Meakin's 6th Decade Newsletter on Health

First, want to thank my good friend Mike Rolfes who reminded me that I am due to write my every decade health letter. This new decade letter is somewhat challenging because I have to contradict a few things I believed in 2008 when I turned 50 (this letter included as well). But then again, change, is the nature of medical and scientific inquiry.

As some you know, I have always been stubbornly independent in assessing and interpreting Industry recommendations and so I have generally been an outlier when it comes to healthcare trends. I recently retired from 30 years of oncology care due to medical reasons secondary to a chronic visual condition called retinitis pigmentosa. I was blessed to get to the age of 60 before my peripheral vision closed down to the level defining legal blindness. My lifelong hobby of high-performance and holistic living strategies may have flattened the deterioration curve as many lose their sight in their 40s. I'm planning to returning to Notre Dame for a one-year fellowship in the entrepreneur studies starting this June, and I am looking at many healthcare opportunities where I can serve virtually in a less visual based platform.

Cancer Screening: Over the last ten years many of the same screening recommendations remain intact. One thing that has changed is the emergence of obesity as the second most common risk factor for cancer,

the increased prevalence of some diseases and thus many will be touched by cancer (1/3 women, 1/2 men), the emergence of HPV virus as a trigger for oral pharyngeal cancer and it's escalating prevalence. Still, the leading tumors by incidence in women are breast, lung, and colorectal and those in men are prostate, lung and colorectal. Other developments in the oncology arena include the development of molecules that target receptors for proteins on cancerous cells that may turn off their proliferation. These **Targeted Immune Therapies** fall into the name of **Personalized Oncology** as they're typically based on assays that verify the patient has a subset of cells with these targets. Unfortunately, many of these targeted therapies cost more than $10,000 a month, and most cancers have multiple different proliferating subsets that limit significant or complete control of the deadly cellular outbreak. In general, cancer is gradually catching up with cardiovascular disease as the primary cause of death in America. The above discussion forces me to identify and discuss an etiologic debate and movement that is now occurring in the oncology arena that is worth mentioning and will be relevant to the other topics in this newsletter. Most cancer researchers and physicians believed in the **Genetic or Somatic Mutation Theory** of cancer development implying that faulty genetic control mechanisms (secondary to aging, carcinogens or viruses) lead to rogue clones of cells that escape surveillance mechanisms and become cancers. A smaller new subset of physicians and scientist, including myself, believe that the root cause is instead energy production failure in the mitochondria of the cell and nucleus that lead to disruption and decay of sound chromosomal division oversight and subsequent multiple mutagenic clones. So there is a small subgroup of caregivers that believe therapies should be directed toward the **Metabolic**

Theory targets while the majority still think the **Somatic Mutation Theory** and pursue the multiple chemotherapies and immune therapies that target the numerous mutagenic strains. These theories bring up another term that is new in the last ten years called **Epigenetic Theory** which implies that although we all have a genetic blueprint and a possible propensity to express a specific physical outcome (phenotype), our lifestyle and environmental triggers can **either enhance or suppress gene expression** and dramatically change the outcome. This new **Epigenetic Theory** is good news and weakens the old dogma that the genes from your parents determine most of your health outcomes. Okay, we got detoured on some issues but let's talk about screening;-)

Cancer type	Men	Female
Prostate	**Serum PSA, Digital Exam, MRI for problems solving starting at 50 but 40 for those with Positive Family history**	**None**
Colo-Rectal	**Colonoscopy every ten years but more often if polyps** **Digital exam on yearly exam whenever possible for the low cancers and Anal Lesions**	**Same but emphasize the digital rectal exam on every pelvic exam.**
Breast	**None unless Genetically positive for breast cancer-BRACA 1 and 2**	**Mammograms yearly identify about 80 percent and all the rest may find some of the remaining (MRI, Ultrasounds, Tomo, Thermo, etc.). Remember if you feel something get the Bx regardless of the test findings**

Cancer type	Men	Female
Lung- for current or past smokers, or strong family history of Lung Ca, or Radon exposure	Low radiation dose non-contrast lung CT scan yearly- there is a specific criterion for which changes to biopsy	Same as men
Gynecologic-Cervical	None-	Start PAP smears in the early thirties and continue Q 3 years, Increase Frequency if HPV or dysplasia changes
Gynecologic-Ovarian	None-	No standard screening test; but consider ultrasound, MRI or CT scan, and blood test CA– 125, for those at high risk from Family history or genetic screening. Consider these test if there are any pelvic symptoms or possibly at the age of 55, 60, and 65 for those in good health.
Gynecologic– Uterine	None	No standard screening test but consider vaginal, uterine ultrasound for those at high risk from genetic testing, those on medications that elevated risk, or with any symptoms. Endocervical scrapings for pap smear also for those at risk.
Anal Cancer	No standard screening other than a rectal exam at prostate screening and consider yearly exam for those at high risk; HPV positive polyps, chronic hemorrhoid irritation, or at any symptoms.	Same as men but consider rectal exam of course at any pelvic exam. Also screen high-risk population similar to men
Skin cancer-melanoma	High-risk populations based on family history or prior cancer may require a yearly dermatologic review and possible Photo mapping of all skin with biopsies of any suspicious lesions.	Same as men, don't forget to examine the scalp, nail beds of the toes,

