

# Maintaining Your Health

Thomas Gross MD 3/1/2023

We all age and become subject to disease. But we can improve the chances of living a longer and healthier life. Scientific evidence suggests that there are six major lifestyle factors that we must attend to in order to maintain optimal health and improve our chances for longevity. In addition, replacement of hormones lost after age 40 seems to be an additional critical factor.

There is no evidence to support the use of most dietary supplements. Don't listen to bogus testimonials and fanciful explanations by slick promoters – demand scientific evidence. For supplements, this would mean at least one *large* (thousands of patients) double blind randomized controlled study. I know of none that have demonstrated a substantial benefit.

If you choose to ignore these important lifestyle factors and instead hope the medical doctors can “manage” the resulting diseases, or that supplements will save you, then you are sadly mistaken. It is far better to change your lifestyle to a healthy one, this has been proven to improve health outcomes.

There is little evidence that improving your cholesterol numbers by drugs does anything more than change the number. Improving your blood glucose by drugs has much less impact on the destruction of your body by diabetes, than by actually getting healthy by lifestyle changes. To my knowledge, metformin is the only medicine that has ever been shown to actually decreased tissue damage in diabetics, many can lower the glucose level or Hemoglobin A1c but there is no evidence that this decreases end organ damage.

Exercise is more effective than drugs for depression. A WFPB diet is at least as good as fancy and expensive new immune modulating drugs in controlling autoimmune diseases, and we do not yet know the long-term consequences of throwing a wrench into our immune system. Only a low-fat version of the WFPB diet has been shown to reverse cardiovascular disease... no drugs or surgery can do this.

A strong body of scientific evidence supports the following recommendations for leading a long and healthy life:

1. Whole Food Plant-Based Diet (WFPB)
2. Regular Exercise
  - Aerobic
  - Strengthening (resistance)
  - Impact
3. Adequate Sleep
4. Maintaining Social Connections
5. Limiting Alcohol Intake
6. Not smoking
7. Hormone replacement

It is virtually impossible to meet all these objectives completely. The goal is to get as close as possible.

**Bone health is affected by a healthy, whole food plant-based diet, regular impact exercise, limiting alcohol intake, not smoking, and hormones.**

## 1. A Healthy Diet - Whole Foods Plant Based (WFPB)

The health of the American public is deteriorating in an alarming fashion. The rates of obesity, diabetes, heart disease, stroke, dementia, male impotence, autoimmune disease, osteoporosis, and cancer of all sorts are staggering. We continue to develop more expensive medicines and procedures to keep people living a short while longer in misery with these conditions.

For years the cause has been eluding us, but certain researchers have done some pioneering work and have fearlessly spoken out. But, since their evidence strongly conflicts with established wisdom, they have been ridiculed and marginalized by all of us. **The single most effective thing you can do to improve your health is convert to a WFPB diet.**

The US government agencies that are charged to provide us with official health advice have failed in their duty to objectively evaluate scientific evidence and give us unbiased information. This is because people who make up these agencies have strong financial ties with the dairy and meat industry that desire any information about the deleterious effects of animal products in our diet to be suppressed. The processed food industry is also very powerful and spends enormous amounts of money on misinformation.

Scientific evidence is substantial that indicates consuming animal protein is the primary underlying cause of the degenerative conditions that I previously listed. This includes low fat milk, cheese, eggs, and fish! Well-recognized risk factors of cardiovascular disease are: smoking, high blood pressure, diabetes, elevated cholesterol and family history. A far more potent risk factor than all of these is the consumption of animal protein. Animal protein has also been shown to be a strong carcinogen.

Most commonly people choose a specific diet to lose weight. Maintaining a healthy weight is critical. There are serious negative health consequences to carrying excess weight as fat. A Body Mass Index (BMI = [weight in lbs.] x 703/[height in inches]<sup>2</sup>) is a simple and reasonably accurate way to determine if a person's weight is healthy. A lean but very muscular man would have a BMI suggesting obesity. But most men who claim muscles are the cause for their elevated BMI are kidding themselves. They should get a DEXA body composition scan which is the most accurate way to determine body fat (< 15% is considered normal).

### BMI Scores

- < 18 Underweight
- 18 - 25 Normal
- > 25 Overweight
- > 30 Obese
- > 35 Severely obese
- > 40 Morbidly obese

Calculate the target weight you need to reach to achieve a certain BMI by rearranging the formula:

Target weight = Target BMI x [height in inches]<sup>2</sup>/703

**Any BMI over 25 increases your risks for surgery. The higher the BMI, the higher the risk. Any amount dropped is beneficial. If you want to decrease your risk, lose weight. It will make the surgery technically easier for the surgeon, increasing the chances that the outcome will be optimal. Also, it will decrease the chance of infection, blood clots, fractures, and many other complications that are inherent in hip and knee replacement surgery.**

Unrelated to surgery, elevated BMI is associated with a higher mortality at any age. For every 5 point of increased BMI above the normal 25, your annual risk of premature death increases 31%. That means if your BMI is over 40 you have almost double the risk of dying every year than a normal weight individual of your same age has.

The WFPB diet is the healthiest way to lose weight. We are inundated with too numerous to count diet gimmicks and fads, even pills and weight loss surgery. Basically, fat is an energy storage battery. We must consume less than we burn off by basal metabolic rate (BMR, energy it takes our body to run its basic functions) and activity. Some people are fortunate to have high BMR and can eat more without gaining weight.

