

1. Important supplements: (**Staying Healthy handout- for more information**)

- a. **Vitamin D 5,000 units:** levels of 50-100 are optimal; less malignancy, autoimmune dz, osteoporosis
- b. **Magnesium citrate 500 mg:** magnesium is depleted by alcohol, diabetes, low salt diet and exercise/sweating. If you have muscle cramps, insomnia, fatigue or HTN, take 400-500 mg at bedtime.
- c. **Opti-MSM 3,000 mg:** a byproduct of DMSO (dimethylsulfoxide), which comes from things rotting (think rotten eggs). DMSO helps heal wounds but smells like rotten eggs. DMSO2 (dimethylsulfone or methylsulfonylmethane-MSM) is the non-smelly metabolite of DMSO. This comes down in the rain and is in all living things. The problem is we no longer drink rain water or eat living things. When you bring a horse in from the pasture (where they are drinking rain water and eating living grass) and give them tap water and hay/feed (dead with the MSM evaporated) they develop arthritis and tendonitis. But if you put MSM on their feed, they do not. We are just like horses. Take 3,000 mg per morning.
- d. **Chromium picolinate 500 mcg:** makes you inappropriately happy. Good for dysthymia (chronic low-grade depression that most of us have). But DO NOT take this if you have bipolar disorder or cyclothymia as you may become manic or hypomanic.

2. Elimination diet: (**Elimination diet handout**).

- a. Certain foods appear to stimulate our immune systems in an adverse way. If you have arthritis I recommend a 4-6 week trial off the Nightshade vegetables (tomatoes, eggplant, peppers, potatoes) to see if your arthritis improves. If I eat tomatoes my knees hurt. So I do not eat them. At the age of 32 I was diagnosed with degenerative arthritis in my cervical spine (neck). Now I am 64 and trying to stay as healthy as possible. Avoiding the Deadly Nightshades is a small price to pay.
- b. But lectins in Nightshades are only the beginning. The Elimination diet handout goes through the other possible foods leading to sensitivity. Page 2 of the handout (Groups 1-3) are the foods you can eat. Page 3 (Groups 4-7) are the foods to initially avoid, then to add back as you seen to tolerate. Grains, dairy (Casein-1, the protein in cow's milk) and certain beans (particularly Navy and Pinto beans) are highlighted as the worst offenders but you need to see what impacts you personally.
- c. If this limited approach does not work, the literature talks about eliminating everything except lamb and pears (assuming you can eat these foods). Then adding back starting with group 1 foods.

3. Mitochondria (**Mitochondrial dysfunction and malignancy handout; Reversal of Cognitive Decline handout**)

- a. **Interval exercise** (that leads to sweating and shortness of breath) **and fasting** signal to the mitochondria that there is inadequate energy sources. This is communicated through the excess oxidative stress leading to increased H₂O₂ (hydrogen peroxide). The H₂O₂ signal goes to the somatic nucleus and tells the cell to turn on the machinery to make more mitochondria. This recycles the old mitochondria into new healthy mitochondria. The main difference between old people and young people is old mitochondria versus new mitochondria. See **The Warrior Diet** handout for info on intermittent fasting.
- b. **Detrimental effects of antioxidants:** Taking vitamin C 1,000 mg prior to your exercise block the H₂O₂ signal by neutralizing the oxidative stress. It is like cutting the phone line between the mitochondria and the nucleus, so the cell does not make new mitochondria and you just get older and older. Vitamin E has been associated with increased risk of both heart disease and cancer in clinical trials. This is why I do not take a multivitamin. But I do take a Vitamin B complex (Pure Encapsulations); you want lower doses of Vitamin B-6, no more than 50 mg per day.
- c. **Oxygen and oxidative stress:** Mitochondrial diseases appear to be made worse by supplemental oxygen. So, if your oxygen saturation in your blood is normal on room air (90-100%), do not expose yourself to higher levels of oxygen beyond room air (21%). Excess oxygen appears to increase oxidative stress (makes sense).

4. Immune boosters and autoimmunity

- a. We want our immune systems to be calm and focused. Calm so we are not getting autoimmune disorders. Focused so we can recognize and kill cancer cells and invading organisms. Our mental state does impact our immune system. If you are distracted, anxious and depressed, so is your immune system. So, focus, meditate and exercise.
- b. **Echinacea and garlic** are potent stimulators of the immune system. Avoid these if you have autoimmune disorders. I once had a patient with pemphigus (a blistering autoimmune disorder) who had a bad cold and asked me if he could take echinacea for his cold. I told him that I did not recommend echinacea due to the potential of worsening his disease. But we decided he could try it for a couple of days and if he was getting worse to stop it. He did this and developed a severe flare of his pemphigus leading to a need for high dose corticosteroids and immunosuppressive medications. He fired me, appropriately so because I should have stuck to my guns and said no. Garlic can have a similar effect but is much less of a problem in my clinical experience.