Cancer type	Men	Female
Skin cancer - non-melanoma	No standard exam is other than prudent curiosity on any lesions that change and don't heal and return to normal. Have a spouse or friend examine your scalp and back. Remember we don't develop new lesions too often after the age of 25 so “when in doubt cut it out."	Same as men
Testicle	No standard screening except for high risk; a man with undescended testes, prior testicular cancer, and of course report any changes in size for an immediate urologic eval. and probable scrotal ultrasound	None
Mouth and Throat Cancer	No standard screening but a full oral exam at teeth cleaning at the dentist office and rapid evaluation of any unexplained swallowing dysfunction or hoarseness.	Same as men
Esophageal Gastric Cancer	No standard screening unless the patient dysplasia of the border between the esophagus and stomach. Symptoms of severe heartburn and trouble swallowing should initiate endoscopic exam. If dysplasia is identified then endoscopic exam every 3 to 5 years.	Same as men
Liver Cancer or Hepatic carcinoma	The standard screening unless the patient has known hepatitis then possibly yearly liver function tests, ultrasound, and has perhaps even liver blood test including function test and alpha-fetoprotein	Same as men

Cancer type	Men	Female
Bladder Cancer	**No standard screening except aggressive workup of any unexplained urinary bleeding, and possibly cystoscopic exam yearly for those at high risk; heavy smokers, Chemical dye exposure, bladder diverticula and more**	**Same as men**
Pancreatic cancer	**No standard screening but consider blood test Ca 19-9 or pancreatic/ abdominal CT Scan in anyone at high risk from family history possibly at age 55, 60 and 65 if in good health.**	**Same as men**
All other cancers of which many are low in frequency may have some specific recommendations in individuals at high risk. There are some other general things to consider that could trigger a workup.	**General markers of inflammation such as High sensitive C reactive protein, IGF-1, sedimentation rate, all maybe elevated above average if the body senses an immune threat and changes from baseline or standard need investigation.**	Same as men

Hot Topics

US lifespan: Apparently in 2018 the predicted average lifespan in America decreased for the first time In many years thought to be related to an upswing in opioid death from young people which dramatically shortens the average and escalating suicide in young people. Average lifespan in America 2018 is 78.7 years and 1.5 years lower than in EU countries. This story is a tragedy, but some other issues are below the surface. When one

looks at the homicide rate, experts report that if it weren't for modern emergency care, the actual correct homicide rate would be four times greater than it compared to the medical care available in the 60s and 70s. Additionally, when one looks at **Healthspan versus Lifespan** which is the difference between living vigorously and independently versus just being alive, these two averages have significantly increased in the last 3 to 4 decades. Some estimate 8 to 10 years of the time when one becomes fairly disabled but still live an average of 8 to 10 more years. In the old days these two dates where a few months apart as people were sick for a short time before they died. The long gap between loss of independence and death drive the demand for higher costs at the end of life.

What disease could I die from today? What do we die from today? In developed countries like the US, most people die of still number one: cardiovascular/blood vessel dysfunction, two: proliferative dysfunction like cancer which is a close second, Third: neurodegenerative disease like dementia, Parkinson's disease, multiple sclerosis, ALS, and others. Fourth however sometimes forgotten, but not insignificant and reasonably preventable for people over the age is 60 is a “fall” that leads to a musculoskeletal injury, and then people die from complications in the recovery process(Did I say do balance exercises!). Ironically, if one could completely eradicate all cancer in the United States, it would only add 2 to 3 years to the average lifespan because these diseases don't happen in a vacuum. Many of those that have cancer also have the other co-morbidities stemming from the same lifestyle risk factors. This concept

brings up what we spoke of earlier about the metabolic theory of cancer; namely that failure of the energy systems or mitochondria lead to loss of regulation and genetic transcription failure. Metabolic theory proponents in oncology also report that mitochondrial failure it is also the root cause in neurodegenerative diseases where are those specific nerve site organs show their failure first. The metabolic theory also is employed to explain cardiovascular disease processes where chronic insulin resistant leads to inflammation cascades and a pro-clotting environment. So, in the end, it all comes down to maintaining a healthy energy system or happy mitochondria:-). They function best when they burn ketones from fat, and we keep our insulin levels low through periods of fasting and low carbohydrate intake. Enough said about death, "Momento Mori," the good news is yet to come.

What are the top SIX priorities? My opinion may differ from others but these are my **BIG 6**— **BREATH-HYDRATION-SLEEP-MINDSET-DIET-MOVEMENT-OPTIMIZATION.** What this means is if you ignore 4 of the top 6 then minor adjustments of other factors are unlikely to impact the course of your health. Brief summary and more details below but try to put a plan around these **BIG SIX** Priorities to make the most impact in the years we have left.

BREATH- Oxygen is our most important nutrient and the delivery of it and release of carbon dioxide is frequently overlooked in healthcare discussions. Many American Cities now have oxygen levels in the high teens (18 percent while optimal is 21 percent oxygen in the air) due to pollution. When we breath through our nose we get optimal levels of

oxygen with some warming and filtering while activating our “rest digest and relax mode” (parasympathetic) and exchange 6 to 9 L per minute and thus keep our CO2 levels high enough in the blood to best release the oxygen to the cells. When we breath through our mouth, we fail to activate parasympathetic but rather trigger the more stressful mode of sympathetic tone, and exchange 8 to 14 L per minute of air and lower our CO2 levels and make it more difficult to release oxygen at the cellular level. Optimal ATP energy production requires a ready supply of O2 so this is critical to keep our machine running smoothly. Keeping our nostrils clear and making them the default route for breathing while maintaining our room air clean and fresh cannot be ignored. When in doubt, “Stay in your nose”.

HYDRATION- This is our second most important nutrient and I speak about it later as well. By now most of us have done a colonoscopy, and know how weak and frail we feel from the dehydration induced by the preparation and non-drinking period. Unfortunately, studies report that most of us spend most of our time in a state of partial dehydration. We need to remember that all functions in the body work because of voltage differences between membranes managed by electrolytes such as sodium, magnesium, calcium, chloride, and others. So replacement of pure water, may be inadequate and sometimes just carry good minerals out of the body to maintain balance. Unless one is a salt sensitive high blood pressure patient, start every day with high quality filtered tap-water and the good dose of added minerals/salts. Continue this hydration through the day and anytime you feel tired, mild headache or your urine looks too concentrated or dark yellow.

