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Diet and Exercise Can Curb Effects of Parkinson's Disease, and Promote Overall Immune System Health

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By Dr. Mercola

Parkinson's disease is a neurological disorder in which neurons in dopamine-producing cells within a region of your brain known as the substantia nigra, which is required for normal movement, begin to die.

Symptoms, which typically progress over time, include tremors, slow movement, rigid limbs, stooped posture, an inability to move, reduced facial expressions, and a shuffling gait.

The condition can also cause depression, dementia, speech impairments, personality changes, and sexual difficulties.

The condition affects as many as one million Americans,¹ for whom day-to-day activities can be a real challenge. However, recent research² suggests that exercise may be beneficial; improving balance, mobility, and overall quality of life.

A ketogenic diet may also be helpful, and fasting has been shown to have an overall beneficial impact on the immune system and brain function, helping to protect against cellular changes associated with Parkinson's disease.

Exercise Benefits Those with Parkinson's

In the featured study,³ a total of 231 Parkinson's patients were divided into two groups. One group received their usual care while the other participated in 40-60 minutes of exercise three times a week for six months. In those with less severe disease, those who exercised reported a 70 percent reduction in falls.

According to the authors:

"An exercise program targeting balance, leg strength, and freezing of gait did not reduce falls but improved physical and psychological health. Falls were reduced in people with milder disease but not in those with more severe Parkinson's disease."

Other research has found similar benefits. For example, one 2012 study^{4,5} found that low-intensity treadmill exercise improved gait speed, and both high- and low-intensity exercises improved cardiovascular fitness. Not surprisingly, stretching and resistance exercises were also found to improve muscle strength.

Another 12-year-long Swedish study,^{6,7} which included nearly 43,400 people, concluded that six hours of moderate exercise daily may reduce your risk of developing Parkinson's disease by 43 percent.

The Toxic Origins of Parkinson's

There appears to be a pronounced toxic influence at work in Parkinson's disease, which makes dietary considerations all the more important. Nearly a dozen commonly used pesticides have been linked to Parkinson's, for example, suggesting your best bet is to stick to an organic diet as much as possible.

Even ambient exposure to pesticides has been found to increase the risk of Parkinson's disease considerably,⁸ and having a specific genetic variant increases the risk of the disease following pesticide exposure six-fold.⁹

Parkinson's disease is still classified as idiopathic, meaning it has no identifiable cause. But one reason it is likely on the rise is due to many environmental toxins that now bombard your body on a daily basis, with pesticide exposure becoming an undeniable risk factor.

Avoiding pesticide exposure – around your home, in your community, and via the food you eat – is clearly important for reducing your Parkinson's risk, as is reducing your exposure to environmental toxins of all kinds. Another important and often overlooked environmental risk factor is amalgam dental fillings, 50 percent of which is mercury—a known neurotoxin.

Mercury becomes a biochemical train wreck in your body, causing your cell membranes to leak, and inhibits key enzymes your body needs for energy production and removal of toxins. Mercury toxicity can lead to major inflammation and chronic illnesses such as Parkinson's disease.

Fasting Helps Improve Immune System and Brain Function

Fasting is known to have a number of health benefits, including weight loss and improved insulin and leptin sensitivity, but new research¹⁰ also suggests fasting helps bolster your immune system function. If you are underweight though, you should be very careful about implementing fasting without professional supervision. According to study co-author Valter Longo, director of the USC Longevity Institute:¹¹

"When you starve, the system tries to save energy, and one of the things it can do to save energy is to recycle a lot of the immune cells that are not needed, especially those that may be damaged. What we started noticing in both our human work and animal work is that the white blood cell count goes down with prolonged fasting. Then when you re-feed, the blood cells come back."

White blood cells are your primary disease-fighters. Interestingly enough, when you fast, a "regenerative switch" is activated, promoting stem cell-based regeneration of your hematopoietic system, which is involved in the production of blood. As reported by Medical Daily:¹²

"After the test subjects went without food for two to four days over the course of six months, the hematopoietic system killed older and damaged immune cells and generated new ones. The system is made up of the organs involved in creating new blood, leading the scientists to believe their findings will have major impacts on healthier aging..."

With each fast, the white blood cell depletion triggered new cells in the immune system. When the enzyme PKA was reduced along with the cells in the fasting process, that's when Longo and his team realized there was a switch being flicked on. The switch made it possible to create new cells and also lowered the levels of IGF-1, a hormone that's linked to aging, tumor growth, and cancer risk."

In addition to that, there's exciting research indicating that intermittent fasting can have a very beneficial impact on your brain function, too. Research by Dr. Mark Mattson¹³ suggests that fasting every other day (restricting your meal on fasting days to about 600 calories) tends to boost brain-derived neurotrophic factor (BDNF) by anywhere from 50 to 400 percent, depending on the brain region. BDNF activates brain stem cells to convert into new neurons, and triggers numerous other chemicals that promote neural health. This protein also protects your brain cells from changes associated with both Parkinson's and Alzheimer's disease.

Your Body Was Built for Periodic Cycles of "Feast and Famine"

Part of what appears to be driving bodily disease processes is the fact that we eat *too frequently*. When you're in constant "feast mode," your body actually forgoes much of its natural "repair and rejuvenation programming." Periodic fasting provides a number of health benefits that most people seek: from improved cardiovascular health and reduced cancer risk, to gene repair and longevity. I strongly recommend it if you have insulin/leptin resistance. Traditional fasting, in which you don't eat for 24-72 hours, is not a very appealing strategy for most people, however. Fortunately, there are other options that can make compliance a lot easier.

