Stress Mastery Step Two:

Exercise

**Exercise and the Stress Response**

Personally, I have a long relationship with exercise spanning well over 36-years. I’ve lost 123 pounds, became a bodybuilding champion, experienced a serious accident resulting in major back surgery, and I crossed the age 50 milestone! For me, the greatest challenge was ‘turning fifty’ because my entire physiology changed the way it handled stress, which meant that my exercise routine was no longer working. I had to change the way I structured my exercise routines as well as slow down my cardiovascular exercises. What I discovered in doing a metabolic cardiology test, my VO2 Max was incredible, but my aerobic zone had dropped from the previous year’s test. Basically, my body didn't handle stress the same way, so when I increased exercise intensity, my Stress Response would fire off early and shut down my fat-burning metabolism. When the metabolism shuts down, we start gaining weight and experiencing increased fatigue, and ultimately lowering an important measure, our Heart Rate Variability (HRV).

# Red Zone vs. Green Zone

In lesson one you learned that Stress isn’t good or bad, it’s just a response. This fight-or-flight Stress Response is designed to get you out of harm’s way without having to think or analyze the situation. The Stress Response has an immediate effect on our metabolism, health, and aging process. The management of this response is the key in facilitating weight loss, increased energy, and overall health. When we have the right eating plan, we manage this Stress Response which triggers the nervous system to switch from the Red Zone to the Green Zone.

**Green Zone**

It’s in the Green Zone where we activate the Pause-Plan Response that connects you to the self-control regions of the prefrontal cortex of the brain. The prefrontal cortex has been called the CEO of the brain, or the Captain (i.e., Conscious Mind). Like the fight-or-flight response, the pause-and-plan response begins in the brain. Just as the alarm system of your brain is always monitoring what you hear, see, and smell, other areas are keeping track of what's going on inside of you. This self-monitoring system is distributed throughout the brain, connecting the self-control regions of the prefrontal cortex with areas of the brain that keep track of your body sensations, thoughts, and emotions.

In the Green Zone, we activate self-control mechanisms that help you to stay committed to your diet and exercise program. When you’re tempted to cheat on your diet or procrastinate on an important project that is due, it’s the prefrontal cortex that will jump into action to help you make the right (conscious) choice.

# The Red Zone Physiology

In the Red Zone, our sympathetic nervous system is dominant, and this creates distinct responses in our physiology, including the following:

* *Increased Stress Hormones*. The stress hormones (Cortisol-Insulin) rise in the body to stimulate the sympathetic nervous system’s Stress Response.
* *Increased Breathing Rate.* The breathing rate increases and becomes shallower as the body is pumping in air getting the muscles ready for action.
* *Increased Heart Rate.* The heart rate becomes much more forceful as it is slamming blood through the arteries to ensure the muscles get enough blood for fight or flight, which in turn increases anxiety.
* *Digestion Shut Down.* The Vagus Nerve shuts down which turns off the digestion processes.
* *Elevated Sugar Levels.* Cortisol hormone signals the liver to release sugar to fuel the cells.
* *Blood Flow directed to Back Brain.* This region of the brain is built for us to be reactive.
* *Metabolism Shut Down.* Fat is our survival fuel and we when we have unmanaged stress, our body stores fuel (FAT). In this process, the thyroid slows down the entire energy process of the body.
* *Inability to Recuperate.* The hormones that allow the body to recuperate and rejuvenate itself are blocked from communication while in the Red Zone. This results in hormone imbalances and lowering of important Biomarkers of Health.
* *The Long-Term Effect of the Unmanaged Red Zone Living is Disease!*

# The Green Zone Physiology

When the stress response is managed, we turn on the parasympathetic nervous system which creates specific physiological responses. These include:

* *Decreased Stress Hormones.* The hormone connection that enables the homeostasis process of the body operate turns on.
* *Calm Breath.* Our breathing calms and we breath from the relaxed center of the belly.
* *Decreased Heart Rate.* Vagus Nerve is activated and creates the connection of body-mind, mind-body, decreasing the heart rate and blood pressure to allow us to be in a calm state.
* *Digestion Connection*. When the Vagus Nerve is activated, our digestive hormones communications are turned on, and the body receives hunger signals to the brain.
* *Stable Sugar Levels.* The metabolism turns on the body to use fat as energy (rather than store fat), and the need for sugar drops thus decreasing sugar levels. With this process, the body no longer has cravings for sugar.
* *Blood Flow Directed to the Front Brain.* The front part of the brain is activated which switches on your discipline and willpower abilities. This activated frontal part of the brain is what creates our focus and creativity.
* *Metabolism Turned-on.* The body is in perfect communication with metabolism, and the thyroid keeps the metabolism high, and in this state the body is using FAT for fuel.
* *Full Body Repair.* Our body’s sleep-wake cycles are balanced, which strengthens the immune system by helping our body recuperates from each day be on guard for any intruders that may attack the body.
* *The Effect of this Green Zone Living Is Well Being and Health!*

**Exercise Improves Physical Health**

One of the most significant benefits associated with exercise is its ability to boost health. Although modern electronic devices like television, video games and computers have caused people today to live more sedentary lives, the human body is designed for movement. According to the U.S. Department of Health and Human Services, adults should get at least two and a half hours of moderate-intensity exercise each week. I feel this is low and that we should consider more ‘movement’ exercise throughout the day. We must practice moving on an hourly basis so we can manage the Red Zone and signal the Green Zone to turn on. Getting regular exercise strengthens bones and muscles, improves circulation, controls brain activation, and boosts overall energy. Exercise and movement in general can help you maintain a healthy weight by burning more calories by activity and signaling our fat burning metabolism to activate. Exercise is also an effective tool for managing medical problems like arthritis, back pain, diabetes and heart disease. This is because exercise helps maintain the key Biomarkers of Health.

The Key Biomarkers of Health:

1. Muscle Mass
2. Strength
3. Basal Metabolic Rate
4. Body Fat
5. Aerobic Capacity
6. Blood Pressure
7. Blood Sugar Tolerance
8. Cholesterol
9. Bone Density
10. Body Temperature Regulation

# Hormones and Exercise

As we have discussed hormones are the communicators throughout the body. When you exercise, your body releases chemicals called endorphins. These endorphins interact with the receptors in your brain that reduce your perception of pain. Endorphins also trigger a positive feeling in the body, similar to that of morphine. Exercise has a hormonal effect on a host of hormones that connect the body. Here are a few:

**Irisin Hormone**

Irisin is literally referred to as the exercise hormone, which basically makes it your biological workout buddy. Recent research has shown it works in two ways.  First, this hormone activates genes that turn bad white fat into good brown fat. Secondly, it regulates undifferentiated stem cells to become bone-building cells instead of fat storage. It may also [protect brain cells](https://www.ncbi.nlm.nih.gov/pubmed/28183451) from injury and aging.

The Exercise Effect: Getting sweaty stimulates your body’s Irisin production. In [one small trial](https://www.ncbi.nlm.nih.gov/pubmed/28125733), a single afternoon session of both moderate intensity exercise and HIIT (High Intensity Interval Training) raised levels of the hormone by 12 percent among obese women; [in another study](https://www.ncbi.nlm.nih.gov/pubmed/25781950), single sessions of both intense endurance exercise and strength training increased Irisin. The benefit of Irisin also reveals that heavy strength training can change the entire metabolism.

One of the best ways to turn on the Irisin hormone is to use an intermittent fast for 18 hours and follow it with moderate exercise. This is very powerful in the Cage Rattler Reset.

**Estrogen**

Estrogen is the most important female sex hormone, playing a major role in the development of physical features like breasts, the menstrual cycle, and reproduction. It also affects bone health, cholesterol, and more, making it the master multitasker of the female endocrine system. Estrogen is also very influential in men. Researchers have found that low estrogen levels in men can trigger **weight gain** and adverse changes to sexual functions.However,men with too much estrogen may develop gynecomastia, a condition which leads to larger breasts. Too much estrogen in men can also cause erectile dysfunction (ED).

The Exercise Affect: Women need estrogen, but *too much* is a major risk factor for breast cancer. Many women have excess estrogen circulating for several reasons related to modern life, such as environmental pesticides that show up in our food, as well as the birth control pill. Most women, starting around age 35 will develop estrogen dominance because of lowering progesterone levels due to stress. Exercise helps to [reverse this trend](https://www.ncbi.nlm.nih.gov/pubmed/26541144), leading to lower risk of breast cancer for premenopausal and postmenopausal women alike. In fact, not only does exercise reduce breast cancer risk, it also reduces mortality [after diagnosis](https://www.ncbi.nlm.nih.gov/pubmed/18250341) among [survivors](https://www.ncbi.nlm.nih.gov/pubmed/20411366/). In men, exercise can raise testosterone because it promotes increased muscle mass. The rise in testosterone, in most cases lowers estrogen levels. And furthermore, it has been found lifting heavy weights has the [biggest boost on testosterone levels](https://www.webmd.com/men/features/exercise-and-testosterone#1).

**Testosterone**

Testosterone is the male sex hormone, but as estrogen plays a role in men, testosterone plays a role in woman as well. In woman, testosterone helps to grow muscle (Biomarker #1) and helps repair muscle proteins damaged by exercise. In woman, it is testosterone that gives them a health libido and that get up and go energy. In men, testosterone is the king of the jungle. If testosterone levels are not optimal, it is impossible for the male to attain peak health. Low testosterone levels keep a man’s body from being able to recuperate from the day.

The Exercise Effect:  Exercise will boost testosterone in both men and woman as long as the adrenals are not over producing cortisol and under producing the pro-hormone DHEA. Studies have confirmed that in lean women, [exercise stimulates production of testosterone](https://www.ncbi.nlm.nih.gov/pubmed/11915780), (The data, however, is mixed among older women and those who are overweight or obese). I believe the benefits of exercise are tied to the body’s stress response. Exercise that is designed to help increase muscle mass will shift the Biomarkers of Health and change the metabolism which will reduce excess belly fat.

**Human Growth Hormone (HGH)**

[HGH plays many roles in your body’s basic functions](https://www.ncbi.nlm.nih.gov/books/NBK279056/), including contribution to muscle and bone strength; and it is HGH that really stokes the fat-burning furnace. I have found that exercise, especially resistance training, will increase the HGH levels in both males and females regardless of age. In the clinics, I saw the HGH levels rise even in 80-year-olds once they started lifting weights.