BMR can be increased by exercising and eating a WFPB diet. But anyone can become slim by consuming a healthy diet and exercising regularly. If you have severe enough arthritis limiting vigorous exercise capacity, you can still lose weight by adopting a healthy diet. Diet typically accounts for 80% of weight loss. Types of diet include:

- *Ketogenic (High fat/ low carb) diets* like Keto, Adkins or paleo are effective ways to lose weight, but are very unhealthy, raising your cholesterol and promoting vascular disease and cancer.
- *Calorie restriction diets* like Weight watchers are also effective; but starving yourself long term to burn off fat reserves is mentally very challenging and most people cannot maintain this and then they feel like failures.
- *WFPB diet*: allows eating until you are full and has numerous health benefits discussed previously.
- *Diet Pills*: Really? Eat unhealthy food and try to negate the bad effects with drugs. This is the typical modern delusion that drives poor health.

In the United States, vegan diets are the only dietary patterns associated with a healthy weight. This may be a result of several factors. Firstly, plant-based diets naturally increase your metabolism (BMR); individuals on a plant-based diet average an 11% higher resting metabolic rate than those on a conventional American diet. Additionally, vegetarians typically consume 364 - 464 fewer daily calories than meat eaters without consciously calorie counting. There is also accumulating evidence demonstrating that not all calories are created/processed equally. When comparing groups of people who consume the same amount of daily calories, those who consume meat gain significantly more weight.

### Defining a Whole Foods Plant Based (WFPB) Diet

**Whole foods** means un-processed food. If the fiber is removed, it is processed.

**Examples:**

- *Fruit vs. fruit juice:* Eat all the fruit you want. Drink whole fruit smoothies, but *not* juice. Blood sugar is reduced in diabetics if they eat whole fruit. It is elevated by fruit juice.
- *Brown rice vs. white rice:* Only whole grains, no white rice, white flour, or regular pasta. Pasta made from whole wheat, beans or other unprocessed foods is good. Alternative unprocessed grains such as quinoa, amaranth etc. are good. Potatoes and corn are good. Potatoes fried in oil – not so good. Sweeteners made from corn – terrible.
- *Olives vs. olive oil:* Eat all the olives you like, but minimize olive oil. Olives contain fiber, oil does not. Vegetable oil is better than animal fat, but try to minimize this processed food. Saturated plant fats such as coconut and palm oil are worse than other plant oils, they are nearly as bad as animal fats. Because they are plants, they do not contain cholesterol, but they will still cause a rise in your cholesterol level. Purchase an air fryer to fry your foods with minimal canola oil. Limit fried foods.
- *No sugar or artificial sweeteners:* If you want something sweet eat whole fruit or cooked sweet potatoes. The more the better! Do not add *any* sweeteners to your coffee or tea or other drinks.

**Plant-based (or Vegan)** means avoiding all animal products. Dairy products and eggs may even be worse than meat because they contain hormones and growth factors meant to boost the growth of infant animals. They are not suitable for adults. Fish and chicken are just as bad as pork and cow. Minimize any consumption of these.

**Benefits of WFPB Diet**

- Promotes normal weight.
- Prevents Acne.
- Prevents all types of cardiovascular disease such as heart attacks, stroke, dementia, impotence, (men who are obese (BMI>30) have impotence rates similar to normal weight (BMI<25) men 20 years older than they are), peripheral vascular disease.
- Prevents cancer.
- Prevents autoimmune disease such as juvenile diabetes, MS, rheumatoid arthritis, psoriasis, lupus, and many others. Improves bone density.

Basically, most of the chronic health conditions that people in wealthy countries suffer from are directly related to our poor diet. We eat poorly and don't exercise and then engage in wishful delusional behavior with the encouragement of our doctors that taking a few pills can solve these problems. The evidence suggests that this is not effective.

**Osteoporosis**

Weakening of the bones as we age is a major health problem that is under appreciated. We obtain our peak bone strength between 25-30 and then there is a steady decline. Men start out with stronger bone at age 25 and women often suffer a steeper rate of decline after they enter menopause at age around 50.

The most common way to check bone strength is a by the Dual Energy X-ray Absorptiometry (DEXA) study which uses a low x-ray dose to measure bone density. Bone density gives a reasonable approximation of bone strength. The T-score compares your density to a normal range for 25-year-olds of your sex and race. A T-score of 1 to -1 is considered normal. If the T-score is below -1, you are described as osteopenic (somewhat weak bone) and if you are below -2.5, then you have osteoporosis (very weak bone). These cutoffs are arbitrary, the lower the number, the higher your fracture risk. The standard recommendation is to begin treatment below -2.5. Most people don't even know what their bone density is.

In my opinion everyone should have a DEXA scan at age 50 and should consider measures to strengthen their bone (drugs as a last resort) as soon as it shows any sign of weakness. Women over 50 should have regular scans every 1-2 years because they are at particular high risk of losing bone mass after they lose their estrogen (menopause). Shockingly, most primary care providers completely ignore this problem. Osteoporosis increases the risk of all fractures, and they can occur with minor or no trauma. Vertebral compression fractures lead to a hunched over appearance in the elderly and cause chronic back pain. Hip fractures are even worse. They usually require surgery, and often result in residual shortening of the leg, persistent pain and a 30% chance of death within one year. Really this a more serious condition than a heart attack or cancer.