Newer research shows that you can get most if not all of the same benefits of severe calorie restriction through intermittent fasting, i.e. an eating schedule where you eat your regular meals on some days, and dramatically cut calories on others. Yet another alternative, and my personal favorite, is to simply restrict your *daily* eating to a *specific window of time*, such as an eight-hour window.

This type of eating schedule is quite easy to comply with once your body has shifted over from burning sugar to burning fat as its primary fuel. Also, you don't need to stay on a fasting regimen for life. Once your insulin resistance improves and you are normal weight, you can start eating more food as you will have reestablished your body's ability to burn fat for fuel.

Ketogenic Diet Offers Hope for Parkinson's

Besides intermittent fasting, yet another dietary intervention that may be of particular importance for those with Parkinson's is the so-called ketogenic diet. One 2006 study^{14,15} suggests that a diet high in fat (upwards of 90 percent) and nearly devoid of protein and carbohydrates has neuroprotective effects in both Parkinson's and Alzheimer's sufferers.

While this was an admittedly extreme form of ketogenic diet, when used on patients with Parkinson's disease, it resulted in improvements in balance, tremors, and mood. There are various theories as to how it helps, including shifting your brain's metabolism from blood sugar to ketone bodies, a secondary energy source derived from fat metabolism.

Your heart, as well as other muscles, operates quite efficiently when fueled by ketones. Your muscles can store more glucose (as glycogen) than your brain because they have an enzyme that helps them maintain their glycogen stores. But your brain actually lacks this enzyme, so it prefers to be fueled by glucose. When your blood glucose levels are falling, your ketone levels are typically rising, and vice versa. You might be wondering, then, how your brain is able to function when you're in a state of ketosis.

It turns out that your body has a mechanism for providing your brain with a fuel source it CAN use when glucose is in short supply. When your glucose is low, your brain tells your liver to produce a ketone-like compound called beta-hydroxybutyrate (or beta-hydroxybutyric acid). This compound is able to fuel your brain very efficiently, especially with "practice." The more efficient your body is at burning fats, the more easily it can

move seamlessly between its fat-burning and carbohydrate-burning engines, and the more stable your blood sugar will be.

Your Diet Determines Your Metabolic Function

The problem for most Westerners, whose diets are typically heavy in sugar and carbs, is that they've lost their ability to burn ketones efficiently. If this is you, then carbohydrates are ever-present and your liver can't remember how to produce ketones because *it hasn't needed to*. Your fat-burning engine has essentially been switched off... The sad fact is, if you eat the standard American diet, chances are you've lost your ability to burn body fat, despite carrying around an enormous supply of it!

Eliminating excess sugar and grains from your diet will help you "retrain" your body how to burn fat for fuel. Typically, restricting your carbohydrates to 30 or 40 grams per day, along with an appropriate amount of protein (thought to be around one-half gram per pound of lean body weight), is enough to "starve" your brain into ketosis. Exercising, particularly while fasting, is also very effective for jumpstarting your fat-burning engine. The more consistently you exercise, the better your body will be at using your own fat stores for energy.

Strategies That Can Add Years to Your Life, and Help Prevent Parkinson's Disease, Too

A key factor for living a long healthy life is optimizing your insulin and leptin sensitivity, and there's cause to believe that this is important for neurological disorders like Parkinson's as well. Exercise, intermittent fasting, and eating a diet high in healthy fat, along with low amounts of non-vegetable carbs and moderate amounts of protein can likely go a long way toward preventing and treating Parkinson's and many other health concerns. Additional lifestyle factors to take into consideration include the following:

- **Eating an organic, whole food diet.** For a complete guide about which foods to eat and which to avoid, see my comprehensive nutrition plan. Generally speaking, you should focus your diet on whole, ideally organic, unprocessed foods that come from healthy, sustainable and preferably local sources. For the highest nutritional benefit, eat a good portion of your food raw. This type of diet will naturally optimize your insulin signaling. Refined sugar and processed fructose in particular can act as a toxin when consumed in excess, driving multiple disease processes in your body – including insulin resistance, diabetes, cardiovascular disease, and systemic inflammation.
- **Enjoy a comprehensive exercise program.** Even if you're eating the best diet in the world, you still need to exercise—and exercise effectively—if you wish to optimize your health. You should include core-strengthening exercises, strength training, and the right kind of stretching, as well as high-intensity "burst-type" activities. Consider combining this with intermittent fasting to supercharge your metabolism. Also remember that chronic sitting is an independent risk factor for an early demise, so strive to reduce sitting as much as possible. I also recommend walking 7,000-10,000 steps each day, over and above your regular fitness regimen.
- **Optimize your vitamin D.** Researchers report that there is a correlation between insufficient levels of vitamin D and the development of early Parkinson's disease. The important factor when it comes to vitamin D is your serum level, which should ideally be between 50-70 ng/ml year-round, and the only way to determine this is with a blood test. Sun exposure or a tanning bed is the preferred method, but a vitamin D3 supplement can be used when necessary. If you take supplemental vitamin D, make sure you're getting enough vitamin K2 and magnesium as well.
- **Get plenty of animal-based omega-3.** Omega-3 fats, such as that found in krill oil, serve an important role in protecting your brain cells. It works in part by preventing the misfolding of a protein resulting from a gene mutation in neurodegenerative diseases like Parkinson's.
- **Avoid as many chemicals and toxins as possible.** This includes tossing out your toxic household cleaners, soaps, personal hygiene products, air fresheners, bug sprays, pesticides, and insecticides, just to name a few, and replacing them with non-toxic alternatives. An organic diet is the best way to limit exposure to pesticides associated with Parkinson's disease. Also avoid prescription drugs in favor of more natural approaches, whenever possible.

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