinking about it. But Parkinson's causes the dopamine-producing cells to die, and as a result there is less dopamine circulating and passing messages, so it becomes more difficult to control your movements, and your muscles become rigid and shaky.

This drop in dopamine also causes the loss of non-motor skills. Cognitive ability, memory, and mood can all become impaired as Parkinson's progresses. Dopamine also holds the key to delaying the symptoms, as you'll uncover later in this section.

Scientists have found that the mechanism of Parkinson's development is an interplay between oxidative stress, inflammation, mitochondrial damage (mitochondria are your cells' energy producers), lower energy output, disrupted protein aggregation (a biological process whereby cells with misfolded proteins clump together - this often indicates disease) and accelerated cell death by necrosis (cells dying prematurely) and/or apoptosis (programmed cell death).

What is also interesting to note about Parkinson's is that it does not in itself shorten lifespan. A study published in Archives of Neurology analyzed the risk of death among people with the disease. They found that having Parkinson's disease impacts a person's longevity, but because of the complications (such as infections or falls) that occur as a result of having Parkinson's, rather than the disease itself (the death of dopaminergic cells).

This is good news for Parkinson's patients because it means if symptoms can be held at bay you can live well into old age.

In a moment we'll look at the risk factors involved in this cascade of negative effects and subsequent disease, and how you can halt the damage.

Symptoms of Parkinson's

In the early stages of Parkinson's, you may not feel any different. Sometimes, it isn't until 80% of those dopamine producing cells have died that you notice changes. This is one of the reasons Parkinson's is often not diagnosed until it is quite advanced.

Most diagnoses are made in people aged 60 and over, although in rare cases it can develop as early as the age of 30. More men than women get Parkinson's, at a ratio of 3:2. This is thought to be because estrogen (the female sex hormone) protects the brain's dopamine producing cells, the very cells whose loss triggers brain degeneration.

The early symptoms of Parkinson's are all related to how you move your body - your motor skills:

- Rigid muscles - doctors sometimes misdiagnose this as arthritis. It can happen anywhere on the body.
- Slower movement - everyday acts like tying shoe laces, take longer than usual.
- Tremors - arms, hands, legs, lips, jaw, tongue tremble when at rest.
- Balance - it becomes harder to walk up and down stairs or stand for long periods, difficulty taking long steps, arms do not swing freely when walking.
- Speech and swallowing problems - excessive saliva, difficulty forming words.

As Parkinson's progresses, it begins to affect non-motor symptoms. Symptoms include:

- Mood disorders - depression, anxiety or irritability.
- Cognitive problems - difficulty focusing, impaired memory, slow thinking, dementia.
- Hallucinations or delusions - also known as Parkinson's psychosis.
- Sleep disorders - insomnia, excessive daytime sleepiness, talking during sleep.

- Constipation and early satiety - feeling full after a small meal.
- Excessive sweating - especially hands and feet, even with no exercise.
- Urinary urgency, frequency and incontinence.
- Weight loss or weight gain.
- Impulsive control disorders - gambling, binge eating, excessive shopping.

The 5 Stages of Parkinson's

Parkinson's tends to progress in stages, though everyone will experience it differently. For some, these changes happen over the course of 20 years or more, while for others the progression is quicker. There is a lot you can to slow down the progression, and improve your quality of life, especially when your Parkinson's is diagnosed in the early stages.

Stage 1
At this stage, mild symptoms (like tremors along one side of the body) do not really interfere with daily life, but you may notice slight changes in walking, posture, or even facial expression.

Stage 2
Both sides of the body become affected by tremors or increased rigidity. Problems with posture and walking become more noticeable. Everyday activities are harder but you are still able to do things for yourself.

Stage 3
Motor symptoms tend to worsen - movement can become slow, balance becomes more of a challenge. Living independently is still possible, but there might be difficulty in everyday activities like eating and dressing.

Stage 4
Symptoms are now more limiting. Movement is greatly impaired. There may be hallucinations and non-motor skills can be affected. Assistance is needed for everyday activities.

Stage 5
This is the most advanced stage of the disease. There is difficulty walking or standing unaided. Assistance is needed in all areas of daily life. Hallucinations and dementia tend to also be present.

You might be wondering "I understand the motor skills element, since dopamine controls movement, but what has depression got to do with it?" To answer that, we need to take a closer look at dopamine's other roles in the brain.

The Role of Dopamine - The Motivation Molecule

We've seen that dopamine is a neurotransmitter that helps control voluntary movement. It also acts as a neurohormone, and is involved in your hormonal, cardiovascular and renal systems, as well as controlling behavior and mental health - these latter two are what we're going to focus on

here. It is known by some as the motivation molecule, because of its central role in the brain's reward pathways. Dopamine's action depends on the type of receptor it interacts with.
When dopamine is released into the synaptic cleft (the space between neurons), it binds with a receptor to trigger various actions. Receptors are like docks embedded on the surface of all your cells. They have different shapes depending what they react to - whether hormones, neurotransmitters, drugs, allergens, vitamins, or even light (for example, your body produces vitamin D when the sunlight hits your skin cells - the skin's cell receptors react to the light and send a signal to your body to produce vitamin D). Receptors need to be stimulated in order to work, otherwise they remain inactive.

Dopamine Receptors

Dopamine activates five different cell receptors:

- D1, found in the cardiovascular system, as well as the cortex, striatum and limbic system of the brain. The actions spurred by dopamine and D1 control the growth and development of brain cells, and behavioral responses. They also modulate the actions of the D2 receptor.

- D2, found in the brain but mostly in the basal ganglia, where learning and motor control take place. Together with D1, it is implicated in behavioral reinforcement.

- D3, found in two areas of the limbic brain called islands of Calleja and nucleus accumbens, which are involved with reinforcing the effects of pleasure, and emotions such as joy and laughter.

- D4 is involved in exploratory behavior and motor coordination. Most medications for the treatment of Parkinson's target this receptor.

- D5 is also found primarily in the limbic brain, and has a role in emotions, behavior, long term memory and smell. D5 receptors have a higher affinity for dopamine, meaning they bind to it more easily.

Low Dopamine Levels and Brain Disorders

When you look at the actions triggered by dopamine and dopamine receptors, it becomes obvious that low levels of dopamine can lead to erratic behaviors, attention deficit and difficulty concentrating. Dopamine deficiency is equally implicated in mental disorders. For example, people with bipolar disorder are particularly sensitive to high and low levels of dopamine: high levels trigger the manic phase, low levels trigger the depressive phase. Since dopamine also plays a role in memory and learning, when levels drop, problem solving skills, the ability to concentrate, and memory are reduced.

Dopamine and Reward

Dopamine and your brain's reward system work hand in hand. Dopamine provokes feelings of enjoyment and reinforcement, which drive your choices and motivate you to perform certain actions.

Here's how the cycle works. You perform an action that makes you feel good - that could be eating a slice of cake, or going shopping, or going for a walk. Your brain releases dopamine to maximize your enjoyment, and creates the neural pathways for you to repeat this action next time you want to feel good. However, what is particularly interesting is that dopamine is released before you've even performed the action - it is released as soon as you think about it: the moment you look forward to having that slice of cake.

Now, if your feel-good action is walking, or eating broccoli, or sharing an experience with friends, wonderful. The dopamine cycle ensures that your brain is hard-wired to keep seeking those positive behaviors. But what if your feel-good action is not so nourishing? What if it is junk food, or binge-watching series, or judging others, or drinking? Because that's the thing - your brain doesn't discriminate between a "good" dopamine hit (those actions that have a positive effect on your present and future) and a "bad" dopamine hit (those actions that bring pleasure in the moment but also long-term damage). It reinforces whatever behaviors it gets pleasure from.

This can make things even harder when you have Parkinson's. Lower dopamine levels mean that, alongside the physical symptoms, you might not have the motivation to make changes to turn things around - you may also feel too depressed to do so. If you've relied on unhealthy behaviors to make yourself feel better (i.e. to boost your dopamine), your brain is naturally going to seek those same things over and over again, keeping you stuck in a way of life that puts your health and mental health under stress.

But no cycle is unbreakable. Indeed, it is absolutely possible to step out of that downward spiral.

When dopamine levels are topped up, you feel motivated, you sleep well, you maintain a healthy weight, your muscles move more smoothly, you're better able to concentrate, your memory improves. This is why boosting your dopamine levels is one of the main focuses of this book, because through this, you can reverse the symptoms of Parkinson's, and keep them away. The great news is there are many ways to increase dopamine production, and the more you do, the easier and more pleasurable it feels.

Margaret's life with Parkinson's went from zero to challenging in just 4 weeks. She'd gone to the doctor, worried by her low energy levels and recent absent-mindedness. A couple of close friends had noted her speech was a little slower than usual. They thought she was tired; but she'd noticed herself struggling to form certain words. Probably just worn out, she'd thought.

Then, a diagnosis. Parkinson's. Chronic. Progressive. No cure. Margaret sank into a deep depression. Her symptoms worsened quickly, as though knowing the problem suddenly sped up the disease's progression. Buttoning her cardigan took longer, she couldn't hand-write notes

anymore, chopping vegetables was becoming difficult. The worst thing for her was fearing a loss of independence. At 70, she still lived in her own home, did her own shopping, had her own life. She did not want to have someone dressing her or choosing her produce at the market.

It was this thought that spurred her out of her grief, determined to enjoy the rest of her life rather than simply waiting for Parkinson's to take everything. So she did some research, started looking for alternative treatments. Margaret had always been interested in meditation and yoga, but had felt unable to attend the classes, she felt too old. Having heard that learning new things can boost dopamine, she pushed her insecurities aside and decided to go. She enjoyed it, so she went to another. She then enrolled in other workshops: a weekly book club, a bi-monthly walking group. She joined a cooking club where people with Parkinson's cook and eat together once a week. Doing these activities made Margaret feel stronger and happier in herself, which led to her symptoms improving. She's now 75, still living in her apartment and still going to the local farmer's market.

What Causes Parkinson's?

Why do the dopamine-producing cells of the substantia nigra begin to die?

The number of cases has doubled in the last 25 years, could something in our environment, in the way we live our lives, be to blame? Short answer: yes.

Neurologists have identified several risk factors that cause this area of the brain to malfunction and its cells to die. We're going to look into each of them in more detail:

- High BMI (being overweight or obese)
- Environmental toxins
- Inflammation of the microglia (brain cells)
- Mitochondrial dysfunction
- Depression
- Diet
- Lack of exercise
- Stress

High BMI

It's a common misconception that body and brain are separate, but one's health depends on the other. If you are above your ideal weight, your brain can suffer as a result. A study published in the journal Neurology followed over 22,000 people for 18 years, and found that men and women with a body mass index (BMI) of over 25 were at higher risk of developing Parkinson's disease, and the higher the BMI, the higher the risk.

The number of people carrying excess weight is sobering. Almost three quarters of American men and more than 60% of American women are either obese (BMI of over 30) or overweight

(BMI of over 25). And this is one of the major reasons we are facing a health epidemic. And the main driver for weight gain? Diet - we'll go into this in more detail in the next few pages.

There are two main ways excess weight can trigger the development of Parkinson's.

The first is less to do with the weight itself and more to do with how one gains that weight in the first place. And that's an overabundance of calories and/or a reliance on processed foods. These foods do more than just cause weight gain: they also cause chronic inflammation - and inflammation is one of the mechanisms through which Parkinson's develops. In times of chronic inflammation, the body releases inflammatory immune cells (called cytokines). One of these, tumor necrosis factor-a (TNF-a), kills dopaminergic cells. Scientists have found that people with Parkinson's have elevated levels of TNF-a.

The second mechanism has to do with the weight itself. The body is a clever entity. When you eat too many calories, your body stores them as fat reserves, to use later. This evolutionary mechanism ensured our survival back when we didn't have a constant supply of food at our disposal. But these fat cells also serve another purpose. They are like the body's safe. When there are too many toxins for the body to deal with, it stores them in the adipose tissue (fat). Unfortunately, this protective strategy has negative long-term effects, because the toxins trapped in the fat cells increase the body's total toxic burden, which increases chronic inflammation, and affects the brain.

If you are carrying excess weight, getting to a normal weight will improve your Parkinson's symptoms and your overall health. But it has to be done healthily. One of the side effects of Parkinson's is weight loss, because appetite declines and eating can feel like too much of an effort. It is important to find a balance, since the body needs nutrition. The suggestions later in this e-book will help you to switch your diet to one that promotes a healthy weight and protects your brain, including 13 easy to prepare, nutrient-dense recipes that you can adapt to suit your taste.

Environmental Toxins

The industrial revolution brought us progress and convenience. But it also brought tens of thousands of new and poorly understood chemicals into our environment. They are everywhere - from furniture (flame retardants, paints, treated upholstery) to our children's plastic toys, to take-out containers and even till receipts. In fact, there are currently over 80,000 chemicals registered for use - and around three quarters of them have not been tested for human safety. These chemicals are polluting our planet, our bodies and our brains.

Persistent Organic Pollutants (POP) & Heavy Metals

POP's are organic compounds that are resistant to degradation and therefore accumulate in our environment and our bodies. These include pesticides (like Aldrin, Chlordane, DDT, Toxaphene - many have been banned, but they remain present in the environment), PCB's (polychlorinated biphenyls, used in things like paints and plastics), and byproducts like polychlorinated dibenzofurans (PCDF) which result from the production of PCB's, and burning waste or fuel.

Because they are part of many of the things we take for granted today, like air travel and plastic bottles, we are in contact with POP's all the time.

The same goes for heavy metals, like arsenic, copper, cadmium, chromium, lead and mercury. While some (copper, chromium and copper) are essential in minute quantity for human health, the amounts we are being exposed to as a consequence of industrial, agricultural, and pharmaceutical progress are too much for the body to deal with. Through increased inflammation and oxidative stress, heavy metals damage DNA and lead to neural degeneration.

All this is bad news for brain health. In a review of studies published in the journal Environmental Health Perspectives, researchers found that exposure to heavy metals doubled the risk of Parkinson's disease. Another by the Harvard School of Health found that exposure to pesticides in childhood or during pregnancy increased the risk of late-onset Parkinson's.

The most prevalent toxins we come into contact with every single day are pesticides and herbicides. Residues are on our food and in our water.

Glyphosate (also known as RoundUp), used globally on all manner of crops from soy to corn to cotton and beets, has been linked to the development of a spectrum of diseases, one of which is Parkinson's. Scientists have concluded that this is in part due to glyphosate's effect on manganese levels and gut health. Manganese is an essential mineral for a variety of functions, from helping regulate your blood sugar to boosting production of superoxide dismutase (SOD), your body's most powerful antioxidant, but too much manganese is harmful. Glyphosate has been found to cause a toxic accumulation of manganese in the brainstem, and this leads to brain cell death, causing Parkinson's and other progressive neurodegenerative disorders.