SLEEP— "I can sleep when I am dead!". I regret that I said this many times in the past prior to "enlightenment", and my lovely wife Lindsay reminds me of it. The argument I like is the anthropological one, namely; why would we spend 500 million years evolving to create an average of 8 hours sleep pattern if it wasn't of high value. Humans risked predation, lost work or reproduction opportunities, to spend one-third of their 24 hour day in this sleep state. Sleep reduction experiments show quickly how mental, physical, and immune function deteriorate quickly within a few days. The new book "Why We Sleep" by Mathew Walker PHD clarifies why this passive practice is foundational to good health. Dr. Walker reports sleep is like a " Swiss Army Knife that can fix most illness" and all "23 mental diagnosis have sleep disruption as a major symptom or possible cause". One might even go as far to say: "Before one undergoes diagnosis for a mental or even physical disorder, and get labeled for life, attempt to fix the sleep first and see if the problem continues". Later in the letter I discuss the best tool for monitoring the sleep. Sweet dreams.

MINDSET- We need to win in our head and heart and the body will follow. A growth oriented approach to life where curiosity is the baseline scores high on all happiness and longevity predictors. Many Buddhist traditions suggest we start to die when we lose our purpose and growth. I always tell the story on purpose and resiliency of the difference in tolerance to discomfort in the case of the man who is tied down and someone tortures him by burning his hands with a blow torch. How difficult this pain would be to manage verses the same man seeing his loved family member in a burning house and he responds by running in and carrying them out and burns his hands to the same level as the first scenario. In the second vignette the pain has meaning and he may not even of noticed it until his

loved one was safe. We can grow and contribute at any age so make your list every morning and stay curious.

DIET- Fuel to create ready energy production without negative metabolic by-products (ROS-Reactive Oxidative Species) or long term mutational risk is the goal. The new term is “Metabolic Flexibility” or the ability to easily and efficiently burn stored fat and miss some meals while performing well and feeling good similar to our Paleolithic ancestors. There may be some truth to the concept that one can eat or process only a certain amount of “food” in one’s life, and thus do it quickly in 45 years or stretch it out to 80 years. We will talk more about it later but remember it is more about the quality or type of calories and the timing of intake of these products in our diurnal sleep-wake cycle than the total amount of calories. The crux to understanding nutrition and diet is paying attention to what impacts Insulin Growth Factor and thus Insulin and the down stream cascade that follows.

MOVEMENT- You cannot exercise your way out of a bad diet or poor sleep quality. The book “Fit to Fat, Fat to Fit” by Drew Manning showed this principle well as a professional body builder who quit working out and ate poorly focusing on the Standard American Diet and witnessed all parameters of health fall apart and quickly developed depression and self doubt. After approximately 3 months he started working out hard again but he could not recover his prior fitness level until he started eating well again. Exercise is not a tool to erase calories from our “intake bank” but rather an event to activate cellular messaging to trigger growth hormone, male sex hormones, brain growth factors (Brain Derived Neurotrophic Factor) while elevating the metabolic rate. The good news is that we don’t need to spend too much time at the club or fitness center but need to

make it “hard” so the body or more granularly the mitochondria get the message to “get more efficient and stronger”. Even a 2-3 times per week 5-10 minute intense work-out before the morning shower blended with movement throughout the day will get one 80 percent of the results. Intensity trumps time exercising and mix it up with different machines and practices. Body in motion stays in motion.

So before you chase down some supplement or new hack, make sure you get the Big Six above optimized.

What should I eat? When I reviewed the letter from 10 years ago, I was proud that I got most of it right based on what I know today. I spoke about eliminating sugars and white carbohydrates, processed foods, and eating real foods, extensive vegetables, and limited meat and fish. What we know now is the body, and thus the mitochondria run best on ketone metabolism which comes from high-quality mono and saturated fats(grass-fed beef butter, olive oil, grass-fed animals, wild caught fish, avocado oil,etc.). The whole movement toward low-fat products was a giant boondoggle brought together by the agricultural industry(who created human-made trans fats to replace what we used to eat). There was also a flawed study by epidemiologist Keys in the 60s, a simple approach with the medical industry selling drugs to lower cholesterol, and the story goes on(see book *Big Fat Surprise By Nina Teicholz*). So the good news is eating just got easier, Forget about all those manufactured foods with low-fat descriptors, and try to find food or animal products that are produced authentically without growth enhancers, insecticide's, non-

natural foods, from a reliable source. Although many nutritionists don't talk about it, 22 of 23 studies have shown that **low carbohydrate** diets beat **low-fat diets** by every measure and metrics of health. It all comes down to insulin levels; carbohydrates raise insulin levels which is a master trigger for a cascade of reactions that foster growth and inflammation. This insulin trigger, unfortunately, happens 4-6 times a day with the Standard American Diet (SAD) and excessive and frequent carbohydrates we put into our system causing metabolic chaos. Everything you eat after your insulin pops up gets immediately placed into storage (fat and liver-muscle glycogen), and is less available for energy production. When it does produce ATP (Adenosine triphosphate, the currency for energy generation) from glucose precursors from carbohydrate metabolism, it creates more reactive oxygen species or what I call metabolic smoke that needs to be managed and detoxified at a cost to the body. So back to the original question, we now know it is important to have windows of non-eating that creates a deficient insulin environment to best release stored energy from fat or glycogen. This fasting state may also foster steady, reliable energy utilization and hopefully **autophagy**; which is the breakdown and consumption of old failing cells that need eradication because they're at risk of becoming mutagenic. Additionally, by keeping your insulin levels low, through eating minimal carbohydrates except sometimes in the evening, these low insulin will sedate levels of hunger hormones (ghrelin, leptin) and you will find yourself rarely thinking of food. Elite athletes are turning to clean-burning high-fat diet to maximize their performance. Yes, we were sabotaging ourselves with the carbohydrate loading strategy before the running and sporting events. So back to the original question, don't be afraid to get 50 to 70% of your calories from high-quality fats, get