**There are many factors that affect bone density:**

- *Genetics*: Men have stronger bone than women. Density among racial groups ranks Blacks > Whites (redheads are lowest) > Latinos > Asians.
- *Lack of exercise*: Particularly impact exercise (running and jumping)
- *Diet*: WFPB is best. Meat and especially dairy depletes your bone (despite claims to the contrary by the dairy industry).
- *Vitamin D deficiency*: 40% of the population is deficient. Sun exposure increases Vitamin D, Sunscreen prevents it. Normal is 30-100. I would shoot for 50. Supplements are not as good as sunlight, but better than being low. If you are below 30, add 2000-3000IU daily intake and remeasure in 3 months. Adjust dosage and repeat. Repeat levels annually at the end of winter when levels are lowest.
- *Hormones*: **Women** lose testosterone at age 40 and estrogen at age 50. Both of these cause bone loss. Hormones should be restored to normal using bioidentical pellets every 3 months. **Men** lose testosterone more gradually at 1% per year after age 30. Normal levels are falsely reported as 200-800. But below 500 is actually low. Testosterone should be supplemented with bioidentical pellets every 3 months.
- *Drugs*: Corticosteroids are the worst. Reflux medicines such as proton pump inhibitors are also bad.
- *Excess alcohol consumption*: Alcohol increases parathyroid secretion causing bone erosion.
- *Smoking*: Just another reason that this is a bad habit.

The best way to address bone density is modifying the risk factors above such as eating healthier, exercising, and replacing lost hormones. We now have many effective drugs to reverse osteoporosis and decrease the risk of further fractures.

Drugs have side effects, but on balance these drugs do more good than harm. Unfortunately, increased calcium consumption has never correlated with prevention or reversal of osteoporosis. For decades, physicians, osteoporotic foundations, industries, and governments have advocated for calcium consumption to prevent osteoporosis, often emphasizing the essentiality of dairy consumption to meet dietary recommendations for musculoskeletal health (Weaver et al., 1999; Langsetmo et al., 2015).

Following this logic, countries with the lowest consumption of dairy products should suffer the greatest burden of fractures (indicative of osteoporosis). However, the opposite holds true (Hegsted, 1986). While the per capita consumption of dairy in the United States, Australia, New Zealand, and Western Europe exceeds 300 kg per year, the rate of hip fractures is significantly greater in these countries than in Asian and African countries, where consumption ranges between 10 and 30 kg per year (Hegsted, 1986). On a global scale, dairy consumption and hip fracture rates are *inversely* related (Hegsted, 1986). The same trend exists with calcium consumption and hip fracture rates (Hegsted, 1986). Also, the greater the ratio of animal protein to plant protein consumption, the greater the incidence of fractures (Frassetto et al., 2000).

Migration studies further illustrate this “calcium paradox” (FAA and WHO, 2004), where communities consuming more calcium also suffer from more osteoporosis. African Bantu women, consume on average approximately 1/3 of the United States Recommended Daily Allowance of calcium, without dairy and/or supplementation. Osteoporosis, however, is virtually nonexistent in the Bantu population. When Bantu women migrate to western countries and adopt western diets, rich in calcium and animal protein, osteoporosis simultaneously emerges (Walker, 1965).

Human and other animal studies have shown that the rate of urinary calcium excretion is directly related to the amount of animal protein consumed. It’s hard to believe, but drinking milk actually leaches calcium out of our bones! We all believed the common-sense recommendation that milk made our bones strong, but when confronted with the facts that milk consumption has never been shown to improve bone density and that it causes higher calcium loss, we would expect that the USDA would alert the public to this fact, and put a warning label on dairy products just like they do on cigarettes. Dairy products are actually carcinogens and likely cause osteoporosis. The USDA has totally lost my trust.

The myth that consuming more dairy products is important to maintain healthy bones has been promoted by the dairy industry for obvious reasons without a bit of scientific evidence to support it. The highly dubious supplement industry promotes calcium pills in the same fashion, again without any evidence to back it up. Furthermore, evidence exists that correlates increased calcium consumption with heart disease. The USDA should protect us from this nonsense, but they have deep financial ties to these industries and are ethically too compromised to objectively analyze the scientific information. The fact is that a Whole Foods Plant Based (WFPB) diet prevents osteoporosis. To date I know of no evidence that indicates that this diet can reverse osteoporosis; but this study should be done.

To prevent and to attempt to reverse osteoporosis, I would now advise a WFPB diet. As well as a program of regular impact exercises as well as measuring and replacing vitamin D and hormone deficiencies in both men and women. I would still recommend bone-strengthening medications temporarily in all patients who have certain DEXA scores (bone density values), having hip surgery to prevent fractures in the high-risk period of 6 months after surgery (I have demonstrated this in my studies) . In patients who have osteoporosis, I would recommend several years of bone strengthening medication if hormone replacement is declined or not effective.