The Exercise Effect: Your body releases HGH periodically on its own, especially during sleep. However, [certain kinds of exercise](https://www.ncbi.nlm.nih.gov/pubmed/12797841) have been shown to stimulate major increase in HGH production. Specifically, high intense workouts of shorter duration that involve strong resistance (i.e. heavy weights) and explosive movement (the type that leaves you breathless quickly) are what is needed to release HGH, and this is true for both women and men.

**Cortisol**

Yes, our old friend cortisol hormone is a driving force for the Stress Response. Cortisol is essentially in charge of regulating changes in the body that happen in response to anxiety and tension. The pressures of modern life cause a flooding of excess cortisol circulating on a continual basis, and one of the detrimental results is an increase in abdominal fat.

The Exercise Effect: Studies have shown [low-intensity exercise may decrease cortisol levels](https://www.ncbi.nlm.nih.gov/pubmed/18787373) (or, at the very least, not affect them at all), while higher intensity exercise will increase cortisol levels. That increase is generally seen as acute as opposed to chronic, though, meaning it won’t have long-term effects. **Important, if your body is in a stressed-out state, you must reset the stress response with diet before hitting the gym.** Low-intensity walking or biking can be done at any time without this cortisol effect. But if you start exercising too hard too soon, before the stress response is balanced, you will just keep the body in the Red zone.

The one kind of exercise that *does* [lead to chronic cortisol increase](http://www.precisionnutrition.com/all-about-cortisol) is intense endurance training. If you’re an endurance athlete, you’ll need additional measures to counteract oxidative stress and high levels of cortisol, such as taking supplemental vitamin C, and making sure your diet is designed with a proper balance to allow the body to recuperate and repair.

**The Over-Training Effect**

While exercise is highly beneficial, there is definitely such a thing as overtraining and actually creating more harm than good! Here are some key detrimental effects of overtraining the body and actually creating a Stress Response:

**Compromised Immune System**

Cortisol – the hormone emitted by the adrenal glands during periods of physical stress – stimulates gluconeogenesis (the production of new glucose) in the liver and increases protein breakdown in the muscles. *This is the Stress Response.*

Cortisol is good a good thing when in balance. Professional athletes have been injecting their wearied muscles with cortisol for many years because it provides an anti-inflammatory effect. However, scientists recently concluded that the benefits are outweighed by the negative effects.

While cortisol can decrease the swelling and reddening prompted by serious injuries, its immunosuppressive effects mean that those who endure high and consistent cortisol levels are at more at risk of becoming sick. Depressed cortisol results in depressed serotonin, causing depression, which cause a depressed anti-inflammatory process, which increases pain and fatigue which then causes hypo-glycaemia (low blood sugar).

One way of understanding this detrimental immune process is in terms of the 'fight-or-flight' instinct. Levels of cortisol increase dramatically during moments of intense stress – but these moments tend to be very fleeting. You fight, or take flight, and then the body's self-limiting response system returns to normal. However, that doesn't happen so quickly when you over-train. Your body doesn't have time to recover in overtraining, so it stays in (or close to) fight-or-flight mode. Your immune system pays the price because you are stuck in the Red Zone. ]

**Weakened Bones**

Not only are those who over-exercise more at risk of illness but they’re doubly as likely to end up bed-bound, thanks to cortisol’s interference with bone-building. When cortisol is in the bloodstream, more bone tissue is broken down than is deposited. This means that exercise addicts, whose bodies remain in a chronic state of stress, put themselves at higher risk of fractures and breakage. The resultant loss in bone density can lead to serious conditions such as osteoporosis and arthritis, haunting excessive exercisers later in life.

**Risk of Poor Mental Ill-Health**

Pumping iron on a daily basis might be a fast-track to the Baywatch body you’ve always craved – but relentlessly hitting the weights has proven to have detrimental impacts on mental health.

Studies into what is known as ‘Overtraining Syndrome’ show that those who over train portray the same biochemical markers as those with clinical depression – which is to say that the emission of serotonin and tryptophan are altered by both disorders. Behaviorally too, the clinically depressed and the over trained were perceived to share lowered motivation, insomnia and irritability. The Technical University of Munich found that young athletes who don’t leave enough time to recover from stress and injury are 20 times more likely to suffer from depression.

**Symptoms of Stressed Out Exercisers**

Symptoms range from individual to individual, and the presentation of one symptom alone does not necessarily indicate that you are over training. As a result, the list below is not exhaustive. Nevertheless, any combination of the following may suggest over-training, or at least the need to building in more recovery time.

* Lethargy
* Poor sleep (despite being tired)
* Aching muscles
* Poor workout performance
* Inability to complete workouts
* Irritability
* Loss of appetite
* Loss of libido
* Poor co-ordination
* Swelling of lymph glands
* Abnormal heart rate

If you are experiencing any of the above symptoms, the most important thing to do is stop training. Your body needs time to recuperate. Listen to your body. These symptoms could take days, weeks, or months to subside. Once you do feel better, it's wise to reintroduce workouts slowly. Begin by concentrating on general activities like jogging or cycling that can be completed at a gentle intensity. Over time, you can gradually increase more hard training activities.

**The No-Exercise Effect**

On the other end of the exerciser continuum is not enough exercise. The list of damaging effects of not exercising regularly is disconcerting. Here are some of the various negative results when we do not give our bodies the regular movement needed for optimal health and wellness:

**1. Circulatory System Problems**

Your heart is a muscle like any other, and [without regular exercises](http://www.webmd.com/heart/exercise-and-the-risk-of-coronary-artery-disease), it weakens, just like a bicep or calf muscle that never gets any use. Then, when you suddenly need to move quickly, your heart can't handle going from zero to 65 quickly, sometimes with tragic results. Meanwhile, the lungs grow inefficient at absorbing oxygen, leaving you out-of-breath and wheezing from walking a few stairs when the elevator is out of order. Finally, your blood pressure rises, resulting in stiffening of the blood vessels. This, in turn, encourages plaque buildup, which sets the stage for strokes and other potential disasters down the road.

**2. Weight Gain**

If you don't exercise, you may have [difficulty controlling your weight](http://www.healthline.com/health/exercise-and-weight-loss). The [extra pounds](https://exercise.lovetoknow.com/Back_Fat_Exercises) that come with too many hours on the couch may be a result of an inactive lifestyle, especially when coupled with poor dietary habits. Life-altering health problems, general discomfort, social challenges, extra health care costs, and travel hassles are all downsides of weight gain.

**3. Diabetes**

Type two diabetes is [on the rise](http://www.healthline.com/health/type-2-diabetes/statistics) in the world, partially because of consumption of too much junk food, sugary drinks, and other processed foods, but also because people [exercise less](http://www.diabetes.co.uk/news/2011/aug/lack-of-exercise-shown-to-cause-conditions-such-as-diabetes-97920501.html). The mechanism is simple -- too much sugar in the diet causes frequent blood sugar spikes. These are harmful, so the body releases [insulin](https://www.endocrineweb.com/conditions/type-1-diabetes/what-insulin) to cut down the blood sugar to manageable levels rapidly. It does this by force-feeding the excess sugar into the muscles and liver. Unfortunately, if this force-feeding happens too frequently, the insulin receptors get dulled and eventually stop responding. The result is diabetes, the inability to regulate blood sugar with tissue damage, loss of eyesight, and other dangers. Exercise not only uses blood glucose as a primary energy source, it also helps to sharpen the insulin receptors, [improving insulin sensitivity](https://www.diabetesselfmanagement.com/managing-diabetes/treatment-approaches/increasing-insulin-sensitivity/).

**4. Joint and Bone Fragility**

A frequently exercised (and stretched) joint is flexible, while an unused one is weaker, less elastic, and more prone to nasty tears. [Muscle shortening](http://www.gustrength.com/muscles:adaptive-shortening), which goes hand in hand with this, can further the problem by creating involuntary imbalances in the body that cause injuries over time. As for the bones, elderly women, in particular, are susceptible to [bone brittleness](https://exercise.lovetoknow.com/Osteoporosis_Exercises_for_Older_Women). While part of bone brittleness does have to do with calcium intake, exercise is also a key component in keeping the bone mass intact.

**5. Depression**

Regular exercise can [improve well-being](https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/depression-and-exercise), which can help ward off depression. In fact, [one study showed](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC474733/) exercise can help combat clinical depression, and [another study](http://www.ajpmonline.org/article/S0749-3797(13)00319-X/abstract) showed that people who sit for long periods, don't exercise, or are otherwise inactive have higher rates of depression than those who are physically active. It is also worth mentioning [exercise releases endorphins](http://www.cnn.com/2016/01/13/health/endorphins-exercise-cause-happiness/index.html), the body's own "happy drug," which has made exercise one of the cornerstones in today's professional treatment of depression. Exercise builds physical confidence, works out pent-up tensions, jolts the brain chemistry, and stabilizes your whole system with a general feel-good experience, while lack of exercise achieves the polar opposite.

**6. Lack of Endurance**

If you don't exercise regularly, you’ll notice a [lack of endurance](http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/FitnessBasics/Endurance-Exercise-Aerobic_UCM_464004_Article.jsp#.WcAo5NN97sE) when performing certain tasks. This can manifest in many ways. You get winded walking to your mailbox. You notice that just a few steps into a hike you feel tired all over. You can't cut a rug on the dance floor like you used to, or you may not have the get-up-and-go to chase your children or grandchildren with their boundless energy. Lack of endurance can seriously hamper your life and keep you from doing enjoyable things. Exercising regularly, even walking at a brisk pace for 20 to 30 minutes three times per week, can help condition your heart and lungs so your endurance grows, and you can enjoy the things you want to without feeling like you are wiped out before you even start.

**7. Lack of Physical Strength**

Without exercise, muscles atrophy. One study showed that men of all ages who didn't exercise a certain muscle for two weeks lost [20 to 34 percent](https://www.prevention.com/fitness/muscle-loss-when-stop-working-out) of their strength in that muscle. While you don't need to be superman, maintaining muscle strength is essential to performing lifting, pushing, and pulling tasks.

**8. Loss of Balance**

Remember as a kid when you could easily stand on one foot, ride a skateboard, or hold yourself up on ice skates? These are all activities requiring balance. When you don't exercise, balance issues can result from [muscle weakness](http://www.moveforwardpt.com/SymptomsConditionsDetail.aspx?cid=1bb9c784-a874-43b1-976f-d0de03c19f99), lack of core strength, or a sedentary lifestyle. While it's obvious why you'd want to maintain balance if you were engaging in an activity like stand-up paddle boarding or kayaking, it may be less obvious why it's important as you age but consider this: Falls are the [leading cause](https://www.ncoa.org/news/resources-for-reporters/get-the-facts/falls-prevention-facts/) of fatal and non-fatal accidents for older adults. [Twenty-five percent](https://www.ncoa.org/news/resources-for-reporters/get-the-facts/falls-prevention-facts/) of adults over age 65 fall yearly in the United States and balance plays a key role in helping you stay on your feet or allowing you to catch yourself as you start to fall.

