**Brain Health**

 **Work by four of today’s leading doctors**

**The End of Alzheimer’s by Dale E. Bredesen, MD. A Book Review by John C. Vaughan, Ph. D.**

**Please open your mind and consider changing your life – even if you are healthy now.  You may already be giving yourself Alzheimer’s disease, or what is actually your brain’s protective response to, specifically, three different processes:  inflammation, suboptimal levels of nutrients, and toxic exposures.
                “Everyone knows a cancer survivor, but no one knows an Alzheimer’s survivor.”  Dr. Bredesen is a research neurologist who published his first paper on what he calls the reversal of cognitive decline (ReCODE) in 2014. Throughout his book Dr Bredesen discusses 19 heart-warming stories of patients of his ages 50 to 75 who have recently reversed their cognitive decline by following his “ReCODE” program. His greater goal is to help close the complexity gap to help create twenty-first century health care, and with it a world without the dread of dementia, a world without families destroyed by cognitive loss.
                This 2017 book is the first program proposed to prevent and reverse cognitive decline.  Ideally, you would adopt the protocol as prevention.  Dr Bredesen advises that all of us over 45 should check our genetics, biochemistry, cognitive function, and possibly even imaging.
                Thanks to antibiotics, most of us now die from chronic, complex illnesses such as cancer, cardiovascular disease, and neurodegenerative disorders.  Unfortunately, we can’t solve chronic illness with a single pill, monotherapy.  Patients with Alzheimer’s need a program that addresses all of the “thirty-six holes in the roof.”  Drugs will eventually prove to be a very effective patch for one hole or a few holes, and should perform better when the other holes are patched.  A single pill cannot address the many potential mechanisms that cause cognitive decline – thus the need for a broad program.  The problem with chronic illnesses such as cancer and Alzheimer’s disease is that symptoms begin late in the course of the illness and are mild at first.
                The bottom line here is that you could save yourself time – years of it – if you will focus on addressing now the prevention of cognitive decline.
                The core of Dr. Bredesen’s ground-breaking book is Chapter 7 (five areas of testing) and then Chapter 8 -- the specifics of ReCODE - - the first proposed program to prevent and reverse cognitive decline.**

**Chapter 7 – Where do you stand?  Five Areas.**

**1/5         Genetics.  You need to take a genetic test (23andme suggested) to determine how many copies of ApoE4 you have (0, 1, or 2).  There are also optional tests for other SNPs (single nucleotide polymorphisms, which are variations in your genes) also related to neurodegeneration, such as APP, PS1, PS2, CD33, TREM2, CR1, and NLRP1.
                Reference**[www.apoe4.info](http://www.apoe4.info/)**.   23andme.com sells a Health + Ancestry DNA kit (online at Amazon for $199).  Once you have received your genome data file, it can be analyzed by websites such as**<https://www.promethease.com/>**.
                Zero copies of ApoE4 have a risk factor for Alzheimer’s disease of only about 9 percent, one copy (inherited from one parent) increases your life-time risk factor to 30 percent, while carrying two copies (inherited copies from both parents) increases it to well over 50 percent.  You need to know your genetic status because, for one thing, your optimal diet will be different if you are ApoE4 positive than if you are ApoE4 negative.**

**2/5         Quantitative Neuropsychological Testing.  Start with the free MoCA (Montreal Cognitive Assessment) test online (**<http://dementia.ie/images/uploads/site-images/M.CA-Test-English_7_1.pdf>**).  Test only takes 10 minutes and has three versions.  A normal MoCA score is 26 to 30; 19 to 25 is associated with mild cognitive impairment (MCI); 19-25, if accompanied by difficulties with activities of daily living, usually means that MCI has converted to dementia, whether from Alzheimer’s disease or another cause; and scores lower than 19 indicate dementia.
                Other tests available online are more sensitive to early changes and provide more detailed analysis of brain function.  These include CNS Vital Signs, Brain HQ, Dakim, Lumosity, and Cogstate, all of which calculate your percentile (for your age) for multiple areas of function.**

**3/5         Metabolic Evaluation.  Extensive blood tests may cost a few hundred dollars.  They can be ordered by your doctor or obtained from direct to consumer laboratory testing such as:**<https://www.anylabtestnow.com/>

