An Emerging Nutritional Approach to Parkinson’s Disease

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3 Ways that Diet may Lead to PD

- Dietary Neurotoxins
- Inflammation
- Disruption of Gut-Brain Axis

Loss of Dopaminergic Neurons
Diet and Neurotoxins in PD

• Neurotoxins –> possible loss of dopaminergic neurons
  • Environmental neurotoxins: MPTP, rotenone, paraquat, mercury, etc.
  • Dietary neurotoxins: Aspartame (artificial sweetener), diacetyl (microwave popcorn), MSG (flavor enhancer), mercury (large fish)

• *Nourish your neurons!* Neuroprotective foods may slow further loss of neurons and my even enhance nerve cell regeneration
  • Anti-inflammatory foods: Cold water fish, seaweed, leafy greens, turmeric, ginger
  • Chelating (toxin removing) foods: Whole grains, beans, vegetables, seaweed
  • Nerve-building foods: Various foods containing healthy fats, trace minerals, etc.
Diet and the Gut-Brain Axis in PD

• We are all “the man with two brains”
  • The central nervous system (CNS), our “main brain”
  • The enteric nervous system, our “gut brain”

• “What happens in Vegas doesn’t stay in Vegas”
  • There is enormous communication between our two brains.
  • Back-and-forth messages travel over the **vagus nerve** and other pathways
  • This neural highway system and back-and-forth communication constitutes the “**gut-brain axis**”
Diet and the Gut-Brain Axis in PD

• Gut microbiome has an enormous influence on our overall health
  • The *gut microbiome* refers to the cumulative array millions of genes belonging to over 1,000 species of microbes living inside the gut
  • The balance and diversity of these microbial species – and their genes – affect the health of the gut itself
  • Because of the gut-brain axis, the gut microbiome also strongly influences what happens in the brain and central nervous system
  • The gut microbiome also impacts immune function, hormonal balance, inflammation, and circulation and has a huge influence on our overall health
  • The gut microbiome may be a greater determinant of health and disease than the human genome
  • We can’t genome our genome but we can alter our microbiome!
Diet and the Gut-Brain Axis in PD

• By early adulthood, diet is leading determinant of microbiome pattern
  • Change in diet can lead to rapid change in microbiome pattern
  • Prebiotics outweigh probiotics!
  • Fibrous plant foods (whole grains, veggies) are the source of prebiotics
  • Probiotic foods outweigh supplements
  • Fermented plant foods are best source of probiotics
  • Antibiotics, antacids and other medications may disturb microbiome balance
Diet and the Gut-Brain Axis in PD

- *Parkinson’s may originate in the gut!*
  - Constipation and other changes in bowel habits often precede other PD symptoms and diagnosis
  - PD may originate in alpha-synuclein deposits in gut that travel to brain
  - Pathogenic gut bacteria cause nearby proteins to aggregate and misfold into alpha-synuclein
  - PD is transmissible to mice – from the stool of humans with PD
A Dietary Approach to Parkinson’s

• **Whole food**
  • Natural, unprocessed, unrefined
  • No white flour, sugar, chemical additives, or poor quality fats

• **Plant-based**
  • Consists mostly of plant foods
  • May be vegetarian/vegan or have small amounts of healthy animal food
  • Very high fiber, nutrient-dense, moderately low protein

• **Local, seasonal, organic**

• **Anti-inflammatory, microbiome-balancing, ketogenic**
Primary Food Groups

- Whole grains
- Vegetables
- Beans & legumes
- Fruit, seeds, and nuts
Secondary Food Groups

- Fermented plant foods
- Seaweed
- Medicinal mushrooms
- Wild-caught, small, cold-water fish or pastured eggs
- Soy foods
- Healthy fats/oil
- Natural sweeteners
- Culinary herbs, spices, and herbal teas
- Caffeinated beverages: green & black tea; coffee
- Vitamin D and resveratrol/quercetin
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Services:

*Integrative nutrition medical consults with MD*
*Integrative nutrition medical counseling with RD*
*“Food as medicine” cooking classes*
*Professional training and research support*

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