**9. Loss of Flexibility**

[Flexibility](http://www.ucdmc.ucdavis.edu/sportsmedicine/resources/flexibility_descriprion.html) helps protect you from injury, increases physical performance, and allows you to move through a greater range of motion. When you don't exercise, and particularly when you don't stretch, your muscles and connective tissue tighten, which can create stress on joints, make you get tired more easily, and increase your risk for injury. People with lowered flexibility are at increased risk for greater pain, particularly in the [back and hips](https://uihc.org/health-library/muscle-flexibility-strength-endurance-and-chronic-back-pain). Chronic inflexibility can lead to chronic pain. Incorporating [flexibility exercises](https://exercise.lovetoknow.com/Exercises_to_Increase_Flexibility) can help improve overall health and well-being.

**10. Loss of Mobility**

If you don't exercise, you won't be able to [move as well](http://healthyliving.azcentral.com/lack-exercise-affect-ones-ability-move-10099.html) as you age. There are many reasons for this, including some of the aforementioned, such as lack of strength, endurance, flexibility, balance, as well as weight gain. All these factors combine to weaken mobility; in other words, decrease your ability to move comfortably and without pain or extreme effort. And sadly, the less mobile one becomes, the less likely you’ll want to move, which has a downward spiral effect that can cause long-term health issues.

**11. Increased Risk of Death from Any Cause**

If you don't exercise, there's a chance you'll die earlier than your fitter counterparts. A [2015 study](https://www.sciencedaily.com/releases/2015/01/150114143118.htm) showed lack of exercise appeared to cause twice the amount of deaths as those linked to obesity. Even a small amount of exercise - as little as a 20-minute walk daily - reduced those risks.

**12. Metabolic Syndrome**

[Metabolic syndrome](http://www.webmd.com/heart/metabolic-syndrome/features/metabolic-syndrome-the-silent-epidemic#1) is a cluster of symptoms that include abdominal obesity, high triglycerides, high blood pressure, low levels of high-density lipoproteins (good cholesterol), and elevated fasting blood sugar. This can elevate risks for a number of health problems, including cardiovascular disease and diabetes. Metabolic syndrome is a serious concern with [50 percent of adults over 60 have this condition](http://jamanetwork.com/journals/jama/fullarticle/2293286). Lack of exercise and diet are the two biggest contributors to metabolic syndrome.

**13. Increased Risk of Certain Cancers**

[Evidence](https://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/physical-activity-fact-sheet) links lack of physical activity to certain cancers, including colon, breast, and endometrial cancers. There is a less clear correlation between other types of cancers with lack of exercise, but the evidence is still strong enough to point to lack of exercise as a contributing factor to liver, kidney, stomach, esophageal, and bladder cancer, as well as melanoma and leukemia.

**14. Decrease in Cognitive Function**

Controlled [clinical trials](https://www.ncbi.nlm.nih.gov/pubmed/18768414?ordinalpos=18&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum) show exercise improves cognitive function in older adults. Likewise, one [analysis of studies](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3951958/) showed metabolic dysfunction arising from lack of exercise can lead to a host of neurological issues that cause cognitive decline. That's why it's important to move so you are able to keep your brain functioning at peak performance.

**15. Increased Risk of Chronic Disease**

In the United States, chronic disease is the main cause of disability and death with more than 17 million Americans suffering from one or more chronic illnesses. Physical inactivity is a [major cause](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4241367/). Being chronically ill can cause you countless dollars in health care - even with insurance - and greatly decrease your quality of life. [Scientific data](https://www.ncbi.nlm.nih.gov/pubmed/18159963) shows, however, that regular physical activity is essential in the primary prevention (preventing it before it occurs) of chronic illness.

**Get Off the Couch!**

There's little doubt that exercise is good for the body and mind. If you've slipped into a sedentary lifestyle, it's not too late to make a change. Consult your physician about which exercises are best for you, start out slow, and work your way toward better health.

The Pause-Plan Lifestyle Program:   
Exercise-The Protector and Scout

During prehistoric times, the Tribe functioned as a perfect unit. Each tribe member had a job within the tribe and when the tribe would be on the move. As the tribe looked for areas to set up a new camp, they searched for areas with ample water and food supplies and safety. To accomplish these feats, some of the tribe members had to be able to run ahead of the tribe and search, while other members would move with the tribe, carrying supplies and protecting the members. We classify these two types as Scouts and Protectors. Our bodies are built for today within the same survival DNA as our ancestors.

**The Scout** was a natural runner who could run many miles and burn fat as fuel while running. This allowed them to run without stealing the sugar supply of the body which was necessary to fuel the brain. The Scout was typically built rather thin and ran with a fluid motion that didn’t strain the structure of their body. If you are naturally a Scout, you still need resistance training but would be best suited to focus more on activities such as yoga, Pilates or lighter weight training. You may have trouble gaining weight and muscle. When it comes to running, this activity is easy and comfortable for you.

**The Protector** was built with more muscle and had the ability to lift, move, and carry heavy objects without much struggle. If you are naturally a Protector, weight lifting comes easy to you. You gain muscle easily and may struggle with weight gain. Running or any intense cardio will not help you lose weight, rather it may even cause you to lose muscle and gain fat. Running is a struggle for you, and Protectors experience all kinds of joint problems when they make running a regular thing. Protectors are born to lift weights and walk, with nice easy cardio and some intense lifting the recipe for success. We can easily determine if you are a Protector or Scout by analyzing the way your body handles stress. [**Wellness Survey**](https://forms.gle/xd3m8DSRjyz8ucvK9)

**Important: Please *read both the Scout and Protector Characteristics below, as the information is relevant for both physiologies. Detailed explanation of Scouts will go in-depth on resistance training benefits for everyone, while reading more about Protectors below will ensure you understand the impact of cardiovascular and aerobics.***

**The Scout**

**Some People Are Built to Run**

You know you are a Scout when running is easy for you to do. The Scout is typically slim and naturally doesn’t gain a lot of weight. When imbalanced, the Scout will be prone to gain belly fat. However, Scouts must also do some resistance training to protect their Biomarkers, because having muscle is imperative and one of the key Health Bio Markers (as discussed earlier). When the Scout does not do resistance training to protect muscle, they will become what is called ‘skinny-fat.’

Many [experts think](https://twitter.com/realscientists/status/986936405501923328) human bodies (especially the Scout) are shaped the way they are because we evolved to be [extremely effective endurance runners](https://www.amazon.com/Story-Human-Body-Evolution-Disease/dp/030774180X?tag=bisafetynet2-20). The shapes of our hips and feet, the length of our legs, our shock-absorbing spinal discs, and our ability to sweat make it possible for us to run mile after mile. So, it's no surprise that running is strongly associated with a number of benefits for our bodies and brains.

Many experts [consider exercise to be the closest thing to a miracle drug](https://www.businessinsider.com/how-exercise-affects-your-brain-2017-4). As a [form of cardio exercise](https://www.businessinsider.com/exercise-benefits-daily-weekly-how-often-2018-3) that's easily accessible, running is one of the most straightforward ways to get the important benefits of exercise. Since it improves aerobic fitness, running is a great way to help improve cardiovascular health. Plus, it burns calories and can build strength, among other things. There's also a long list of psychological benefits runners gain from their sport. *However, these benefits will only be seen if your body stays in the Green Zone.*

When Scouts haven't run in a while (or ever), getting used to it can be brutal. But once the body and mind start to acclimate, running can be blissful, meditative, and provide a sense of freedom. Again, this is quite natural for the Scout. On the other hand, the Protector has a heck of a time trying to run, as it feels like the body is too heavy and awkward to create a smooth running style. When Protectors run, you can hear their feet hitting the pavement with hard pounding steps.

As a Scout you are born to run, and the benefits are plenty!

**1. Even a 30-minute run can lift symptoms of depression and improve mood.**

Spending 30 minutes on a treadmill is enough to lift the mood of someone suffering from major depressive disorder, according to a [study published in the journal](https://www.ncbi.nlm.nih.gov/pubmed/16331126) of the American College of Sports Medicine. Even participants who moved at a walking pace (Protectors) will receive the same mood-lifting benefits. This reveals that no matter what pace you're going, moving has positive effects and adds to the already significant breadth of research showing that running and other forms of exercise [can improve mood](http://www.apa.org/monitor/2011/12/exercise.aspx) and help fight depression.

**2. Contrary to what many people think, running actually seems to improve knee health.**

Knee pain can quickly sideline a runner. It's often a sign of overtraining or a need to improve one's form or flexibility. But running isn’t the cause of knee osteoarthritis. In [one eight-year study of 2,637 participants](https://onlinelibrary.wiley.com/doi/abs/10.1002/acr.22939), researchers found that the more people ran, the less likely they were to suffer from knee pain or osteoarthritis. While it's hard to say that running directly caused people to experience less knee pain, researchers think that running helps people keep their BMI in check and their leg muscles strong. Running also [strengthens bones](https://www.bones.nih.gov/health-info/bone/bone-health/exercise/exercise-your-bone-health). Scouts recuperate from running so the Biomarkers are healthy which would increase joint health, but they need to supplement their running with weights.

**3. Running helps people sleep better, improves their mood, and boosts their ability to focus.**

In [a study of 51 young people](https://www.jahonline.org/article/S1054-139X(12)00111-5/abstract) with an average age of 18, half were assigned to add running into their routines, while the other half did get some exercise, but didn't add a regular running regimen. To get the benefits associated with running, the group of runners ran at a moderate pace for 30 minutes a day, five days a week, for three weeks. Those in that running group were found to sleep better, show signs of improved psychological functioning, and focus better during the day. The same benefits are likely to apply to runners of any age.

