



## **“Wellness- Back to the Basics.....”**

By Brittany Burns MD

*Health is an interplay between many variables including **sleep, nutrition, exercise, stress, relations, ‘play’, genetics,** and even a bit of random luck. There are things that are within our realm of control, and others that are unfortunately out of our control. Controlling for the variables that we do have power over, will optimize your chances for a healthy life less riddled with disease and illness.*

*The medical world has an overwhelming amount of knowledge and ways to manipulate or suppress disease and illness. For many people it is easier to take a pill to address disease or compensate for unhealthy lifestyle, but a pill is still riskier and far inferior to ‘getting back to the basics’. Unfortunately, much of medicine is focused on fixing and controlling disease rather than preventing disease. I much prefer where we are able, to focus on avoiding and preventing illness. I encourage linking yourself in with a Primary Care Provider (PCP) and discussing preventative medicine, reviewing your own personal health liabilities and family history, and coming up with a plan and some goals on how to reduce your risks and monitor for early signs of disease so that they can be addressed early if needed. Regular annual physical exams and lab evaluation for screening and preventative advice helps to catch disease early when it is more likely able to be reversed or cured. Ultimately your PCP, labs, and knowledge are tools that you can choose to use and empower you to make healthy life choices. Making good choices, and following through with them can be the most challenging to incorporate in your lives, yet by far the most rewarding and powerful! Physicians, medicines, and supplements don’t make you healthy, it is ultimately your choices that determine the healthiest version of you!*

*Empowering you with knowledge of healthy practices, basic fundamental understanding of disease, and wellness is the goal of this lecture series. So today we ‘get back to the basics’....*

### **Sleep...**

*Everyone differs on how much sleep is necessary to achieve adequate rest. Teenagers and into your mid-20’s, typically require 8-11 hours of sleep, with a tendency to have a second wind in the evening often keeping them up later and when able sleeping in late. Adults require between 6-9 hours of sleep. Less than 6 hours is selling yourself short, no matter who you are—running with higher cortisol and stress hormones as well as higher cardiovascular and other disease risks. Variables that affect how much sleep is needed include: **individual variability, activity level, stress levels, and sleep efficiency.***

**Individual Variability:** *The best way to find your ideal amount of sleep is to tune in to how you are feeling. Do you feel rested in the morning or are you peeling yourself out of bed and hitting snooze several times? Do you have reasonable energy during the day or feeling lack luster consistently? Some of us honestly do well on 6 hours, and others truly need those 9 hours. Oversleeping is actually detrimental and can change neurochemical hormones that lead to daytime grogginess, and predispose decreased spirits or depression. Making up for the lack of sleep previous days with oversleeping is never as efficient or affective as aiming for better consistency.*

**Activity level:** *The more you demand from your body the more sleep is required and vital to maintaining the equilibrium of wellness. Ramping up activity level usually requires more sleep for recovery, and that sleep is typically deeper and more efficient. Once activity level is stabilized you will typically return to your baseline sleep requirements. Additionally, exercise also combats stress and decreases the adrenergic state of higher stress hormones, however be mindful that ‘overtraining’ can have the reverse affect. Exercise, both mental and physical, is an excellent sleep aid and preferable to medications. Exercise, in addition to improving sleep, also is powerful in combating daytime fatigue, raising metabolic rate, and improving general energy levels.*

**Stress level:** *Stress often leads to higher base line adrenalin levels, which can interfere with sleep. Stress affects the ability to fall asleep, sleep efficiency, and can cause more frequent waking with increased latency in falling back to sleep. Racing thoughts and worries is a common hindrance to falling asleep. Diaphragmatic breathing, and wind down activities can help to relax the mind and combat these stressors when triggered. Working towards minimizing the culprit stressors and for those who are running their to-do or worry lists, journaling before bed can sometimes be helpful.*

**Sleep efficiency:** People who seem to require longer amounts of sleep to feel fully rested may be suffering from poor sleep efficiency. High adrenalin levels from stress and anxiety, Neuro-hormonal shifts such as decreased serotonin levels in depression, sleep apnea, alcohol, caffeine, and lack of good 'sleep hygiene' are among the most common causes of decreased sleep efficiency.