**The list of over 50 possible tests (most of which are blood tests) is longer than you probably have ever thought of (page 167-169 of Bredensen’s book): hs-CRP, Homocysteine, B6, B12, folate, vitamins C,D,E, omega-6: omega- 3 ratio, albumin/globulin ratio, fasting insulin, glucose, hemoglobin A1c, Body mass index. LDL-p, cholesterol, HDL, triglycerides, Glutathione, RBC thiamine pyrophosphate, leaky gut, leaky blood-brain barrier, gluten sensitivity, autoantibodies, Estradiol, (E2), progesterone (P), pregnenolone, cortisol, DHEA-sulfate, testosterone, free testosterone, free T3, freeT4, reverse T3, TSH, mercury, lead, arsenic, cadmium, C4a, TGF-*B*1, MSH, HLA-DR/DQ, RBC-magnesium, copper, zinc, selenium, potassium, calcium, and no pathogens in gut/oral/nasal.  Remember we want to “patch 36 holes.”**

**4/5         Imaging.  Imaging the brain can show which, if any, regions, have shrunk and which are using less energy – and therefore less active – than they should be.  MRI with volumetrics provides raw data that programs like Neuroreader and NeuroQuant use to assess percentile scores for people your age.  Neuroreader, for instance, calculates for 39 brain regions. (If a CT scan or MRI shows that the brain’s ventricles – normal cavities within the brain that contain cerebrospinal fluid – are enlarged, that should trigger consideration of iNPH, idiopathic normal pressure hydrocephalus, an often misdiagnosed brain condition. Of the 5.2 million individuals diagnosed with dementia, estimates show that 10% to 15% actually have this treatable condition.)
              For those who do not have symptoms of cognitive decline or are not at high risk, an MRI test with volumetrics is optional.**

**5/5         Other Considerations.  Sleep apnea is extremely common, usually goes undiagnosed, and contributes to cognitive decline.  Sleep is one of the most powerful weapons of the anti-Alzheimer’s resources available.
               There are several areas of novel and soon-to-appear tests critical for cognitive decline assessment. For example, Dr. Bredesen is on the scientific advisory board of NonoSomiX, a biotech start-up that hopes to soon  launch an exosome-based Alzheimer’s blood test.
                Life history can also provide crucial clues to what is causing cognitive decline.  Have you currently or have ever:
                1.   Suffered head trauma (knocked unconscious, auto accident, contact sport),
                2.   Had general anesthesia (and how many times),
                3.   Had dental amalgams,
                4.   Eat high-mercury fish,
                5.   Take meds such as Valium, blood pressure, statins, proton pump inhibitors, or antihistamines,
                6.   Used street drugs,
                7.   Drink alcohol (and how much),
                8.    Smoke cigarettes,
                9.    Practice poor oral hygiene,
                10.  Have surgical implants,
              11.  Have liver, kidney, lung, or heart disease,
              12.  Snore,
              13.  Consume hot-pressed oils (like palm oil),
              14.  Eat foods high in Trans fats or simple carbs,
              15.  Have chronic sinus problems,
              16.  Have gastrointestinal problems,
              17.  Have mold in your house, car, or workplace,
              18.  Eat processed or non-organic foods,
              19.  Had tick bites (ticks carry over 70 different pathogens),
              20.  Take ppi for reflux,
              21.  Use makeup, hair spray, or antiperspirant,
              22.  Don’t sweat much,
              23.  Been constipated, or
              24.  Don’t drink enough purified water (32 ounces daily).**

**Any of these might be contributing to cognitive decline.  There are at least thirty-six factors that can cause synapse-destroying reactions that out-weigh synapse-preserving or creating ones.**

**Chapter 8 – ReCODE Program (Reverse COgnitive DEcline)**

**Here are Dr Bredesen’s specifics of how to prevent and reverse cognitive decline.  Some depend on your laboratory values, whereas others will be helpful to everyone.
                Insulin resistance is arguably the single most important metabolic contributor to Alzheimer’s disease development and progression.  The solution is a very effective combination of DESS (diet, exercise, sleep, and stress reduction) – which is so important for your health – along with some simple supplements and, as a last resort, medication.**