### Medicines to increase bone density:

- *Bisphosphonates*: Many different versions. I use alendronate 70 mg orally once weekly. This works by inhibiting osteoclasts which are cells that break down bone in the normal bone turnover process. This is very cheap, will increase bone density by about 1% per year and has been shown to dramatically increase fracture risk in large population studies. Side effects are reflux (rarely esophagitis), rarely osteonecrosis of the jaw (1/10,000), and after five years a slightly higher risk for atypical femur fractures. They can also cause a low calcium blood level; therefore, calcium supplements should be taken concurrently.
- *Prolia*: This is an expensive biological injectable drug that works in a similar way and has similar side effects as bisphosphonates, but is 5x as effective. An additional unique side effect is lower infection resistance. Subcutaneous injections are given twice a year. The cost is about \$1400 per dose if you get it at the cheapest pharmacy (use Good Rx app). Medicare will cover it if you have osteoporosis. Most other insurance companies won't until you fail cheaper bisphosphonates. Please do not ask me to fill out forms for insurance companies to help you get this drug. It wastes my staffs time and doesn't work. This is simply a disingenuous strategy of insurance companies to hassle us. But if your insurance doesn't cover it, you can directly apply to AMGEN, the manufacturer, they will often sell it to you at a discount. If this doesn't work, you have to decide if it is worth the extra money.
- *Tymlos and Forteo*: The most effective bone building drugs available. Forteo is a copy of parathyroid hormone (PTH) and Tymlos is a drug that is similar and mimics PTH action They are daily injectable biologicals that cost in excess of \$20,000 per year. There is a small risk of osteosarcoma (bone cancer). Insurance will only cover these in limited circumstances. I will not prescribe them. If you want these you need to convince your PCP or an endocrinologist.

### Degenerative arthritis

As an Orthopedic surgeon specializing in joint replacement, I enjoy returning people back to maximum function. My professional reputation and income are directly related to how good a job I do surgically correcting end stage degenerative hip and knee disease. I have pioneered hip resurfacing as a more functional and durable type of hip replacement. I am working on techniques to improve the outcome of total knee replacement as well. There is no evidence that diet can prevent cartilage loss or that it can be restored by diet.

On the other hand, obesity is a major cause cartilage destruction (severe knee arthritis) and to a much lesser degree hip arthritis. Knee replacement rates in the US are skyrocketing as a direct result of the American obesity epidemic. Knee and hip replacements in the obese have a higher failure rate. If we could eliminate obesity by consuming a healthy diet, health costs and mortality rates would plummet.

Unfortunately, once your cartilage is gone (severe osteoarthritis) nothing can bring it back (including expensive stem cell injections). You need a joint replacement operation. But losing weight will decrease your risks of a complication from surgery and increase your chances of a good outcome. It will also increase the lifespan of total hip and total knee replacements.

### WFPB Resources

If you are interested in exploring the health benefits of a WFPB diet, I suggest the following sources:

#### **The China Study – T. Colin Campbell Ph.D.**

The best scientific evidence that is available on the subject. It is very readable; you don't have to be a scientist to understand it. This book provides strong scientific evidence for the connection between animal protein consumption and many of the chronic degenerative conditions that people living in wealthy nations suffer from.

A good friend, who is not a scientist, asked me to read this in September 2015 and give him my opinion. It completely changed my view on nutrition. I was very grateful to him and was somewhat embarrassed that as a doctor I had not been the one to give him the book to read.

Previous to reading the evidence, I was a proponent of a healthy diet of organic lean meats and fish, vegetables, whole grains and healthy plant oils and avoidance of processed foods and all sweeteners including artificial ones. Basically, this is the "Mediterranean diet". This is better than the Standard American Diet (SAD), but is clearly not good enough.

In October 2015 my wife and I took the plunge into a WFPB diet. One of our four grown children had already been a Vegan for 1 year, 2 others have also converted.

#### **Dan Buettner – The Blue Zones: Lessons for Living Longer from the People Who've Lived the Longest**

Describes the healthiest known naturally occurring populations in the world and analyzes their healthy lifestyle choices.

### **Forks over Knives – Documentary available on Netflix**

This gives an excellent overview of the subject, and features Drs. Campbell and Esselstyn.

### **John Mackey CEO Whole Foods**

A good basic overview of the whole food plant-based diet and its rationale are given in his book “The Whole Food Diet”. Recipes are included as are references for more reading. I suggest this for you first introductory book on this topic.

Also, you can watch Mr. Mackey lecture on this topic online:

<https://www.drmcDougall.com/health/education/videos/advanced-study-weekend-experts/john-mackey-the-whole-foods-diet/>

Mr. Mackey is an inspiring business leader who is the co-founder of Whole Foods Market, a very successful chain that is growing rapidly in the US. More and more Americans are convinced that eating better will improve their health. The problem is that much nutritional information from the media and the government is conflicting and inaccurate. At whole foods they provide healthier food and try to educate people about their choices. Mr. Mackey, who maintains a Vegan diet himself, admits that most foods sold at his Market are not healthy enough. His goal is to sell people what they want but to also educate them and gradually move them to healthier choices.

His one and a quarter hour lecture gives a good overview of what a healthy diet should be. Whole Foods for years has been sending employees who are interested to weeklong clinics to learn WFPB diet. These are now available to the public through Whole Foods Market.

### **John McDougal MD Health Clinics – <https://www.drmcDougall.com>**

#### **Book: The Starch Solution: Eat the Foods You Love, Regain Your Health, and Lose the Weight for Good!**

A dietary pioneer who offers extensive educational programs to learn the WFPB diet. You can access all his educational opportunities through his website, visit his clinic in Northern California, or order his book on this topic listed above.