**4. Running can significantly improve cardiovascular health.**

We know that aerobic activity is good for the heart, so it's no surprise that running can improve cardiovascular fitness. In general, the more people run, the healthier their hearts tend to be (this is opposite for Protectors). But you can get big benefits without having to do a lot: running just five minutes per day could add years to your life, according to a study in the [Journal of the American College of Cardiology](http://content.onlinejacc.org/article.aspx?articleID=1891600). There has been some concern that extreme amounts of running — we're talking ultramarathon distances — could stress or scar the heart. But a growing body of research seems to indicate [that's not something to worry about](https://www.npr.org/sections/13.7/2016/09/14/493803246/is-running-good-or-bad-for-your-health). Researchers have found that people who run at least 40 miles per week have healthier hearts than those who run 13 miles a week, for example.

**5. Running can improve your mind at any age and fight age-related cognitive decline.**

If you want to keep your mind healthy as you age, research indicates exercising is one of the best things you can do. A [review of research](https://link.springer.com/article/10.3758%2Fs13423-012-0345-4) on the cognitive-boosting effect of aerobic exercise (which in many studies was either running, jogging, or brisk walking) found that for children, running improved working memory and focus. For young adults, working memory saw a similar boost — as did task-switching ability. For older adults, this sort of activity provides a long list of cognitive benefits, including working memory, focus, and task switching. When the Biomarkers are healthy with a strong muscle to fat ratio, the fifth Biomarker of Aerobic Capacity is strong, providing the body with greater oxygen supplies.

**6. Running changes make the brain more resistant to stress.**

A number of studies have shown that aerobic exercise can improve people's ability to cope with stress — and many of those studies focus on runners. In a review of research about exercise and stress [published in Clinical Psychology Review](https://www.ncbi.nlm.nih.gov/pubmed/11148895), author Peter Salmon concludes that this "training recruits a process which confers enduring resilience to stress." Researchers think this may be because aerobic exercise increases levels of neurotransmitters like serotonin and norepinephrine, and it causes the brain to generate new neurons.

**7. Running and other forms of aerobic exercise significantly reduce your chances of death.**

Getting 30 minutes or more of aerobic exercise on a regular basis makes people significantly less likely to die from any cause. Getting an hour or more of movement is even better, [according to some research](http://www.businessinsider.com/exercise-benefits-daily-weekly-how-often-2018-3). People who meet these exercise guidelines are significantly less likely to [develop a number of forms](https://academic.oup.com/jn/article/132/11/3456S/4687180) of cancer, according to a major review of research. For many people, the easiest way to get all these benefits of exercise is to get out and start running.

The Scout gains many wonderful benefits from running as described because they are running in the Green Zone! Their body is using fat for fuel, and this is why they can run for long distances and get into “the zone.”

Unfortunately, the Protector will not gain the benefits from running because it will stress their body into the Red Zone. However, Protectors can gain similar types of benefits from walking instead. When a Protector runs, they will be running in the Red Zone, thus using sugar for fuel and never switching to fat as a fuel source. This will cause the body to be become catabolic and breakdown its muscle to fuel and cause the muscle health Biomarker to fall.

**The Protector**

Both the Scout and Protector need resistance training, but the Protector is born to lift. They are natural at lifting, pushing, and moving objects around. When a Protector female starts weight training, their body will change very rapidly. There is a stigma that many women have about lifting weights, particularly around concerns of gaining weight. If you lift weights and gain five pounds of muscle, lose five pounds of fat, the scale remains unchanged, but the fat loss will result in several inches coming off the waist and improved Health Bio Marker of Muscle.

If you knew that a certain type of exercise could benefit your heart, improve your balance, strengthen your bones, and help you lose weight, all while making you look and feel better, wouldn't you want to get started now? Many Scouts have issues with gaining weight and resistance training is their answer to that issue.

**Strength training**, also known as weight or resistance training, is physical activity designed to improve muscular fitness by exercising a specific muscle or muscle group against external resistance, including free-weights, weight machines, or your own body weight. The basic principle is to apply a load and overload the muscle in order to have the muscle adapt and get stronger. Strength training is NOT just about bodybuilders lifting weights in a gym. Regular strength or resistance training also helps prevent the natural loss of lean muscle mass (Biomarkers) that comes with aging (the medical term for this loss is sarcopenia).

Strength training is an important part of [overall fitness](https://www.everydayhealth.com/everything-you-need-know-about-fitness-why-its-about-way-more-than-hitting-gym/) and it benefits people of all [ages](https://www.everydayhealth.com/columns/daily-checkup/simple-habit-could-save-your-life/). It may be particularly important for people with health issues such as [obesity](https://www.everydayhealth.com/columns/daily-checkup/more-overweight-americans-make-jump-from-overweight-to-obese/), arthritis, or a heart condition. The Centers for Disease Control Prevention recommends that adults do muscle-strengthening activities at least two or more days each week (targeting the legs, hips, back, abdomen, chest, shoulders, and arms).

**How Strength Training Helps Your Health**

Besides the well-touted benefit of adding tone and definition to your muscles (frequently posted on Instagram), how else does strength training benefit us? Here are just a few of the many ways.

**1. Strength training makes you stronger and fitter.**

This benefit is the obvious one, but it shouldn’t be overlooked. Muscle strength is crucial in making it easier to do the things you need to do on a day-to-day basis, especially as we get older and naturally start to lose muscle. Strength training is also called resistance training because it involves strengthening and toning your muscles by contracting them against a resisting force. There are two types of resistance training:

* **Isometric resistance**involves contracting your muscles against a nonmoving object, such as against the floor in a push-up.
* **Isotonic strength training**involves contracting your muscles through a range of motion as in weight lifting.

**2. Strength training protects bone health and muscle mass.**

At around age 30 we start losing as much as 3 to 5 percent of lean muscle mass per year thanks to aging. According to a study published in October 2017 in the [*Journal of Bone and Mineral Research*,](https://onlinelibrary.wiley.com/doi/full/10.1002/jbmr.3284) just 30 minutes twice a week of high intensity resistance and impact training was shown to improve functional performance, as well as bone density, structure, and strength in postmenopausal women with low bone mass — and it had no negative effects.

**3. Strength training helps keep the weight off for good.**

Aerobic exercise such as walking, running, and cycling is well known to help increase the number of calories you burn in a day and shed extra pounds. But strength training also helps with weight management (even if you’re not burning a huge number of calories during the workout).

Exercise science researchers suspect strength training is helpful for weight loss because it increases your resting metabolism (meaning the rate at which your body burns calories when you’re just going about your day, not exercising). Scientists are finding that [weight training has more benefits than just cardio](https://www.sciencedaily.com/releases/2017/11/171101130319.htm). A [study published](https://www.sciencedaily.com/releases/2019/01/190130112728.htm) in the journal *Obesity*in November 2017 found that, compared with dieters who didn’t exercise and those who did only aerobic exercise, dieters who did strength training exercises four times a week for 18 months lost the most fat (about 18 pounds, compared with 10 pounds for non-exercisers and 16 pounds for aerobic exercisers). The best combination of exercises are recommended in The Pause-Plan Lifestyle Program, [a proper combination of aerobic and resistance training.](https://www.nejm.org/doi/full/10.1056/NEJMoa1616338) Studies are showing that the combination is very powerful.

**4. Strength training helps you develop better body mechanics.**

Strength training also benefits your balance, coordination, and posture. One study showed strength training in older adults reduced risk of falling by 40 percent compared with older adults who did not do strength-training exercises. Balance is dependent on the strength of the muscles that keep you on your feet. The stronger those muscles, the better your balance can be.

**5. Strength training can help with chronic disease management.**

Studies have documented that strength training can help those dealing with schronic diseases manage their conditions. If you have arthritis, strength training can be as effective as medication in decreasing arthritis pain. And for the 14 million Americans with [type 2 diabetes](https://www.everydayhealth.com/type-2-diabetes/guide/), strength training along with other healthy lifestyle changes helps improve glucose control. This improvement is tied directly to the hormones produced through exercise itself.

**6. Strength training boosts energy levels and improves your mood.**

Strength training will elevate your level of [endorphins](https://www.everydayhealth.com/endorphins/guide/) (natural opiates produced by the brain), which lift energy levels and improve mood. And if that isn't enough to convince you, there’s evidence strength training may help you sleep better, too.

**7. Strength training translates to more calories burned.**

Strength training helps boost your metabolism (the rate your resting body burns calories throughout the day). But the greater benefit is that weight or resistance training can help boost your calorie burn after your workout as well. You burn calories during strength training, and your body continues to burn calories after strength training (just like you do after aerobic exercise), a process called "excess post-exercise oxygen consumption" or EPOC, according to the American Council on Exercise. When you do strength, weight, or resistance training, your body demands more energy based on how much energy you’re exerting (meaning the tougher you’re working, the more energy is demanded). That means more calories burned during the workout, and more calories burned *after*the workout, too, while your body is recovering to a resting state.

The Protector is naturally strong. When it comes to cardio, they are built to move at a slow steady pace such as walking or easy bike riding. I personally life weights and then do my cardio exercise. The goal is to do my cardio in the proper heart rate zone to increase oxygen, which increases my recuperation ability and ultimately allows my body to repair faster. Doing the aerobic exercise post weights also increases my fat burning because it is the fuel readily available after the weight training used the glucose. But as I have stated, BOTH SCOUT AND PROTECTORS NEED CARDIO AND RESISTANCE.

# Aerobic vs. Cardiovascular Exercise

In 2009, in my book “The Stress Response Diet,” I wrote on the subject of aerobic versus cardiovascular exercise. This subject caused a lot of controversy in exercise circles. I wrote that aerobic exercise is not necessarily running, spinning or playing sports. Aerobic exercise is when you exercise within your specific aerobic heart rate zone that allows your body to use fat for fuel and build up oxygen. Cardiovascular exercise is any type of activity that makes your heart and lungs work at high-intensity levels for an undetermined period of time. Cardiovascular exercise is not automatically aerobic exercise since the presence of oxygen is not always possible at higher exercise intensities. Aerobic exercise is about exercising in the Green Zone and using fat as energy.

**Green Zone Exercise**

We have been programmed that the higher exercise intensity, the more calories we burn and the better the results. This may be true when we are young, but as we hit our thirties, this belief is flawed and without scientific merit. **It’s essential to understand that exercise is stress**. Our body cannot tell the difference between an intense spinning class at the gym versus being chased by a pack of wild dogs. In either scenario, the body launches into the Stress Response. Basically, the nervous system treats high intensity exercise as STRESS.

The notion of training at high intensities as the key in becoming healthy or losing weight is greatly counteractive to creating a healthy body. In fact, high intensity exercise creates more of a health distress than benefit. Our aim therefore should be to exercise within our individual aerobic zone without pushing us to a state of extreme stress. We target the different heart rate variances that aligns with your state of health and your unique physiology.