**DESS 1/4 is Diet.  Dr. Bredesen calls his Anti-Alzheimer’s Diet the “Ketoflex 12/3”.  Mild ketosis is optimal for cognitive function. The 12/3 refers to 12 hours or more between the end of dinner and the next day’s first meal or snack and the 3 hours minimum time between the end of dinner and bedtime.
                His recommended diet is low carb and will switch your metabolism from carbohydrate – burning and insulin resistant to fat – burning and insulin sensitive.**

**Here are 14 specifics of his Ketoflex 12/3:
1/14.  The majority of your diet should be vegetables: organic, seasonal, and local.
2/14.  Avoid fruit juices in favor of whole fruits.  The best fruits are wild, colorful berries, lemons, limes, tomatoes, and avocados.  Whole fruits can be used as a dessert.
3/14.  Avoid simple carbohydrates, saturated fats, and lack of fiber combinations such as a cheeseburger, with fries and a soft drink.
4/14.  Avoid gluten and dairy as much as possible.
5/14.  Eat detoxifying plants such as cilantro, cruciferous vegetables (cauliflower, broccoli, cabbage, kale, radishes, Brussel sprouts, etc.), beets, garlic, ginger, grapefruit, etc.
6/14.  Include good fats such as those from avocados, nuts, seeds, olive oil, and MCT oil.
7/14.  Avoid processed foods in favor of whole foods.  Simple rule: If ingredients are listed, it is processed.
8/14.  Fish are optional. Whenever possible, get wild-caught, not farmed, fish.  Favor SMASH (salmon, mackerel, anchovies, sardines, and herring).
9/14.  Meat is a condiment, not the main course (2 or 3 ounces).  Try pastured chicken (and eggs) or grass-fed beef.  You can get protein from beans, soy, eggs, and nuts.
10/14. Feed your gut the right bacteria (probiotics) and with the right bacteria food (prebiotics). Both can be in tablet forms.  Probiotics include fermented foods such as sauerkraut, kimchi, sour pickles, etc.  Prebiotic foods include jicama, onions, garlic, etc.
11/14. It is often very helpful to take digestive enzymes – available in capsules – with meals.
12/14. Optimize nutrition and cognitive protection with supplements - - a daily, high quality, multi vitamin and mineral supplement with phytonutrients.  Also an omega-3 fatty acid supplement.
13/14. Specific herbs are available as encapsulated extracts or as herbs themselves.  Examples include herbs that reduce inflammation, or handle stress, or improve brain function, or increase focus, or boost immune support.
14/14. Avoid damaging your food when you cook it.  Use moist heat, shorter cooking times and lower temperatures. Avoid grilling, searing, roasting, broiling, and frying.**

**DESS 2/4 is Exercise.  Sitting is the new smoking.  Exercise reduces insulin resistance, increases ketosis, increases region of brain for memory, improves vascular, reduces stress, improves sleep, increases brain neurons, and improves mood.
                 Combine aerobic exercise (such as jogging, or walking, or cycling, or dancing) with weight training. It is preferable to exercise at least four or five days per week, for 45 to 60 minutes total each day.**

**DESS ¾ is Sleep. Optimal sleep is indispensable to avoid the fog of slow reactions, impaired judgement, diminished learning and memory, increased stress, and the inability to improve your health.  If you have sleep apnea, it is critical to treat it.
               Try to get as close to eight hours of sleep per night as possible, without using sleeping pills (which compromise cognitive function).  Melatonin is not a sleeping pill.  Dr. Bredesen gives several pages of good suggestions for those with particular sleeping problems.  He ends with ways to practice good sleep hygiene:  keep room dark as possible (sleep mask if needed), quiet as possible, wind down prior to sleep, go to bed before midnight (if possible), avoid exercise a few hours before bedtime, avoid blue light (LED) at night, avoid stimulants such as caffeine after early afternoon, keep TV out of the bedroom, avoid heavy evening meals, and keep hydrated.**