It's easy to feel like there isn't much you can do to limit your exposure when these chemicals seem to be everywhere, but there are ways. Appendix 2 has tips to detoxify your environment and your body from toxin accumulation. By reducing the chemical burden on your body and filling up on detoxifying foods, you can protect your brain.

Inflammation of the Microglia

Central nervous system inflammation has been found to play a part in dopaminergic cell death. Microglia, the resident immune cells in the central nervous system, are responsible for keeping the brain "clean" by responding to neural injury and removing any damaged or dead neurons. But microglia can go rogue, causing the release of pro-inflammatory cytokines and free radicals that damage, rather than protect, neurons.

What makes microglia misbehave? To understand that, we need to take a little look at inflammation and how it can be both good and bad.

Inflammation is, at its core, a beneficial process. It is the immune system's initial reaction to eliminate enemies or heal trauma. When you cut your finger, for example, your immune system detects something needs fixing, and releases inflammatory immune cells to deal with the

problem. The redness, swelling, heat and pain are part of a healing process and, when the cut is healed, the symptoms go away. This is known as acute inflammation.

But your immune system can get things wrong, and the process can go awry. If there are too many things triggering it (toxins from our environment, chemicals in our food), your immune system keeps sending out inflammatory immune cells, and the inflammation never quite subsides. This is known as chronic inflammation, and is known to be the root cause of many of the diseases we face today, from heart disease to cancer.

Coming back to the brain, chronic inflammation can disrupt the way the microglia function, transforming them from brain protectors to neuron damagers. And this can worsen Parkinson's symptoms. You can protect your microglia from chronic inflammation by avoiding certain foods, and including others - studies have conclusively linked certain types of diet, like the MIND diet and the Mediterranean diet, to a reduced risk of neurodegeneration. In the next section I'll share the principles of a brain-protective, dopamine-enhancing diet so you can begin to support your brain today.

Mitochondrial dysfunction

Mitochondria are the powerhouses of your cells. They transform the carbohydrates, fats and proteins we eat into useable cellular energy.

Cells are made up of organelles, which are like different compartments in the cell that perform functions necessary to the cell's survival. Mitochondria are one of these organelles, and they produce around 90% of the energy cells need to survive - without energy, things begin to go wrong.

Their other functions include breaking down waste products and make them less harmful, and recycling waste products to save energy. If they're not working right, toxins accumulate in the body, and brain. Little wonder then, that scientists have found Parkinson's disease to be associated with mitochondrial dysfunction. These dysfunctions include mutations in the mitochondria's DNA, changes in size, inability to move process toxins normally, and fusing together.

These changes are part of aging. It is said our bodies completely renew themselves every 7 years (some parts every few days or months). Every time, DNA makes a small mistake or two, and doesn't replicate the cells as perfectly as before - some of these mistakes are a normal part of the aging process. But our diet and lifestyle can speed up this process.

The good news is that you can choose foods and activities that help your cells detoxify and improve your mitochondrial function, which in turn can help slow down the progression of Parkinson's. These strategies are listed in Appendix 2

Depression

We've looked at the physical risk factors in Parkinson's disease - but what about mood? Researchers from the American Academy of Neurology looked into this to see whether they could identify any early markers of the disease. They followed over 140,000 people for twenty years and established a direct association between depression and subsequent Parkinson's disease. They concluded that depression may be a very early symptom of Parkinson's, or a causal risk factor, and lack of dopamine is a central part of that.

Have you gone through periods of depression in your life? Those moments can feel like there's no joy to be had from anything, that there is no point, that you're not worthy; so you shut yourself away, avoid social interactions, have no energy to do anything, even to pull yourself out of that mindset. Maybe you turn to alcohol or food for comfort, which exacerbates feelings of depression and creates a vicious cycle. On a chemical and physical level, what's happening in your brain is a serious lack of happy chemicals - one of these being dopamine. Remember, it's the motivation and pleasure molecule. Without it, you don't feel motivated, and you don't get much joy out of life: you are depressed.

Depression has often been labeled as serotonin-deficiency, but research has discovered that dopamine levels are also implicated.

So what causes dopamine levels to become low? Does depression make dopamine levels drop, or do low dopamine levels cause depression?

It's both. Some say that the negative thoughts that go along with depression exacerbate the condition - this is a fascinating line of thinking that opens up a whole world of optimism. Because if our thoughts have the power to decrease our levels of dopamine, then by the same token our thoughts can also increase levels of dopamine: through mindset change and positivity, it is possible to change the chemical composition of the brain and overcome depression. In the next section I'll share some strategies to help you do that.

From a physical perspective, diet and lifestyle have a huge part to play in both depression and Parkinson's. This brings us to the final risk factor.

Diet and Lifestyle

If our western lifestyle were to have a tag line, it would be "Eating too much and moving too little."

Let's start with eating. What does your average day look like? How much of the food you eat is fresh, or homemade? How much of it is processed?

For Brenda, it was toast and jam and orange juice for breakfast - she liked feeling continental. She'd always have a latte or mocha mid-morning from her coffee machine. At lunch she would sit down to a white bread sandwich with corned beef, lettuce and sometimes half a tomato. In the afternoon she would indulge in a couple of biscuits. After two decades cooking for a family, it

was a relief to be able simply to place a ready meal in the microwave. This became a habit, she hardly ever cooked any more, unless it was for a special occasion. It was more like assembling - unwrapping various supermarket foods and placing them on a plate.

Looking at this menu, the first thing that strikes me is the lack of fresh fruits or vegetables. And these are the foundations of good health. Fruits and vegetables contain antioxidants, fiber and vitamins that help the body to detoxify and prevent inflammation. In other words, they are essential to keep your body and brain healthy. And yet, we hardly eat any.

And what are we eating instead? Convenience food. Food that has been transformed, mixed with preservatives, artificial flavorings, colors, added sugar, and wrapped in plastic. There have been thousands of medical studies on the effect of our ready-to-eat diets - they point to the same thing: the lack of nutrients and excess inflammatory ingredients are to blame for the rise in chronic diseases, including Parkinson's disease.

I don't want to overwhelm you with a long list of ingredients to avoid, instead, let's take a quick look at the top 3 Western diet staples and their effect on brain health. Armed with this information, you will be able to make healthier choices, just like Brenda, who was able to stabilize her symptoms thanks to a whole-foods plant-based diet.

Sugar and refined carbohydrates

An excess of sugar leads to inflammation in your body, a risk factor when it comes to Parkinson's.

When you eat sugar, your digestive system converts it into glucose, which is dumped into the bloodstream. The pancreas then releases insulin. Insulin is a hormone that tells your cells to absorb the glucose and make use of it. Under normal circumstances, when you eat a low-sugar meal, only a little insulin is needed. However, when you eat a lot of sugar, your pancreas pumps out more and more insulin and, over time, your cells stop responding to it, and stop trying to absorb the glucose from the blood. This is known as insulin resistance, and is a precursor for Type 2 diabetes.

If your blood sugar levels are regularly elevated, you are on your way to chronic inflammation.

In a study by the American Journal of Clinical Nutrition, researchers studied 29 people over 3 weeks. They found that consuming just one can of fizzy drink a day (around 40g of added sugar) led to an increase in inflammatory markers and increased cholesterol levels. Another study showed that consuming just 50g of fructose (this type of sugar is extremely prevalent in our diet thanks to the addition of high-fructose corn syrup) increases levels of one of the immune system's inflammatory molecules, C-reactive protein, within 30 minutes, and that levels remain high for over two hours.

Chronic inflammation, as we saw earlier, can trigger the malfunction of the brain's microglia, which is one of the problems we see with Parkinson's.

Sugar is also one of the main causes of obesity, which is one of the risk factors involved in Parkinson's. This is because insulin is also the fat-storing hormone: it signals to your cells to store any excess glucose as adipose (fat) tissue.

Refined carbohydrates, because they create the same elevated levels of blood glucose as sugar, should also be avoided. Refined carbohydrates are basically whole grains that have been processed to remove the germ and the husk, leaving only the starch. Examples are white flour, white bread, white pasta, cakes, biscuits, crackers, sugary breakfast cereals.

Don't worry, you don't need to go carb-free to slow down Parkinson's. In fact, complex carbohydrates are very useful in helping the body to eliminate its toxic burden and keeping some Parkinson's symptoms, like constipation, at bay. The trick is choosing the right foods. In Appendix 5 you'll find a list of healthy (and flavorsome) alternatives to sugar and refined carbohydrates.

There is another reason why sugar should be avoided, and that has to do with how it affects your brain chemistry and mood. Sugar triggers the same brain receptors as hard drugs, and is as addictive. When you eat sugar, your brain releases dopamine, and you feel good. This causes you to seek that feeling again and again, by eating more sugar. It's also the reason most of us turn to sweet foods when we feel upset or unhappy. But using sugar, or drugs, to get you through is not a sustainable solution. In fact, over time this leads to a worsening of depression because dopamine levels become depleted, and the cause of your low mood is never addressed, only masked.

We need a two-pronged approach to tackle our chronic sugar consumption. The first is to replace processed sweets and cakes with natural whole foods that satisfy our sweet tooth without damaging the brain. The second is to find alternative strategies to cope with our emotions and boost our dopamine levels in a healthy, sustainable way.

The Wrong Kinds of Fat

We're talking trans-fats - which are so bad for health that the FDA banned them in 2015. However, their sale is authorized until January 2020, so it's worth checking the label to make sure you're not putting any trans-fat on your plate.

Trans-fats are found in small amounts in red meat and full fat dairy, but mostly they are man-made. They are found in hydrogenated and partially hydrogenated oils, which are made by mixing vegetable oil with hydrogen at high pressure to produce a solid or semi solid fat (think margarine or shortening). This fat is more stable, has a longer shelf life, and can be heated to high temperatures, which is why it has been part of our diets for the last few decades. Unfortunately, we're paying for the convenience with our health.

In a recent study performed by the American Academy of Neurology, researchers followed 1,600 people over 60 for ten years. They analyzed their blood for elaidic acid (a biomarker for industrial trans-fat) and noted that those with high levels of elaidic acid were 74% more likely to

develop dementia. What this means is that, if you want to stop Parkinson's from progressing, particularly when it comes to cognitive decline, you must banish trans-fats from your plate.

This is ironic when you consider that margarine was marketed as healthier because of the absence of cholesterol. The truth is that hydrogenated oils and trans-fats can distort cell membranes, increase inflammation, and even increase the risk of heart disease, the very disease advertisers said margarine would protect against.

Trans-fats are found in margarine, shortening, coffee creamers, ice cream, fried foods, pie crusts, frozen pizza, cookies, crackers, biscuits and many other processed foods - always check the label and avoid anything with hydrogenated or partially hydrogenated oils.

Let's talk about vegetable oils as well, for a moment. These are also seen as healthier alternatives because they are unsaturated fats. But not all vegetable oils are created equal. Some are health-protective, like olive oil and coconut oil, while others, like corn, canola, rapeseed and soy oil, offer no health benefits whatsoever.

What's the difference? The first is in the processing. Olive oil, coconut oil, walnut oil, flax seed oil, pumpkin seed oil and others can be obtained by cold-pressing the fruit or nut to extract the oil - the result is an oil rich in nutrients and essential fatty acids. Vegetable oils like corn, soy and canola, on the other hand, have to undergo chemical processing involving solvents and high heat to extract and deodorize the oil - the result is devoid of nutrients, and inflammatory.

There are two principal reasons vegetable oils cause inflammation. The first is that the plants they are obtained from tend to be genetically modified (94% of all soy and 80% of all corn grown in the US is GMO - this has dramatically increased from just 17% in 1997). GMO crops disrupt the digestive system, which puts a strain on the immune system and leads to chronic inflammation.

The second is that these vegetable oils contribute to our excessive intake of Omega-6. We need a balanced intake of both Omega-3 and Omega-6 for optimum health - around 1:2. Omega-3 and Omega-6 are precursors to a type of molecule (called eicosanoids) that regulates inflammation - that means your body needs both Omega-3 and Omega-6 to produce these molecules. However, scientists have noticed that the eicosanoids derived from Omega-6 are pro-inflammatory, while those derived from Omega-3 are anti-inflammatory. Eaten in small amounts, and together with the right amount of Omega-3, Omega-6 is anti-inflammatory. But in large amounts, Omega-6 increases inflammation. The Western diet, with its high intake of fried and processed foods, delivers an unbalanced Omega-6 to Omega-3 ratio of around 15:1. The result: higher levels of chronic inflammation, and higher risk of related diseases, like Parkinson's.

The trick is not to avoid all fat - back in the 80's many of us were swept up by the fat-free wave, but all that happened is we got fatter and sicker. Fat is essential, and is particularly important when it comes to cognitive health, especially when you consider that your brain is made up of around 60% fat. You need to include fat in your diet…. But it has to be the right kinds of fat. You'll find a list of the healthiest fats in Appendix 6.

Artificial Additives

Another problem of our modern diets is the portion of man-made chemicals we ingest with every meal. Some, as we've seen, come as part of the growing process - like pesticide residues. Others are added to improve the flavor, texture, color and shelf life of food products.

These artificial additives increase your body's toxic burden, trigger chronic inflammation, and are neurotoxic. Here is a quick look at the worst offenders:

Artificial flavorings and flavor enhancers

You know that satisfying buttery flavor in some popcorn? The main component comes from a chemical called diacetyl. Diacetyl has been linked with increased inflammation and chronic lung disease.

Or what about strawberry flavor, the kind you find in drive-thru milkshakes and frozen cheesecakes? Well, that contains around 50 chemicals, including solvent.

How about mono-sodium glutamate (MSG), a flavor enhancer which is added to many savory processed foods to create what the food industry calls "repeat appeal" - in other words, to make you buy that food again and again. In a study published for the journal Neurotoxicology and Teratology, scientists found that mice fed MSG had severely disrupted cognitive responses, memory impairment and learning capabilities. They found the same results with mice that were fed aspartame (also known as E951, it's a flavor enhancer used mostly in sugar-free or diet foods).

In combination, MSG and aspartame significantly decrease levels of neurotransmitters dopamine and serotonin. They also increase oxidative stress by flooding the body with free radicals and reducing glutathione levels (glutathione is a powerful antioxidant produced by your liver).