**Take the First Step… Move!**

*What does it mean to be physically active?* The first step is all about creating conscious movement throughout the day. Just by the simple action of parking further away, taking the stairs, or going for a ten-minute walk on your lunch break will begin to create a shift in your health. You an start by setting a goal for achieving a specific number of steps each day. This is easy to track by just using an app on your phone. One suggestion is to start out by monitoring your step average in a day. Do not change anything but monitor your steps for 3-5 days, and then take the average. Then simply add 1000 steps, then another 1000 in a week, and then another 1000, doing this until you hit 10,000 steps a day.

Many people think they are far more active than they really are. For example, if someone is exercising three times a week for 60 minutes, but then spends the rest of their waking hours behind the desk during the day and on the couch in the evening, they would not be considered living a ‘Physically Active’ lifestyle. Further, there is quite a difference between someone being physically active and being trained. Even within the definition of Physical Activity, there are other sub-classifications that can be used such as low, moderate, and highly physically active. Likewise, similar sub-classifications can be used for someone who is “training.”

Many of us model training from professional athletes, but we do not realize that they are training for specific responses and results, and this is typically not for health purposes. An athlete is training to continuously improve in their particular sport. Take someone like Kobe Bryant for example during the 2008 Beijing Olympics. He was waking up at 3 a.m. to run through specific footwork drills, shooting drills, and sprints before going to the gym to work on maintaining his muscle mass and then attend team practice. This kind of work ethic is considered in the elite category because of how specific, programmed and well-structured the format of training is. But, I have learned that these professional athletes are not necessarily healthy. I have worked with many professional athletes from various sports, and by the end of the season, their body was completely Red Zoned and broken down.

In addition to professional athletes, some of us try to model our fitness program like those who goes to a gym 5-6 times a week. These individuals may have trained for decades (such as myself), and you should be careful not model your exercise after them until your body is ready.

In today’s fast-paced world, many people put their health on the very bottom of their priorities until something goes wrong. Then when something goes wrong, most people go into panic mode and try some fad quick fix program. The key is to start where you are at and follow the science of managing the Stress Response. This will not only reset our body’s health, but we can get into the best shape of our lives which means incredible energy levels, sound sleeping patterns, great brain activity and disease free.

**Understanding Our Energy Systems: The Science**

If you have ever attempted to research “Fat Loss,” you will discover a myriad of different so-called solutions that promise quick fat loss. The truth is, even in published scientific journals, there are no clear-cut solutions to losing fat. Although fat as an energy source yields more calories per unit gram (9/kcal vs. 4/kcal for protein and carbohydrates), when looking at our energy systems, it is not the most readily available. Without getting too into in-depth with Biochemistry and Exercise Physiology, there are three biological energy systems that our bodies require for the sole purpose of replenishing ATP (our bodies energy currency). The production of ATP is necessary for everything we do, including muscle activation/contraction and essentially energy production. Those are: Phosphagen (ATP/CP), Glycolysis (Glycolytic) and the Oxidative (Aerobic) systems. The first two systems mentioned are primarily known as being Anaerobic in nature, which do not require the presence of oxygen. The third is Aerobic and requires oxygen.

At no point, during exercise or rest, does any single energy system provide the complete supply of energy. During exercise, the degree to which anaerobic and oxidative systems contribute to the energy being produced is determined primarily by the exercise intensity, and secondarily by the exercise duration. The main thing during the exercise process is whether we are primarily in the Red or Green Zone.

At rest in the Green Zone, approximately 70% of the ATP produced is derived from fats and 30% from carbohydrates. Following the onset of activity, as the intensity of the exercise increases, there is a shift in substrate preference from fats to carbohydrates. However, during, prolonged, submaximal, steady state work, there is a gradual shift from carbohydrates back to fats. Important fact about exercise is that it creates stress in the body, and once the Stress Response is triggered the nervous system is activated. If the exercise is really intense, the Sympathetic Nervous System Red Zone flips on which then shuts down fat burning. The reason this happens is that our body is built for survival and fat is our survival fuel.

**Takeaway Message:**

What does this all translate to? Simple. Your form of activity will dictate the type of energy system used. Resistance training relies mostly on the Phosphagen/Glycolytic systems due to its higher power output nature and short duration for the necessary muscular contractions. Activities that are low power output and long duration, such as walking or bicycling, will require a larger energy supply and therefore favor the Oxidative system.

Engage in low-intensity, steady state aerobic training for its use from Fats. Keep in mind that *intensity* and *duration* play important roles in dictating the energy system used. By focusing on doing cardiovascular exercise based on your physiology type and working in your appropriate heart rate zones will take the guesswork out of exercise – and keep you in the Green Zone. Your heart rate should always determine the intensity of the exercise. For example, if you happen to be more stressed out or didn't get enough sleep, you will find that the exercise intensity needs to be lowered to stay in your training zone (Change in HRV). On the contrary you will have to increase intensity to work in your zone as you become more fit.

**The Importance of Your Exercise Zone – Overtraining & Undertraining**

**Mary’s Story:**

I will share with you a story of a client named Mary. Mary was forty-five-years young and had been working with a personal trainer for four months. During this time, Mary was adhering to a strict dietary menu, engaging in a supervised training program four to five times a week but only lost six pounds. She complained about constantly having sweet cravings on her training days, low energy levels in the afternoon, and always feeling sore. Basically, her body was stressed out and the Stress Response was completely imbalanced. Mary was engaged in more of boot-camp style of resistance training, very high intensity in nature. After her exercise sessions, she was exhausted even though her trainer was pleased because she burned a lot of calories and would get sore after her sessions.

Mary’s trainer did however use two common formulas for determining her correct training zones:

* 220 – Age (Karvonen Method) x 0.65 = FBR (Fat Burning Rate)
* 220 – Age (Karvonen Method) x 0.85 = ATR (Anaerobic Threshold Rate)

In this case, her trainer put her at an FBR of 113 and ATR of 148, and particularly trained her at the top end of her zone for the entirety of her session. The trainer also had her do HIIT (High Intensity Interval Training) for her cardiovascular training. During these sessions Mary would take her heart rate up to the 170’s for a two-minute period and then back down to 145 for three minutes, repeating the cycle for 45 minutes.

Mary was very frustrated with her results when I met her. The labs showed that she was completely stressed out and her metabolism was shut down. The cardio-metabolic stress test, also known as VO2max test (measures maximal oxygen consumption during exercise), showed us a couple more important factors. First was that when at rest Mary’s body was in a state of stress. Mary was a very Type-A person, and this stressed out state is very common among Type A’s. The second piece of the puzzle came while she was doing the exertion part of the test. Her body immediately relaxed when she started exercising, as we saw that with 30-seconds, her nervous system switched over from the Red Zone to the Green Zone. But, within four minutes of exertion on the bike, her body was stressed out again. Mary’s results were clear. She was a Protector (more on this later), and her Fat Burning Rate (FBR) and Anaerobic Threshold Rate (ATR) were completely off. Mary was actually at a FBR of 85 and ATR of 112 beats per minute.

**Takeaway Message:**

Although Mary’s heart rate was constantly monitored during her workout, because there was such a discrepancy in her FBR and ATR, she was constantly placed in a state of extreme stress, which was in turn activating her Stress Response and keeping her in the Red Zone. Thus is what was leading her to feel more fatigue and therefore having intense cravings and inability to lose weight. After only thirty days of adjusting her program, she was able to increase her muscle mass by one-pound while losing ten-pounds of fat. More importantly, Mary started feeling great with high energy and zero cravings.

**Pilar’s Story**

Pilar is a 54-year-old bank executive who was experiencing a lot of weight gain along with elevated blood pressure and sugar levels. Pilar weighed 154-pounds at 5’-3” and distributed most of her weight in her midsection. This is the ‘Stress Belly,’ because when the Stress Response is imbalanced the body stores fat around the middle. Pilar had a high stress position and constantly craved carbohydrates and needed a couple glasses of wine each night to wind down.

When I started working with Pilar, she had the belief that resistance training would stop her from losing weight and make her bulky. Pilar tested with a very low aerobic capacity with a 75-95 heart rate zone. Pilar started working with a trainer to do some weight training.

Pilar’s results were incredible! In three months, she lost over 30-pounds and took her body-fat levels down to 18% which is incredible for a postmenopausal woman. After experiencing such success however, Pilar started creeping back into old habits because she was experiencing “The Snap Back” into her comfort zone. That meant drinking wine on a nightly basis, and her exercise commitment started to waiver. First, she started cancelling her training sessions, reverting back to her belief that resistance training is bad. Secondly, she stopped monitoring her cardio and was pushing herself outside her zone.

We went over the Testing Periods in lesson one, and it was clear Pilar was failing the twelve-week test. Pilar was shocked when she started gaining weight back around the middle after all she was still following the diet albeit adding in a glass or two of wine, and she was still exercising by doing the cardio 5-6 days a week. The bottom-line was she had abandoned the Five Bio-Links and was NOT managing the Red Zone Stress Response. Fortunately, I did get her back on track and her body immediately responded.

**Takeaway Message:**

There is no magic to creating a healthy metabolism. It comes down to managing the Stress Response and living in the Green Zone.

The RE-Purpose of Exercise

**Forced (Red Zone) Energy Exercise**

I am asked at every lecture and event I participate the same question, “How can I lose weight?” My answer is consistently the same. “STOP trying to lose weight!” As with trying to force the body to change with restricted food consumption in order to lose weight, the same thing happens with exercise.

Studies show that despite good intentions, those who regularly exercise for two hours or more could be doing more harm to their bodies than good. A research study from Australian sports journal Alimentary Pharmacology and Therapeutics shows that intense physiological stress on the body can trigger Leaky Gut Syndrome – a condition in which the gut lining weakens, resulting in the passage of germs and toxins into the bloodstream. This causes increased inflammation in the body and chronic stress on the body.

It’s believed that the resultant leakage of toxic waste is a primary cause of Multiple Sclerosis (MS) and Chronic Fatigue, and it likely has a role to play in many other illnesses. With no immediate cure – though a gluten-free diet wouldn’t go amiss – those putting in the hours at the gym might be better off putting aside *some* time on the sofa. But it’s not just your gut that could suffer from overdoing exercise. There are a whole range of health risks associated with excessive exercise that the health and fitness industry would rather you didn’t know.