**DESS 4/4 is Stress.  Stress refers to running a system at a level beyond where it was meant to operate.  We humans did not evolve to lead the lives most of us lead – lives of sugar-laden diets, late nights with incandescent lights, constant anxiety about work, poor sleep, poor nutrition, and exposure to hundreds of toxic chemicals, to name just a few of the stressors pummeling our brains and bodies.  We evolved to handle intermittent stress, not constant stress.
               Stress increases levels of cortisol, which at high levels is toxic to our brains - in particular to the memory.
                Stress increases risk factors for cognitive decline, blood glucose levels, body fat, risk of obesity, carbohydrate craving, leaky gut, inflammation, permeability of the blood-brain barrier, risk of cardiovascular disease, etc.
                The best approach to stress reduction varies from person to person.  The simplest – but surprisingly rarely used approach – is to take a few deep, slow, diaphragmatic breaths (breathing from your belly, not your chest).  Relax!
                Other good approaches include meditation, yoga, massage, laughter, music, and movement. Reduce exercise, caffeine, or alcohol if your levels are too high.**

 **In addition to DESS (diet, exercise, sleep, and stress reduction) to eliminate insulin resistance and help reverse cognitive decline, the Chapter 8 ReCODE program contains seven other important parts.
                1. Many companies provide online brain training, especially Posit Science which makes BrainHQ and is recommended by Dr Bredesen.  You need only 10 or 20 minutes per day, five days a week to see improvements.
                2. Resolving inflammation is critical in reversing cognitive decline.  Take supplements, including omega-3 DHA.  There are also anti-inflammatory foods such as green leafy vegetables, beets, and broccoli.  Avoid non-steroidal anti-inflammatories such as ibuprofen.
                3. Heal your gut lining by eliminating or minimizing the causal insults from sugar, gluten, processed food chemicals, GMOs, alcohol, antibiotics, aspirin, steroids, and stress.  Gut healing is helped with bone broth.
                4. As any cocaine user will tell you, the quickest way to the brain is through the nose.  Microbes have also figured this out.  Mold species and/or bacteria can cause inflammation of the nose and sinuses.  If your lab results indicate an increase in C4a (component of your immune system that goes up with exposure to bio toxins) or if you have chronic sinus problems, get the problem fixed - - it is usually simple.
                5. Hormonal Balance is critical but also controversial and difficult to optimize.  Work with your physician to optimize thyroid, estradiol and progesterone (for women), testosterone, and adrenal function.
                6. Metals such as iron, copper, and zinc may have levels that indicate a deficiency or an overload.  Also check your hs-CRP inflammatory marker since chronic inflammation contributes to both high copper to zinc ratio and cognitive decline.
                7. Detoxification may be the most difficult part of ReCODE, since there are so many toxins that can contribute to cognitive decline.  To get a clue about whether you have been exposed to high levels of toxic substances, start with your life history as previously described.**

**The above book review focused only on the most important parts of the book, in my opinion.  This is at best simply an introduction to the important work being done.  Reference the website**[www.mpicognition.com](http://www.mpicognition.com/)**. The site has lots of information beyond his book.**

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**The feedback I received from my first limited email out of Bredesen Book Review started with this from a Family practice M.D. in DC area who has been trained to treat patients with cognitive decline but had not read Bredesen’s new book. His comments are probably typical of what most MDs would say:**

**Your book review was an extremely interesting read. I share with you a personal family history of this disease and have seen it affect my family.**

**I have several different reactions to the books recommendations.**

**In general the suggestions regarding diet, exercise, and life style habits are excellent. Without doubt there is good evidence for contributing chronic diseases that these lifestyle changes are of important benefits. In regards to dementia this may be a direct relationship as well, not just a secondary affect through mitigating other chronic disease.**

**I am a huge proponent that proper lifestyle changes are more beneficial than any medicine I can prescribe.**

**I would be careful with some of the diet recommendations such as gluten, diary, and sugar. I would argue for more of a portion control then completely getting rid of this from our diets. However, can we live without these, most definitely.**

**The research behind processed foods and inflammatory foods is still in its infancy. In the medical community we have been burned more times than not when we jump onto ideas without the proper amounts of reproducible research. That being said, do I think there is something behind this, yes I do.**