Good 'sleep hygiene' refers to behaviors that help reinforce our natural Circadian Rhythm controlled within the brain. This "Circadian Rhythm" and flux of hormones such as Melatonin that coordinate and reinforce sleep can be disrupted by many behaviors including: noise pollution, light exposure, inconsistent sleep timing, caffeine, and exercise.

- Falling asleep and sleeping with ambient noise such as TV, computers, and music distracts from your natural 'wind down' and ability to self-soothe and fall asleep without aid.
- Blue-white lights from computer and TV screens 1-2 hours prior to bed-time can blunt your natural let-down of Melatonin in the brain that helps to reinforce sleep. Leaving lights on or not having adequate window treatments to block out light (unless you are part of the few that are able to follow the rise and fall of the sun's natural light) disrupts the Circadian axis. If a nightlight is necessary, red light appears to be the least disruptive.
- Inconsistent sleep hours and significant variability in your bedtime negates a lot of our natural built-in tools that reinforce sleepiness and sleep efficiency, it renders the Circadian Rhythm useless and confused. I realize that consistency is not always possible for everyone due to jobs that require shift work and other circumstances, but when you can control for this, a set 'bed time' is helpful.
- Avoiding excess caffeine (>2 servings/day), and caffeine after noon is a good rule of thumb as it can contribute to adrenal fatigue and deter natural reinforcement of circadian rhythm.
- For some who struggle with sleep, exercising late in the day can impact ability to wind down for sleep. However, exercise as a whole has been shown to help shorten sleep latency and improve sleep efficiency with less interrupted sleep.

**Top health reasons to strive for adequate sleep duration and good sleep efficiency include:**

**Memory:** Your mind is surprisingly busy while you snooze. During sleep you can strengthen memories or "practice" skills learned while you were awake (it's a process called consolidation). "If you are trying to learn something, whether it's physical or mental, you learn it to a certain point with practice," says Dr. Rapoport, who is an associate professor at NYU Langone Medical Center. "But something happens while you sleep that makes you learn it better."

**Lifespan:** Too much or too little sleep is associated with a shorter lifespan -- although it's not clear if it's a cause or effect. In a 2010 study of women ages 50 to 79, more deaths occurred in women who got less than five hours or more than six and a half hours of sleep per night.

**Quality of Life:** Research indicates that people who get less than 6 hours of sleep have higher blood levels of inflammatory proteins than those who get more sleep. Inflammation is linked to heart disease, stroke, diabetes, arthritis, and premature aging. A 2010 study found that C-reactive protein was higher in people who got six or fewer hours of sleep, which is associated with heart attack risk. Sleep deprivation also triggers stress hormones such as cortisol that also contribute heart and many other diseases.

**Improved Performance athletics:** A Stanford University study found that college football players who tried to sleep at least 10 hours a night for seven to eight weeks improved their average sprint time and had less daytime fatigue and more stamina. The results of this study reflect previous findings seen in tennis players and swimmers.

**Creativity:** Your brain appears to reorganize and restructure memories, and researchers have found that people seem to strengthen the emotional components of a memory during sleep, which may help spur the creative process.

**Grades and Job performance:** Numerous studies attesting to this have been performed.

**Reaction time and judgment:** Sleep deprivation has been compared to levels of alcohol intoxication in studies performed on sleep deprived medical residents, which drove reform of work hours in recent years. Sleep deprivation has been shown to greatly slow reaction speed and increase risks of motor vehicle accidents.

**Weight loss:** Researchers have found that dieters who were well rested lose more fat than those who were sleep deprived (this population loses more muscle mass). Dieters in this study also felt hungrier when they got less sleep. Sleep and metabolism are controlled in the same parts of the brain. When you are sleepy, certain hormones spill into your blood that also help to drive appetite.

**Improved Spirits:** Lack of sleep increases stress hormones such as cortisol, and predisposes to irritability and mood lability making us less resilient to the stressors life may throw us.