MSG also masquerades under these names:

- E621
- Glutamic acid
- Glutamate
- Yeast extract
- Hydrolyzed protein
- Sodium caseinate / calcium caseinate
- Natural flavorings (like natural chicken flavor, natural beef flavor)
- Malt extract
- Textured protein
- Soy protein isolate
- Autolyzed plant protein

Artificial colors

Flowers may naturally be all the colors of the rainbow, but how do you make foods as visually appealing? Artificial dyes. They are used to give foods that would otherwise be without color a "color identity", and to compensate for loss of color during storage. The most commonly used in the US are Red 40 (E129), Yellow 5 (E102), and Yellow 6 (E110).

We are eating five times more artificial colors than we were in the 1950's… and it isn't doing our health any favors. The Center for Science in the Public Interest (CSPI) has linked these food dyes to an increased risk of cancer, hyperactivity and behavioral problems (pointing to their neurotoxic effects). They are so neurotoxic, that the CSPI petitioned to ban artificial food dyes back in 2008. Unfortunately, it appears they were not successful. But you can avoid these chemicals by turning to a more natural diet.

Preservatives

Take a look at the best-before date on most ready-made foods. How do food manufacturers get foods to last for months on a supermarket shelf? Preservatives. Before the industrial revolution, foods were preserved in salt or sugar, or through pickling. Nowadays, they are preserved thanks to chemicals. Here's a look at the top three.

Sodium Nitrate / Sodium Nitrite (E250)

If you eat processed meat, you're consuming sodium nitrite. It is a preservative, flavor enhancer and color fixer used to make meat (which naturally turns grey within two days) look fresh and vibrant. You'll find it in bacon, ham, hot dogs, corned beef, smoked fish, sandwich meats, and other processed meat products. Sodium nitrite is toxic: it causes DNA damage and oxidative stress, activates pro-inflammatory cytokines, and increases cellular degeneration. Researchers have found that the upward trend in neurodegenerative diseases like Alzheimer's, dementia and Parkinson's is linked to our increased consumption of nitrates via processed foods.

Potassium Bromate (E924)

Potassium bromate is added to bread and bakery products as a stabilizing agent, and to give dough strength and sponginess. Unfortunately for us, it has been found to de-regulate certain genes involved in inflammation, which opens the door to neurodegenerative problems and other diseases like cancer. The easiest way to avoid it is to choose organic bread made from good quality flour.

Sodium Benzoate (E211)

This man-made preservative prevents the growth of bacteria, particularly in acidic foods, which is why you'll find it in fizzy drinks, bottled lemon juice, pickles, condiments, and jelly. It is also present in toiletries like toothpaste and shampoo.

Sodium benzoate is bad news, particularly when it comes to inflammation. Researchers at the Institute of Public Health in Hungary tested the preservative's effect and found that it changed the expression of several inflammatory molecules. They found that, together with other preservatives, sodium benzoate activates the body's inflammatory pathways, contributing to chronic inflammation. We know what that means for the brain: degeneration.

Clearly, the take away is that the fewer artificial ingredients you eat, the healthier your brain! The easiest way to do this is to switch from a processed food diet to a diet made up mostly of whole, natural, home-cooked foods. On occasions when you do buy something ready-made, check the label. If the list of ingredients is like a science lab experiment, leave it on the shelf.

There's one factor that ties these three dietary risk factors (sugar, fat, artificial additives) together: the dopamine connection.

What sugar, trans-fats and chemical additives have in common is that they make foods taste so good that we want to eat them again and again. They trigger the release of dopamine, which gives us pleasure and triggers repeat behavior. It's this dopamine hit, rather than the food itself, that we crave.

Just like drugs, processed foods make us feel good for a moment but damage our health long term by increasing inflammation and increasing our toxic burden. They stop the parts of the brain that produce dopamine from being as effective. That's the last thing you want at any time, but especially if you've been diagnosed with Parkinson's. You need to protect your dopaminergic cells, rather than over-stimulating them with super sweet, fatty or salty foods. You'll learn how to protect them in the next section.

Lack of Exercise

The other characteristic of modern living is lack of movement. In the US, the average person spends 9 hours a day sitting down. Consider that we sleep 7-8 hours and there isn't much left over for physical activity. And that is a problem because lack of activity means a higher risk of disease. Some doctors call excessive sitting "the new smoking", because it increases the risk of diabetes and heart disease. But of particular interest to us here is the fact that not getting enough exercise leads to a loss of muscle strength.

There's an old saying: use it or lose it. This goes for your brain as well as your body. Unless we use our muscles, they waste away. This makes Parkinson's motor-symptoms much more likely to manifest. The stronger your muscles, the better able you are to balance - balance problems are one of the most common side effects of Parkinson's, with falls and injuries a common result. The better your balance, the easier it is to walk and climb stairs. It is important to preserve and strengthen these motor skills in order to maintain your quality of life.

Unfortunately, most of us have fallen into the habit of moving very little. If that's the case for you, it is never too late to begin adding movement to your day. The more you do, the more you'll feel the benefits - both physical and mental. In Part 3, you'll find a list of ways to increase your

activity, without it feeling like a chore, while Appendix 7 has a set of simple strengthening and stretching exercises to help you start moving more.

The Forgotten Risk Factor: Stress

Let's talk about stress for a moment. This is one risk factor that is hardly ever mentioned in relation with Parkinson's. One reason for this might be that Parkinson's tends to be diagnosed after retirement, and it is assumed that when you stop working you no longer really experience stress. But these days we are almost constantly stressed, so much so that most of us don't even realize it. Stress plays a role in the development of Parkinson's, so managing stress levels can help you to delay its progression.

Stress is an external or internal stimulus that activates your fight-or-flight response. This response evolved to help our early ancestors survive in dangerous environments. When faced with danger, for example when a caveman stumbles upon a bear while foraging for mushrooms, the body undergoes a series of physical changes that prepare it to either defend itself or run away. Heart rate increases to pump more oxygen through the body. Blood pressure goes up to increase blood flow to the muscles. Blood sugar levels increase as the body releases its glycogen stores to supply muscles with extra energy.

We don't worry about predators anymore, but other things have taken their place. They are less immediately dangerous, but the body reacts to them in the same way. A traffic jam. An argument. A cliff-hanger season finale. The news. An unpaid bill. Feeling like you're missing out on something. Feeling excluded. Worrying about climate change and political unrest. We are constantly exposed to low-level stress, and as a result our health suffers.

On a physical level, stress increases levels of cortisol. In small amounts, this hormone is beneficial to health. But when we are constantly stressed, the body produces too much cortisol, and this leads to inflammation. Inflammation, as we've seen, is bad news for body and brain.

On a mental level, high levels of stress tend to be accompanied by negative thought patterns that can lead to depression and low dopamine levels. The more depressed you feel, the more you are susceptible to stress. It's a vicious cycle.

Evidence suggests that the changes in the brain that cause Parkinson's to develop may begin long before the onset of any symptoms. These changes, brought on by chronic inflammation and reduced dopamine levels, show up as trouble sleeping, depression, and mood disorders - the very things that go awry when people are under too much pressure. This has led scientists to begin researching protective therapies that focus around stress management and cognitive approaches like CBT (cognitive behavioral therapy) and meditation. These strategies help to both reduce inflammation and boost levels of dopamine, thereby helping to keep Parkinson's symptoms at bay.

Think about your own life - are you stressed? Do you find yourself getting irritated over little things? How do you react to things going wrong? Are you cool in a crisis, or do you find that

your temper quickly escalates? The amount of stress in your life, and you deal with stress can have a big impact on Parkinson's - how it develops, and how quickly or slowly it progresses.

When I first met Robert, he struck me as someone who was under a lot of pressure. At 65, he was still youthful, always well dressed and always in a hurry, even when he didn't have anywhere to go. His diagnosis had come like a punch in the face. However, the prognosis was good, because it was still at the very early stages, just a few tremors.

Robert was not a happy man, and never had been. Brought up by parents who had little time to indulge him, he felt unwanted from a young age. Being shy and insecure, he had few friends at school, and this trend had remained true throughout his life. Robert always felt inferior, and that he had to work doubly hard to be accepted. So he did, putting in long hours and climbing the corporate ladder into upper management. He was your stereotypical corporate guy - up at 6am, fueled by double espressos, energy drinks and ham sandwiches eaten at his desk while checking emails, getting home after 9pm to a couple of beers and a microwave meal, never saying no to extra work. Though his job was stressful, he had a strong work ethic and was successful, but this came at a price: he never switched off, never really had time for anything else. When he retired, life suddenly felt like one big empty space. He had no hobbies, no real friends, nothing to fill the hours he'd usually spend at the office. The negative thoughts he'd kept at bay with work now had time and space to grow. Having no interests, he was bored, and this boredom led to depression. Work had provided a confirmation that he was needed and useful. Suddenly there was no validation, nothing to do. He felt old and left out. He was diagnosed with Parkinson's just seven months after he retired.

Robert had a strong reaction when I first suggested to him that Parkinson's is in part due to low dopamine levels brought on by a long period of stress and depression. He felt that I was criticizing the choice he'd made in life to work hard and build a comfortable retirement. "It's a hard pill to swallow", he said once he'd calmed down, "I've worked my butt off for 45 years, earned a decent living, and now it looks like it was all for nothing - I'm going to be too sick to enjoy it." I'm glad to say that Robert did not remain stuck in that mindset. Instead, he used that feeling as a springboard.

All the energy he used to focus on his career, he now channeled into his health - particularly his mental health. He began meditating to learn how to calm himself when he felt stressed. He started working with a therapist to let go of the past. He joined support groups and exercise classes to meet new people and make connections. Two years on, and Robert is thriving; he leads an active life (having discovered a love of canoeing) and has a busy social calendar. The tremors are still present but have not progressed further, leaving him free to enjoy his retirement.

Is this possible? Can your mindset and the way you think really make a physical difference to your brain? It might sound a bit fluffy, but we know that it can. We've seen how danger (a bear, a deadline, a tense film) causes physical changes within the body (increased levels of cortisol, higher blood pressure, etc.). However, it isn't the danger itself that makes those changes happen - after all, the bear doesn't reach into your body and turn the cortisol dial up - but how you perceive the danger. Think about it. Someone with a phobia of dogs will have a severe physical fight-or-flight reaction every time they see a dog, whereas most people will react perfectly

calmly because as far as they are concerned, dogs are harmless. The difference is the phobia - in other words, the perception or belief that the dog is dangerous.

It therefore makes sense that you can change how your body behaves on a physical level by changing your thoughts. When you use relaxation techniques to pull yourself out of fight-or-flight mode, or use positive affirmations to pull yourself out of depressive thought patterns, you are changing the chemical composition of your brain: you are increasing the availability and the quantity of dopamine.

In order to delay the progression of Parkinson's, we need to think in a way that makes us feel good.

Now that you know all the risk factors involved in Parkinson's, it is time to dive into the solutions. You are about to discover how to eat, move and think to boost your levels of dopamine and significantly delay, or even completely prevent the progression of Parkinson's.

Part 2:
Parkinson's Treatment -
Traditional Solutions and Alternative Approaches

Before we dive into how to support your brain with diet and lifestyle strategies, let's take a look at the current medical options available for treating Parkinson's.

Although there is plenty of ongoing research, currently there is no known cure to stop the death of dopaminergic cells in the brain. Pharmaceutical solutions center around managing the symptoms of Parkinson's.

Dopamine Precursors

The most common drug prescribed for Parkinson's is Levodopa (or L-dopa) because it improves muscle control. It is a dopamine precursor, which means it can be used by your body to make dopamine, which in turn helps to lessen motor symptoms.

Sometimes Levodopa may be prescribed alongside carpiboda (Simenet), which inhibits the metabolism of Levodopa and allows more of it to be available to your body for conversion into dopamine.

While these may be effective for a time, studies show that the effects of Levodopa lessen after a few years, and 80% of people treated with Levodopa for 10 years or more experience side effects such as dyskinesia (uncontrollable muscle movements). As with most pharmaceutical medication, Levodopa comes with a long list of undesirable potential side effects such as hallucinations, agitation, anxiety, teeth grinding, dizziness, delusions, nausea, muscle tremors, abdominal pain, loss of appetite and extreme tiredness.

Dopamine Antagonists

Dopamine antagonists, like ropinorole (Requip), pramipexole (Mirapex) and rotigotine (Neupro) are chemicals that act like dopamine in the brain. Doctors will usually prescribe these first, and add Levodopa if the symptoms don't improve. Side effects include vomiting, nausea, dizziness, confusion and hallucinations.

Others Parkinson's Medications

Some medications block the brain chemicals that break down dopamine, which means your brain has more dopamine to work with. These include selegiline (Eldepryl Zelapar), rasagiline

(Azilect). Studies show that these can slow down the progression of Parkinson's, but they come with side effects such as headaches, joint pain, depression, nausea, and digestive issues.
Others, like tolcapone (Tasmar) and entacapone (Comtan), block COMT, a chemical in your body that prevents Levodopa from working. This enables your brain to use Levodopa more effectively.

Unfortunately, these medications only work for a time. As years pass, the body stops responding to them, or the side effects become too strong to cope with. As more Parkinson's symptoms appear, it becomes necessary to prescribe more drugs, for example to treat depression or psychosis, or to address the side effects of other medication. This leads to an increase in side effects and a decrease in quality of life. It isn't a sustainable solution.

The point of this book is not to scare you out of speaking to your doctor or taking medication to ease your symptoms - it is about sharing different options so you can make an informed decision.

There is no harm in using the techniques explained in this program along with solutions suggested by your doctor.

Pharmaceutical solutions offer some benefits but come with a long list of side effects. They are not a magic pill. But you have alternatives. Studies show that an active lifestyle, positive mindset and a diet high in fruits, vegetables, whole grains, nuts and seeds have a protective effect on the brain.

Parkinson's can be managed and its progress stopped or dramatically slowed down - and you can begin right now.

Parkinson's Natural "Quick Fixes"

The question on everyone's lips when a diagnosis is initially made is: what can I do to improve the symptoms of early onset Parkinson's? One answer is pharmaceuticals, but taken alone their effects will not last, nor give your body the foundation for good health. A proactive approach is needed.

In the next section we'll dive deeper into how to detox from accumulated toxins and increase dopamine levels to delay the symptoms of Parkinson's for the long term.

But to get you started, here are four things you can begin doing now to feel better. These strategies come without any side-effects, and, if done regularly, their positive effects can last years.

1. Gait training - to maintain good balance

You can do gait training at home by practicing new ways to walk, stand and turn in order to improve your balance. For example:

- Walk faster - one study found that when people with Parkinson's walked to the sound of a metronome set 10% quicker than their briskest walk, they improved their balance.

- Walk from one side of the room to the other taking long steps, staring straight ahead and focusing on good heel to toe movement.
- Practice balance exercises such as standing on one leg (holding on to a chair for support if you need to).
- See a physical therapist for personalized gait exercises you can practice at home.