**This brings me to some of my concerns. In regards to what Dr. Bredesen recommends for testing, I am not certain how necessary some of it is. A lot of it seems sound and I have read a few things regarding the genetics, imaging, etc. The issue I have is that in our current time, we have no good information that any of this changes cognitive decline for our patients. I admit, that just because the research is sparse, does not mean it has no weight. The reverse can be true as well, which is why I hesitate.**

**Ultimately this becomes a personal decision between patients and their physicians guiding them to the best of science's ability, while trying to do minimal harm.**

**I am happy to discuss this more.**

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**Then came this feedback from a close friend and well-recognized M.D. who also had not read Bredesen’s new book yet, but agreed with all the items in my Review and has himself been speaking on the subject for over 8 years. He gave 4 talks on cognitive decline last month to audiences in the San Diego area. The interest in this subject is booming, one audience was expected to be about 25 but was 110 people, so many had to stand for his 90 minute power point talk. Here is the advice page he has been handing out since 2009:**

**Keeping Your Wits: How brain function declines and 10 ways to prevent it**

 **by Philip J. Goscienski, M.D.   www.stoneagedoc.com**

**Dementia is the deterioration of thinking and memory that affects daily living. Alzheimer’s disease is only one form of dementia. Most cases of dementia have little to do with aging. Some persons have a genetic disposition toward certain dementias and Alzheimer’s disease but even these can be lessened by lifestyle.**

**Among more than 219 70-year-old hunter-gatherers studied at Makerere University in Uganda only 4 (less than two percent) had senile dementia. *“Alzheimer’s Disease is no longer considered an inevitable consequence of the aging process.”*  (M. Folstein, M.D., New England Medical Center)**

**Busy body, better brain. Physical activity of any kind matters. More is better. Results in longer-lasting brain cells, new connections, new brain cells. Thinking speed and memory improve.**

**Keep blood sugar normal. Elevated blood sugar impairs memory and thinking ability, even at levels that are not in the diabetes range. Avoid refined grains, baked and french fried potatoes and sugar. Emphasize whole grains, vegetables, beans, & fruits.**

**Take adequate vitamins. Low levels of niacin, folate and B12 are associated with higher rates of dementia. Everyone should take a multivitamin/multimineral daily.**

**Get plenty of antioxidants. Some antioxidants may protect against Alzheimer’s disease; antioxidants protect blood vessels in the brain and elsewhere. Emphasize leafy green vegetables and those that are highly colored and flavored. Red wine and dark chocolate in moderate amounts.**

**Fish is brain food. Omega-3 fats are brain-critical from before birth through very old age. Four or more servings of fish weekly, not fish sticks or fried fish. Supplement if necessary.**

**Avoid foul fats. A high intake of either saturated fat or trans-fat is associated with Alzheimer’s disease. Eat lean, not well-marbled, meat. Read nutrition labels; avoid all trans-fat. (Code phrase: *partially hydrogenated*)**

**Blood pressure matters. It is a major cause of stroke. Small increases in blood pressure cause measurable changes in thinking ability and problem-solving.       Lifestyle changes are the first step: lower salt intakes, decrease weight, eat more fruits and vegetables, increase physical activity.**

**Check your cholesterol. High LDL cholesterol is associated with poor brain function and Alzheimer’s disease. HDL cholesterol protects the brain. Dietary intake of saturated fat, not cholesterol, raises blood cholesterol levels.**

**Think (Better) Thin. Overweight in middle age is associated with dementia in old age. Don’t measure body weight; measure body fat and waist circumference.**

**Go back to school. Learning new skills increases connections between brain cells. The risk of dementia and Alzheimer’s disease is lower among persons who maintain a high level of mental activity.**

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**Memory Rescue by Daniel G. Amen, MD     Book comments by John Vaughan**

**If you live until age 85, you have nearly a 50% chance of being diagnosed with Alzheimer’s disease or another form of dementia; and these illnesses start in the brain decades before any symptoms appear.**

**Dr Amen first starting performing SPECT (single photon emission computed tomography) scans in 1991. Today he has the world’s largest database of over 135,000 brain scans.**