## **Nutrition...**

This is a huge subject that I cannot possibly do complete justice to in the constraints of this lecture. We will be addressing more details on the specifics of nutrition throughout the lecture series, but today I want to point out the overwhelming importance and emphasis on good nutrition. There is a lot of truth to the saying: "We are what we eat".

Food, while clearly satisfying and enjoyable, is more importantly our source of energy that fuels all that we do. Our bodies are amazingly adaptable to utilizing the fuel it is given, but there are definite differences in the quality of foods and efficiency of which our bodies function without disease. We have such a variety of foods readily available year around thanks to commerce and manipulation of our food sources and production. This is a luxury, and in some ways an evolutionary disadvantage. In the past our ancestors in some ways had it easier to make good choices with whole home grown unaltered foods, involved preparation, limitation

of food availability, and seasonal variety that helped in avoiding over year round indulging in things like fruit high in sugars. In our current culture we have access to a wide array of tastes from differing ethnic past times, year around availability of most produce, easy access, and fast foods requiring minimum preparation all lending to the ease of over consumption and pleasure eating. We must be mindful of this, and actively strive to make good choices and practice restraint in our culture of excess and access!

Enjoy, yes! But please don't forget that the quality of food that you choose to consume drives and fuels your health. Excess leads to obesity, and poor quality leads to disruption of hormonal balance, lack of essential nutrients, and disease. There is a limit to the quantity that should be consumed, so what we do consume should be nutritionally loaded with minerals, micro/macro nutrients, antioxidants, and essential nutritional building blocks like protein. You get the most 'bang for your buck' with whole foods including: fruits, vegetables, nuts, and lean meats.

Grain is a big business in this country. We see commercials preaching heart health, and seals of approval on packaging promoting in the minds of the public health benefits of grain. Fiber does help to reduce cholesterol, cardiovascular disease, and diseases such as diverticulosis. From all that I can gather the only benefit from grains is the fiber content. Grains lack micro/macronutrients, minerals, antioxidants, and in fact some new evidence suggests components referred to as 'anti-nutrients' that may leach minerals from the other foods we consume with grains. Grains are dense in carbohydrates, and in my opinion, empty carbohydrates that stimulate insulin and in excess can lead to diabetes an overwhelming epidemic in our society. Grain is not nearly as nutrient dense as vegetables that also happen to be rich in fiber and confer all the same benefits and more. Why not choose the more nutrient dense option?

Grains were engineered to feed the masses and are relatively new foods to humans in our long history of existence. Our guts thus have not had as much time to evolve and fully adapt to this fuel. Some appear to tolerate it without ill effect, but many do have real consequences. It appears that these foods can for many people stir up inflammation. Several recent studies show gluten intolerance prevalence estimated between 30-70% in the general population. For some people this manifests as IBS or constipation, for others achy joints, but often, vague symptoms that become that persons norm and are not looked into further. Celiac disease is an extreme version, that causes sloughing of the gut lining and more severe symptoms, yet it is estimated that currently we are only diagnosing 25% of true Celiac disease. If you can afford to choose the more nutrient dense options, I encourage you to avoid the more inferior frequently inflammatory options of grain.

The less altered and preserved your foods are, frequently the healthier they tend to be. We cannot yet fully understand or recognize the impact of all the additives placed in our foods, but are now accumulating data that many are pro-carcinogenic and alter our delicate hormonal circuits. Foods that are raised as they are accustomed by nature are more nutrient dense, and have healthier ratios of nutritional components. A mass produced apple today in the grocery store, has in some research shown to contain only 1/4<sup>th</sup> of the micronutrients and antioxidants an apple once contained prior to the 1950's. Red meat is not all created equally-- grass fed and wild red meat contains a fraction of the saturated fats that grain fed beef contains and is much higher in Omega 3 content. While it can be difficult and expensive to eat all organic and entirely clean however, I encourage you to do so as much as you are able.

### **Daily Vitamin Supplements**

While we try to mimic nature in mass processing and packaging components in supplements and capsules, they do not compare to what nature provides in more balanced doses in whole foods. We do not yet fully understand all the intricacy of these nutritional components to fully extract and package them, although we certainly try to make these short cuts. If you eat a balanced, nutrient dense diet you will get far more than what is contained and afforded in a daily multivitamin.