### **Dr. Caldwell Esselstyn and Dean Ornish**

#### **Book: Prevent and Reverse Heart Disease: The Revolutionary, Scientifically Proven, Nutrition-Based Cure**

#### **Book: Dr. Dean Ornish's Program for Reversing Heart Disease: The Only System Scientifically Proven to Reverse Heart Disease Without Drugs or Surgery**

Leading experts in using a stricter low fat WFPB diet to arrest and even reverse end stage heart disease. Drugs and cardiac procedures can only control emergencies and temporarily relieve symptoms. Cardiac disease continues to advance despite any known medical treatment. Drs. Esselstyn and Ornish are two doctors who have ever been able to demonstrate arrest of progression and even reversal of heart disease. Please read their books if you have heart disease or want to avoid getting it as you age.

**Dr. Michael Greger (nutritionfacts.org)** maintains a free searchable website on the health benefits of a whole food plant-based diet. For example, if you search the debilitating autoimmune disease Multiple Sclerosis (MS) you will find scientific evidence that consuming a WFPB diet is more effective than new powerful, expensive and dangerous “biologics” that target and knockout parts of our immune system. These drugs certainly work, but the side effects can be very dangerous and the long-term consequences are not known. Our immune system prevents cancer from developing, crippling the immune system with these drugs may have devastating late consequences that we may not discover for many years. Also, I recommend Dr. Greger’s book “How Not To Die.”

### **Doctors Wellness Center – 2005 Beltline Blvd. Columbia SC 29204 – 803.782.4440**

If you live in the Columbia area and have come to understand the importance of a WFPB Diet, but don’t know how to get there on your own, consider contacting this group who may be able to help.

### **Popular Cookbooks**

- **Veganomicon** by Isa Chandra Moskowitz
- **The Minimalist Baker’s Everyday Cooking** by Dana Schultz
- **The Oh She Glows Cookbook** by Angela Liddon
- Search Amazon for many others

### **Food Blog – [FROMMYBOWL.com](http://FROMMYBOWL.com)**

Easy vegan recipes using minimal oil

My daughter is an expert in WFPB diet and has been one of the chief reasons that I converted to this diet. My wife and I have been fortunate to have access to her vast knowledge in this area for frequent consultation. Even after 4 years of embarking on this healthy eating project we are still learning new pearls from Nikola and when she visits we are treated to amazing vegan feasts.

If you need a personal coach to help you in navigating a transition to a healthier diet, please consult her online. In my opinion, most nutritionists give poor advice because they are trained in traditional dietary dogma which is tainted by USDA misinformation. To achieve remarkable and sustainable health goals, access an expert who remains critical of food industry propaganda and up to date on the scientific literature.

## 2. Exercise

After eating a healthy diet, regular exercise is the next most important thing you can do to stay healthy. You should exercise at least one-half hour 6 days per week. More is better. If you are deconditioned, you must start gradually. If you have severely arthritic joints that can't be corrected, you may have to modify your exercise. There is no evidence that impact exercise causes arthritis.

But lack of exercise causes not only general health problems, but also joint and tendon deterioration. Obese, deconditioned people get fatty replacement of their muscles and degenerative tendon tears that are difficult to repair adequately. If you have an arthritic lower extremity joint, exercises such biking, elliptical or swimming may still be possible when running and walking are not. If your joints are repaired, but you are deconditioned, I would recommend starting a daily walking program. Gradually advance to 3 miles/day. Once you can walk 3 miles briskly without trouble it is time to start a real aerobic program.

### Types of exercise (you need to do all three):

- *Aerobic:* At least 15 minutes daily at 80% maximum heart rate. Calculate your maximum heart rate using the formula:  $220 - \text{age}$ . Use an electronic device to measure your heart rate. After 15 minutes at 80% max, you should be out of breath and have a wet shirt. If not, you haven't exercised adequately.
- *Strength:* Sarcopenia is the term used to describe age related muscle loss. It is caused by loss of normal testosterone levels (in men *and* women) and a lack of exercise. Resistance (weightlifting) exercise together with hormone replacement is the best treatment. This builds and strengthens muscles and promotes weight loss by burning calories as well as by breaking down muscle, which requires more calories to rebuild them.
- *Impact:* It is commonly believed that this damages joints. This is not true. Mechanical objects fail with repetitive wear and impact, biological structures such as cartilage, bone, and tendons are stimulated to get stronger by moderate exercise. Running and jumping; pounding bone makes bone tendons and probably cartilage respond and get stronger. First walking, but finally also some running sports or jump rope or jumping jacks.

Of course, there is usually value in moderation. There is evidence that regular marathon running increases cardiac risk and extreme physical work may break down joints, tendons and cartilage. But most of us don't do nearly enough.

I have found "**Younger Next Year**" by Chris Crowley to be an excellent book that describes the rationale and methods for proper exercise.

## 3. Sleep

Adequate sleep is vital to our health in many ways. The brain requires sleep to process information gathered during the day and to clean out waste products generated during normal daily operation. Adequate sleep is 8 hours daily. Naps are very beneficial. A lack of sleep causes dementia, damages our immune system, and shortens our life expectancy.

Extreme sleep deprivation is the most effective torture known to man and is ultimately deadly. Numerous special operations military trainees have died during training exercises due to extreme sleep deprivation. Medical residents are still routinely abused with less severe sleep deprivation which results in medical errors that also damage patients. Night shift workers suffer more illness due to their schedules.