2. Exercise and yoga - to loosen stiff muscles

Stiff muscles are a common symptom with Parkinson's, and they are made worse by our sedentary lifestyle. The stiffer your muscles, the harder it becomes to control them. Yoga and gentle stretching loosen your muscles and joints so they become more relaxed, making it easier and more comfortable to move around.

Weak muscles also exacerbate motor symptoms, so it's a good idea to both stretch and strengthen. A physical therapist can show you personalized exercises that will help build muscle strength and stability. You'll also find a list of simple exercises to get you started in Appendix 7.

3. Less protein more fiber

This is relevant whether you decide to take medication or not. Too much protein inhibits your brain's absorption of Levodopa, making it less effective. Swapping animal products for vegetables and beans can help. What's more, these plant-foods contain lots of fiber, which helps relieve constipation, and plenty of antioxidants, which have a protective effect on the brain. Look online for plant-based versions of your favorite meals - often it is as simple as swapping diary cream with oat cream, or using a vegetarian sausage or meat replacement (when you buy these products, check the label and choose products that are organic and free from added sugar and preservatives).

4. Fill your plate with vegetables

In a review of studies published in the American Journal of Clinical Nutrition, researchers analyzed the dietary habits of over 130,000 people for 16 years. They found that those who ate a diet high in fruits, vegetables, whole grains, nuts and seeds, with lower intakes of saturated fats and alcohol, were less likely to develop Parkinson's. This is in part due to the high antioxidant content of these foods, which helps to reduce and prevent oxidative damage. Swapping processed foods for whole foods and fresh produce can help you to protect your brain.

Part 3:
2 Steps to Delay Parkinson's: Detoxing and Dopamine

In order to stop Parkinson's from progressing rapidly, there are two main things you need to remember:

- Detoxing
- Dopamine

Detoxing helps your body to eliminate toxic chemicals, heavy metals and free radicals. Since all of these contribute to higher inflammation and higher risk of disease, reducing your toxic burden will help your body to find a healthy balance.

Dopamine, as we've seen, is essential for motor and non-motor skills. The good news is that the substantia nigra is not the only part of the brain that produces dopamine; the ventral tegmental and the hypothalamus also produce it. What's more, certain foods and supplements support your body's production of dopamine, helping you to keep your levels topped up, and your symptoms under control.

With these things in mind, let's get started.

Detox Your Brain and Body

Let's look at how to reduce your toxic burden first.

The first thing to know is that the body is a very efficient detoxing machine. It is designed to constantly eliminate what doesn't serve it, whether that's environmental chemicals or the byproducts of normal cellular processes. It does so via three main pathways:

Liver:
Your liver actively converts toxins into substances that the body can easily eliminate. It does so by changing the chemical structure of toxins to make them less harmful, for example transforming fat-soluble toxins (toxins that dissolve in fat rather than water) into water-soluble toxins (these can then be excreted via urine or bile). The liver also produces a powerful antioxidant called glutathione, which fights free radicals and protects against oxidative damage caused by toxins.

Kidneys:
Once toxins have been made water-soluble, the kidneys can flush them out as urine. Drinking plenty of water helps this process work smoothly. If you are dehydrated, these water-soluble toxins can be reabsorbed by the body, which then has to work to eliminate them again.

Digestive system:
Some of the toxins processed by your liver are turned into bile, which is then sent to the digestive system for elimination. The digestive system then ushers out toxins and waste as feces. If you are constipated, toxins can linger in your digestive tract and get re-absorbed. You can support your digestive system and regular bowel movements by increasing your intake of fiber and making sure you drink plenty of fluids.

As amazing these systems are, they get tired and worn out if they have too much to do. As we saw in the last section, our modern way of living puts us in contact with more toxins than the body can cope with. The result: chronic inflammation and neural degeneration.

Fortunately, you can easily reduce your toxic burden and support your body's detoxing organs.

Strategies for Gentle Detoxing

Liver:
Cruciferous and allium vegetables contain flavonoids, sulforaphane and organosulfur compounds that boost your liver and help it to produce glutathione. These veggies also increase the body's production of CYP1 enzymes, which are responsible for neutralizing environmental toxins and toxins from medication. Basically, they assist your liver to get rid of unwanted substances and support its antioxidant effect.

Cruciferous vegetables:

- Bok choy
- Broccoli and broccoli sprouts
- Brussels sprouts
- Cabbage (red, white, etc.)
- Cauliflower
- Collard greens
- Kale
- Mustard greens
- Radishes
- Rutabaga
- Turnips
- Watercress

Allium foods:

- Chives
- Garlic
- Leeks
- Onions
- Scallions
- Shallots
- Eggs

Kidneys:
The easiest way to support your kidneys is to ensure you drink enough fluid. According to the National Institute of Medicine, you need:

- For women: 2.7 liters of water (from drinks and food)
- For men: 3.7 liters of water (from drinks and food)

Around 80% of those values (2.1 liters for women and 2.9 liters for men) should be from water, tea or coffee (yes, even coffee - keep reading to find out why!), while the other 20% should come from food. Eating soups, smoothies and high-water-containing foods like fresh fruits and vegetables will help you ensure you get plenty of fluid to keep your kidneys flushing out unwanted toxins.

Toxins are more heavily concentrated in the morning, because the body is hard at work processing them during the night. Drinking a large glass of warm water with lemon first thing in the morning helps to flush out those accumulated toxins.

Digestive system:
The easiest way to keep your digestive system moving is to eat plenty of fiber and ensure you drink plenty of fluids.

There are two main types of fiber, soluble and insoluble. Both are useful to help your body detoxify. It's easy to differentiate between the two. Soluble fiber absorbs water and turns into a gel (think about what happens when you mix water and oatmeal). Insoluble fiber does not (like mixing kale leaves and water).

Soluble fiber
Soluble fiber eases constipation because it soaks up fluid as it passes through your digestive system, making stools bulkier and easier to pass. You'll find it in:

- Oatmeal
- Flax seeds
- Chia seeds
- Nuts & seeds
- Beans & legumes
- Fruits and vegetables

Insoluble fiber
Insoluble fiber is mostly found in the skin of fruits and vegetables, and in whole grains. Just like soluble fiber, it helps with regular bowel movements and ensures toxins are eliminated.

You'll find insoluble fiber in:

- Whole grains (wheat bran, millet, quinoa, amaranth, brown rice…)
- Beans & legumes
- Nuts & seeds
- Fruits with edible seeds (berries, apples, watermelon, papaya)

- Fruits and vegetables with edible peel (make sure you buy these organic to avoid pesticide residues)

There are three other organs also involved in detoxification:

Lungs:
Your lungs are constantly filtering out air-born toxins such as fumes, mold and allergens - and we certainly give them lots to do these days! Think of your lungs like the filter on a hoover - over time it becomes clogged with dust and no longer works as well. Your lungs are a bit like a self-cleaning filter. They cleanse themselves every time you do a deep inhale and exhale, and especially when you sleep.

To keep your lungs clear and healthy:

- Practice deep breathing meditations or simply begin and end the day with a few slow, deep breaths in and out.
- Purify your indoor air through house plants (see Appendix 2 for a list of the best ones), salt lamps and HEPA (high-efficiency particulate air) filters.

Skin:
We don't often think of skin as an organ, but it is - your largest organ. Oxygen and waste are constantly passing through it. Skin eliminates toxins through sweat, so getting a bit hot and breathless will help you lower your toxic burden. Going to the gym is not the only way to do this - saunas and steam rooms also work wonders.

Lymph system:
You know how your lymph nodes get swollen and painful when you are sick? That's because your lymphatic system removes toxins and pathogens from your body, and the nodes swell up while they clear the infection. Your lymph system mirrors your blood circulatory system, but unlike the circulatory system which is pumped around by your heart, it has nothing to move it around.

To help lymph fluid circulate through your body and clear out any toxins, you need to give it a helping hand. Some ways to do this include:

- Body-brushing.
- Exercising (rebounding is particularly helpful).
- Getting a regular massage.

Antioxidants & Anti-inflammatories

Certain foods and supplements will help support your body's detoxing processes and actively fight inflammation.

Let's look at antioxidants first, and their important role in delaying Parkinson's symptoms.

Toxins act as free radicals in the body. Free radicals are unstable molecules that go around the body causing damage - this is one of the factors involved in the development of neural degeneration. Normal molecules have an even number of electrons (electrons bond the molecules' various atoms together, making a stable structure). Free radicals, on the other hand, contain an unpair number of electrons. As a result, free radicals try to steel an electron from intact molecules, creating more free radicals in the process. The damage this causes is called oxidative damage.

Antioxidants are special molecules that are able to donate one of their electrons without becoming a free radical themselves. That means they neutralize free radicals and halt oxidative damage in its tracks. For that reason, it is worth making sure your diet is packed with these protective nutrients.

Your body produces its own powerful antioxidants. One of them is glutathione, which as we've seen is produced by the liver and supported by cruciferous and allium vegetables. Another is the antioxidant enzyme manganese superoxide dismutase (MnSOD).

Manganese Superoxide Dismutase

MnSOD is found within the cells' mitochondria and acts as the main free radical scavenger there. The mitochondrion is the part of the cell that converts the food we eat into energy, and where many of the cell's functions originate. The by-products of this energy-production are reactive oxygen species, or free radicals.

We saw earlier that mitochondrial disfunction is one of the risk factors involved in Parkinson's. Inadequate amounts of MnSOD can lead to an increased production of free radicals or a build-up within the cell, which in turn alters the cell's metabolic functions - and this can have serious implications for neurological health. Ensuring you have adequate amounts of MnSOD is therefore essential.

Unfortunately, the body doesn't absorb MnSOD from food, so it is not possible to supplement it. But it is possible to give your body the nutrients it needs to help it make its own: zinc, copper and manganese. In Appendix 4, you'll find a list of these nutrients and food sources, to help you choose the best foods for boosting your antioxidant levels.

Sources of Antioxidants

Mother Nature's pantry is also packed with antioxidants. In fact, all fruits and vegetables contain plant pigments that scavenge free radicals and reduce oxidative stress. Although blueberries and kale have enjoyed renewed fame of late, less glamorous produce like fennel, celery, turnips, apples, peas, carrots and so on, are just as rich in brain-protective, detox-aiding nutrients.

Some of the best-known antioxidants are quercetin, anthocyanidin, chlorophyll, sulforaphane, and co-enzymeQ10. All of these have shown promise in fighting inflammation and preventing oxidative damage, and can therefore be helpful in delaying neural degeneration. You'll find a list of antioxidant rich foods in Appendix 3.

The best way to get a wide variety of antioxidants is simply to eat a wide variety of whole foods, rather than just focusing on one or two ingredients. That said, one antioxidant is definitely worth supplementing…

Omega-3

As we already saw earlier, Omega-3 is an essential fatty acid that helps your body fight inflammation. Because of that, its effect on Parkinson's has been researched. In a study published in the journal Neurochemistry International, scientists split 60 people with Parkinson's into two groups, giving one group 1000mg of Omega-3 and 400IU of Vitamin E, and the other a placebo. After 12 weeks, the unified Parkinson's disease rating scale (UPDRS), which measures the severity of symptoms, was reviewed. Scientists noted a significant improvement in UPDRS in the Omega-3 group. What's more, they found that supplementation decreased levels of C-reactive protein (an inflammatory molecule) and increased concentrations of glutathione.

In animal models, mice fed an Omega-3 rich diet seemed immune to a toxin called MPTP, a compound that causes the same kind of damage to the brain as Parkinson's - targeting and destroying dopaminergic cells. This led scientists to conclude that Omega-3 protects the brain from the disease and can slow down its progression.

You can find Omega-3 in:

- Seaweed and algae (sea salad, kombu, wakame, nori, spirulina)
- Chia seeds
- Hemp seeds
- Walnuts
- Flax seeds
- Kidney beans
- Edamame beans / soy beans / tofu
- Oily fish

Sleep: Your Brain's Detox Tool

The final ingredient when it comes to helping your brain detox is not food. Have you ever wondered why a bad night's sleep can make you feel muddy-headed and irritable? It turns out that this is less to do with tiredness, and more to do with how your brain functions and gets rid of toxins.

Your brain is a constant hive of activity. It sends millions of signals to millions of molecules per second to coordinate your every movement and thought. Each time it does so, it creates toxic byproducts. Think of it like a car engine. The process that makes the car run also creates harmful fumes. These byproducts can accumulate and lead to inflammation, and make it harder for the brain to work effectively. One of the consequences of this is Parkinson's.

Just like your body, your brain has a built-in detoxifying mechanism that enables it to clear out these by-products. This system, called the glymphatic system, is a clearance pathway for your

central nervous system. The lymphatic system clears the toxins from the body, and the glymphatic system clears away toxins from the brain.

There's a catch though - it only works if certain conditions are met. Deep sleep is that condition. Sleep activates the glymphatic system, while shrinking brain cells by around 60%. This creates more space in between the cells, leaving more room for the cerebrospinal fluid to circulate and flush out the toxins that have built up while you are awake.

The problem is that most of us don't get enough quality sleep. The glymphatic system doesn't come alive the moment you close your eyes, it wakes up when you hit the point of your sleep cycle known as REM (rapid eye movement) sleep.

There are four stages of sleep:

1. **Falling asleep stage**: Your eyes are closed, but you haven't yet sunk into sleep.
2. **Light sleep stage**: Your heart rate slows and your body gets ready for deep sleep. It would be easy to wake you up at this stage.
3. **Deep sleep stage**: You are in a deeper state of rest and it would be harder to wake you up.
4. **Rapid eye movement stage**: You dream; your glymphatic system is activated.

These stages are repeated throughout the night. The first three stages are known as non-REM stages, and typically last up to 15 minutes each. The first REM stage usually happens an hour and a half after you fall asleep and lasts around 10 minutes. Then you go back through stages 2, 3 and 4, with each REM stage getting longer as the night goes on. The longer you can be in REM sleep, the better for your brain.

Unfortunately, most of us experience disrupted sleep - trouble falling asleep, or frequent waking during the night. This means we don't spend enough time in REM sleep, and as a result toxins build-up in the brain. One of the main reasons this is happening is because we have disconnected with natural light and dark cycles. Specialized cells in the eye retina communicate with the brain depending on what they pick up. They respond to short-wavelength light (like the blue lights from your phone and television, or street lights, or the light that comes from a clear blue sky) by telling your brain to start making hormones like cortisol and ghrelin that wake us up and make us hungry. They respond to darkness by telling your brain to produce melatonin, which induces drowsiness and prepares the body for sleep. Except dusk no longer means darkness for any of us - and this excess light in the evening makes it harder to fall asleep, and to stay asleep.

