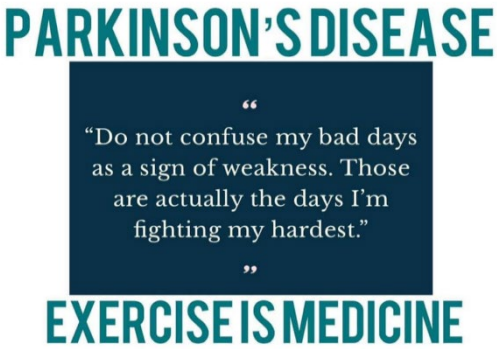
FOUNDATION for Parkinson's
Empowering people to move

May 25, 2025

KNOCK KNOCK
WHO'S THERE?
YA
YA HOO?
I PREFER GOOLE



Click the icon for a kick-butt workout with Coach Betsy:

HKC Strength Class 

HKC Parkinson's Fitness Class 

BRIDGES FOR PARKINSON'S

Written By: Renee Rouleau- B.S., PhD student, Jacobs School of Biomedical Sciences, University at Buffalo

Can What's On Our Food Affect Our Brain?
The Link Between Pesticides, Nutrition, and Parkinson's Disease

We often hear that "you are what you eat," but what about what's on your food? Recent research suggests that pesticides and other environmental chemicals may play a role in brain health—and is even linked to the development of Parkinson's Disease (PD). As discussed in a previous article, nutrition from vitamins and minerals found in whole foods is crucial for maintaining strong muscles and a healthy brain, but the quality of our food and how it's grown can also matter.

Pesticides are chemicals commonly used to eliminate bugs and weeds from crops, ultimately helping to increase food production. However, it's important to understand that some of these chemicals have been associated with alterations in brain function.

Specifically, two pesticides, paraquat and rotenone, have been shown to cause cell death within the central nervous system, which includes the brain. These chemicals primarily work by disrupting the mitochondria, the energy-producing units within cells. This disruption leads to cellular damage and, ultimately, cell death, as outlined in Tanner et al.'s 2011 study.

While these pesticides can affect various types of cells, their impact on the dopaminergic system is particularly noteworthy. This selectivity towards dopaminergic cells is due to complex biochemical processes. From my personal experience working with neurons and rotenone, I have observed cells dying as quickly as 15 minutes after direct application to brain slices, a truly alarming sight. Fortunately, for the vast majority of people, such direct exposure is highly unlikely. The more common way individuals might encounter these chemicals is indirectly, through their use on plants or by touching and consuming plants that have been treated with them.

However, indirect exposure is still a problem! A study published in *Environmental Health Perspectives* found that people exposed to both paraquat and rotenone had more than twice the risk of developing Parkinson's compared to those not exposed (Tanner et al., 2011). And if you were involved in agricultural activity like farming and using pesticides, that percentage goes up even more (Pouchieu et al., 2018). ?

It's also important to consider the environment where our food is grown. Environmental toxins can negatively impact the quality of both soil and water, which, in turn, affects the vitamin and mineral content of our food. For instance, poor soil conditions can lead to lower levels of essential nutrients like magnesium and selenium, both crucial for proper nerve and muscle function (Feliziani et al., 2025).

Keeping these factors in mind is important when making food choices, and especially if you're gardening, to help ensure your fruits and vegetables are as nutrient-rich as possible.

Now that we understand what these toxins are and their potential effects on our brains, the question is: how can we minimize our exposure risk while still maintaining a healthy diet?

Choosing organic foods, aka, foods grown without synthetic pesticides or fertilizers—may help reduce this risk. While organic food isn't necessarily more nutritious, it often has fewer pesticide residues. The Environmental Working Group's annual "Dirty Dozen" list highlights fruits and vegetables with the highest pesticide levels, like strawberries, spinach, and apples. They also have a "Clean Fifteen" list to counter their Dirty Dozen. Buying these items organic may be a smart step, especially for people concerned about brain health or with a family history of Parkinson's. Knowing where your food came from

can also help, and things like Community Supported Agriculture (CSA) boxes or stores can deliver farm-fresh and organic produce right to you!

Farmer's markets are all the rage during the summer (and Franklin, TN has one of the best markets I've ever seen!), and are usually supplying fresh, organic produce at really affordable prices, so you can guarantee quality and a good deal. And if you're worried about where your food is coming from, especially in relation to these choices, usually the farmers are there and working the stands too so you can direct any questions to them. For the record, none of what I'm saying is "sponsored" or trying to advertise either. These are things I've done in my own life to support me and my family's health, and I want to make sure you have the same informational access I do!

In closing, while we can't always control the environment, we can make informed choices about what we eat. Washing produce, choosing organic when possible, and supporting sustainable farming can help protect our health. As science continues to explore how our environment affects diseases like Parkinson's, one thing is clear: - taking care of our food means taking care of our brains.