During sleep the glial cells in the brain shrink allowing more effective flushing of interstitial spaces between neurons with cerebrospinal fluid. This flushes out waste products that otherwise build up as amyloid. Amyloid is what is seen in the brains of Alzheimer's patients. In this way lack of sleep causes dementia. Vaccines administered to people when they are sleep deprived are less effective. Autoimmune conditions are more prevalent in the sleep deprived. After students study, they retain more information for a test if they sleep 8 hours rather than study another 8 hours. The brain needs sleep to process information and cement in memory. People with sleep apnea frequently awaken at night

by choking and don't get adequate rapid eye movement (REM) sleep. This not only makes them chronically tired, but also severely damages their health.

If you notice your partner choking and stopping breathing intermittently during the night, have them get a sleep study. By far the most common cause of sleep apnea is obesity and the best treatment is weight loss. But CPAP (Constant Positive Airway Pressure) devices can be a lifesaving tool.

A fascinating book that delves deeply into this topic is **"Why we Sleep" by Dr. Jeffrey Walker**.

## 4. Maintaining Social Connections

Numerous large population-based studies have demonstrated the value of social connection for both mental and physical health. There is a known jump in mortality in men shortly after they retire. The forced severance of social connections caused by "social distancing" during the COVID endemic was necessary to slow the spread of disease to prevent health system overload and to allow us to develop effective treatments and vaccines, but it has created a sort of mass psychosis.

We all have been a bit crazy in the last few years. Zoom meetings and social media platforms make matters worse in many ways. People need to interact physically and emotionally to remain healthy. Having lunch with your girlfriends, playing golf with the guys or looking after your grandchildren are all vitally important.

## 5. Limiting Alcohol Intake

The dangers of drinking more than 1-2 drinks per day are universally agreed upon. Heavy alcohol intake can cause osteoporosis as well as osteonecrosis of the hip. Osteonecrosis is a fairly common problem seen most commonly in young male alcoholics. Prolonged drinking of 5 drinks or more daily can cause this.

We have all experienced the advantages as a social lubricant. A little alcohol breaks the ice and makes social interaction easier for those of us who have some inhibitions, too much makes us act stupid. Whether or not a small amount of alcohol is cardioprotective is hotly debated. Even small amounts may slowly damage the brain. Probably a small amount of alcohol is not that bad for you, but it probably is not improving your health.

## 6. Smoking

In addition to the multiple well-known risk of smoking, you should be aware that it does significantly increase the risk of complications of surgery, as well as osteoporosis. The risk of wound breakdown and infection as well as problems with bone healing are all increased. It is not clear how long these risks persist after stopping completely. It is best to stop smoking at least a month prior to surgery.

Vaping is almost certainly better, but unfortunately vaping ingredients are not adequately disclosed or studied. Some may turn out to be terrible.

## 7. Hormone Replacement

I recommend that every person over 50 should have their hormone levels checked and consider hormone replacement with bioidentical slow-release pellets if their levels are low, or low normal. There has been hesitancy in the medical community to consider this because of misinformation that made doctors believe that estrogen causes breast cancer, and that testosterone causes prostate cancer. This is simply not true. I am not an expert in this very complicated topic, but I have become convinced by several books on this topic that there may be great benefit for most people by replacing deficient hormones. I suggest you educate yourself by reading some of these books yourself and consulting an expert in hormone replacement to see if this is best for you.

Both men and women gradually start producing less of the natural sex hormones testosterone, estradiol, and progesterone around 40 years of age. The details of this process vary considerably between individuals. The process of testosterone loss in men is so gradual that most of us just don't notice it (1% /year after age 30).

In women testosterone starts decreasing around 40, then progesterone and finally estradiol (natural form of estrogen) at around 50. When estradiol loss occurs in women, dramatic symptoms recognized as menopause make this obvious. Therefore, the process in women has been much more commonly studied and treated. Treating the symptoms of menopause has been controversial because some of the treatments have led to higher risks of serious problems such as blood clots, cardiovascular disease and cancers of the uterus and breast.

It has long been suspected that the loss of these hormones speeds up the aging process. Replacing them to slow some of the effects of aging has been a highly controversial subject. I have become personally interested in this topic when I noticed on several occasions, postmenopausal women on bioidentical triple hormone replacement acting and looking much younger than their stated age. Unfortunately, one of the loudly proclaimed results of the famous Women's Health Initiative (WHI) study was that oral synthetic (horse) estrogen (Premarin) causes breast cancer, therefore I was surprised to see several women from different parts of the country being treated long-term with hormones and apparently thriving. One of these women referred me to some reading material on these topics.

The Women's Health Initiative (WHI) was the study that convinced many doctors that hormone replacement in women was a bad idea. Reanalysis and independent review of the data has found many of the initial conclusions to be faulty. The WHI was a randomized controlled study whose organizers claimed they were studying "healthy" women, but actually they were studying women of average American poor health (70% overweight or obese, 50% past smokers, 35% treated for hypertension, average age 63). The hormones received were synthetic oral (horse) estrogen and progestins (not bioidentical subcutaneous estradiol and progesterone). Their conclusions must therefore be viewed with caution.

I have come to the conclusion that the advantages of hormone replacement with bioidentical hormones probably far outweigh the risks for most aging adults. Therefore, if you are over 40 or have the symptoms of menopause or andropause (male symptoms after losing testosterone), I would suggest that you consult a hormone / antiaging specialist and have your hormone levels checked. Gynecologists, endocrinologists, and urologists rarely are up to date on the use of bioidentical hormones.