Here are some strategies to help you reset your sleep cycle and ensure you get plenty of time in REM sleep.

- **Set the scene**: Your bedroom should be a haven for sleep. Get rid of televisions and computers, invest in some black-out curtains, make sure your bed is comfortable and warm enough, choose a color scheme that you find calming.

- **Banish blue light**: Change the lightbulbs in your home to warmer, yellow lights. Download an app that changes your phone and tablet screen light from red to blue in the evenings (or switch your phone or tablet to "nighttime mode").
- **Avoid stressful activities before bed**: Programs like the news or cliff-hanger series raise your stress and your cortisol levels. Aim to watch them earlier in the day and keep the evening free for more relaxing activities, like reading.
- **Use essential oils**: Try lavender and blue chamomile in an oil diffuser, or take a warm bath with relaxing oil blends before bed.
- **Swap coffee for herbal tea** from 2pm.

Giving yourself a good night's sleep every night will allow your brain to detox from toxins. This allows your brain to work better, slowing the progression of Parkinson's disease.

Now that we've looked at strategies to help your body get rid of toxins, let's see how to boost dopamine levels.

Boost Dopamine with Food

Natural Dopamine Precursors

The best dopamine-boosting foods are foods that contain a dopamine precursor - that means a compound that your body can convert into dopamine. The dopamine precursors you want to look for are the amino acids phenylalanine and tyrosine. Your body uses these to make L-dopa (Levodopa is a lab-made form of L-dopa), which is then converted into dopamine by the enzyme dopa-decarboxylase with the help of vitamin B6.

Phenylalanine is one of the nine essential amino acids required for health. They are called essential because, since your body cannot make them, you must obtain them from food. You'll also find these foods listed in Appendix 4.

The best sources of phenylalanine are:

- Tofu
- Edamame beans
- Oats
- Navy beans
- Lupin beans
- White beans
- Kidney beans
- Pinto beans
- Buckwheat
- Lentils and lentil sprouts
- Mung beans
- Cornmeal
- Hemp seeds

- Peanuts
- Quinoa
- Sunflower seeds
- Millet
- Almonds
- Pork
- Poultry
- Tuna

You can find tyrosine in:

- Tofu and soy bean products
- Lupin beans
- Oats and oat bran
- Adzuki beans
- White beans
- Lentils
- Split peas
- Kidney beans
- Black beans
- Black-eyed peas
- Mung beans
- Buckwheat
- Cornmeal
- Pinto beans
- Garbanzo beans
- Hemp seeds
- Pumpkin seeds
- Peanuts
- Wild rice
- Spirulina
- Poultry
- Pork
- Salmon

Great sources of B6 include:

- Avocado
- Banana
- Jackfruit
- Sweet potato
- Spinach
- Green peas
- Cabbage
- Pistachios
- Chestnuts

- Buckwheat
- Brown rice

Here are a few meal ideas that combine all three of these dopamine-boosting nutrients:

- Porridge with banana and hemp seeds or pumpkin seeds
- Lentil and sweet potato stew with quinoa or millet
- Roasted sweet potatoes with white bean hummus and hemp seeds
- Avocado and pumpkin seeds on oat crackers
- Black bean chili with brown rice
- Spinach, pea, avocado and garbanzo bean salad with crushed pistachios
- Tofu stir-fry with lentil sprouts, buckwheat noodles and peanut sauce

A Neuro-Protective Way of Eating: The Principles of the MIND Diet

The MIND diet was specifically designed to slow down neurodegeneration. It stands for Mediterranean-DASH Intervention for Neurodegenerative Delay. It is a combination of the Mediterranean diet, which has long proved effective for preventing disease and promoting longevity, and the DASH (Dietary Approaches to Stop Hypertension) diet, which helps to reduce the risk of cardiovascular disease.

I like this diet because it keeps things simple. There are no calorie calculators or millions of rules to stick to - and this is important because food and eating is such an integral and natural part of our lives. The last thing you want is for eating to feel like a chore. In fact, for any new diet to be successful, it needs to be sustainable - and there is nothing sustainable about counting calories.

The principles of the MIND diet are straightforward. They center around avoiding the foods that are proven to harm brain health, and including the foods that help protect it.

5 Foods to avoid on the MIND diet:

- Butter and margarine
- Cheese
- Red meat
- Fried foods
- Sweets

10 Foods to include on the MIND diet:

- Green leafy vegetables
- All other vegetables
- Berries
- Nuts & seeds
- Olive oil
- Whole grains
- Beans
- Fish

- Poultry
- Wine (one glass per day)

Even though I like the principles of the MIND diet, there is one thing I would change, regarding the inclusion of fish and poultry.

While fish does contain plenty of lean protein and is a good source of Omega-3, almost all fish is now contaminated with heavy metals, microplastics, and antibiotics.

Our excessive burning of coal and fossil fuels has increased levels of mercury in the environment, particularly the oceans - this mercury bio-accumulates in fish and ends up on our plates. Studies show that people who eat fish regularly have a higher blood level of mercury, higher than the safe limit set by the FDA. This is relevant here because mercury is known accumulate in the brain over time, and cause neurological impairment. The good news is that when people with high mercury in their blood stop eating fish, mercury levels decrease.

Bigger fish tend to have higher levels of mercury. The ones that have been identified as highest in mercury, and which should be avoided, are:

- Swordfish
- Bigeye tuna
- Marlin
- King mackerel
- Orange roughie
- Shark
- Tilefish

Those with the lowest levels of mercury include:

- Anchovies
- Catfish
- Chub mackerel
- Cod
- Crab
- Haddock
- Salmon
- Sardines
- Whitefish

The billions of tons of plastic we have dumped into our oceans are also affecting fish life. According to the World Economic Forum, around one garbage truck's worth of plastic ends up in the ocean every minute. As this plastic waste degrades, it turns into tiny pieces, called microplastics, which the fish ingest. Where does it end up? On your plate. One of the main components of plastic is bisphenol-a, which is an endocrine disrupter (it causes hormonal changes), and has been found to affect brain development. In animal models, bisphenol-a triggers hyperactivity, depression and aggression. Studies also indicate that mothers with high levels of BPA are at higher risk of having a child with hyperactivity or behavioral problems.

Farmed fish don't offer a much better solution because they are given antibiotics and other medicines to counter the disease-causing conditions in growing tanks. Some are even given commercial dies to improve their color. Antibiotics may be helpful when it comes to clearing an infection quickly, but they also put your digestive health in danger because they wipe out the gut's good bacteria. A healthy gut is essential for keeping inflammation at bay and as such anything that puts it at risk should be avoided.

For these reasons, I don't advise eating fish on a regular basis. If you do eat fish, then make sure you choose smaller varieties (the smaller the fish, the less mercury it contains), that are labelled organic (organic fish is not given as much medication as non-organic). Don't worry, you can obtain Omega-3 from other sources - in fact, fish get their Omega-3 from algae, so you can cut out the "middle-man" by taking a plant-based Omega-3 supplement.

The other thing I'd like to discuss is poultry. The reason poultry is on the MIND list of foods to include is that it contains both the amino acid precursors to dopamine (tyrosine and phenylalanine), while containing less saturated fat than red meat. Here again, the quality of poultry needs to be looked at. Chickens and other domestic birds are given food and medication designed to make them grow bigger. In the US, around 70% of all chicken feed contains the arsenic-based growth-promoting chemical known as Roxarsone. Arsenic, particularly long-term exposure, is known to have devastating effects on cognitive brain health, as well as increasing the risk of cancer.

For poultry that does not contain toxic residues, it is important to go for organic versions and to choose chickens that have been raised humanely and have been given a chance to roam outdoors. As we saw earlier, there are plenty of other foods that contain both dopamine precursors, as well as vitamin B6 to help your body make use of them.

Plant-Protein

While we're on the topic of alternatives to fish and poultry, I'd like to take a moment to talk about protein.

We live in a society where we've been told that we need meat for protein and milk for strong bones. As a result of these marketing campaigns, we now consume more animal products than ever before. We have bacon for breakfast, chicken at lunch, steak for dinner, all of it washed down with plenty of milk (or lattes, milkshakes, yogurts, cheeses…).

The science on a meat-centric diet is conclusive. Study after study finds that the typical Western diet, with its abundance of animal products, increases the risk of chronic diseases such as cancer, diabetes, heart disease, autoimmune disorders, obesity, and neurological problems. One of the reasons for this link is the inflammatory nature of the foods being consumed. In a study published by the British Medical Journal, scientists also found that the Western diet is associated with a smaller hippocampus, one of the areas of the brain responsible for learning, memory and mood regulation - all of which are affected in Parkinson's disease. And yet, we have become so used to eating meat all the time that the thought of change can be frightening.

It need not be. Firstly, I'd like to put your mind at rest about the protein element. Meat is often held up as the "gold standard" for protein because it contains all nine essential amino acids (those amino acids that you must obtain from food). But certain plant foods also contain all of these amino acids. They are:

- Buckwheat
- Soy beans (edamame, tofu, tempeh)
- Hemp seeds
- Chia seeds
- Quinoa
- Spirulina

You can also combine foods that contain different amino acids to obtain all nine:

- Grains with beans or legumes (for example: peanut butter on oat crackers, rice and lentils, kidney beans and millet).
- Seeds or nuts with beans or legumes (for example: sunflowers seeds with black beans, garbanzo beans and sesame seeds (hummus), pumpkin seeds and mung beans).

And there is another reason why turning towards vegetables is worth doing. Just as science has linked a meat-heavy diet with increased risk of disease, it has also linked a plant-based diet with improved longevity and quality of life. Thanks to the nutrients and antioxidants present in vegetables, fruits, whole grains, nuts and seeds, a plant-based diet brings your body what it needs to function at its best - that means more efficient detoxification, reduced inflammation, and a healthier brain. In Appendix 1 you'll find 13 easy to make plant-based recipes to inspire you to dive into plant-based cooking.

10 Dopamine-Boosting Superfoods

Many plants have been found to increase the release of dopamine, or help the brain make better use of it. It is therefore worth adding some of these foods and supplements to your daily diet. When it comes to ayurvedic herbs or supplements, it is important for you to speak to your doctor before taking them, to make sure that they do not interact with your medication.

1. **Good quality coffee**. Good news, you do not need to give up your morning cup of coffee. Studies show that caffeine acts as an antioxidant to reduce mitochondrial stress, and also increases dopamine release. That has led scientists to suggest caffeine has potential as an add-on therapy for Parkinson's disease. Of course, moderation is key - do not exceed 4 cups per day, and remember to choose organic coffee (coffee is a heavily sprayed crop, so non-organic tends to contain pesticide residues).

2. **Magnesium**. Adequate levels of magnesium are essential for smooth muscle function. What's more, magnesium has been found to have anti-depressant effects thanks to its effects on the D1 and D2 dopamine receptors. The best sources of magnesium are pumpkin seeds, spinach, chard, and soybeans.

3. **Green tea**. Scientists have observed that the polyphenols in green tea increase blood levels dopamine and reduce oxidative stress in rats subjected to high-stress tests. Just like coffee, the quality of green tea is important. Choose organic, matcha green tea (which contains higher amounts of antioxidant polyphenols).

4. **Turmeric**. The antioxidant compound in turmeric, curcumin, has been found to normalize dopamine production, while inhibiting the breakdown of dopamine and ensuring more is available for the brain to use. You can add fresh or ground turmeric to soups, curries, stews, smoothies, and even tea.

5. **Folate**. Without adequate folate, or vitamin B9, the body cannot produce dopamine and other neurotransmitters like serotonin - which is why it is also associated with an increased risk of depression. The best sources of folate include lentils, pinto beans, garbanzo beans, asparagus and spinach.

6. **Ginseng**. Used in Chinese medicine to combat depression and enhance cognitive ability. Scientists have confirmed that the compounds in ginseng offer brain-protective benefits and increase levels of dopamine. When choosing supplements, go for a reputable brand with organic certification.

7. **Grapes and wine**. Yes, you read that right: wine is allowed (find one that is organic and made without sulfites). Resveratrol, a phenolic compound found in grapes, helps to reduce the effect on chronic stress on the brain by preventing oxidative damage and increasing dopamine levels in both the frontal cortex and stratum parts of the brain. As well as red wine, grapes and grape juice, you can find resveratrol in peanuts, pistachios, cacao and mulberries.

8. **Oregano and rosemary**. Both these plants, so present in the Mediterranean diet, offer brain protective benefits. Studies show they elevate dopamine levels and help counter the symptoms of depression. Fresh or dried, these herbs lift your food and your mood.

9. **Probiotics**. Your gut is your second brain - keeping it healthy helps to keep your brain healthy too. Studies have shown that probiotics, like lactobacillus plantarum and lactobacillus rhamnosus GG, can modulate emotional behaviors and reduce depression by affecting the brain's dopaminergic and serotonergic systems. You can improve your second brain by taking a good-quality probiotic supplement and increasing your intake of fermented foods.

10. **Ginkgo biloba**. Ginkgo biloba has a beneficial effect on conditions associated with neural degeneration, like Parkinson's. That's because two of the flavonoids in Ginkgo biloba increase the brain's dopaminergic activity. Scientists noted that after 14 days, rats fed a Ginkgo biloba extract showed a 159% increase in dopamine levels compared to the control group.

Boost Dopamine with Movement

We've briefly discussed the importance of exercise to delay the symptoms of Parkinson's. Indeed, the stronger your muscles, the easier it is to move around. But there is another reason why exercise is so vital, and that has to do with its effect on the brain. Exercise improves neuroplasticity - the brain's ability to encode and learn new behaviors in response to environmental changes.

When you exercise, you enhance your dopamine production, which in turn helps to counter the muscle rigidity, lack of voluntary movement, and tremors that are part and parcel of Parkinson's. This happens because exercise increases blood levels of calcium. This calcium is transported to the brain, where it enhances dopamine production. Exercise also makes dopaminergic cells more efficient. In a study published in the Journal of Neuroscience, scientists noted that in people who exercise regularly, dopaminergic cells release greater amounts of dopamine while also decreasing the rate of its removal, compared to people who do not exercise. They also noted that this resulted in better connections in the brain, and improved motor skills - and that means better balance, muscle control, and movement in general.

And let's not forget that exercise is, at its very root, pleasurable. At the same time as boosting dopamine levels, it also increases levels of serotonin, our other feel-good neurotransmitter. Exercise gets a bad rap these days. In a sense, we're practically brainwashed into believing that exercise means pushing ourselves, doing extreme fitness classes or boot camps or weight training. And this creates a disconnect in our minds, it makes exercise a chore - something we put ourselves through, something we do because it is good for us. It is time to step out of that mindset and get back in touch with the joy of daily movement.