References:

C. Pouchieu, C. Piel, C. Carles, A. Gruber, C. Helmer, S. Tual, E. Marcotullio, P. Lebailly, I. Baldi. Pesticide use in agriculture and Parkinson's disease in the AGRICAN cohort study. Int. J. Epidemiol., 47 (2018), pp. 299-310, 10.1093/ije/dyx225

Feliziani, G., Bordoni, L., & Gabbianelli, R. (2025). Regenerative Organic Agriculture and Human Health: The Interconnection Between Soil, Food Quality, and Nutrition. Antioxidants, 14(5), 530. https://doi.org/10.3390/antiox14050530

Tanner, C. M., Kamel, F., Ross, G. W., Hoppin, J. A., Goldman, S. M., Korell, M., Marras, C., Bhudhikanok, G. S., Kasten, M., Chade, A. R., Comyns, K., Richards, M. B., Meng, C., Priestley, B., Fernandez, H. H., Cambi, F., Umbach, D. M., & Langston, J. W. (2011). Rotenone, paraquat, and Parkinson's disease. Environmental Health Perspectives, 119(6), 866–872. https://doi.org/10.1289/ehp.1002839

Environmental Working Group. (2024). EWG's 2024 Shopper's Guide to Pesticides in Produce™. https://www.ewg.org/foodnews/full-list.php

Why is Stretching So Important

Benefits of Stretching for Parkinson's:

Reduced Stiffness and Rigidity:
Stretching helps counter the muscle stiffness and rigidity that are common in Parkinson's.
Improved Range of Motion:
Stretching exercises help to maintain and improve joint mobility, allowing for a wider range of movement.
Enhanced Balance and Posture:
By improving flexibility and muscle strength, stretching can contribute to better balance and posture, reducing the risk of falls.
Easier Daily Activities:
Improved flexibility and range of motion make it easier to perform everyday tasks, such as walking, dressing, and writing.
Increased Blood Flow:
Stretching can help increase blood flow to muscles, which can improve muscle health and reduce fatigue.
Improved Mental Health:
Regular exercise, including stretching, can positively impact mental health and mood, reducing feelings of anxiety and depression.

Types of Stretching for Parkinson's:

Static Stretching:
Holding a stretch for an extended period (e.g., 20-60 seconds), allowing the muscle to lengthen gently.
Dynamic Stretching:
Stretching while moving the body, such as through an active range of motion exercises.

Important Considerations for Stretching:

Slow and Gentle: Perform stretches slowly and gently, avoiding any bouncing or jerking motions.
Pain-Free Range: Focus on a range of motion that is comfortable and pain-free.
Deep Breathing: Inhale deeply during each stretch, allowing for relaxation and a deeper stretch.
Consistency is Key: Aim for regular stretching, even if it's just a few minutes each day.

From Last Week's Newsletter

4 Reasons Your Parkinson's Symptoms May Be Worse After Exercise

In this article, you will see the four reasons why your Parkinson's symptoms may be getting worse after exercise, and how you can adapt your Parkinson's exercise program to minimize the side effects so you (and your brain) can reap the benefits.

However, think about the benefits to exercise and your Parkinson's symptoms.

Long-Term Benefits of Exercise:

- **Improved Motor Control:**

Exercise can help improve movement patterns and reduce symptoms like tremor and rigidity over time.

- **Slower Progression:**

Studies suggest that regular physical activity may slow down the progression of Parkinson's, particularly in areas like balance and gait.

- **Reduced Fall Risk:**

Exercise can improve balance and strength, reducing the risk of falls.

- **Mood and Cognitive Function:**

Exercise can improve mood and cognitive function, which are often affected in people with

COMMUNITY CONNECTIONS

~Monday, 11am Hamil-Kerr Strength class (zoom) with Coach Betsy
https://us02web.zoom.us/j/81028088770

~Saturday 11am Hamil-Kerr Parkinson's Fitness (zoom) with Coach Betsy

https://us02web.zoom.us/j/81028088770

~Thursday, 3pm Zoom PD Spin, Ragsdale YMCA with Coach Betsy

https://us02web.zoom.us/j/81028088770

~Thursday, 12pm In Person PD Spin, Spears YMCA with Cassy Sampson

~ In-person Parkinson's Spin Class at YWCA of Highpoint
Tuesday and Thursday- 12:00-1:00
~In-person Parkinson's Spin Class at Ragsdale YMCA
Tuesday and Thursday- 10:15

In-Person Tai Chi with Michele Walker
Michele's 1pm Tai Chi class takes place on the first and third Wednesday of every month at Michele's beautiful new studio - ProActive Therapy and Wellness, - 6579 Lake Brandt Rd, Summerfield

~Rock Steady Boxing - Greensboro (in person) – Hilary Savage, RSB Program Director
~Rock Steady Boxing of Archdale (in person) – Fred Farlow, Affiliate Owner

~A.C.T. By Prince Deese

~**Will Powell**- 336-706-0271 – 1:1 and small group training

~For information on in-person 1:1 training in your home or on zoom with Coach Betsy, contact Alesia Pendleton pendleton.alesia@gmail.com

AND

~Parkinson's Stretch Class at Rock Steady Boxing, Greensboro (spouses welcome)- Friday at 11:30am

ONLINE RESOURCES

~Michael J Fox Foundation: www.michaeljfox.org
~Davis Phinney Foundation: Live Well with Parkinson's TODAY - Davis Phinney Foundation
~Parkinson's & Movement Disorders Alliance: www.pmdalliance.org
~Parkinson's Association: www.parkinsonassociation.org
~Parkinson's Disease Mayo Clinic
~Parkinson's Disease Cleveland Clinic

And of course, reach out to me anytime.
Yours, Coach B

Rock Steady Boxing Certified Coach
Certified Parkinson's Disease Fitness Specialist
ISSA Certified Personal Trainer