high-quality proteins but don't overdo proteins because remember protein breaks down into sugar when your body no longer needs it. Most people need 1 to 1.5 gm per kilogram of body weight, of protein and typical chicken breasts are about 30 grams. Overdoing protein is also dangerous when one is in a healthy state as excess protein can go down the pathway to generate glucose if your protein needs are met, and it also activates proliferation (mTOR- mammalian target of rapamycin) or a condition that might lead to mutations or excess inflammation. So don't be afraid to eat two meals a day, and consider having a 12 to 14-hour window between your last meal and your next meal. Keep in mind that a lot of fresh vegetables are critical to bring polyphenols into your diet and maintain the health of your gut microbiome. Fruits are not always your friend as most of them are fructose and water; so focus on mainly the berries that have a lot of polyphenols, good fiber and lower amount of sugar. Like ten years ago, make water your primary drink with your meals, Coffee and tea are health drinks and show longevity extension and disease reduction in virtually all meta-analysis. Just don't drink it out of Styrofoam cups, with sugar or artificial sweeteners, and not late in the day where the caffeine might disrupt your sleep. Excellent books on the above topic are ***Eat Fat Get Slim*** by Mark Hyman, ***Fat For Fuel*** by Joe Mercola, or ***Headstrong*** by Dave Asprey. By the way, the calories in /calories out the concept of weight management is dead. First of all, nobody can keep an accurate count of calories, food is information and messaging to the body and what you eat and at what time of the day is far more important than ultimately how many calories you are taking in. The book ***Good Calories Bad Calories*** by Gary Taubes clarified this foolish concept about the balance sheet of calories and energy and ultimate weight gain. In general, as long

as you avoid the SAD Diet or better known as the Standard American Diet created by dollar driven agricultural and nutrition companies, and eat what grandma and grandpa ate in the 50s, you should be in good shape. remember Grandma didn't like to snack and the kitchen closed at 6 PM and did not open again till the next morning after 8 AM.

What should I drink? Water. Did I say water? Start an intentional morning ritual that when you walk in your kitchen, the first thing you do is grab two glasses or mugs. You then fill them up with the best water you have, preferably not from a plastic bottle, consider adding some sea salt if you're not hypertensive (about a half of teaspoon total), and chug them down like a thirsty pirate. I guarantee you, in 2 to 5 minutes you'll feel your body waking up. I personally then go to my coffee, cleanly made, and full organic fat whipping cream, also a half a teaspoon of Ceylon cinnamon, sometimes some dark chocolate, sometimes some MCT oil (Brain Octane which is pure C8 mid-chain triglyceride), froth it and get ready to go. Remember there is virtually never a good idea to drink fruit drinks in the morning or at any time of the day. A 16-ounce glass of orange juice has approximately 32 grams of sugar and not too much different from Coca-Cola at 36 grams. When people want juice, I suggest they get some pure pomegranate juice and use it sparingly to add a little flavoring to their water. Okay, we just made life easy; we never have to think much when the waitress asks us what we want to drink, we cut our bill by quite a bit, and the sweet drink as we wait for our food won't create sabotage on everything we eat afterward. Unfortunately, beer, wine, and spirits process

in the liver like sugary drinks fostering a bump in our insulin levels, leading to metabolic storage. One can try to minimize the damage by eliminating any mixers that have added sugar or by choosing low carbohydrate beer and wine. Two innovative companies have come to the market to serve the wellness community who still like a good glass of wine. One is called Dry Farm Wines where they import to the US Old World wines from Europe that generally have lower sugar levels, fewer impurities, and don't impact your next day as much. Another company is Fit Wines that create lower carb and healthier wines here in the US. Another option is the Bulletproof Info-graphic (https://www.google.com/url?sa=i&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwic0bicgKPhAhVE0KwKHbWbCf4QjRx6BAgBEAU&url=https%3A%2F%2Fblog.bulletproof.com%2Falcohol-without-the-hangover-bulletproof-partying-business-networking%2F&psig=AOvVaw1ABFKc5k5Y4kkAGyQNm-yt&ust=1553799452369704) on alcohol use which generally shows that beer is the most toxic and pure clear spirits without sugar-based mixers are preferred; such as vodka or tequila. All options have negative metabolic baggage, but of course one must weigh the social and quality of life benefits;-).

How Should I Exercise? Something is better than nothing and believe it, or not **less may be better than too much**. Approximately ten years ago I wrote about the quick work-out before you got in the morning shower (Meakin 60), now there are books and videos created around this strategy. What we know now is that exercise is not some accounting tool to erase

past or future calories we take in to help us with some weight balance, but instead exercise types are a way to activate a hormonal and neurochemical reaction to trigger the desired outcome. HIT or High-Intensity Training, and Weight Lifting are excellent tools to initiate growth hormone and thus anabolic sex hormones to activate muscle growth and shed fat. The bonus from this physical intervention is that it is the best way to trigger a chemical called BDNF or brain-derived neurotrophic factor to keep our brain healthy. Long aerobic training programs are indeed excellent but are aware they require a more significant amount of recovery and rest to extinguish and remove the reactive oxygen species that get generated. High-performance athletes are increasingly aware of the equal importance of healing in their training programs. Ignoring this pause can lead to a more significant threat of injury or sickness when overdoing it. One of the most cutting edge fitness wearables such as the Oura Ring uses multiple physiologic measures to create the "Readiness Score" to guide people based on their previous day's activities, heart rate variability, sleep score, and more to determine what they can safely take on each day. Pro Sports teams are starting to take this into account with different novel tools (https://join.whoop.com/?_ga=2.85623641.1965333645.1527611521-1611447580.1523912892&_gac=1.16371458.1526496230.EAIaIQobChMIybOOyvGK2wIVAcZkCh3ErQIBEAAYASAAEgLXcPD_BwE&gclid=EAIaIQobChMIw6Lt-YWj4QIVBorICh0wCg_XEAQYAiABEgJoqfD_BwE#/) based on the same principles.