**During life, the brain has the consistency of soft butter, tofu, or custard – a very soft brain housed in a really hard skull that has multiple sharp, bony ridges, which means that the brain is easily damaged. In addition to head trauma, SPECT scans show cognitive impairment caused by inflammation, toxins, and depression. Amen lists the risk factors as BRIGHT MINDS = blood flow, retirement/aging, inflammation, genetics, head trauma, toxins, mental health, immunity/infection issues, neurohormone deficiencies, diabesity (diabetes, prediabetes, and obesity), and sleep issues.**

**Dr Amen has 7 clinics nationwide, including one in Reston, VA. Reference**[www.amenclinics.com](http://www.amenclinics.com/)**to see his work in many areas. His recent 2017 book, Memory Rescue, is too wide ranging for a solid book review – just read the book – it will blow your mind “so to speak”. His clinics will charge $1300 to over $6,000 to help you.**

**Besides reading his book, another way to learn about Dr Amen is to take his**[www.brainthriveby25.com](http://www.brainthriveby25.com/)**program online. I am taking it now for free – 12 video lessons of about 30 minutes each. To access course, go to:**[www.amenuniversity.com](http://www.amenuniversity.com/)**. Since the brain is malleable until age 25, high school students should all take this course so they will learn to love their brains and then also see how many things we are tempted or led to do can cause brain damage. Learn instead to care, nourish, protect, and optimize your brain!**

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**Dr Mark Hyman’s work since his UltraMind Solution book in 2007**

**Dr Hyman from the Cleveland Clinic is a leading functional medicine doctor who relates with all the cutting edge, 21st Century, modern thinking doctors like Bredesen and Amen and many others. His latest effort is a series of 8 online video seminars called “Broken Brain” that were released in January, 2018. In fact Drs Bredesen and Amen (and others) are on his first session.**

**All their ideas seem to merge into these. Conventional medicine asks “what”, they name it, blame it, prescribe a pill, and are usually too compartmentalized to help people with brain decline– but that’s how our out of date medicine pays them. Whole body, natural, functional medicine instead asks “why”.**

**As far as Brain Health, Hyman et al all seem to agree on the same whole body solution. We now know that we can grow new brain cells and most brain problems are not coming from the brain. We understand that our ancient genes sometimes don’t interact well with our modern lifestyles. With epigenetics we now know we can modify our gene expression because our genes act like dimmer switches. Some people will be disappointed that the answer to your best brain performance is not a simple prescribed brain pill, but rather balancing out all your body systems.**

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**Summary of all the above MDs advice:**

**These outstanding doctors, just like the stoneage doc Phil Goscienski, all word their advice with different acronyms and multipoint plans – but they all agree on the same simple advice that for most people will take some noticeable adjustments to their lifestyles to do.**

**Eat well, supplement, exercise, walk vigorously for 30 minutes, relax, sleep well, naps OK, be quiet with no TV or internet before going to bed, live clean and green, social, spiritual, positive psychology, happiness advantage, take smart health tests, etc. You can do it! For a better life…**

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**I will end my review of Brain Health work with my personal story.**