5. NK cells, exercise and melanoma

- a. There is a mouse study where the mice were divided into two groups, one group with exercise wheels and the other group without. Then melanoma cells were injected into the abdominal cavity of all of the mice. During the study all the non-exercising mice all died. Only half of the exercising mice died, and on post-mortem exam they had much less advanced disease. When they assessed immune function in the mice, the exercising mice had expanded and active NK cells (Natural Killer cells, the part of the innate immune system that kills cancer cells). So, during my cool down after exercising, I thank my NK cells for recognizing and killing my early growing cancer cells.

6. Toxic medications

- a. **Fluoroquinolones** (Cipro, Levaquin, Floxin, etc) are associated with disruption of connective tissue including tendon ruptures, dissection of blood vessels (including the aorta) and retinal tears and detachment (including possible blindness). Do not take these meds unless there is nothing else that will cover your infection (this is rare but includes puncture wounds through a sneaker). Do not take these for urinary infections or upper respiratory infections. There are many much safer alternatives.
- b. **Zyvox**: this is a rarely used medication but is a direct mitochondrial toxin. It can shut down mitochondrial function and turn you into a fermenting primitive organism.
- c. **Statins and myopathy** and cognitive dysfunction: Statins appear to deplete mitochondrial Co-Enzyme Q10 and can be associated with myopathy (muscle dysfunction with weakness and pain) and perhaps with cognitive dysfunction that some patients have reported. Supplemental Co-Q10 at 100 mg at bedtime with the statin may be helpful in reducing this.

7. Good medications

- a. **Metformin**: This med mimics fasting and exercise and is currently being studied in people over 65 with prediabetes to see if it will reduce heart disease and death. But if you are already fasting and exercising and do not have prediabetes, it does not appear to be additive to the fasting/exercise so not needed. But if you are sitting on the couch, it is likely better than nothing.
- b. **ARBs (Angiotensin receptor blockers like Losartan, a blood pressure pill)**: the ARBs appear to prevent aging of your kidneys. This is a good thing.
- c. **ACE inhibitors** (Angiotensin converting enzyme inhibitor, another blood pressure pill): ACEIs also prevent aging of your kidneys but also can be associated with a dry cough and allergic reactions. So we are moving toward using the ARBs more frequently.
- d. **Macrobid**: The best med for uncomplicated bladder infections. It is absorbed rapidly from the intestine and put out in the urine, so you do not get a vaginal yeast infection or diarrhea or resistance organisms because of its rapid clearance.

- e. **Low dose aspirin:** this is a two edged sword. It can be associated with less heart attacks and strokes in people at higher risk and perhaps with less colon cancer, but also increases your risk of bleeding. Discuss this with your health care provider prior to taking.
 - f. **Alpha lipoic acid:** Can reverse diabetic neuropathy and is included in some anti-cancer regimens to improve outcomes. 300 mg twice per day
 - g. **CoEnzyme Q10:** May be helpful in cognitive decline. See section on statins.
 - h. **Silymarin (Milk thistle):** may be helpful in people with chronic inflammation of the liver, including hepatitis C, alcoholic hepatitis and perhaps fatty liver.
8. Counting calories? See Section 11 below (Blue Zone) for why the **80% goal may be important**
- a. Patients have told me they like my information, but they have also found it helpful to keep track of the calories they are consuming. So, I have been entering the food I eat into the Fitbit app on my phone. It takes very little time (1-2 minutes) and effort and does let me know if I have consumed 60%, 80%, 100% or more than 100% of the calories that I have burned that day. If at 60%, I can go wild. If at 100% or more I get the hell out of the kitchen. At 80% I have a choice, I can choose health or pleasure. I am currently on a healthy kick, but occasionally slide over and think “I deserve a break today.” And no, not McDonalds! Usually a scoop (or three?) of almond butter, some almonds or frozen blueberries with heavy cream. But a slippery slope that can rapidly add 300-400 calories or more!!! Just say no...
9. Blue Zones (Five regions with the highest survival rates) See next page for details
- a. Barbagia region of Sardinia – Mountainous highlands of inner Sardinia with the world’s highest concentration of male centenarians.
 - b. Ikaria, Greece – Aegean Island with one of the world’s lowest rates of middle age mortality and the lowest rates of dementia.
 - c. Nicoya Peninsula, Costa Rica – World’s lowest rates of middle age mortality, second highest concentration of male centenarians.
 - d. Seventh Day Adventists – Highest concentration is around Loma Linda, California. They live 10 years longer than their North American counterparts.
 - e. Okinawa, Japan – Females over 70 are the longest-lived population in the world.
10. Summary of Findings from the Blue Zone populations:
- a. **Consume 80% of recommended calories** (These tend to be poorer areas) hence, calories in/out
 - b. **Move, move, move** in activities of daily living (walk more, drive less, plant and tend a vineyard or garden)
 - c. Herbal teas may have **anti-hypertensive effect** leading to lower BPs and protection of kidney function
 - d. **Family, Community and spiritual connection** appear to be important in all five most long-lived regions
 - e. More vegetables and healthy oils/nuts and less sugar/meat
 - f. Except for Seventh Day Adventists, **alcohol in moderation**
 - g. **A sense of purpose in work and life;** most do not retire but remain engaged in work and community

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