I strongly encourage my clients to make the healthy choice the easy one and embed exercise into the day, so no decision is required. Training in the

morning or midday is generally preferred is it corresponds with elevated cortisol which enhances some of the anabolic effects and delivers the needed energy to get the job done. Once again it does not have to be elaborate, one could do 5 to 10 minutes before the morning shower of a stretchy band or floor exercises three days a week for the aerobics/weight lifting and then do stretching or yoga floor exercises on the mornings in between. Coupled with these six-day 10-minute commitments, try always to take the steps, walk after meals, and implement standing and walking as much as possible throughout the day. Once again, less is better, keep it simple and comfortable, and remember"you cannot exercise your way out of a bad diet." Whatever route you choose to make it sustainable and fun. I have many friends that have greatly enjoyed aerobic classes, spin classes, yoga classes but they have to be convenient and affordable. I do raise concern about Cross Fit programs unless the instructor is uniquely mindful of the injury risk for the older participants. Keep in mind, “one can get stronger at any age” as shown in many studies of 70 and 80-year-olds, but take it slowly and always do something to challenge your balance. I would not assume that one can wait on this fitness commitment, as rarely do I observe patients thrive in their 70s and 80s unless they have a dedicated exercise strategy or a lifestyle where they perform physical work that keeps them active. Remember **Your First Wealth, Is Your Health**.

Lightning Round

Cholesterol-

Yes, this critical building block for hormones, membranes and nerve sheaths has escaped from prison. Most clinicians now accept that the cholesterol you eat is irrelevant to the blood cholesterol levels. I have met and discussed this topic with Dan Diamond Ph.D. and lipid spokesperson (https://youtu.be/hCvlvu_Ssw4-), and he firmly believes that it is also irrelevant what level it is in the blood. I have listened to many lipid experts speak on this, and I still hold out some question on the single small particle LPA, and one should have this under 100. The relevant part of the lipid panel for me is the triglyceride level which is a surrogate marker for inflammation and fructose metabolism, and one should work hard to get this under 100 or as low as possible. A good ratio to follow and pursue is to have the HDL/Triglyceride ratio higher than one which puts you in the favored state of bad cholesterol clearing lipoprotein (HDL) and a low triglyceride. The impact of cholesterol-lowering medications is very minimal on cardiac events (MI or Cardiac Death) with an absolute benefit between 1/60 and 1/200 true benefit while the cost of significant side effects and financial loss. When you step back though and look at large studies, there is a modest impact outside of cardiac disease that is now thought to be related to the metabolic effects on the cell independent of cholesterol. Yes, I am happy with my LDL of 240 to 250, but I keep an eye on my HDL/triglyceride ratio and like to see it greater than1 or even 3.

Salt-

People fought in wars for salt in the past, and it is a necessary ingredient for survival. I put a pinch of good sea salt in my morning water to get me

started every day. Yes, sea salt has magnesium and potassium and other minerals along with sodium chloride. So spend the extra money on good sea salt. Salt has some negative baggage, and some of my happiest patients were cancer patients that I suggested add some sea salt to the morning water to recover production of mineral corticoids and blood pressure that perfused the brain so they could regain some of their function. The British Medical Think Tank called Cochrane Reviews (https://www.cochranelibrary.com) looked at this issue and identified that low and intermediate users of salt had worse health outcomes in a significant analysis. There are highly salt-sensitive hypertensive patients (thought to be 3% of the population), frequently black males with something called Renin sensitive hypertension that need to curtail salts. Most recent research finds that salt is more of a problem in the current high carbohydrate diet's of the last few years and once one gets back to the proper macro ratios of fat/carbohydrate/protein, salt is excreted and rarely causes fluid retention. When one starts the low carb diet, there is a diuresis, and dry mouth thought related to up-regulated excretion of sodium. Once an individual balance and the appropriate more moderate rate of carbohydrate in the diet, especially processed carbs, Salt intake rarely becomes a problem.

Blood Pressure-

Many functional medicine physicians question the extensive use of blood pressure medicines in the United States. First of all, no decision on the drug should be based a physician office measurements solely due to the

problem of “white coat hypertension." One should always check levels at home or work, in a consistent way, after two or three relaxation breaths, and remember the cuff needs to be at heart level, to best reflect what your pressure is in your normal life. Once again the Cochrane Reviews (https://www.cochranelibrary.com) looked at a large population study and showed that those with “low” level high blood pressure and “intermediate” level high blood pressure had a survival decrement when treated versus non-treated. Those with more severe “high” high blood pressure, showed a survival benefit to treatment. This finding probably reflects the common phenomenon where people are placed on blood pressure medicines during a period of stress or busy work life and are still on them years later when they get up from a sitting position and get lightheaded and then fall leading to problems (syncope event). Once again underscoring the importance of starting every medical evaluation or visit with “deprescribing” or “what medicines can I get rid of today, and fix the root problem." Remember regarding medicine; if they are not helping you, they are hurting you. The FDA website for 2017 reports that over 400 people die a day from pharmaceutical complications (that is like a 747 plane going down every day, and no one is talking about it). Although there is a passionate debate on the authenticity of these figures we all know many who have had events or close calls, and sourcing of medications is now in question so only take what you need. (

https://sciencebasedmedicine.org/)

Saturated Fats-

These also have been released from prison, but make sure you source them cleanly (Grass-fed meat, no steroids, no antibiotics, wild caught fish). Avoid human-made oils and created vegetable oils as they are highly inflammatory especially when cooked. Olive oil is excellent and authentic, but it does have a low smoke point so don't cook with it except that low heat.

