

Prevention, Improvement and Reversal of Alzheimer's Disease, Parkinson's Disease and other Neurodegenerative Disorders

1. Read Dr. Bredesen's paper: Reversal of Cognitive Decline. The induction of wellness in the brain through optimal nutrition, exercise and stress management shifts the environment of the brain from a neurodegenerative state to a neuro-regenerative state. There are two options for the Amyloid precursor protein (APP): it can go to amyloid in times of nutritional, infectious, toxic and emotional stress leading to binding of toxic heavy metals and killing of infectious organisms and the destruction of brain cells; or it can produce neurotrophic factors leading to brain regeneration in times of optimal nutrition and health. So it appears there is a choice even now to prevent and reverse neurodegeneration.

<https://www.ncbi.nlm.nih.gov/pubmed/25324467>



Bredesen Cognitive decline 2014.pdf

2. Read Staying Healthy Handout ([www.georgesteelmd.net](http://www.georgesteelmd.net))



Staying Healthy Handout 20170831.pc

3. Consider an elimination diet (eliminate gluten, dairy, yeast, nightshade vegetables [tomato, eggplant, peppers, potato], chocolate, corn, a few others) as these substances can turn on the immune system in a harmful manner leading to inflammation associated with autoimmune disorders, cardiovascular disease, cancer and neurodegeneration. <http://www.precisionnutrition.com/elimination-diet>
4. Consider a healthy ketogenic diet (ie. Mediterranean Hunter-Gatherer diet). Ketogenic diets stabilize the brain and move the brain metabolism to health, as does fasting one or two days per week, or extending the time between meals (eg. 12 hours between supper and breakfast)
  - a. 20-30% of calories from protein, mostly fish, chicken, eggs or nut proteins, adding dairy proteins if vegetarian
  - b. 5-10% of calories from low glycemic carbohydrates in vegetables (dark greens like broccoli, kale, Brussel sprouts, cauliflower), and nuts (almonds, Brazil, macadamia, etc.) and peanut butter if not sensitive. This will be a lot of vegetables as these non-starchy vegetables are very low in calories.
  - c. 60-70% of calories healthy oils from fish and fish oil, olive oil, avocado and avocado oil mayonnaise, grapeseed oil, nuts and nut oils, coconut oil, butter (if not sensitive) and perhaps even a little organic heavy cream (but avoid carrageenan as this is toxic to the brain)
5. Exercise to break a sweat doing intervals of something (like 8 fit) or the gym or running, swimming, rowing... Exercise has been shown to improve brain health and is the most effective antidepressant.
6. Consider supplements (in order of decreasing importance) recommended for all of us:
  - a. MSM appears to improve the vitality of the food we eat and reduces arthritis and tendonitis, as well as acne and has been associated with thicker hair and less wrinkles. Dose 3,000 mg to 15 gm per morning. I recommend the Opti-MSM as this is the only MSM produced in the US as is greater than 99.9% pure MSM. This was used in the studies performed at UPenn.
  - b. Magnesium improves blood pressure as well as heart, muscle, bone and gut function. 500 mg once or twice daily. The chelated magnesium are the best absorbed (citrate, gluconate, etc) but a little bit of magnesium oxide as well is ok.
  - c. Fish oil improves heart and brain function and improves cholesterol levels (Carlson's fish oil, yes the liquid) 2-3 TSP/morning. This packed with nitrogen gas so it does not oxidize as the capsules do. Oxidized omega-3 oils are harmful (as is rotten fish).