The truth is that gentle exercise, even the kind one does as a natural part of an active lifestyle (such as walking, spontaneous dancing, swimming, stretching, cleaning the house, etc.), can also provide brain-protective, health-boosting benefits such as decreasing blood pressure, improving lymphatic flow, improving sleep, lowering inflammation, and giving your mood a boost - all of which improve your quality of life and help to keep the symptoms of Parkinson's at bay for longer.

In a study published in the journal Evidence-Based Complementary and Alternative Medicine, scientists investigated the effect of qigong, a gentle practice similar to tai chi, on Parkinson's. They split 54 patients with moderate Parkinson's into two groups. One group was prescribed 60 minutes of qigong, five times a week, alongside medication. The other group was treated with medication alone. After 10 weeks, the researchers compared data on body functions, and found that the qigong group showed significant improvement in muscle hardness, one-legged blind balance, and coordination. This led them to hypothesize that exercises that involve some level of balance and coordination may be more effective as a rehabilitation treatment than aerobic exercise alone.

Incorporating coordination exercises and more movement into your daily life does not have to be difficult. In fact, there are many ways you can do this:

- **Book a class**: Once or twice a week, commit to going to an exercise class. Tai chi and qigong are perfectly adapted as the movements gently build balance, coordination and strength. Yoga and Pilates are also good options, just make sure you choose a class that is adapted to your level.
- **Gait training and strength training**: A physical therapist will be able to show you the best exercises adapted to your body, to straighten your gait, strengthen your core, and improve your balance. The trick with this is little and often - 10 minutes every day will build up over time better than one 60-minute session a week.
- **Don't sit for too long**: If you're watching television or reading a book, make a point of getting up every 30 minutes and doing a few movements - for example some big arm circles, light stretching, or squats (ad breaks are the perfect time for this!). This gets your blood circulation going and helps counter the negative effects of sitting.
- **Daily walking**: the simplest, cheapest, and perhaps most pleasant exercise available. Take a daily walk. Make it part of your routine. if you're a morning person, head out at dawn for a brisk walk, and watch the world waking up. if you're an evening person, take a stroll after dinner as dusk falls and witness the close of the day. Find green spaces around where you live, and go for a walk with your friends or family.
- **Swimming and water aerobics**: Swimming is the best low impact exercise there is and, thanks to the water resistance, is also very effective for strengthening muscles. Head to your local pool or book a water aerobics class. Classes are also a great way to meet and connect with new people.

Boost Dopamine with Your Mind

We've briefly seen how dopamine and mental health are closely tied and how complex that relationship is. Let's take social anxiety disorder for example. Studies show that people with social anxiety tend to have lower levels of dopamine than people who feel more comfortable in social situations.

One could argue that the disorder is caused, not by low levels of dopamine, but by a belief that social situations are dangerous, or that you will be judged, or that you will not compare well to the other people present. None of these beliefs, of course, is evidence-based. Stripped back, a belief is just a thought. But thoughts are powerful things. They change the chemical composition of the brain - in the same way that a stressful situation causes physical changes like a release of cortisol and increased blood pressure.

We've seen how to boost dopamine with diet and movement, but what about boosting it with your mind? You can do that simply by changing your thoughts.

When the brain is presented with a reward or with the anticipation of a reward, it releases dopamine. Dopamine prompts the brain to take note and remember how to repeat this action. If you create the dopamine environment, your brain will do the rest. For too long we've been focusing on the wrong kinds of rewards - high fat and high sugar foods, that second helping of dessert, just one more episode, gossiping about other people, unnecessary shopping, etc. The

more we've focused on this, the more we've created and exacerbated the conditions that keep us feeling anxious, depressed, and sick. It is now time to switch it up.

What that essentially means is changing the way you think about yourself, your life and your choices.

Let's consider these choices first. Doing something grudgingly, while wishing things were different or bemoaning the situation, never amounts to anything positive. If you think of the strategies in this book as chores, your brain will also consider them negatively and dread, rather than look forward, to them. If, on the other hand, you are excited and motivated to incorporate these new strategies into your life, your brain will consider these changes as positive, and will help you to stay on that path.

So, when you choose an organic americano with oat milk instead of a caramel latte, or when you opt for a smoothie packed with berries instead of a stack of sugary pancakes, make a point of feeling good about it. Take a second to remind yourself of all the positive reasons why you're making this choice: better brain function, smoother movements, improved antioxidant capacity. And then, really savor that cup of coffee, or smoothie. By doing this, you're basically telling your brain: this is a positive, pleasurable activity and I'd like to do more of it. Your brain releases dopamine as a response, which reinforces that behavior pattern and makes it easier for you to make that healthy choice next time, until it becomes so effortless you don't even notice you're missing out on anything.

Of course, when it comes to the thoughts you have about yourself and the world, this can be more challenging. It can take time to unpick the patterns of a lifetime - often our beliefs and thoughts are so ingrained that we don't even notice them anymore, they are like background noise. These background noises might be that bad things always happen to you, that others always let you down, that life is always stressful, that you always fail, that you're not as successful as others, etc. What flourishes from this environment is more negativity. The more we stay stuck in this pattern, the more we starve the brain of dopamine.

It was so for Annie. She would not mind me telling you that she was very much a "glass half empty" kind of person. For most of her life, she felt other people had taken advantage of her, that opportunities had never come her way, that her children had failed, that people did not appreciate her. These topics would come up again and again in conversations, it was the narrative with which she described her days. To distract herself from the disappointment she felt about her life, she took great pleasure in gossiping endlessly about others. In fact, she was notorious in her office for having the most vitriolic tongue. All this was sure to come to a head, and indeed, over the years, she suffered the physical manifestations of being turned towards the negative. Depression, anxiety, and rheumatoid arthritis (an autoimmune condition characterized by the immune system attacking the body's own joints) plagued her throughout her 40's and 50's. Then, at 57, she was diagnosed with Parkinson's. To Annie, this was just another piece of evidence to support her view of herself as hard-done-by and her life as a long series of disasters.

Annie went home after her diagnosis and closed the door with a heavy heart. Because she had a well-developed sense of guilt, and because she was always so prompt to judge, she felt that this

disease was somehow her fault and that she would be judged. She didn't want to tell anyone she was going through this. For two months, she isolated herself. But this action, initially self-destructive in nature, ended up having a positive effect. Because in her sadness, Annie reached towards an alternative. She began to read some of the books her daughter had given her over the years. The Art of Happiness. Letting Go of the Ego. The Power of Now. Books she'd scoffed at and filed away on the bookshelf, never to be looked at again. She began putting into practice some of these teachings. Meditation. Gratitude for the present moment. Forgiveness. Acceptance. Connection with others. And something switched in her brain. She began to see herself as part of something bigger, and to see others as human beings doing the best they can. She began to unpick the negative beliefs that kept her stuck in a mindset of disappointment. Slowly but surely, her view of herself and the world transformed. Through the lens of gratitude, Annie also became aware just how good her life had been. She softened. By some twist of fate, the hardest news to hear had become a catalyst for good.

It has been four years since Annie was diagnosed with Parkinson's. Her symptoms have stabilized and remain manageable.

The idea that meditation and positive thinking can do anything to help Parkinson's may sound far-fetched, but it has been verified scientifically. In 2002, the John F. Kennedy Institute measured the effect of meditating on the release of neurotransmitters by measuring the brain's activity during Yoga Nidra (a yoga pose associated with deep relaxation and quieting the mind). They found that during meditation, there was a 65% increase in dopamine release from the ventral stratum part of the brain.

The question that obviously follows is: how do I meditate? And there is often some anxiety associated with this. You might think it is difficult, or that you need years of yogic practice before being able to meditate. This is not true. You get the same physical benefits of meditation whether you're a notice or an experienced meditator. The trick is to meditate regularly, and to not worry that you're not "doing it right".

Meditation used to be quite an esoteric practice, on the fringes of society. Now, it's been westernized. Even bankers and CEOs meditate. You can find dozens of books on meditation in your local library. There are countless apps that will remind you to meditate and talk you through breathing and meditating techniques. YouTube is packed with guided meditations and meditation music playlists. Try different ones and find the method that works for you. If you have never meditated, I strongly recommend starting with guided meditations. These will narrate you through the different stages, and help you reach that state of inner calm. As you become more comfortable with it, you can begin to meditate on your own. It is just like a muscle - the more you use it, the stronger it becomes.

And the next question is surely "How do I switch to a more positive mindset?". By changing your perception. When you think about how irritating or frustrating or infuriating or sad a situation is, your body responds with tension and your thoughts will spiral in the direction you've sent them. When, instead, you look for the positive in situations and people (for example by asking yourself "what is this situation teaching me?" or "what is making this person behave in this way?" or even "how can I improve this situation for all concerned?"), then you avoid falling

into a depressive and dopamine-depleting thought pattern, and are more likely to stay calm and peaceful, or at least are more likely to return to that state quicker.

Of course, our moods and thoughts in general are complex. Thought patterns and ingrained beliefs are learned very early in life, so early that most of us couldn't stay precisely where or when or from whom we absorbed them. That's why therapy can be incredibly useful if you're diagnosed with Parkinson's - both to come to terms with the diagnosis, but also to let go of and forgive the past, overcome low mood, and step into a positive frame of mind. Self-help books can also be invaluable tools for self-discovery and mental transformation.

If you are worried because you recognize some of these thoughts or patterns in yourself, now is not a time for feeling guilty or blaming yourself. This is only more negative thinking. You have a wonderful opportunity right now to make a positive change by consciously doing the inner work to free yourself from the habit of negative thinking, and reconnect with joy. Find a self-help book, therapist or life coach today and start your journey to a happier, more dopaminergic brain.

Part 4:
12 Daily Habits to Delay Parkinson's

As we've seen, there are many factors involved in the development of Parkinson's: environmental pollutants, the Western diet, an elevated toxic burden, lack of exercise, stress and depression. In order to improve your symptoms and delay the progression of Parkinson's, you need to address them all. These 12 daily habits will help you do just that.

DETOX
1. Eat 2 portions cruciferous and allium vegetables*   *This helps your liver to detox and boosts your levels of glutathione. See Appendix 3 table Antioxidants & Detoxifying Foods.*
2. Drink 8-10 glasses of water/herbal tea daily   *This helps your kidneys flush out accumulated toxins. Begin your day with warm water & lemon.*
3. Get at least 8 hours sleep   *This maximizes your time in the REM stage and helps the glymphatic system flush away brain toxins.*
4. Eat at least 6 portions of antioxidant-rich foods (incl. cruciferous veg)*   *They fight free radicals and lower inflammation. They also contain fiber to help your digestive system eliminate toxins. See Appendix 3 for the list of antioxidant-rich foods.*
5. Take brain-healthy supplements   *A good quality food-grown multivitamin, a probiotic supplement, and an algae-based Omega-3 supplement.*
BOOST YOUR DOPAMINE LEVELS
6. Eat at least 1 portion each of dopamine precursors*   *See Appendix 4 for the list of foods rich in phenylalanine, tyrosine and vitamin B6.*
7. Eat at least 1 portion dopamine-boosting superfoods*   *See Appendix 4 for the list of dopamine-boosting superfoods.*
8. Do at least 30 minutes of exercise   *Begin with 15 minutes twice a day to loosen stiff muscles and get your circulation going. Or book into a tai chi, qi gong or yoga class. You'll find some exercises to get you started in Appendix 7.*
9. Meditate   *Start with five minutes in the morning or evening. YouTube, HeadSpace, and Gaia.com all offer guided meditations to get you started.*
10. Let go of negative emotions   *Let go of anxiety, depression and dissatisfaction that keep you in a low mood. You can do this through self-help practices such as gratitude meditation and daily journaling, or find a therapist or life coach that resonates with you.*
11. Do something that makes you smile   *Whether that be listening to music you love, partaking in a hobby you enjoy, getting on the phone to a friend or loved one, or reading a good book, make time every day for something that boosts your mood.*
12. Take it further   *See Appendix 8 for seven additional evidence-based dopamine-boosting strategies, and add at least one to your day.*

*you will notice that some foods appear on both the dopamine-boosting foods list and the antioxidant-rich food list - this is fine, one portion counts for all those nutrients. See table below for an example of how this might look on an average day.

Example Day Eating Antioxidant-rich Foods and Dopamine-boosting Foods	
Meal	**Nutrients**
Breakfast: Smoothie containing a banana, hemp seeds and berries	2 portions antioxidants (banana & berries) 1 portion dopamine precursor (hemp seeds - phenylalanine) 1 portion dopamine precursor (banana - B6)
Lunch: Hummus wrap with rocket and avocado (2 portions)	2 portions antioxidants (rocket and avocado) 1 portion dopamine precursor (avocado - B6) 1 portion dopamine precursor (garbanzo beans/hummus - tyrosine)
Dinner: Vegetable soup or stew made with various vegetables (2-3 portions), quinoa	2-3 portions antioxidants (depending how many different veg you add to the stew or soup) 1 portion dopamine precursor (quinoa - phenylalanine)
Snack: Chia pot topped with fruit and pumpkin seeds or coconut yogurt with stewed fruit and pumpkin seeds (1 portion)	1 portion antioxidants (stewed fruit) 1 portion dopamine precursor (pumpkin seeds - tyrosine)

A Healthier Brain is Within Your Reach

A Parkinson's diagnosis does not have to be a death sentence. You now have all the information you need to tackle Parkinson's at the root and begin improving your quality of life for years to come.

Begin right now. In the next few pages you'll find appendices that will make it easy for you to implement the 12 daily habits: lists of detoxifying foods, detoxifying practices, daily exercises, and dopamine-enhancing ingredients.

By choosing foods and lifestyle habits that help you lower your toxic burden and boost your levels of dopamine, you can significantly delay or even prevent the progression of Parkinson's and enjoy an active life for a long, long time.

Here's to keeping your brain healthy and living life to the full.

Appendix 1: 13 Brain-loving Recipes

Kitchen Hacks

Doing anything in the kitchen can be hard work when you have Parkinson's, so I've put together a few hacks to make life a little easier.

1. Find utensils with large, cushioned handles - these are easier to grip.

2. Invest in a jar opener - some of these can be mounted to the underside of your cabinet or worktop and used to break seals and open lids. Alternatively, silicone jar grippers are a good option.

3. When it comes to chopping, slicing, dicing, and mincing, there are countless gadgets that can help you save time and effort. Most food processors come with accessories for grating and mincing. You can also find manual vegetable choppers that easily slice through many vegetables in a matter of minutes.

4. If you want to chop vegetables manually, invest in a rocker or t-handled knife which you can grip with both hands.

5. Use pot stands or dishware with suction cups at the bottom - this will ensure the pot stays firmly in place while you stir.