Artificial Sweeteners —

We probably know by now that diet drinks was an evil Boondoggle that fostered as much weight gain as standard drinks so one would buy more and try harder. The sweetener story gets worse as aspartame is a neurotoxin, and saccharine maybe as well (read ***Sweet Deception*** by Joe Mercola). There are newer ones such as Stevia, Erythritol, Xylitol, and Neotame but remember they reinforce the loop in your brain that sweet is right which will forever keep this temptation alive. And I am not sure that even though these artificial sweeteners are not absorbed into the bloodstream like glucose or other sugars, they may still trigger a Pavlovian response to elevate insulin growth factor and then insulin and cause inappropriate metabolic disruption. So less or no artificial sweeteners is preferred, and yes, unfortunately, honey is sugar as well (use it medicinally on a sore throat or wound but not regularly in your diet).

Genetic Blue Print-

We have all heard the statement; "choose your parents carefully as they determine your health outcomes." Yes, we thought your chromosomes/ genes primarily determine your longevity and health, and there was not much we can do about it. In the last ten years, researchers have identified the process and field of **Epigenetics** which implies that the lifestyle or environment and external stimuli on an organism either suppresses or enhances the phenotypic manifestation of a gene. So yes the lifestyle issues we learn from our parents are critically important and in the old debate of nature versus nurture, nurture may be more important. Even more incredibly we now know that the Microbiome of our body and especially our intestinal track communicates intimately with genetic expression within our body. So more or less, you don't feed your body, you feed the bacteria in your gut that then decides what to pass on to you in the intestine. So keep your microbiome happy as we are all dependent on it. This new science is all good news, and the complementary term that goes with this is "**plasticity**." Our bodies and especially the brain can respond to external stimuli and create new cells, connections, and functions that can serve us favorably. And don't underestimate the importance of setting the intention to help catalyze that change.

Sleep-

I shudder as I write this as my kids will remind me that I often said: "one can sleep when they are dead" and " I don't need more than five hours." I may have been forecasting my early demise. Most of the wellness conferences I attend now report that good, high-quality sleep is the most important thing not to screw up. Sleep restores the immune system, reboots sex hormones, helps the brain release lymphatic toxins and recover for the next day while processing memories while allowing the liver and G.I. tract to process the evening's dinner and then detoxify itself. There are many sleep trackers, but I like the Oura Ring (https://ouraring.com/) have been an early user and have spoken with their developers over the last few years. I anticipate this will be used in health monitoring of cancer patients and may replace sleep lab visits. The ring gives you an excellent cell phone Interface that shows you the architecture of your sleep and let you know how much deep, REM and light sleep you get each night and then gives you a readiness score with suggestions. I have experimented with various sleep aids over the years and followed outcome with my personal Oura Ring and also feedback from patient experiences. A quick list of inexpensive easy things that work include: Setting an alarm to go to bed a few hours after dark when are diurnal rhythm will give us the best deep sleep (midnight used to be the middle the night), consider taking your magnesium dose in the evening as this helps with staying asleep and in muscle relaxation (start at 200 mg and go up to 1000 milligrams but be careful of possible laxative effect), turn down your lights, screens 1 to 2 hours before bedtime and consider using blue blocking glasses, and make sure you use "Night shift" on your phone and computer to automatically block the blue light that tells the brain it is "daytime", keep your room cool or consider taking a hot shower or bath

before bedtime so you're cooling off and your melatonin level will rise, consider the "Sleep Induction mat" (about 25 dollars at bulletproof.com and it induces an acupressure like endorphin response and helps put you into a slumber in 8 to 10 minutes), create a ritual for the steps going to sleep and pay attention to keeping things as dark as possible with the use of eyeshades, blackout curtains, earplugs if necessary. If a spouse snores and that is a problem, there is a new product called Smart Nora (https://www.smartnora.com/?gclid=EAIaIQobChMI7_zqpq2j4QIVS_7jBx2FuQBzEAAYASAAEgKqUPD_BwE)to take a look at but of course, steer your spouse to sleep work up as well. Challenge yourself to add 30 minutes to your sleep-time until you can wake up relaxed without an alarm. Do not make the mistake of accepting inadequate sleep to exercise or study more as the trade-off will hurt you long-term. Sleep medicines should be evaluated very carefully and only used short-term, long-term uses have may cause dementia and many times one does not get deep sleep similar to a night of heavy drinking. A common corrupter of deep sleep is large late meals, alcohol, or emotional triggering events like arguments or scary movies. The physiologic dose of melatonin is .5 mg to 1 mg, yet many preparations have 5 to 10 times that amount. I would recommend you avoid using it except in a low dose and similar to what the body produces. If you want to try something natural and the chamomile teas, valerian teas or supplements, and lavender aromas don't work, Navy Seal and physician Kurt Parsley's combination product called "Sleep Remedy" (http://www.docparsley.com) worked with most of my patients with no adverse effects. Kurt is a sleep expert and is helped many Navy SEALs recover the rhythm of sleep despite their unpredictable schedule. He was always kind

enough to give me samples to try with our cancer patients before they purchased it on the Internet.