- d. Vitamin D (to obtain blood levels of 50-100) is associated with lower rates of osteoporosis, cancer, autoimmune disorders and neurodegenerative disorders. The goal is to approach levels of 100 (like a lifeguard at the end of the summer). Dose is 2,000 units per morning. Take with the fish oil to improve absorption. And get your blood level checked.
  - e. Vitamin B-12 in those over 50 years of age, 1,000 mcg/day. Use the sublingual lozenge. I do not test the levels, which are inaccurate. Just take the supplement.
  - f. Vitamin K: you want to fully carboxylate your GLA proteins in your bones, blood vessels and brain, which controls calcium metabolism keeping the calcium in the bones where it belongs and not causing atherosclerosis (literally calcification of the arteries) and excess calcium in the brain leading to neurodegeneration. The RDA for vitamin K (100 mcg) keeps your blood clotting factors normal. Fifty to 100-fold higher doses optimizes carboxylation. Japanese studies have safely used 15 mg three times daily for osteoporosis. But 5 mg is enough (about a pound of kale, blended fresh and swallowed). Or take the supplement 5 mg/day.
  - g. Probiotics appear to modulate the immune system, even if the organisms do not survive the acid in the upper GI tract. The antigens still impact the GI immune system in a positive way. The dark green vegetables act as “pre-biotics” giving the good bacteria the substrate upon which to thrive.
  - h. Chromium improves mood and reduces insulin resistance (but avoid in bipolar disorder, as it can make one too happy) 500 mcg/morning.
7. Supplements to consider for those with cognitive decline and neurodegeneration:
- a. Nicotinamide riboside appears to push NAD<sup>+</sup> into mitochondria thereby increasing energy production and the replication of mitochondria. The difference between old people and young people (and between the fit and the unfit) is mitochondrial number and function. Dose is 250 mg/morning.
  - b. N-acetyl cysteine (NAC) is the GI absorbable precursor to glutathione, which appears to improve brain function. Dose is 600-1800 mg in divided doses.
  - c. Trans-resveratrol may also be neuroprotective. Dose is 250 mg/morning
  - d. Rather than the potent antioxidants like Coenzyme Q10, ubiquinol or alpha lipoic acid, I encourage people to exercise as this naturally increases the production of these substances in the body. If you are not able to exercise to break a sweat, then consider these: CQ10 1,200 mg/day or Ubiquinol 200-300 mg/day; (these first two are very expensive) and/or Lipoic acid 300-900 mg/day.
8. Parkinson’s specific adjuvant therapies
- a. Caffeine (who knew?)
  - b. Nicotine from nicotine patches or gum (even more surprising, but NOT from smoking)
  - c. Selegiline or Rasagiline appear to be neuroprotective with some efficacy
  - d. Curcumin (turmeric combined with black pepper to improve bioavailability) may also be neuroprotective. Try ½ tsp turmeric, ½ tsp ginger, ¼ tsp finely ground black pepper. The pepper increased the bioavailability of the curcumin in the turmeric by 50-fold. This is much less expensive than the supplement. One pound of turmeric is about \$4 at The Head Nut and will last several years.
  - e. Melatonin 0.3 mg at bedtime (the dose recommended by Deepak Chopra)
  - f. Amantidine to control some of the effects of carbi-dopa use

This is all very complex and overwhelming. How do I know what is important for me to do? How do I approach this? Each of us is a unique individual who will have a unique response to each of the above interventions. The recommendation is to begin a daily journal with important parameters of how you are feeling (both physically and mentally) and how you are performing the activities of daily living and exercise. Get a baseline of several days to a week. Try to develop a standardized exercise routine (on the elliptical or treadmill or bike or rowing machine) so you can assess if your times and strength/speed are improving.

Then begin adding the interventions. First modify your diet and add the basic supplements. Add one or more interventions as you see fit every few days to see how you are tolerating them. As these issues of health and

wellness are multifactorial, it is very likely that it will take some combination of several of these to begin to move you toward health. The diet is key. Exercise is also key.

Basically, this is an experiment with an N=1 (ie. A one subject clinical trial) where your outcome is the important outcome. You will have some sort of response, be it improvement or no change. If improvement, good. If no change, add on or move to the next intervention. But again, this is like a leaky roof with 50 holes. Fixing one or two of the holes will help a bit but will clearly not solve the leaky roof problem. One needs to address all the potential underlying triggers and sustainers of illness to move toward wellness. But is it worth doing all of this and giving up some of the things that seem to make my life worth living? I think so.

A summary: <http://www.buckinstitute.org/buck-news/Memory-loss-associated-with-Alzheimers-reversed>

Bredesen's approach is personalized to the patient, based on extensive testing to determine what is affecting the plasticity signaling network of the brain. As one example, in the case of the patient with the demanding job who was forgetting her way home, her therapeutic program consisted of some, but not all of the components involved with Bredesen's therapeutic program, and included:

(1) eliminating all simple carbohydrates, leading to a weight loss of 20 pounds; (2) eliminating gluten and processed food from her diet, with increased vegetables, fruits, and non-farmed fish; (3) to reduce stress, she began yoga; (4) as a second measure to reduce the stress of her job, she began to meditate for 20 minutes twice per day; (5) she took melatonin each night; (6) she increased her sleep from 4-5 hours per night to 7-8 hours per night; (7) she took methylcobalamin (B-12 1,000 mcg) each day; (8) she took vitamin D3 (2,000 units) each day; (9) fish oil each day; (10) CoQ10 each day; (11) she optimized her oral hygiene using an electric flosser and electric toothbrush; (12) following discussion with her primary care provider, she reinstated hormone replacement therapy that had been discontinued; (13) she fasted for a minimum of 12 hours between dinner and breakfast, and for a minimum of three hours between dinner and bedtime; (14) she exercised for a minimum of 30 minutes, 4-6 days per week.

The results for nine of the 10 patients reported in the paper suggest that memory loss can be reversed, and improvement sustained with this therapeutic program, said Bredesen. "This is the first successful demonstration," he noted, but he cautioned that the results are anecdotal, and therefore a more extensive, controlled clinical trial is needed.

The downside to this program is its complexity. It is not easy to follow, with the burden falling on the patients and caregivers, and none of the patients were able to stick to the entire protocol. The significant diet and lifestyle changes, and multiple pills required each day, were the two most common complaints. The good news, though, said Bredesen, are the side effects: "It is noteworthy that the major side effect of this therapeutic system is improved health and an optimal body mass index, a stark contrast to the side effects of many drugs."