Fresh Start - Restock Your Kitchen Cupboards

As you step into a new, healthier way of eating, it's a good idea to begin the process of emptying your kitchen of processed foods and restocking them with whole, natural ingredients. Here is a snapshot of what a healthy pantry can look like. You don't need to make the changes all at once, and you don't have to buy all the ingredients on this list, just use it as a guide.

Spices & Herbs	Grains	Legumes	Oils & Seasoning
Turmeric Cumin Ras el Hanout Rosemary Oregano Mint Curry powder Black pepper Smoked paprika	Black rice / brown rice Quinoa Millet Amaranth Polenta Brown rice pasta Buckwheat noodles Gluten-free oats Oat bran	Garbanzo beans Black beans Kidney beans Navy beans Red or brown lentils Black eye beans Split peas Mung beans Adzuki beans	Coconut oil Olive oil Avocado oil Tamari sauce Apple cider vinegar Plum vinegar Himalayan pink salt
Baking	**Healthy sweetness**	**Nuts & Seeds**	
Buckwheat flour Rice flour Wholegrain flour Oats Oat bran	Prunes Apricots Dates Desiccated coconut Coconut flakes Maple / rice syrup Vanilla powder Cinnamon	Tahini Peanut butter Pumpkin seeds Sunflower seeds Chia seeds Flax seeds Hemp seeds Almonds Hazelnuts Brazil nuts Cashew nuts	

Brain-boosting Berry Smoothie

Serves 1

Ingredients:
1 cup plant milk (almond, oat, coconut, hemp, cashew, rice….)
1 banana
1 x cup frozen berries (blueberries, raspberries or blackberries)
1 tbsp chia seeds

Method:
- Place all ingredients in a high-speed blender.
- Blend until smooth - it will come out quite creamy. Add a little more plant milk if you want it more liquid.
- Enjoy on its own or topped with mixed seeds or desiccated coconut.

Change it up:
- Add a small piece of fresh ginger or turmeric for added antioxidants.
- Replace the berries with 1 tbsp of peanut butter and 1 tbsp raw cacao powder.
- Try with other fruits such as apples, kiwis, mango or pineapple.
- Add a cup of baby spinach for extra greens.

Almond Chia Breakfast Bowl

Serves 2

Ingredients:
1 cup almond cream
1/4 cup chia seeds
1 tbsp maple syrup or rice syrup
1/4 tsp cinnamon powder (optional)

Method:
- In a bowl, whisk together the chia seeds, almond cream, maple syrup and cinnamon.
- Leave for ten minutes to thicken, then whisk again until the mix is even.
- Cover and refrigerate for at least 2 hours to allow to set.
- Serve on its own, with fresh fruits, or with toasted seeds.

Change it up:
- Swap the almond cream for oat cream or coconut milk.
- Use vanilla instead of cinnamon.
- Add 1 tbsp of raw cacao powder to make it a chocolate breakfast bowl.

Creamy Overnight Oats

Serves 2

Ingredients:
1 cup porridge oats
1 cup oat milk
1 cup oat cream
1/4 cup apricots (chopped) (or use raisins to avoid having to chop anything)
1/4 tsp cinnamon powder
2 tbsp hazelnuts (roasted)

Method:
- To roast the hazelnuts, place them on a baking tray in an oven at 400F for 10-12 minutes. I suggest roasting a cup of nuts and storing them in an airtight container, so you always have some to hand to throw onto a breakfast bowl.
- In a bowl, place the oats, oat milk, oat cream, apricots (or raisins), and cinnamon. Stir until well mixed together. Leave it for five minutes and then mix again.
- Cover and place in the fridge overnight.
- Serve with the toasted hazelnuts.

Change it up:

- Cook the oats in 2 cups of oat milk (without oat cream), for a hot breakfast.
- Use almond milk and almond cream instead of oat.
- Swap the apricots for chopped dates, dried blueberries, dried goji berries.
- Use roasted almonds instead of hazelnuts.
- Serve with a dollop of peanut butter.
- Serve with fresh fruit and mixed seeds.

Hearty Hummus

Serves 4

Ingredients:
1 can cooked chickpeas (drained)
2 tbsp tahini
1 tbsp hemp seeds
1/4 cup extra virgin olive oil
1 clove garlic (peeled)
1/2 lemon (juiced)
1-2 tbsp water (if needed)
Pinch of pink salt

Method:

- Place all the ingredients in a food processor or blender and process the mixture reaches a creamy consistency.
- If the mixture is too thick, add a little bit of water.
- Have a taste and adjust the seasoning if necessary.
- Spoon onto sourdough bread or oat crackers, serve with raw or steamed vegetables.

Change it up:

- Add 1/2 a red pepper and a pinch of smoked paprika.
- Add a pinch of cumin and a thumb sized piece of fresh turmeric.
- Add a handful of fresh parsley, cilantro, basil or mint.
- Make it luxurious by drizzling with extra olive oil and adding some toasted pine nuts.

Smashed avocado

Serves 1-2

Ingredients:
1 x ripe avocado
1/2 lemon (juiced)
1 pinch of pink salt
1 pinch of smoked paprika (optional)
1 tbsp chopped fresh herbs (parsley, mint, chives, basil)
1 tbsp toasted pumpkin seeds

Method:

- Toast the pumpkin seeds in the oven at 400F for 5-7 minutes. Make a big batch (1 or 2 cups, so that you have some ready for other meals - they keep for 2-3 weeks in an airtight container).
- Open the avocado, take out the stone and spoon the flesh into a bowl.
- Add the lemon, fresh herbs and salt, and mash everything with a fork until the mix is creamy.
- Taste and adjust seasoning as necessary.
- Serve on sourdough bread or oat crackers, topped with a pinch of paprika and pumpkin seeds.
- You can also use it on salads, or served with raw or steamed vegetables.

Nutty Olive Tapenade

Makes around 1.5 cups

Ingredients:
2 cups pitted green olives (rinsed & drained)
1 cup fresh parsley (roughly chopped)
1/2 cup ground almonds
1/2 roasted sunflower seeds
1 lemon (juice and zest)
1 clove garlic (peeled & crushed)

Method:

- Roast the sunflower seeds at 400F for 5 minutes or until becoming golden. Allow to cool.
- Using your hands, squeeze the olives to rid them of excess water and brine.
- Place them in a food processor with the sunflower seeds and parsley, and process until beginning to be broken down.
- Add the ground almonds, lemon juice, and garlic and process until the ingredients looks evenly mixed but still with a little texture.
- Taste and adjust seasoning if necessary.

- Serve on sourdough toast, oat crackers, or as a dip for vegetables. You can also dilute it with olive oil to make a quick and tasty salad dressing.

Pea & Roots Curry

Serves 4-6

Ingredients:
1 cup split peas

1 tbsp coconut oil (melted)
1 tsp curry powder
2 large beetroot (chopped)
2 sweet potato (chopped)

1 tsp coconut oil
1 onion (finely chopped)
1 thumb sized piece of ginger (grated)
1 thumb sized piece of turmeric (grated)
1 tbsp curry spice
3 sticks of celery (chopped)
1 handful of mushrooms (chopped)
2 cups vegetable stock
1 can full fat coconut cream
Pinch of salt

Method:
Soak the split peas overnight. Cook in a large pan with plenty of water for 40 minutes or until tender. Set aside.
In a large bowl, place the chopped beetroot and sweet potato, melted coconut oil and curry powder. Toss until evenly coated and place on a baking tray.
Roast in the oven at 400F for 20-30 minutes (the smaller the chunks, the less time this will take).

While the root veg is roasting, make the curry.
In a large saucepan, heat the coconut oil and fry the onion until translucent. Add the ginger and turmeric and fry for a minute, then add the curry powder and stir until the onion is coated and the spices release their fragrance.
Add the celery and mushrooms. Stir fry for a minute.
Add the stock and simmer for 3 minutes.
Add the coconut cream and split peas and cook for a further 5 minutes.
You can either mix the roasted vegetables into the curry or place the curry in a bowl and pile the roasted veg on top.
Serve with a sprinkle of toasted seeds, a portion of whole grains, or sourdough toast.

Change it up:

- Try using leeks instead of or as well as onions.
- Swap the celery for baby corn or zucchini.
- Add chunks of tempeh or tofu.
- Try it with roasted cauliflower instead of root veg.
- Swap the split peas for garbanzo beans or lentils.
- Use different curry spice blends to achieve other flavors.

Chocolate Peanut Truffle Bites

Makes 10-12 bites

Ingredients:
1 cup smooth peanut butter (use unsalted and a brand made from 100% just peanuts)
1/3 cup maple syrup, date syrup or rice syrup
1/3 cup coconut flour
1/4 cup cacao powder

Method:

- Place the ingredients in a food processor and process until the mixture is well combined - it will be very sticky so you might have to stop and scrape the bowl a few times.
- Once everything is well combined, place the mixture into a 6 x 3 inch mini loaf tin lined with baking paper and distribute it evenly. If you don't have that, simply line a similar sized Tupperware box with baking paper instead.
- Place in the fridge to set for 2 hours.
- Cut into bites and store in an airtight container for 2 weeks.

Fridge Flapjacks

Makes 6 flapjacks

Ingredients:
2/3 cup gluten-free oats
1/3 cup desiccated coconut
1/4 cup roasted buckwheat grots (or substitute for chopped roasted almonds)
2 tbsp almond butter
1/4 cup coconut butter (melted)
1/2 cup medjool dates (or substitute for dried apricots)

Method:

- Place the oats, desiccated coconut, and buckwheat grots into a food processor and pulse a few times until combined and beginning to break down.
- Add the almond butter, melted coconut butter, and dates and process until the mixture begins to clump together slightly.

- Press the mixture into a container (loaf tray, cake tray, Tupperwear) lined with baking paper.
- Pop into the fridge to firm for 2 hours.
- Slice into pieces.
- Store in an airtight container for 5 to 7 days.

Toasted seed sprinkle

Ingredients:
1/2 cup pumpkin seeds
1/2 cup sunflower seeds
1 cup buckwheat
1/2 cup cashew nuts (roughly chopped)

Method:
- Place the seeds and nuts onto an oven tray.
- Bake at 340F for 7 to 10 minutes or until lightly golden.
- Allow to cool, then store in an airtight container (will keep around a month).

Change it up:
Use almonds, walnuts or peanuts instead of cashews
Mix with 1 tsp melted coconut oil, a pinch of spice (paprika, curry, turmeric, cumin…) and a pinch of salt to elevate the seeds to a new flavor level.

Greens & Beans Soup

Serves 4

Ingredients:
1 tbsp olive oil
1 large onion (finely diced)
1 clove garlic (minced)
3 cups vegetable stock
1 can cannellini beans (rinsed and drained)
1 large potato (peeled and diced small)
1 head of broccoli (stem chopped and head cut into florets)
1 handful of kale (roughly chopped)
3 tbsp nutritional yeast
1 small carton oat cream or almond cream
1 tsp pink salt
Toasted seeds to garnish

Method:

- Heat the olive oil and fry the onion on medium heat until it is translucent. Add the garlic and cook a further minute, taking care not to burn it.
- Add the vegetable stock, beans and potato and cook for 10 minutes, or until the potato is almost cooked.
- Add the broccoli, kale and oat cream, and cook for a further 5 minutes, or until the broccoli is tender. Then add the nutritional yeast and salt.
- Using a blender or hand blender, blend the soup until smooth. Taste and adjust seasoning if necessary.
- Serve with toasted seeds, a portion of whole grains, sourdough toast, or with a side salad.

Turmeric Coconut Chai Latte

Serves 2

Ingredients:
2 cups plant milk (oat, almond and coconut work best with this recipe)
2 tbsp coconut cream (you can also use almond or oat cream)
1 tsp turmeric powder or 1 thumb size piece of fresh turmeric, finely sliced
1/2 tsp cinnamon powder or 1 cinnamon stick
1 star anise
2 whole cloves
1 cardamom pod

Method:

- Place all the ingredients in a saucepan and slowly heat up for 5-10 minutes, stirring occasionally and taking care not to boil the mixture.
- Pour into mugs through a sieve or tea strainer to catch the spices.
- Enjoy hot, with a flapjack.

Berry Fruit Crumble Pot

Serves 4

Make the two elements of the crumble separately so that you can eat them in different ways depending on what you fancy.

Ingredients:

For the fruit compote:
3 large cooking apples (peeled and chopped)
1 cup frozen berries
1 cup orange juice
Zest of one orange
1/2 cup mix dried cranberries and sultanas or chopped apricots
1/4 cup chia seeds
1 tsp cinnamon

For the crumble top:
2/3 cup gluten free oats
1/3 cup chopped almonds
1 tbsp coconut oil
2 tbsp coconut sugar
1 tsp vanilla essence

Method:

- In a bowl, mix together the oats, almonds, coconut oil, coconut sugar and vanilla essence until well combined.
- Spread onto a baking tray lined with baking paper, and bake at 400F for 8-12 minutes, until the mixture is lightly golden.
- Once cooled, this can be stored in an airtight container for up to 2-3 weeks.

- Place the chopped cooking apples, frozen berries, orange juice and cinnamon in a pan and heat on medium until simmering. Cook for 10-15 minutes or until the apple is softened.
- Add the dried cranberries and chia seeds, and stir.
- Keep stirring until the chia seeds have thickened. Mix in the orange zest.

- To serve, spoon the fruit compote into a bowl and top with full fat coconut yogurt or oat cream, and a helping of crumble topping.

Ice-cream

Serves 2

Ingredients:
3 frozen bananas (chopped into medium chunks)

Extras (choose one):
2 tbsp peanut butter
2 tbsp cacao powder
1 cup frozen berries or other frozen fruit like mango
1/2 cup coconut cream

Toppings:
1 tbsp cacao nibs
1 tbsp coconut flakes
1 tbsp dried fruits (cranberries, blueberries, apricots)
1 tbsp toasted seeds
1 tbsp grated dark chocolate

Method:

- Place the frozen banana pieces in your food processor and process until they turn into a smooth, thick banana ice cream. You may need to stop and scrape the sides of the food processor a couple of times. If adding extras, put this in once the banana has started to break down a bit.
- Serve immediately and sprinkle on your choice of topping.
- This ice cream can also be frozen and enjoyed later, but the texture will be more solid.