Trainers, exercise extremists, and chains of gyms claim to hold the key to a happier, healthier you, but they say you must bust you’re a\*\* in the gym with the battle cry, “No Pain No Gain.” This gets people to join and then the trainers kick the crap out them. I see this happening all over the world as I travel.

Exercise is stress, bottom-line. If you exercise to the point of no return, which means you will not recuperate from the exercise session, you are destroying your Biomarkers, health, and nervous system and stressing yourself out.

**A Risk of Overdoing Exercise -- Abnormal Heart Rhythms**

A long session on the treadmill can’t hurt, right? Wrong. Those who regularly engage in endurance sports are at risk of causing permanent structural changes to heart muscles which scientists describe as ‘cardio-toxic.’

Such changes are believed to predispose athletes to arrhythmia (abnormal heart rhythms), making them more prone to sudden cardiac death. For years, a handful of clean-living sports nuts have sat smug in the knowledge that tobacco, caffeine and recreational drugs are the main causes of an irregular heartbeat. But studies released by the European Heart Journal in 2013 suggest that - especially for those with a family history of irregular heartbeats - overdoing the fat-burning workout can also contribute to poor cardio health.

A study, which measured the heart rhythms of over 52,000 cross-country skiers during a ten-year period, found that the risk of arrhythmia is increased with every race completed, and was up to 30% higher for those who competed year-on-year for a period of five years. Exercise intensity also affected results: those who finished fastest were at higher risk for arrhythmia.

***The solution is to wear a heart monitor and exercise according to how your body handles stress. Use the below formula to calculate your heart rate. This formula is designed to adjust your training intensity to how your body has recuperated from the previous day. This is done by taking a morning heart rate check and then plugging in the following formula.***

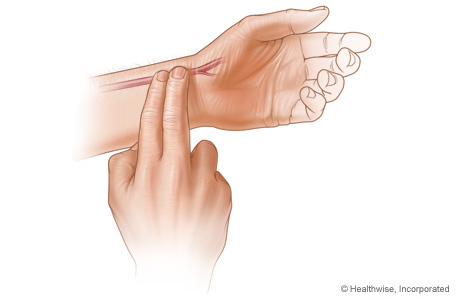
# Calculating Your Cardiovascular Exercise Zones

**Stress Mastery Heart Rate Calculator**

**Step One: Resting Heart Rate \_\_\_\_\_.**

Take your pulse first thing in the morning upon waking up. **(Do** **this for 3-5 days and get the average but it is actually better to do this daily as the heart rate will reflect the body’s stress state).** This is your **Resting Heart Rate** that you will use in the formula. By using the morning resting heart rate, you adjust the calculations toward your individual physiology. The body will respond with a higher resting heart rate if it is stressed, a lower heart rate if it is recuperated. By doing this on a daily basis you have a much more accurate regimen.

*The better in shape a person is, the lower the resting heart rate. I recommend that you recalculate your exercise zones each day you exercise. (If you decide to stay with a certain zone, then recalculate every 1-2 month as you get into better condition, as the zones will change.)*



**Check your pulse on the wrist**

You can easily check your pulse on the inside of your wrist, below your thumb.

* Gently place 2 fingers of your other hand on this artery.
* Do not use your thumb, because it has its own pulse that you may feel.

Count the beats for 30 seconds, and then double the result to get the number of beats per minute.

**Step Two: Maximum Allowable Heart Rate.** 220-Age=Max Heart Rate\_\_\_\_\_\_

**Step Three: Reserve Heart Rate.** Max Heart Rate – Resting Heart Rate = Reserve Heart Rate (This rate changes according to the morning resting heart rate.) \_\_\_\_\_\_

**Step Four: Fat Burning Heart Rate.** Resting Heart Rate + 0.5 x Reserve Heart Rate=Fat Burning Heart Rate \_\_\_\_

**Step Five: Aerobic Zone.** Resting Heart Rate + 0.70 x Reserve Heart Rate =

Aerobic Exercise Zone \_\_\_\_

**Step Six: Anaerobic Zone.** Resting Heart Rate + 0.85 x Reserve Heart Rate = Anaerobic Exercise Zone \_\_\_

**Example One:** 54-year-old with a resting morning pulse of 72

* Resting Heart Rate: 72
* Max Allowable Rate: 220-54=166
* Reserve Heart Rate: 166-72=94
* Fat Burning Rate: 72 + 0.5 x 94=119
* Aerobic Zone: 72 + 0.7 x 94=138
* Anaerobic Zone: 72 + 0.85 x 94=152

In the above example, the heart rate for aerobic exercise will be 119-138 to stay in-between the Fat Burning and Aerobic Zone. To maximize fat burning, you actually will need to stay toward the lower end of the Zone. If this person is going to do more advance exercise such as HIIT (High Intensity Interval Training) training, they would take the heart rate into the Anaerobic Zone above 138 but below 166 for a set period of time and then drop back down into the Aerobic Zone levels between 119-138 for a set period of time, repeating this process for required exercise time.

**Important:** Take a look below at what happens to the same person when the resting heart rate is lower. I see my heart rate increase at rest when I travel, and therefore I must adjust my exercise intensity to match my body’s stress response. So, if a person wakes and finds his Resting Heart Rate at 52 instead of 72, it changes all his exercise zones. To exercise in the Aerobic Zone, the heart rate would need to be between 109-131, keeping it in-between the Fat Burning and Aerobic Zone. If this person was going to do more advance exercise such as HIIT (High Intensity Interval Training) training they would take the heart rate into the Anaerobic Zone above 149 but below 166 for a set period of time, and then drop back down into the Aerobic Zone levels between 109-131 for a set period of time, repeating this process for required exercise time.

**Example Two:** 54-year-old with a resting morning pulse of 52

* Resting Heart Rate: 52
* Max Allowable Rate: 220-54=166
* Reserve Heart Rate: 166-52=114
* Fat Burning Rate: 52 + 0.5 x 114=109
* Aerobic Zone: 52 + 0.7 x 114=132
* Anaerobic Zone: 52 + 0.85 x 114=149

**Closer Look:** If you examine these two scenarios more closely, you can see how important it is to take the morning Heart Rate during exercise days. The Fat Burning HR in example one is 119, while in example two it is 109, ten points lower. The point is that exerciser one doesn’t have to exert as much effort as exerciser two to reach the Fat Burning Heart rate because they have a higher Resting Heart Rate.

Bothe exercisers have the same Max Heart Rate (166) but to hit the anaerobic zone, exerciser one has to push a HR-152, while exerciser two only has to push to HR-149. You see, exerciser two is pushing from a resting HR-52 compared to exerciser one with a resting HR-72, so exerciser one will not have to exert as much intensity. NOW, exerciser two’s body is able and going to have to train harder than exerciser one, because the heart is stronger.

Heart Rate Variability: Next Level Monitoring

Information is knowledge and I believe the more information and feedback we can get from our body, the better and precise the lifestyle program results will be. When it comes to tracking and getting real time feedback on our health, it is now easy to measure and track all kinds of information. The advancing technology allows us to easily check our weight, body composition, blood pressure, number of steps, calories, macronutrients, heart rate, quality of sleep, and blood sugar. Researchers and advance exercise enthusiasts have started to use an advanced marker to measure stress and the body’s recuperation. It is called heart rate variability (HRV).

We have been talking about stress and the stress response and how we measure this in the blood work. But what if we can actually measure whether we are in wellness or disease? Remember our definition of wellness is *‘The body’s ability to recuperate and repair each day.’* If we are repairing the Biomarkers of Health, we will maintain a strong muscle-to-fat ratio. Since we can measure stress of the body, this allows us to measure the health impact of a stressful day each and every day. HRV is the data that can be used to assess stress on a daily basis. The Stress Mastery Heart Rate Calculator is an attempt to achieve this assessment, but the next level of monitoring will change the game very soon.

**Understanding HRV and the Red and Green Zones**

HRV is simply a measure of the variation in time between each of your heartbeats. This variation is controlled by a primitive part of the nervous system called the autonomic nervous system (ANS). It works regardless of our desire and regulates, among other things, our heart rate, blood pressure, breathing, and digestion. The ANS is what makes up the Red and Green Zones. The ANS is subdivided into two large components, the sympathetic (Red Zone) and the parasympathetic (Green Zone) nervous system. Again, the Stress Response fight-or-flight mechanism is the Red Zone, and the Pause-Plan Response, relaxation response, is the mechanism of the Green Zone.

Your brain is constantly processing information in a region called the hypothalamus. The hypothalamus, through the ANS, sends signals to the rest of the body to either stimulate or relax different functions. It responds not only to a poor night of sleep, or that sour interaction with your boss, but also to the exciting news that you got engaged, or to that delicious healthy meal you had for lunch. Our body handles all kinds of stimuli and life goes on. However, if we have persistent instigators such as stress, poor sleep, unhealthy diet, dysfunctional relationships, isolation or solitude, and lack of exercise, this balance may be disrupted, and your fight-or-flight response Red Zone which can shift into overdrive and we get stuck in stress.

**Measuring the Stress Factor**

HRV is an interesting and noninvasive way to identify ANS imbalance of the Red and Green Zone. **If a person’s system is stuck in the Red Zone with more of a fight-or-flight mode, the variation between subsequent heartbeats is low. If one is in a more relaxed state and managing the stress response, the variation between beats is high.** In other words, the healthier the ANS the faster you are able to repair and recuperate. Over the past few decades, research has shown a relationship between low HRV and worsening depression or anxiety. A low HRV is even associated with an increased risk of death and cardiovascular disease. This makes sense as a low HRV is indicating that you are stuck in the Red Zone and the body’s wellness factors are completely shut down. We measured this when evaluating the patients in the medical clinics, and I was amazed how many patients were stuck in stress even though they were exercising. I soon realized that the exercise was increasing their stress levels.