### **Vitamin D Supplementation**

In the Northwest we do tend to lack adequate Vitamin D production. Vitamin D is made and processed in the skin from the sun. It is hard to get enough Vitamin D from diet alone—vitamin D rich foods include many fish, organ meat, and fortified dairy products. We have known for some time now that Vitamin D is essential in bone health and incorporating Calcium into our bones. We, more recently, are understanding that Vitamin D is functioning more like a hormone and is integral in many crucial functions. In the immediate sense Vitamin D helps with energy levels, decreased spirits such as the 'winter blues', muscle and skeletal aches, and immune function. In the long term low Vitamin D levels have been linked to increased risks of osteoporosis, MS, kidney stones, heart disease, diabetes, and cancers such as breast and colon.

FDA recommends 800-1000 IU's daily, which may be sufficient for San Diego or Florida but not here in the Northwest. Normal Vitamin D levels are 30-150, with my goal of getting above 50. I recommend a minimum of 2000 IU daily, and for those that have low Vitamin D levels on low side of normal range (30-50), recommend 4000 IU daily. If falling below normal limits, Rx doses of Vitamin D may be necessary to build adequate stores before transitioning to daily OTC supplementation.

### **Omega 3 Supplementation**

Fish, wild caught meat, free range eggs, nuts, and natural oils such coconut and olive contain good quantities of Omega 3's. In the past our ancestors consumed a great deal more Omega 3's than we do in our current diets. In cultures observed today who consume higher Omega 3's we see less consequences of many Western illness, most notably Cardiovascular disease. Omega 3's act as a natural anti-inflammatory, and thus is helpful for our joints and those that suffer from joint disease or arthritis. Inflammation also plays a large role in cardiovascular disease, causing sticky arteries and contributing to the cascade of events that promote plaque build up in the arteries.

I typically recommend either a diet rich in foods with these healthy fats, or supplement of 2000mg Omega 3 daily. In some cases when dealing with greater inflammation, higher doses may be recommended.

## Cholesterol

Briefly cholesterol is a mixture of both genetics and lifestyle. There are some who do everything right and still have high cholesterol, and likewise those who make very poor choices and have perfect cholesterol—that is genetics. Most of us fall in the gray shades between where we may have some predisposition to elevated cholesterol, but good lifestyle choices can significantly impact cholesterol numbers.

It is best to look at the breakdown of your cholesterol numbers. I am not a big fan of the “Total Cholesterol” number as it sometimes tends to not convey the full picture. Rather, I encourage you to look at the breakdown components: HDL, LDL, and Triglycerides. It is also important to keep in mind that cholesterol is just one of many markers that has been linked to cardiovascular disease—and we need to look at the big picture, the whole person. Someone who is fit, sleeping well, low stressors, dialed nutrition, low inflammation, healthy body weight, goal blood pressure, non-smoker, no concerning genetic family history—I am going to give a lot less value or read-in to these numbers!

\* HDL: The good cholesterol, the higher the number the more cardio-protective.

- Exercise and conservative amounts of wine can help elevate the HDL.

- Supplementing with Omega 3 rich foods or supplements can also help elevate HDL.

\* LDL: bad cholesterol that can predispose plaque build-up in arteries in certain situations, if elevated.

- Diet low in unhealthy saturated fats (Ex: cheese, cream, high temp fried foods, grain fed red & processed meat)

- Increasing soluble nutrient dense fiber from veggies (minimum goal 4+ servings/day)

\* TG's: A bad cholesterol that can also contribute to increased cardiovascular risk.

- Diet low in sugar and “white” carbohydrates (in particular grains) helps keep this low.

Cholesterol BY ITSELF, does not cause heart disease. It is a constellation of risk factors colliding together that set people up for increased heart risks. Review your risks with your PCP.