Supplements-

You may have heard the statement that vitamin takers “have the most expensive urine” and “a good diet is all you need." Yes, indeed some excess vitamins and unutilized vitamins are eliminated in the bowel or urine from time to time. How many of us eat the perfect nutrition-rich, organically grown, well-balanced meals each day? How many people want to be average? If you were seeking a high-performance above normal function and life span, then there are a few things to consider getting from high-quality vitamins. I experiment with a lot of products, but the “ low hanging fruit “ include enough vitamin D to keep your level over 50 ng/mL (dose will likely be 8 to 10,000 IU per day with intermittent brief sun exposure to activating). Also consider a good quality omega 3 oils - 2 to 6,000mg per day (consider Nordic Naturals, Carlson’s or Bulletproof Brands or even an algae source of which there are many, remember if you get a vegetarian source such as flaxseed or Chia seed, buy them whole as when you grind or mill them they quickly become rancid and are inflammatory). Magnesium- 400 to 1000 per day possibly at night to help with sleep and elimination in the morning, find a mixture of the various subtypes (glycinate, theonate, oxide, and citrate). Zinc- this forgotten mineral is low in many that are over 50 and greatly helps with sex hormones, taste, and immune function and there is an important ratio between zinc and copper in the body (consider a 10 to 20 mg dose

especially if one has low testosterone). Iodine-surprisingly this is a missing link in a lot of peoples thyroid function and a supplement of 100 to 200 mg a day is not unreasonable. Other products to consider is supplemental digestive enzymes especially at times of stress with the larger meal of the day, and consider probiotics before, during, and after any course of antibiotics along with many highly fermented foods. There is one more topic that is quite complicated and controversial; genetic variances of methylation, where a third of the population have significantly reduced in their ability to add a methyl group to mostly B vitamins and make them useful in the body. Without going down into a big rabbit hole, one can get their methylation status from their 23 and Me data, or a specific methylation profile from a laboratory company, or you can just make sure to take "methylated" folic acid and B12 (if your homocysteine level is greater than 8, a marker for methylation dysfunction, look into this further).

Hormone Replacement in Women-

The last four decades of medical history with HRT in women post-menopause is a sad story which I will briefly review. Before the 90s, many women took some form of hormone replacement to ease the overnight drop in the hormones estrogen and progesterone from menopause to replace their natural estrogen and progesterone. This replacement mitigated the abrupt onset of hot flashes, sleep disturbance, anxiety, and in some hair loss, memory issues, libido failure, vaginal dryness and more. The Women Health Initiative was organized to look at the benefits of hormone replacement versus placebo and was the most expensive

organized clinical trial as of today in this country. The study organizers reported early 1992 a non-significant increase in early breast cancer in the hormonal arm and suspended that arm of the trial at that time. Ultimately this was found to be a nonsignificant event, clinically irrelevant and those that took the hormonal supplement even though it was from a pregnant horse mare source (Premarin) and at higher doses than currently preferred, had less death from breast cancer than the placebo arm. The hormonal use arm had many improvements in quality of life, bone function, cognitive and sleep function, but the erroneous report of the early data considerably change the practicing approach in this country and never corrected itself (please consider a recent podcast the Drive, interview by Dr. Peter Attia on this topic). Why is it unreasonable not to find the lowest possible replacement dose, and bioidentical preparation, to enable a hormonal environment to keep a woman feeling youthful like she felt in her 30s and 40s? There was a prior nurses study with a hormone replacement arm that never showed an increase in breast cancer risk. The absence of hormone replacement and the resulting sleep disruption, emotional disruption, cognitive dysfunction, immune and repair disruption will significantly accelerate the other risk factors far more significant than any possible concern for breast cancer. Some authors believe that the reason women have a much higher rate of dementia than men is their rapid and earlier loss of hormones compared to their male counterparts. And yes, women need some testosterone, and generally have 1/10 the level of men where it fosters healthy bone, muscle maintenance, and cognition.

Hormone Replacement in Men-

Men are much more fortunate in that: “Menopause” is not a cliff as in women but a slow downhill decline. Currently, there are commercials everywhere about coming in to get your "T “ checked so you can get “back in the game." Unfortunately, it's never as simple as the commercials suggest. Some easy things to consider; if you notice morning erections then things are probably working okay, and that is a decent barometer of adequate testosterone level. Also generally if a man has abdominal obesity and cannot see his “junk” when standing to urinate, then it probably isn't working. The abdominal fat or white fat causes estrogenization/aromatization (production of estrogen rather than testosterone especially during times of stress) and may lead to breast enlargement, muscle wasting, and declining testosterone levels. Kryptonite to the creation of testosterone is low percentage deep sleep (< 10 percent) low zinc levels, not enough good fats in the diet, stress that steers testosterone precursors to cortisol, and on and on. Most of the time testosterone levels normalize by fixing general health imbalances (sleep quality, high-quality fats, manage stress, initiate weight-bearing exercises, and possibly some supplements to help). Some laboratory tests are essential to review; testosterone, and luteinizing hormone level which comes from the pituitary to drive testosterone production, and look at free testosterone and bound testosterone. This way one can determine if the testicles are working correctly. We do know now that testosterone replacement does not seem likely cause higher rates of prostate cancer

but frequently when one starts on testosterone replacement, one is committed to replacing long term as you typically shut down your production by feedback inhibition. This replacement long term commitment is the danger of not trying to fix it through natural strategies and addressing the root cause. One should try to fix it even if libido/sex life is not a concern, as testosterone is critical to cognitive function, bone strength, muscle maintenance, and much more. Unfortunately, alcohol intake fosters aromatase activity and drives testosterone to become estrogen. There are plenty of excellent resources on the Internet (https://bengreenfieldfitness.com/article/hormones-articles/testosterone-optimization-therapy/) on how do to start fixing this problem by lifestyle changes before one resorts to creams, gels and shots, changes that will also help many other organ systems. Remember don't settle on being average, or low standard, seek the hormonal levels of your favorite age and feel great.

Sun Exposure-

Sunlight helps make and activate vitamin D which is critical to many functions, sets your daily rhythm, creates a reaction under the skin to produce nitric oxide and lower your blood pressure, and activates photoreceptors on the retina to make more serotonin in the brain creating less depression and negative mood swings. So some sun exposure is vitally necessary and correlates with longevity in most population studies, but **sunburn** is terrible as it causes injury and reactive oxygen species that needs repairing before mutagenic risk occur. So what I told patients for

years; some sun is good, sunburn is terrible, so brief exposure to the arms and legs is an essential and free health benefit. If someone has a prior melanoma or exceedingly high propensity towards non-melanoma skin cancer (basal cell nevus syndrome), in that case, I will encourage them to be much more careful about high-intensity Solar exposure. There is more data on safe sunblocks now as many of the lotions have hormone modifiers so pick a clean brand with complete blockade (UVA, B, and C) and mainly reapply often especially if you get in the water or sweat.