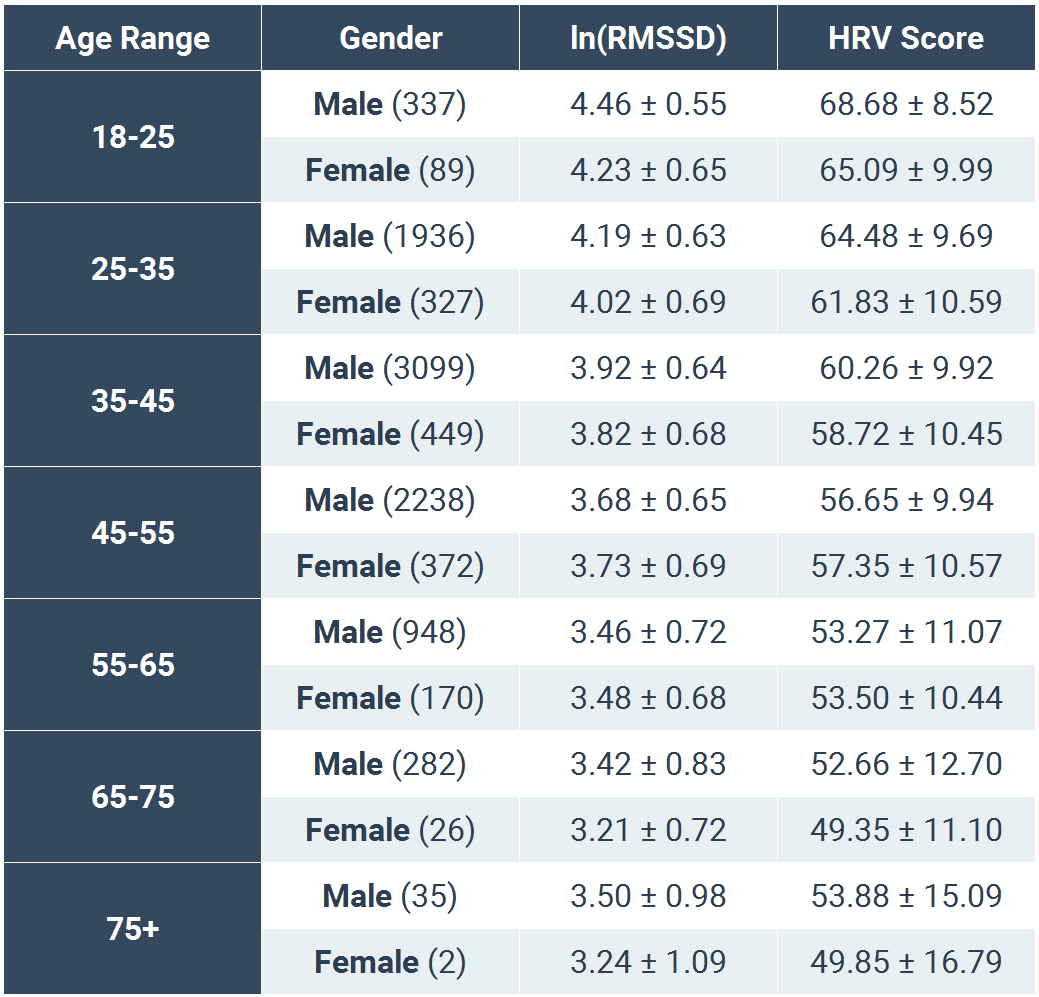
When tests showed a high HRV, the patient had greater cardiovascular fitness and was more resilient to stress as the lab work would confirm. HRV is a way to provide personal feedback about your lifestyle program and if your physiology is stuck in the Red Zone. Having this constant feedback allows you to adjust your programs to allow full Green Zone effect. It is fascinating to see how HRV changes as you incorporate more mindfulness and meditation to your lifestyle program. HRV monitors nervous system and you can see how it reacts as your move through stress mastery steps as the HRV is reacting not only to the environment, but also to your emotions, thoughts, and feelings, the programs you are releasing.

**Checking HRV**

The gold standard is to analyze a long strip of an electrocardiogram, the test we frequently do in the medical office where we attach wires to the chest. But over the past few years, several companies have launched apps and heart rate monitors that do something similar. The accuracy of these methods is still under scrutiny, but I feel the technology is improving substantially. *A word of caution is that there are no agencies regulating these devices, and they may not be as accurate as they claim.* The easiest and cheapest way to check HRV is to buy a chest strap heart monitor ([I use Polar)](https://www.polar.com/us-en?utm_source=google&utm_medium=ppc_the_turn_lab&utm_content=brand_name&utm_campaign=brand_sem_2019&gclid=EAIaIQobChMI5ICImeyT4gIVh5WzCh0PrAS8EAAYASAAEgLBQ_D_BwE) and download a free app ([Elite HRV is a good one)](https://elitehrv.com/) to analyze the data. The chest strap monitor tends to be more accurate than wrist or finger devices. Check your HRV in the mornings after you wake up, a few times a week, and track for changes as you incorporate healthier interventions. *Note: We are in the process of testing some amazing devices, but I am not ready to endorse until I get more results. Until then the Elite HRV seems the best to follow.*

**The Future**

HRV measurements help create more awareness of how you live and think, and how your behavior affects your nervous system and bodily functions. It does not matter how much stress you have it only matters if you are recuperating and in the Green Zone. In other words, it is not the outside environment that dictates Stress Mastery, it is the inside and HRV allows you to manage this with real biofeedback. Below is the average HRV scores.



Getting Started with Pause-Plan Exercise

**IMPORTANT:** Before starting any exercise program, get an ok from your doctor. I recommend starting slowly. In the beginning, the most important thing is consistency in order to begin the building of a habit. It is better to move ten-minutes a day at the same time than doing an hour and getting so sore that you quit.

When I started working in the medical field back in 1984, I was in full swing at becoming a competitive bodybuilder. I immersed myself in understanding every aspect of how our metabolism works. I realized because of my genetics that for me, in order to compete in a sport like bodybuilding, I would have to do things much more scientifically. I have carried this attitude throughout my entire career. In the original “Stress Response Diet” book, I gave rather simple exercise formulas. In the clinics, we did full metabolic testing to determine your exercise type, and in the near future, I will have more testing to dial in the exercise. For now, the Stress Mastery Wellness Survey and/or Blood work gives us a good idea if you are a Scout or Protector. Use the Stress Mastery Calculator and follow the guidelines below.

In the Pause-Plan Exercise Program, there are three levels of exercise – beginners, intermediates and advanced. Wearing a heart monitor is very important if you are to master the stress response. (Polar, Garmin, Wahoo). The monitors that do not use a chest strap are many times inaccurate.

Each of these below levels are built into the exercise recommendations. Here is a brief outline.

* **Beginner Level One**: I recommend anyone who is just starting out exercising or who has been ill, stressed out, and away from being active more than 30-days, to begin in level one. At this stage, it is more important to focus on consistency to create the exercise habit rather than duration. Better to consistently exercise at the same time each day for a short 10-15-minutes than pushing hard at this level.
* **Intermediate Level Two:** It’s my belief that you can remain in this level for a lifetime, especially if you are 50-years or older. Intermediate Level is for those who have exercised 6-months to one-year, 3-4 times a week. It’s in my experience that people will start an exercise program and have great success, but in their hurry to increase the intensity, they actually stress their body out and sabotage their efforts. I know it sounds like a broken record, but if you exercise too hard for your physiology you will put your body into the Red Zone.
* **Advanced Level Three:** In level three you will have trained for more than one-year at least 3-4 times per week. If you are looking for health, longevity and overall wellness, you do not have to push the body to advanced training. The goal is to master stress and take back your health. Please don't be in a hurry to jump into an advanced routine. The exception to this is if you actually did a Metabolic Cart test and have information indicating that you can push your body into an advanced category of training.

**Heart Rate:** It’s essential to understand that exercise is a tool to manage the Stress Response. The purpose of the Pause-Plan Exercise program is to aid you in living a life in the Green Zone, increasing the strength of the Biomarkers, thus increasing oxygen in the body. Exercise is stress, so it’s not about burning calories, but rather it’s about putting our nervous system into the Green Zone.

# Aerobic-Cardio Routine

# Protector

**Beginner Level One: Protector Duration 15-60-minutes daily**

The Protector metabolism does better with lower intensity cardio. Make sure you measure your resting heart rate in the morning, and then use the Stress Mastery exercise formula. *As an example of the zones, we will use the 54-year-old person form an example earlier.*

**Level One will use from the calculation Reserve Heart Rate and the Fat Burning Heart Rate to create the exercise zone.**

Reserve Heart Rate 94

Fat Burning Rate 119

This person would exercise between the heart rate of 94-119.

**Intermediate Level Two: Protector Duration 30-60-minutes daily**

**Level Two will use the calculation Fat Burning Heart Rate and the Aerobic Zone Heart Rate to create their exercise zone.**

Fat Burning Heart Rate 119

Aerobic Zone Heart Rate 138

This person would exercise between the heart rate of 119-138

**Advance Level Three: Protector Duration determined by recuperation. At least 4-6-days of an hour or more.**

**Level Three you must be careful not to over train or it will shut down the Green Zone. I recommend once you hit this level, to participate in interval training.** Interval training is when you alternate your intensity of exercise between two different heart rate zones for a designated period of time. I strongly recommend that you use the morning heart rate on workout days to determine your numbers.

**Level Three will use the calculation from their Anaerobic Heart Rate zone and their Fat Burning Heart Rate and Aerobic Zone Heart Rate.**

*For 2 minutes, push the heart rate above the Anaerobic Heart Rate Zone*

*Then drop the heart rate to fall between Fat Burning Heart Rate and the Aerobic Zone Heart Rate for 3 minutes. Continue this pattern until you finish your cardio session.*

**From example:**

Anaerobic Heart Rate 152 (2 minutes)

Fat Burning Heart Rate/Aerobic Zone Heart Rate 119-138 (3 minutes)

# Scout

**Beginner Level One: Scout Duration 30-60-minutes 4-6 days a week.**

The Scout metabolism thrives from higher intensity exercise. The Level One Scout should still be careful not to stress their body out I recommend that the Level One Scout maintains a steady zone but a higher zone than a beginner Protector.

**Level One will use the calculation Fat Burning Heart Rate and Aerobic Zone Heart Rate to create the exercise zone.** Again using the earlier sample.

Fat Burning Heart Rate 119

Aerobic Zone Heart Rate 138

This person would exercise between the heart rate of 119-138

**Intermediate Level Two: Scout Duration 60-minutes or more 4-6 days a week**

**I recommend once you hit this level to participate in interval training.** Interval training is when you alternate your intensity of exercise between two different heart rate zones for a designated period of time.

**Level Two Scout will use the calculation from their Anaerobic Heart Rate Zone and their Fat Burning Heart Rate and Aerobic Zone Heart Rate.**

**For 2 minutes push the heart rate above the Anaerobic Heart Rate Zone**

**Then drop the heart rate to fall between Fat Burning Heart Rate and the Aerobic Zone Heart Rate for 3 minutes. Continue this pattern until you finish your cardio session.**

Anaerobic Heart Rate 152 (2 minutes)

Fat Burning Heart Rate/Aerobic Zone Heart Rate 119-138 (3 minutes)

**Advance Level Three: Scout Duration determined by how you feel and feedback on Heart Rate.** The advance Scout knows how to run and train and most likely doing some form of competition.