## **Exercise....**

*“Exercise is the closest thing we’ll ever get to the miracle pill that everyone is seeking. It brings weight loss, appetite control, improved mood and self-esteem, an energy kick and longer life by decreasing the risk of heart disease, diabetes, stroke, osteoporosis, and chronic disabilities.”*  
(Holly Atkinson, MD, Editor, Health News, May 27, 1997)

Little we have in medicine is more powerful or versatile as regular exercise. Recent studies have shown that exercise reform in individuals with stable Coronary Artery Disease is equal if not better than coronary stenting. In a large longitudinal study of 50,000 people comparing the impact of Fitness, Obesity, Hypertension, Smoking, Elevated Cholesterol, and Diabetes—Fitness was the strongest predictor of avoidable death. Exercise need not be the same for everyone. In a large Nurse Health study, merely upgrading from 0 hours to 1 hour of exercise a week decreased heart risks in half. Some strive to be competitive athletes, and other just to be healthy and maintain base level of fitness. Everyone can gain from any level of exercise, but your goals may differ and drive the duration, frequency, and intensity. Rate of return on exercise duration greater than 30min diminishes. Exercising with greater intensity appears to be equal to that of longer duration and lower intensity. Prioritizing time for activity and exercise may be the single most effective health intervention.

### Benefits of exercise:

- Decrease Depression 30-50%
- Decrease anxiety 48%
- Decrease Diabetes progression 58%
- Decrease Alzheimer's 50%
- Decrease Hip fractures in Postmenopausal women by 41%
- Decrease pain from Arthritis 47%
- Decrease Hypertension 36% when walking daily for >30 min
- Improve Fatigue and sleep quality
- Increase Libido (for men, naturally increase accessible blood testosterone levels)
- Maintaining independence and function in our elder years

## **Stress....**

Stress is the physical, mental, or emotional tension experienced in reaction to an event. Stress is typically experienced when we perceive demands exceeding our resources. Physiologically we deal with stress by tapping into the ‘Fight of Flight’ mechanism whether it is appropriate for the situation or not. This is also known as the ‘Sympathetic’ response, versus the ‘Parasympathetic’ response or the restful state. Hormones such as adrenalin are released to help drive the ‘flight response’. Heart rate and blood pressure increases to deliver more oxygen and sugars to important muscles. Sweating increases to cool these muscles. Blood is diverted away from the skin to keep at the core first in line for vital organ use and to reduce blood loss if injured in the periphery. Attention is focused on the threat. This circuit is meant for survival if a lion were chasing at your back, however in stress our bodies

are tripped over into this state inappropriately even with no real active threat. The extreme version of this is known as a 'Panic Attack'. Stress effects multiple facets of the human situation, including: cognitive, emotional, behavioral, physical, and social.

Effects of chronic stress includes:

- Increased vulnerability to the common cold and decreased immune function
- Slower wound healing and poor DNA repair
- High blood pressure and high cholesterol
- Heart disease
- Weight gain (central fat storage) due to increased cortisol levels
- Poor control of blood sugar among diabetics
- Poor health behaviors to cope or compensate for stress (e.g., diet, smoking, no exercise)
- Shortened telomeres and telomerase activity which leads to advanced aging
- Hair loss due to hormonal imbalance
- Decreased memory and concentration leading to increased errors and poor work performance
- Increased irritability with higher adrenalin levels affecting interpersonal relations
- Decreased sleep efficiency with more difficulty falling and staying asleep

Recognize symptoms of stress, including:

Physical:

- Indigestion, IBS, Constipation, Diarrhea, Stomach ulcers
- Headaches
- Backaches, neck stiffness and muscular tension or spasms
- Sleeping difficulty and daytime fatigue
- Appetite changes with under or over eating
- Decreased libido and sexual function

Behavioral:

- Withdrawal: neglecting responsibilities and social isolation
- Acting out: with drugs, alcohol in excess, smoking, gambling, spending spree, promiscuity
- Work infractions: tardiness, poor hygiene or appearance, accident prone
- Disorganization: forgetfulness, decreased concentration, decreased ability to multitask

Emotional:

- Hostility, Anger, Resentment
- Low self esteem, feelings of worthlessness, insecurity, apathy
- Irritability, defensive, argumentative, restless
- Overcompensation, denial, suspicious or paranoid