**Both my wife and I have started applying the independent recommendations of Bredesen and Amen as a preventative. We were already doing many of their suggestions. My dad’s dementia and her dad’s Alzheimer’s took an emotional toll on their spouses for years.  The hundreds of thousands of dollars of additional finances consumed could have gone to grandchildren or fine charitable causes.  Instead the funds went to their required special health needs, with no focus or recommendations given to us on how we might help them possibly reverse or slow their cognitive decline. We and the doctors just accepted it all as part of life that you just learn to handle. At our ages we now unfortunately know numerous life-long close friends and relatives who have just been diagnosed with Alzheimer’s in this last year. Maybe there are now better answers or things to do. Starting before the problem shows seems best for most of us.
                                We personally start at a good place.  For decades we have done many smart things.  We are fortunate to be taking no meds. As part of our business we have the best drinking water; the best air treatment; and the best waterless, low heat cookware; and the world’s number one selling vitamin and dietary supplements brand.
                We take the world’s best daily supplement; it includes 22 vitamins & minerals and 22 hard to get phytonutrients from plant concentrates. We add the best omega-3s and 10 servings of concentrated fruits and vegetables from whole food extracts.  Our anti-inflammatory blend of rose hips, grape extract, blackberry, and blueberry won the annual worldwide award for the best work in metabolism and nutrition.  I add supplements for vision, memory, prostate, cholesterol, plus digestive enzymes, probiotics, and fiber.  We have supplements totally covered - - unless something shows up suboptimum from the extensive blood tests.
                Patching all “36 holes” however takes more than the best supplements.  We can all fine tune our sleep and remember to reduce stress.  We can be more consistent with our aerobic and weight exercises. That’s all possible.
                Over a year ago we started the Bulletproof diet thanks to Dave Asprey’s fine book.  That helped us do the 12 hour fast time after dinner.  The 3 hours no eat before bed is only wiped out socially when an evening outing runs too late or the restaurant is horribly slow with the big meal we ordered.  This should be easily fixed with simple common sense, planning, and discipline.  No problem to do 12/3 and start the day with a cup of Bulletproof coffee.
                This primarily leaves diet, unless the tests show other hidden potential problems. The Bredesen, Goscienski, Amen, and Hyman diet advice is not fun to hear: “The majority of your diet should be comprised of vegetables”; “Avoid processed foods in favor of whole foods”; “Meat is a condiment”; and “Sugar is an addictive poison”.  I have more work to do. It requires finding the best advice, followed by acceptance, commitment to a plan, bounce, attitude, persistence, maybe some luck, and usually a few encouraging friends. Success with reversing, preventing, or at least delaying cognitive decline appears to now be a worthwhile and achievable goal, thanks to the on-going works of these MDs.**

**Getting through some of the recommended tests seems complicated and can slow your start.  The MoCA cognitive assessment test was free and easy to find online and take. We were willing to pay $199 each for the 23andme genetic test. We are taking blood tests beyond what we do for our annual physicals (including hs-CRP). We have decided that one of us will get a brain scan with Dr Amen. Finding a doctor who relates to Bredesen’s new work was difficult, but after paying Bredesen $900 I could search his recommended health professional list, and found a good functional medicine doctor in our area and 2 MDs in the DC area that will give their own good advice and also feed our data into Bredesen’s ReCODE program for additional advice. Insurance does not cover this type of work. These Virginia MDs charge from $650 for 1 ½ hours, to $1000 for 2 hours, to $2500 for 3 ½ hours.**

**I have concluded that the Brain HQ testing that you pay a small one year fee for ($96) seems well worth it. I usually brain exercise in the morning when I am most alert and surrounded by quiet. I do whatever 4 exercises they recommend for their recommended 20 minutes total daily time. Tests I have been doing so far are Hawk Eye, Target Tracker, Double Decision, Eye for Detail, and Visual Sweeps. Exercises are challenging and I feel they are beneficial.**

**Best wishes on your journey, John**

Become a Brain Warrior

1. **Brain health is central to all health and success in life**. When your brain works right you are happier, healthier (because you make better decisions), **wealthier** (again because you make better decisions), and more successful in everything you do.
 The median savings for Americans today near retirement is only $17,000. The majority are more afraid of running out of money than death. Many need to make better decisions earlier.
2. **You are not stuck with the brain you have**. You can make it better even if you have been bad to your brain.
 New research suggests we can produce up to 700 new brain cells a day if we provide them with a nourishing environment, which includes exercise (for better intake of oxygen and increased blood flow), proper nutrition, omega-3 fatty acids, and stimulation through mental exercise and social interactions.
3. **You are in a war for the health of your brain**. Just about everywhere you go; you are offered toxic food that will kill you early. The real “weapons of mass destruction” are highly processed, pesticide-sprayed, high glycemic, low-fiber food-like substances in plastic containers. Such fare is destroying the health of America: Two-thirds of us are overweight or obese; 50 percent are diabetic or pre-diabetic; and 60 percent are hypertensive or pre-hypertensive - - all conditions that damage the brain. In addition, news channels repeatedly pour toxic images into our minds, stoking our fear that disaster is everywhere and constantly exposing our brains to stress chemicals that can damage our brains’ memory centers. Technology companies continually produce addictive gadgets that steal our attention and distract us from our loved ones. According to a study from Microsoft, the human attention span is now eight seconds; a goldfish’s is nine seconds.
 You need to think of your brain now, not 20 years from now.
4. To rescue your memory, you must counteract the dangers to your health. You must become a ***brain warrior***.
5. Dr. Amen now has a database of nearly 200 NFL players from 27 teams and all positions; including many Hall of Famers, such as Terry Bradshaw. The levels of depression and dementia are troubling. A large percentage file for bankruptcy or divorce within a few years of retirement. Doing brain **SPECT scans (Single Photon Emission Computed Tomography**) shows that playing football had damaged multiple areas of the brain in more than 90% of the players.
 When put on a Memory Rescue program, including supplements, eighty percent of the players showed significant improvement in blood flow to the prefrontal cortex, as well as improvements in overall cognitive functioning, processing speed, attention, reasoning, and memory.