Bioidentical hormones refer to those that are identical in chemical structure to our natural ones and are typically delivered by slow-release pellets into subcutaneous fat every 3 months (estradiol, progesterone, testosterone). They cannot be delivered orally because they are destroyed in the stomach. An unnatural copy of estrogen is Premarin, and unnatural copies of progesterone are called Progestins (Aygestin, Provera). These have the advantage that they can be delivered orally but it turns out that most of the problems encountered with hormone therapy in women was due to these chemically altered forms of these hormones and how they were delivered orally. Most studies including the WHI are based on oral hormones. Even these less healthy versions have many benefits, but the bioidentical versions are clearly superior and eliminate several of the negative drawbacks of the oral versions.

Most medical doctors still erroneously believe that female hormones cause breast cancer, blood clots and cardiovascular disease. 90% of breast cancers are cured with modern treatment. Many more women die of cardiovascular disease than breast cancer, twice as many at age 40, and 20X as many at age 80. The same number of women die of osteoporotic hip fractures as breast cancer annually, and many more suffer from chronic pain due to spine compression fractures.

It turns out that the increased risk of breast cancer is due to oral progestin (Provera, Aygestin), not oral or bioidentical estrogen. Even the WHI showed no increased risk with oral estrogen alone, but only a slightly increased risk if Progestins were added. Other studies have shown that the risk of breast cancer is actually reduced if women receive testosterone in addition to estrogen. The risk of blood clots was due to oral estrogen in the WHI and other studies but has not been found with various versions of bioidentical estrogen supplied non-orally.

Oral testosterone has been linked to liver cancer, but bioidentical testosterone injection, transdermal cream, or pellets do not cause this problem. The other big cancer controversy has been prostate cancer in men being supposedly caused by testosterone. This has been debunked. Testosterone does not cause either benign prostatic hypertrophy or prostate cancer. In fact, there is now some evidence to suggest that men with abnormally low testosterone levels are at a *higher* risk for developing prostate cancer.

There is also no evidence that testosterone causes atherosclerosis (heart attack, stroke, etc.) but may even protect against this. Estradiol in women reduced the risk of heart disease by 30-50% in numerous studies, but the WHI study that claimed an increased risk really only found a short-lived 1-year time period of slightly increased risk in women who start treatment greater than 20 years after menopause begins. Again, the WHI was used to exaggerate the harm of estrogen.

Another study has found increased risk for one year in women with known heart disease. The most commonly prescribed preventative medicine for heart disease are statins, but they do not change cardiac risk at all (except in men with a previous heart attack); estrogen in most women reduces the risk 30-50%.

The other major advantage of estrogens is its positive effect on bones. It is known that women dramatically lose bone mass in menopause. Replacing estradiol and testosterone reverses this. In men a more gradual loss of testosterone causes a more gradual loss of bone mass. As a result, older women have more problems with osteoporosis and subsequent fractures than men do.

Fractures can lead to morbidity; spine fractures cause a hunched over appearance and chronic low back pain after they have healed. Hip fractures require surgery and are associated with a 30% 1-year mortality after the fracture. The same number of women die of hip fractures annually as do of breast cancer. Bisphosphonates and other bone building drugs can now reverse osteoporosis with low associated risks (reflux, ulcer, late atypical fractures, osteonecrosis of the jaw), but estradiol and testosterone can also prevent and reverse this problem in a more natural way.

The effect of hormones on dementia is controversial. Twice as many women than men develop dementia. Women lose all estrogen at menopause. Men have a more gradual decline in estrogen. Testosterone in men declines gradually and testosterone is converted to estrogen by aromatase, thus aging men have higher estrogen levels than women. Estrogen seems to have protective effects on the brain. This may explain why women are more prone to dementia. A woman has twice the risk of dementia beyond 60 as she does for breast cancer. Breast cancer is cured in 90%, while no effective treatment exists for dementia. People typically live 4-10 years after onset of dementia.

The WHI found no greater risk of dementia in those taking estrogen and slightly higher risk in women with preexisting mild dementia or those starting oral estrogen after age 75. Women who were already taking estrogen before entering the WHI study had a 50% lower risk of developing dementia during the study. Numerous other studies have shown positive effects on brain health and function with estrogen.

A woman without a uterus requires only estradiol and testosterone; with a uterus, progesterone is needed to prevent uterine cancer. Progesterone given as a buccal troche (tablet that dissolves in the mouth) at night helps with sleep as well. Some women who do not have a uterus may also choose to add progesterone in this fashion to help with sleep and mood stabilization. Testosterone also prevents sarcopenia, the gradual loss of muscle mass that occurs with aging in both men and women.

On balance it appears that there are numerous health benefits of hormone replacement in men and women. Bioidentical pellets are typically administered by a hormone specialist who measures hormone levels before treatment and monitor them during treatment to ensure that you receive the normal physiologic levels that young people have. Slow-release pellets placed under the skin every three months is the best method for most people. This treatment results in:

**Men:** If your T-level is below 500ng/L (or free T is <15pg/mL) **non-oral bioidentical testosterone** results in:

- Improved energy and vigor motivation and mood
- Improved sexual desire and function
- Improved bone density
- Loss of fat, improvement of diabetes (metabolic syndrome)
- Improved muscle mass
- Increased skin thickness
- Less generalized joint pains
- Increased hemoglobin
- Decreased heart disease
- Decreased risk of dementia
- Improved immune system
- Possibly a reduced risk of prostate cancer; Even in men with prostate cancer, there is no evidence that cancer growth is increased.