Tools to help 'flip the switch' from Sympathetic to Parasympathetic or restful state include diaphragmatic breathing, progressive muscle relaxation, and meditation. Diaphragmatic breathing taps into the phrenic nerve in the diaphragm and helps to slow breathing. Progressive muscle relaxation helps to release tension and refocus the mind. Meditation uses imagery to clear the clutter and thoughts that overwhelm and keep the 'fight or flight' response cycling. Exercise, one of the best anxiolytics, helps to run the adrenalin levels down, calm the nerves, and improve sleep quality. Addressing stressors that are within your control even if it means life changes is important to consider, yet sometimes admittedly difficult. We all will experience stressors in our lives that are outside our control, but controlling for other variables like getting adequate sleep, 'play', good nutrition, and rallying support around you can help your ability to cope better in these situations.

## Diaphragmatic Breathing Exercise

1. Sit in a comfortable position.
2. Place one hand on your chest and the other on your stomach, in order to monitor your diaphragmatic breathing (only your stomach should move.).
3. Inhale deeply and slowly (approximately 4 seconds) through your nose.
4. Exhale deeply and slowly (again approximately 4 seconds) through your mouth, allowing the air to fully escape.
5. Continue this deep breathing for 30 to 60 seconds.
6. Practice this **at least once a day**, but especially at times when you feel yourself becoming stressed.

\*\* It is normal for this healthy breathing to feel a little awkward at first. With practice, it will become more natural for you.

## ***Relations...***

***“...my father told me of a careful observer, who certainly had heart-disease and died from it, and who positively stated that his pulse was habitually irregular to an extreme degree; yet to his great disappointment it invariably became regular as soon as my father entered the room.” -Charles Darwin***

*Scientists have long noted an association between social relationships and health. More socially isolated or less socially integrated individuals are less healthy, psychologically and physically, and more likely to die. Humans are very social creatures, and when isolated, can frequently lead to depression and changes in hormonal balances that in turn predispose disease, in particular cardiovascular disease.*

Marriage was one of the first non-biological factors identified as improving life expectancy. A large study performed in the 1970's showed significant data verifying this relation of social support and health outcome. The explanation that has been proposed is that married people tend to take fewer risks with their health and have better mental and emotional health. Marriage also provides more social and material support.

Humor shared amongst family and friends is infectious. The sound of roaring laughter is far more contagious than any cough, snuffle, or sneeze. When laughter is shared, it binds people together and increases happiness and intimacy. In addition to amusement, laughter also triggers healthy physical changes in the body. Humor and laughter strengthen your immune system, boost your energy, diminish pain, and protect you from the damaging effects of stress.

The take home message: Surround yourself with friends and family. Communicate, laugh, commiserate, and when times get tough lean on a shoulder for support.

## ***Play...***

*Children do this well. Humans are by nature playful beings, and to stifle that can cause much angst and melancholy. Often as we grow up, our busy lives with jobs, family, life obligations consume our time and we forget to prioritize 'play'. The obligations that appear to consume our time are often self imposed. I propose that you prioritize and if need be schedule in time for 'play' that is all your own. 'Play', is essential for the mind and soul and important to help lessen the chances for depression and anxiety, which in turn tax the body through hormonal changes. 'Play', is different for everyone—it may be a hobby, sport (CrossFit!), dancing, recreation, or tradition. What ever it is for you, 'play' is essential to be healthy both mind and body.*

## ***Genetics...***

*Genetics is what we are gifted from our parents. How we choose to express our genetic potential depends on the choices we make in our lives. Just because your father died of heart disease, does not mean that you are doomed to have the same fate, rather it should light a fire underneath you to decrease your risks as much as possible through good choices. Many of our parents and grandparents lived very different lives without fully knowing the impacts of their lifestyle choices. Many may have smoked and ate poor diets that together with their genetic predispositions lead to poor outcomes and disease. We are lucky to be armed with more information to guide and empower those who are motivated to avoid those vices that weaken the links in our genetic chain. I encourage you to open your eyes and follow the basics that we know to be true, not to follow the masses that ignore these very essential life skills and are content to take another pill and become another static.*