Reference : Memory Rescue, by Daniel G. Amen, MD
6. **On a visit to the Amen Clinic in Reston, VA; John Vaughan paid for a SPECT brain scan** (not covered by Medicare, it cost $3,160 for retired military at – 20%, or – 10% for friends and family). John has no indication of cognitive decline but took the tests as a possible preventative. One of the 12 pictures of his brain versus healthy SPECT views is shown below. A combination of findings suggests past brain injury, so most of John’s treatments fall into Brain Trauma - - one of the nine Amen clinic areas of work. John’s Trauma was at age 19 when he was hit in the back of the head with a metal pipe and woke up 10 hours later in the hospital.
7. The Chief Psychiatrist at the clinic is optimistic that his recommendations will help John keep his brain healthy and possibly improve his brain’s health appearance in their scan. Check up in 12 months to hopefully see good results, including a second SPECT scan (for only $1,000).
 Recommendations include both physical and mental (like Brain HQ) exercises. When you stop learning, your brain starts dying. Keep your self-talk positive. Remember: The words you tell yourself are the movie script your brain plays out. Recommendations also include diet (like Dave Asprey’s Bulletproof diet), good sleep, less stress, less alcohol and sugar, etc. - - all the healthy things you have always heard really do help your brain too. Supplements, rather than prescriptions, are a major part of all the leading functional medicine doctor’s brain healing programs - - including Drs Hyman, Amen, and Bredessen.
8. Brain Supplement Support (as related to **Nutrilite**) recommended for John by Amen Clinic:
* 22 Vitamins and Minerals and 22 Plant Concentrates (**Double X** also includes Quercetin and Turmeric/Curcumin). Also add additional Curcumin.
* Increase **Vitamin D** (3 tablets Vitamin D provide 6,000 IU, from a combination of natural sourced mushroom powder D2 and lanolin extract D3, plus 60 mcg of K2 from a fermentation process).
* Substantially increase Omega-3 fatty acids (3 soft gel **Heart Health Omega** and 4 soft gel **Balanced Health Omega** provide 1800 mg EPA and 1200 mg DHA – in recommended 3:2 ratio).
* Ginkgo biloba (2 tablets **Memory Builder** provide 240 mg Ginkgo biloba, also 600 mg Cistanche).
* N-Acetyl Cysteine (NAC) and Alpha-Lipoic Acid (ALA) for antioxidant support (3 capsules **Antioxidant Health** provide 600 mg NAC & 45 mg ALA, also includes 75 mg of both Quercetin and Turmeric plus 300 mg green tea).
* Increase daily use of Rhodiola (2 tablets **XS Energy + Focus** provide 200 mg Rhodiola).
* Continue antioxidant protection and hsCRP inflammation control (**IL1 Heart Health** provides a unique combination of rosehips, grape vine extract, blackberries, and blueberries).

 

 Healthy SPECT Top Down View John’s Brain Top Down View
 

“The six best doctors in the world are sunlight, rest, exercise, diet, self-confidence, and friends. Maintain them in all stages and enjoy a healthy life.” “Eat your food as your medicine; otherwise you have to eat your medicine as your food.” Steve Jobs in his final essay, age 56.