Food Pyramid-

We have somewhat already touched on this, but I'll put a sword in the heart of grains one more time. Most of our grains are tainted from the mass use of Round-Up/Glyphosate sprayed on our crops to increase the yield but at a grave cost to safety. Many in our population have sensitivities to the glutens in grains, and additionally, grains metabolize to sugars leading to high insulin growth factor and insulin levels. High insulin levels trigger all the cascades of pro-inflammatory and proliferation when overstimulated. I would flip the triangle upside down and make the smallest part the occasional high-quality grains sourced cleanly, and put high-quality vegetables at the full bottom, clean saturated and monosaturated fats above it, and clean protein sources above the next level. Fruits are essential but are careful to stick to the high polyphenol low sugar options such as berries. Avoiding the fructose and water packages such as grapes, pears, peaches, bananas except on special

occasions. Fruit juices are almost always a bad idea and similar to high sugar sodas in their sugar content.

Calcium-

This mineral has been oversold in the American Diet and may contribute to vascular calcification if over-utilized without other vitamins. We as a country have the most calcium intake compared to other countries but some of the worst statistics on osteoporosis and bone fractures. Bone health requires vitamin D, a lot of less well-known minerals like strontium, boron, magnesium, coupled with healthy hormones and frequent weight-bearing exercises. Yes, you need to go out and “bend your bones” because when you do they react and lay down more matrix on the outer cortex to keep strong and aligned with your weight bearing forces. Gymnast has the most robust bones by two standard deviations because of all the jumping, landing and the stress troops they put on bones during their workouts. I am not a big fan of bone density test because they're expensive, they check a few targeted areas, lead to a costly side effect producing pharmaceutical solutions (bisphosphonates) that after a few years can stop the healthy bone remolding that is needed to keep bones strong for the long-term. I always ask: is there ever a reason someone over 50 should not do everything to keep their bone strong, through diet and exercise (targeted if you're starting to lose height and thus using Pilates and yoga and other physical therapies) all of which worked better then pharmaceutical solutions. Other than vitamin D, Vitamin K2, and minerals and calcium through diet, I would suggest to be careful in the use

of biphosphonate pharmaceutical strategies and only for short time use in extreme cases following fractures and failed non-pharmaceutical approaches. Safe weight-bearing exercises can get you a long way especially if you start early before your bones get fragile.

Red Meat-

This issue is a controversial topic, but I side with the Bulletproof Diet and infogram (https://blog.bulletproof.com/wp-content/uploads/2014/01/Bulletproof-Diet-Infographic-Vector.pdf) or clean meats, prepared safely, in low volumes, for the issues of health (moral and environmental grounds for not eating meat not discussed here). Most studies that suggest the excess risk of certain cancers from surveys of food intake originate from the last 25 years where processed meats are likely the mainstay of the diet. There are no extensive studies that incorporate natural grass fed raised animals that are steroid/antibiotic free as part of the meat diet. Many of the amino acids and nutrients such as vitamin K2 and vitamin B2 are rich in meat especially organ meats and are hard to get in a non-meat eating diet. The Bulletproof Diet and others highly emphasize that the meat or fish should be the smallest portion on the plate and overshadowed by copious high-quality vegetables dressed with clean fats/oils to carry them into the system. Additionally, try to follow cooking principles that limit nitrosamine generation and avoid overcooking or blackening. Spices such

as rosemary, garlic, and ginger greatly mitigate carcinogen by-products when cooking meat.

Aspirin-

The last newsletter ten years ago suggested 81 mg coated baby aspirin use in someone with no history of gastric bleed, or other bleeding maladies was an excellent decision to reduce vascular events and secondary evidence saying it would reduce specific cancer risk (colon, prostate, ovarian,). Just a few months back the FDA advised against taking it if one is over 60 years as some new evidence suggests a slightly higher risk of cerebral vascular bleeds. I have backed off my daily use and now only use it when traveling and will be sitting in a car or on a plane for prevention of blood clots (DVTs) and I use it intermittently if I have some sore joints at that low-dose. I feel comfortable doing this as my measure of inflammation is quite low (C reactive protein <1). If one has a CRP level which is elevated, possibly baby aspirin use is justified along with other strategies to work to get the CRP level below one. There is no one-size-fits-all on this topic. As always, “be your own best doctor."

Final note:

I had to retire for medical reasons on December 31, 2018, because of congenital peripheral vision deterioration (retinitis pigmentosa, autosomal dominant subtype). I felt very fortunate to practice for almost 30 years having finished my residency at Stanford University in June 1989. When I became aware of this problem 20+ years ago, I was functioning normally and only had my mother who also has this problem to best judge the outcome. She seemed to work pretty usually until her 70s, but now it is virtually blind at 87. The silver lining in all of this is that the knowledge of this deterioration created an urgency to learn as much about human health, experiment on myself while having mindfulness of the health problems in each other. I feel very fortunate in that this condition has prepared me so well for my next career path. I will be starting in the one-year fellowship at the University of Notre Dame called the ESTEEM program that trains science and engineer types like myself to start or scale up a business in our new economy. I look forward to helping launch some healthcare projects that I believe will bring value and change to our current "sick" care system. I will also formally launch my charity coaching platform that will be a resource for information, a source of volunteer coaches for those in need, and the portal to pay it back to worthy charities should one find value in this tool. On this site, I

pledge no memberships, hooks or products are sold. The website will be up soon, -

coachitforwardchuck.com

Stay active and curious, and be your own best doctor,

Chuck