Appendix 2: Tips to Detox from Dietary and Environmental Toxins

DIET

1. Eliminate processed foods from your diet. If buying pre-made foods, check the ingredient list and avoid any that contain ingredients that sound like they've been made in a laboratory.
2. Drink plenty of water (this helps your kidneys to detox).
3. Eat plenty of fiber-rich foods (this helps your digestive system to detox).
4. Eat 1-2 portions of cruciferous and allium vegetables a day (this helps your liver to detox).
5. Include antioxidants in the form of berries and other brightly colored fruits and vegetables (antioxidants help stop free-radical damage and inflammation).
6. Buy organic (this reduces your toxic burden because organic foods contain fewer pesticide residues) - if you can't buy organic, check out the tables below.
7. Take a good quality algae-based Omega-3 supplement.

LIFESTYLE & ENVIRONMENT

1. Get a sweat on - either through exercise or sauna/steam rooms (this helps your skin to detox).
2. Use massage, body-brushing, or a rebounder to stimulate lymphatic flow (this helps your lymphatic system to detox).
3. Get plenty of sleep (this helps your brain to detox).
4. Swap conventional toiletries and household products for natural alternatives, for example:
    a. Use organic soap instead of shower gel.
    b. Use cold-pressed oils (almond, jojoba, grapeseed) instead of conventional moisturizers.
    c. Try soap nuts instead of laundry detergent.
    d. Make your own cleaning formula using baking soda and lemon (or browse the household aisle in your local health food shop).
    e. Use essential oils and natural incense instead of plug-in air-fresheners.
5. Use salt lamps, HEPA filters or house plants to detoxify your indoor air. The best air filtering plants according to NASA are:
    a. Devil's ivy
    b. Dwarf date palm
    c. Peace lily
    d. Philodendron
    e. Spider plant
    f. Chrysanthemums
    g. Rubber plant

h. Boston fern
i. Areca palms
j. Pineapple plant

EWG CLEAN 15 & DIRTY DOZEN

If you're on a budget or don't have an organic supermarket nearby, you can still minimize your exposure to toxins by buying the foods that are the least sprayed. Every year, the Environmental Working Group puts together a list of foods with the most (Dirty Dozen) and least (Clean 15) pesticide residues.

Dirty Dozen (produce with the most pesticide residues)	Clean 15 (produce with the least pesticide residues)
Strawberries Spinach Kale Nectarines Apples Grapes Peaches Cherries Pears Tomatoes Celery Potatoes	Avocados Sweet corn Pineapples Frozen sweet peas Onions Papaya Eggplants Asparagus Kiwis Cabbages Cauliflower Cantaloupe melon Broccoli Mushrooms Honeydew melon

Appendix 3: Powerful Antioxidants and Where to Find Them

Antioxidants and Detoxifying Foods				
Quercetin	**Anthocyanidin**	**Chlorophyll**	**Sulforaphane and sulfur**	**Co-Enzyme Q10**
Capers Red onions Black plums Blueberries Cherries Cranberries Hot green chili peppers Red leaf lettuce Kale Buckwheat Elderberries Cacao Dill Tarragon Cilantro Red apples	Eggplant Black beans Blackberries Blueberries Cherries Elderberries Nectarines Plums Radishes Raspberries Red apples Red cabbage Red kidney beans Red onion Red or black grapes Strawberries	Spinach Parsley Kelp Beet tops Turnip tops Leafy greens (kale, collard greens, arugula) Asparagus Green pepper Green beans Spirulina Chlorella	Broccoli Broccoli sprouts Brussels sprouts Cabbage (red or white) Collard greens Mustard greens Kale Bok choy Swiss chard and rainbow chard Cauliflower Watercress Turnips Radishes Onions Garlic Chives Spring onion Leeks Shallots	Soybeans Parsley Broccoli Sorrel Sweet potato Avocado Blackcurrant Strawberries Grapefruit Apples Pistachios Peanuts Walnuts Sesame seeds Hazelnuts Sweetcorn Rice bran

Nutrients to Boost Your Levels of Manganese Superoxide Dismutase		
Zinc	**Copper**	**Manganese**
Pumpkin seeds Oats Buckwheat Wild rice Teff Spelt Adzuki beans Lentils Tofu Shiitake mushrooms Avocado Hemp seeds White beans Cornmeal Black eyed peas	Buckwheat Shiitake mushrooms Oats Tofu Apples Avocado Sweet potatoes Sesame seeds Adzuki beans Cashew nuts Spirulina Garbanzo beans Sunflower seeds Hazelnuts Lentils	Blueberries Oats Wheatgerm Teff Mango Sweet potato Pine nuts Coconut Buckwheat Hemp seeds Brown rice Amaranth Palm hearts Spinach Edamame

Appendix 4: Dopamine-Boosting Nutrients and Where to Find Them

Dopamine-Boosting Superfoods			
Resveratrol	**Magnesium**	**Folate**	**Other**
Grapes & grape juice Red wine Peanuts & peanut butter Pistachios Cacao Mulberries Blueberries Bilberries Cranberries Red currants Strawberries Lingonberries	Buckwheat Oats Hemp seeds Pumpkin seeds Amaranth Spinach Cornmeal Swiss chard Soy beans Apples Teff Black beans Quinoa Flaxseeds Brazil nuts Coconut milk	Soybeans Lentils Mung beans Pinto beans Garbanzo beans Adzuki beans Asparagus Spinach Kidney beans Avocados Turnip greens Broccoli Beetroot	Organic coffee Organic matcha green tea Turmeric (fresh or dried) Oregano Rosemary Ginseng Ginkgo biloba Probiotics & fermented foods like: Tempeh Sauerkraut Kimchi Miso paste Kombucha Kefir Cultured yogurt

Dopamine Precursors		
Your body can make dopamine from amino acids phenylalanine and tyrosine, and vitamin B6. Eat at least one portion of these foods each day.		
Phenylalanine	**Tyrosine**	**Vitamin B6**
Tofu Edamame beans Oats Navy beans Lupin beans White beans Kidney beans Pinto beans Buckwheat Lentils and lentil sprouts Mung beans Cornmeal Hemp seeds Peanuts Quinoa Sunflower seeds Millet Almonds Poultry (organic)	Tofu and soy bean products Lupin beans Oats and oat bran Adzuki beans White beans Lentils Split peas Kidney beans Black beans Black-eyed peas Mung beans Buckwheat Cornmeal Pinto beans Garbanzo beans Hemp seeds Pumpkin seeds Peanuts Wild rice Spirulina Poultry (organic) Salmon	Avocado Banana Jackfruit Sweet potato Spinach Green peas Cabbage Pistachios Chestnuts Buckwheat Brown rice

Appendix 5: List of Healthy Alternatives to Sugar and Refined Carbs

Other Names for Sugar (Look out for these on ingredient labels)				
Barley malt	Caster sugar	Maltose	Malt	Crystalline fructose
Barbados sugar	Date sugar	High fructose corn syrup (HFCS)	Maltodextrin	Sorbitol
Evaporated cane juice	Dehydrated cane juice	Glucose	Fruit juice concentrate	Free-flowing brown sugar
Brown sugar	Demerera sugar	Glucose solids	Malt syrup	Sucrose
Buttered syrup	Dextran	Golden sugar	Mannitol	Granulated sugar
Cane juice	Dextrose	Golden syrup	Maltodextrin	Treacle
Caramel	Diastese	Grape sugar	Muscovado	Yellow sugar
Corn syrup	Ethyl maltol	Galactose	Panocha	Cane sugar
Corn syrup solids	Sorghum syrup	Corn sweetener	Powdered sugar	
Carob syrup	Fructose	Icing sugar	Raw sugar	
Confectioners' sugar	Fruit juice Syrup	Invert sugar	Refiner's syrup	
Beet sugar	Lactose	Starch	Laevulose	

Healthier alternatives to sugar
Dates
Apricots
Molasses
Maple syrup
Agave syrup
Rice syrup
Date syrup
Raw honey
Stevia

Sweet Treats & Healthier Alternatives (See Recipes Section for how to make these)	
Ice-cream and desserts	Ice-cream made from frozen banana and natural ingredients like cacao, peanut butter, berries, coconut. Berry fruit crumble. Coconut chia pot.
Milkshakes	Smoothie made with banana, almond milk and other whole foods. Turmeric chia latte.
Cakes, biscuits, donuts	Home-made energy ball or flapjack made with nuts, dried fruits and whole grains.
Chocolate bars	Home-made chocolate truffle. Raw chocolate. 75% dark organic chocolate.
Fizzy drinks	Sparkling water with added lemon or lime juice. Herbal tea. Turmeric latte. Filtered water.

Refined Carbohydrates & Healthy Alternatives	
White bread	Wholegrain bread (spelt, buckwheat, kamut, barley, rye…) Wholegrain sourdough bread Wholegrain soda bread
White pasta / noodles / couscous	Wholegrain pasta Buckwheat pasta / buckwheat noodles Pasta made from beans and legumes like lentils, peas, or brown rice.
Potato fries / crisps	Sweet potato wedges Roasted beetroot Celeriac fries Vegetable crisps (made from carrots, parsnips, beetroot, sweet potatoes)
Cakes, biscuits, pastries, sweets	Home-made energy bar or flap-jack. Home-made high fibre biscuits. 75% dark organic chocolate. Home-made chocolate truffles.

Appendix 6: List of Healthiest Fats

Fats to Avoid	Healthy fats to Include
Trans fats: Hydrogenated vegetable oils Partially hydrogenated vegetable oils Margarine Shortening Red meat Full fat dairy (cream, butter, ghee) **Vegetable oils:** Canola oil Rapeseed oil Soy oil Corn oil Sunflower oil	**Oils:** Coconut oil Extra virgin olive oil Avocado oil Flaxseed oil Walnut oil **Whole foods:** Nuts Seeds Avocados

Appendix 7: Simple Exercises to Increase Strength & Flexibility

Squats

Strengthens lower body and core for improved balance.

Do this exercise standing in front of a chair or couch. Extend your arms out in front of you and lower yourself down into an almost-sitting position, taking care that your knees don't go past your toes. Hold that position for a second or two, then go back to a standing position. Repeat. Aim for 10 to 15 repetitions. If you find this too challenging, you can place a few cushions on the chair.

Arm Raises & Side-Raises

Builds and maintains upper body strength.

Standing or sitting with your feet flat on the floor, hold light weights (you can improvise with water bottles if you don't have weights) at shoulder height with your palms facing forward, then slowly lift them above your head and lower them back down. Aim for 10-15 reps.

Standing or sitting with your feet flat on the floor, hold light weights at your side, with your palms facing inwards. Slowly lift your arms to shoulder height, then lower them back down. Aim for 10-15 reps.

Wall Push-ups

A modified version of the traditional push-up that will still give your shoulders and chest a good workout.

Stand around an arm's length away from a wall, facing it. Lean forward and place your palms flat against the wall, at shoulder level. Bend your arms to bring yourself closer to the wall, hold for a second, then slowly push yourself back by straightening your arms. Aim for 10-15 reps.

Leg Raises & Back-Raises

Good for balance and strengthening the lower back.

Stand behind a chair and hold onto the back. Lift your right leg out to the side, keeping it straight from hip to heel (without pointing the toe), then slowly lower it. Your supporting leg should be slightly bent and your back straight. Aim for 10 reps and then repeat with your left leg.

For back raises, lift your right leg behind you without leaning forward, hold it there for a second and slowly lower it. As with the side raises, keep your supporting leg slightly bent, and do not point your toes. Aim for 10 reps and repeat with your left leg.

Chair Stands

A good balance exercise that also strengthens the lower body.

Start in a seated position, with back straight, on a bench or backless chair. Extend your arms out until they are parallel to the ground, and slowly stand up. Sit down and repeat 10 times.

Lower Body Stretching

Quadriceps

Stand behind a chair or table, and hold on to it with your left hand. Bend your right leg behind you and grab your foot with your right hand. Try to keep your thigh as perpendicular to the floor as you can. You'll feel the stretch on the front of your right thigh. Hold for 30 seconds, then repeat with the left leg.

Calf

Sit in a chair with your left leg out in front. Place a towel or belt around the ball of your foot, hold the ends, and sit up tall. Using the towel, pull the ball of your foot towards you. Hold for 30 seconds, then repeat with your right leg.

Lower back

Get on all fours on a yoga mat, with your knees slightly wider than your hips and your heels together, and your shoulders aligned with your wrists. Sit your hips back, while leaving your arms stretched out in front of you. You should feel your back round and your lower back release. Hold for 30 to 60 seconds.

Upper Body Stretching

Arms and chest

Stand with your feet shoulder width apart and your arms relaxed at your sides. Bring your arms behind your back and interlink your hands. Pull your shoulders back and hold for 30 seconds. Release, and repeat.

Neck and shoulders

Stand with your feet shoulder width apart and your arms relaxed at your sides. Bring your arms in front of you and interlink your hands. Press your palms outwards and lift the arms up and away from the body. Hold for 30 seconds, then release and repeat.

Sides

Sit on a hard-backed chair with solid arm-rests. Straighten your back, and then place both hands onto the right arm-rest and use your upper body to twist yourself towards the right. Take slow, deep breaths and hold the stretch for 30 seconds. Repeat on the left side.

Appendix 8 - 7 Additional Evidence-based Strategies to Boost Your Dopamine Levels

1. **Cold showers**. Cold exposure increases dopamine production by up to 250%. That's why people who live in colder climates, or those who take a dip in the sea in wintertime tend to be healthier. You can get the benefits from cold exposure by finishing your daily shower with a quick burst of cold water. Bonus: it also reduces the production of cortisol, helping you to stay calmer in stressful situations.

2. **Spend time outside**. Sunshine and natural light boosts the body's production of Vitamin D, and has been found to improve mood through increased dopamine synthesis.

3. **More hugs and more love**. Hugging feels good, because it boosts your oxytocin and dopamine. Studies have shown that, in animal models, stroking increases dopamine production in the nucleus accumbens part of the brain. So, hug those you love and allow yourself to enjoy being hugged.

4. **Book a massage**. Studies show that massage decreases cortisol (the stress hormone) while increasing dopamine by an average of 31%. A weekly or bi-monthly massage can be a pleasurable way to keep your Parkinson's symptoms at bay.

5. **Listen to your favorite music**. Listening to pleasurable music increases dopamine production in the ventral and dorsal stratum part of the brain. So, make yourself a dopamine-boosting playlist or two, and listen to your music that makes you smile.

6. **Intermittent fasting**. Daily fasting allows your digestive system to take a break, and triggers the release of several neurotransmitters, including dopamine. Scientists have also found that it reduces age-related loss of dopamine receptors. The easiest way to include intermittent fasting into your day is to eat within a specific time window, for example: eating only between 9am and 7pm, or between 10am and 8pm, or another time frame that suits your schedule.

7. **Acupuncture**. Studies have found that acupuncture (an ancient Chinese medicine practice that involves opening up the body's energy channels with super-fine needles) can help to activate the vagus nerve, which in turn increases dopamine production and reduces chronic inflammation.

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