The lab reported “normal” total testosterone level is 200-800 ng/dL. Under 500ng/L is only “normal” for old men who have lost their testosterone level. Free testosterone should be greater than 15 pg/ml. I am replacing my level to get above 500.

Please read the book “**Testosterone for Life**” by **Dr. Abraham Morgentaler** and give a copy to your doctor if he/she advises you against hormone replacement.

#### **Women: Non-oral Bioidentical testosterone, estradiol, and progesterone**

Testosterone levels of 30-60ng/dL is normal before age 40 for women. This is about 10% of the normal male testosterone level, and about 5X the normal estradiol (estrogen) level in women. Replacing testosterone to normal provides the same benefits as in men listed above. Normal young women have all 3 sex hormones. Replacing your testosterone after you lose it at age 40 does not make you into a man. It restores your well-being to that of a younger woman. (Of course, aging cannot completely be reversed.)

Please read “**The Secret Female Hormone**” by **Dr. Kathy Maupin** to understand the critical need for testosterone for aging women to maintain their health and well-being. This book also provides a practical guide to understand how triple hormone replacement is done.

The story about estrogen and progesterone is more complicated. First, we must debunk the myths believed and propagated by most of the medical establishment.

#### **Nonoral Bioidentical estradiol DOES NOT:**

- cause breast cancer. There is a slight increased risk of breast cancer with the use of oral progestins (WHI 2002).
- cause blood clots. Only oral synthetic (horse) estrogen increases this risk.
- cause cardiac disease. Only women first starting estradiol at age 75 have a slight TRANSIENT risk of cardiac events. Estradiol is actually otherwise cardioprotective.
- Cause dementia. Only in women starting estrogens over age 75 or those with preexisting dementia. It is *probably* preventative of dementia otherwise.

**Non-oral Bioidentical estradiol (estrogen)** is the best and healthy way to take estrogen. The problems associated with hormone replacement in women are all linked to oral synthetic estrogen and oral progestin (fake progesterone). Normal estradiol levels should be 60-250 pg/ ml, and FSH (follicle stimulating hormone) should be less than 23 MIU/L. If FSH is elevated, this means that your body is trying to get your ovaries to make more estradiol.

Please read “**Estrogen Matters**” by **Dr. Avrum Bluming** who debunks the myths surrounding female hormone replacement.

Please read “**Stay Young and Sexy with Bioidentical Hormone Replacement**” by **Jonathan Wright** who explains clearly the differences between bioidentical (human) hormones and the abnormal horse estrogen and fake progesterone usually prescribed for women.

- Resolution of menopausal symptoms: migraines, hot flashes, night sweats, sleeplessness, arthritis, anxiety/ depression/mood swings, memory loss, difficulty concentrating, vaginal dryness, painful intercourse, decreased libido, thinning hair, abdominal weight gain.
- Decreased cardiac risk (except a transient increase in risk for women starting estradiol after age 75)
- Improved bone density (lower risk of hip and spine fractures)
- Decreased risk of colon cancer by 30%
- Increased life expectancy by 3 years
- Probably decreased the risk of dementia

**Non-oral bioidentical progesterone** is required in women who still have a uterus and receive estrogen supplementation in order to prevent uterine cancer. Women who have had a hysterectomy or uterine ablation are not at risk for uterine cancer. Progesterone also acts as a mood stabilizer for many women. For example, women with severe PMS are often substantially helped by progesterone therapy.

If you are interested in bioidentical hormone therapy, please read the suggested books, and consult a hormone/anti-aging specialist. In Columbia, SC, I would recommend Dr. Rachel Hall.

## **Summary**

I will close with a summary of the **scientifically established essentials to maximize your chances for living a long healthy life:**

- WFPB diet – If you need help, hire a WFPB nutritionist.
- Exercise – If you need help, hire a trainer at a gym. Daily exercise should include:
  - Regular aerobic exercise to increase your heart rate to over 80% maximum for at least 15 minutes (unless you already have a medical condition that makes this unsafe) and results in your clothes being soaked in sweat. This promotes cardiovascular health.
  - Resistance exercise, weight lifting to prevent muscle atrophy of aging.
  - Impact exercises - pounding the bones makes them respond by laying down more bone.
- 8 hours of sleep – Prevents dementia, strengthens the immune system, etc.
- Maintain Social Connections – Go out with friends, stay close with your family. Don’t become a hermit after retirement.
- Don’t drink to excess – The recommendations constantly change but it currently appears that for men one drink daily and for women none is the healthiest. If modest occasional drinking promotes social connections, it may be healthy on balance.
- Don’t smoke or vape.

- Don't take supplements and vitamins. They are a waste of money and may even do harm. The exceptions being Vitamin B12 in Vegans and Vitamin D. Get all your vitamins and antioxidants naturally by eating colorful plants. Red wine is better than resveritrol. Oranges are better than Vitamin C. Fish oil is unhealthy.
- Consider having your hormones replaced to normal young adult levels using bioidentical slow-release pellets by a hormone specialist.

I hope these resources stimulate your curiosity to learn and understand how to eat properly to regain and/or maintain good health well into old age. While I can fix your hip or knee, taking care of the rest of your body will be up to you. The general health in the wealthiest country in the world with the greatest opportunities is deplorable. Ninety percent (90%) of healthcare costs and a lot of pain and suffering would be eliminated if people just made healthy lifestyle choices.

**Thomas P. Gross MD**