**Level Three Scout will use the calculation from their Max Allowable Heart Rate Zone and their Aerobic Zone Heart Rate and Anaerobic Zone Heart Rate.**

**For 2 minutes push the heart rate above the Max Allowable Heart Rate Zone**

**Then drop the heart rate to fall between Aerobic Zone Heart Rate and the Anaerobic Zone Heart Rate for 3 minutes. Continue this pattern until you finish your cardio session.**

Maximum Allowable Heart Rate 166 (2 minutes)

Aerobic Heart Rate/Anaerobic Heart Rate 138-152 (3 minutes)

**Note: Advance Scout cardiovascular training should consult the expert in the area they wish to excel. I recommend** [**runners world as a resource.**](https://www.runnersworld.com/)

# Closing: Forms of Aerobic Training

Running has always been known as the more traditional form of aerobic training available for us. That being said, as we have outlined, not everyone fares well with simply running, especially at a high intensity. Protectors consistently show improvement in their metabolic balance by simply walking. Scouts on the other hand can continue their walking routines but only receive subpar results. They are different physiologies with different set of needs. **The single most important thing to keep in mind is to wear a heart monitor.** When you monitor your heart rate you take the guesswork out of your exercise session. You can also see when you are improving, as the resting heart rate will be lower and you have to exercise harder to hit you exercise zones.

The right kind of aerobic exercise really comes down to what you like. There is no wrong or right aerobic exercise. There is only your heart rate zone. You cannot over train if you are following your correct zone.

**Duration**

We must be honest that we are a society that doesn’t move enough. Our bodies are wired to move not sit. The Pause-Plan Exercise program is all about becoming active and taking back our health. I would like to see each of us doing something every day aerobically. The world has become very sedentary and we need to counteract that by moving. If you can do 50-60 minutes a day in your training zone, it will change your life. But, it’s better to do 10 minutes three times a day then 60 minutes three times a week. We must get moving! The key is consistency when starting out.

**Resistance Training**

Aerobic exercise is a great stress management tool, as it can pull us from the Red Zone to the Green Zone in just a few minutes. But if we are looking to master stress and ensure our health as we age, we must hit the weights and engage in resistance training.

If you’re looking to add strength or resistance training to your routine, you have a lot of options. You definitely don’t need a gym membership or expensive weight machines. Squatting on a chair at home, push-ups, planks, or other movements that require you to use your own body weight as resistance can be very effective. If you have any health issues, ask your doctor what type of strength training is best to meet your needs and abilities. You can also work with a fitness expert to design a strength-training program that will be safe and effective for you.

**Adding Strength Training**

Over the years, I have worked with all ages and all medical conditions. I have found weight training to be one of the fastest ways a person can get their health back. When people suffer from an injury or pain, they are told to avoid exercise. This may be true in the early days of an injury, but what about someone with a chronic problem? When I had my back surgery, I was told to never life weights again. I had just had my spine fused at L-4, L-5, S-1, and was told to never lift anything over 10 pounds and never lift anything over my head. This advice made no sense to me as I reasoned, how could I get better if I didn’t work the body? I didn’t listen and went back to training and would win many bodybuilding and powerlifting shows post-surgery.

Back then I didn’t know why weight training was the answer to healing the body. It would be several years before meeting Dr. Evans and learning about the Biomarkers, and several more years before I understood how the healing process of the body functioned. But, I did know that doing nothing was not going to change my situation. That surgery was 1985, and to this day I am still squatting well over 300 pounds, and at 57-years-old I have no back issues.

Muscle is the absolute key marker for our health, metabolism, and healthy aging. We cannot build muscle through aerobic exercise. We cannot build muscle through light weights and lots of repetitions. We cannot build muscle by being afraid of hurting ourselves. It is kind of ridiculous if you think about it. You are in pain, so don’t exercise because you might get hurt. Unfortunately, you will find most fitness experts talking about core training with gentle, low-impact exercise.

My training philosophy had always been, "Train smarter, not harder," but I had to take this concept to a whole new level after my surgery. I had a lot of ego that needed to be checked. First, I had to focus on repairing my body. There is still a prevalent mindset of thinking that you don’t get anywhere if you’re not horrendously sore or depleted by the end of a workout. Secondly, I had to slow my training and not be focused on the amount of weight. Rather, I had to focus on the muscle itself with mindful exercise. Thirdly, I had to drop my repetitions from 10-15 to a 4-8 rep range. I found that the heavier training (dictated by reps not weight) changed my body drastically especially as I got older. It is short duration of intense exercise that stimulated my immune system to become stronger, increased my muscle to fat-ratio, allowing my muscle to support my fused spine, protecting it. I believe that with the proper diet and exercise, we can get in the best shape of our lives as we age. The key is consistency and awareness.

Resistance Tips

**1. Be consistent and flexible**

The greatest key to success in fitness is to be consistent with how much physical activity you’re getting every single day. Whether it be a long walk, yoga, or strength training, it’s important that you’re moving your body and breaking a little sweat each day to engage your sympathetic nervous system. Yes, engaging the Red Zone is what resistance training is about, and done right, this works to decrease inflammation. Inflammation is the ruler of all disease. Moderate to high intensity exercise is proven to [stimulate your immune system](https://www.sciencedirect.com/science/article/pii/S0889159116305645?via%3Dihub) to produce an anti-inflammatory cellular response. Consistent exercise will also help manage [insulin resistance](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2551669/) (especially for those with Insulin resistance, PCOS and diabetes) and [sleep quality,](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4341978/) leading to improved systematic recovery, decreased inflammation, and stress mastery putting the body into the Green Zone.

**2. Warm up and cool down properly**

This is one of the simplest and most effective alterations you can make to your workout, yet it's one of the most underutilized. When it comes to warming up, think of your body as a car during the wintertime—you turn on the engine and let it warm up for a few minutes before you take it for a drive. It’s important to do the same with your body; warming up helps increase your heart rate, core body temperature, and blood flow along with engaging your neuromuscular and nervous systems to be able to execute movements more safely and effectively.

This is especially important for those of us with hormonal issues, as inflammation and fatigue can make you extra prone to injury. When your thyroid hormones (T3 and T4) are sluggish, you’re at a [higher risk for soft tissue injuries](https://www.ncbi.nlm.nih.gov/pubmed/25489544) (think tendinitis, sprains, strains). For those with certain autoimmune diseases like Hashimoto’s, your body temperature can also run a bit lower, making it difficult to break a proper sweat, which is important for your body’s natural detoxification processes in your liver.

When it comes to cooling down, you want to be triggering your parasympathetic nervous system (Green Zone) to jump-start post workout recovery. The effectiveness of your workout can be helped by proper recovery, and by stretching properly, self-myofascial release (most commonly done through foam rolling), slowing things down. By engaging in a proper cool-down, you’re also able to decrease your cortisol levels that were spiked (in a good way) during your workout.

I always do one-hour of aerobic exercise in my fat-burning/aerobic zone (Protector Intermediate Level) right after I finish my weight training. By doing this I put my nervous system in the Green Zone and build up oxygen and this allows me to recuperate much faster. The recuperation is the key to optimal health and exercise.

**3. Be mindful of duration and intensity**

Training is absolutely amazing for the body, but it is also Stress. And even though exercise is a good kind of stress, it still triggers spikes in cortisol and stokes your sympathetic nervous system. This is why many people who suffer from a stressful disease such as autoimmune disease, and those with hormonal issues such as PCOS, endometriosis, adrenal fatigue, and thyroid issues will find success when they shorten the duration and volume of their workouts and focus on lower-impact exercises. If you are stressed, keep your workouts anywhere from 20 to 40 minutes rather than dragging it out for an hour. Focus on the intensity of your exercises rather than volume (think heavier weights or increased difficulty rather than a million reps), and lower impact on your joints and ligaments (running and plyometrics are higher impact in this regard). Note: My training session averages 45-minutes followed by easy cardio.

**4. Progress steadily**

Start simple, easy and slow with working out. This is especially true if you are looking to reverse health issues, since starting slow will allow the body to reset. Practicing patience by progressing slowly isn’t easy, especially when you are motivated, but it's of utmost importance to respect where your body is currently at, which will better allow you to progress to where you want to be. If you push yourself too hard and strain yourself, it can absolutely trigger the Red Zone, and if you have certain conditions, exercise can cause a flare-up, which just sets you back. So, take it slow and steady, and you’ll be rewarded in the long run.

**5. Listen to your body**

Look out for signs of fatigue, slow recovery from a workout like extended soreness and no energy, lightheadedness, difficulty sleeping, feeling wired but not energetic, and joint aches. **The best way to listen to your body is to monitor it.** You’ll know when you’ve pushed too hard by consistently tuning into your body. At first during the Pause-Plan Resets, you may have to stick to more restorative and lower-intensity exercises like walking, gentler yoga, and bodyweight training. No matter where you are at, focus on being consistent with exercising regularly as well as proper nutrition, and your body will honor you by repairing over time. The best regimen tends to be three days per week of higher-intensity strength training and then two or three days of yoga, with walking, stretching or light yoga mixed in daily.

**6. Prioritize recovery**

AGAIN, Proper recovery is nonnegotiable to achieve health and stress mastery. Proper exercise sleep, nutrition, and supporting your body’s natural detoxification systems are all key. The better you are with your recovery, the more you will be able to push yourself during exercise, and vice versa. So, if you're going through a particularly stressful time in your life and not sleeping very much, you may need to take your foot off the gas pedal until you are able to find balance (Check that AM Heart Rate). If you are getting seven to eight hours per night, nailing it with your nutrition, your body will allow you to go for more intense, strenuous exercise.

Warm-up/Cool Down Exercises

Here are six simple lower back and hip stretches to increase your flexibility. This routine should be done every day for 10 minutes as a part of your Green Focus Power Hour. Take it easy and use this time to connect your mind and your body.

**Knee to Chest**

|  |  |
| --- | --- |
| Use this stretch to align pelvis and stretch lower back and rear end muscles. Lie flat on your back with toes pointed to the sky. Slowly bend your right knee and pull your leg up to your chest. Wrap your arms around your thigh, knee or shin, and gently pull the knee towards your chest. Hold for 20 seconds and slowly extend the leg to starting position. Repeat three times each leg. |  |

**Lying Knee Twist**

|  |  |
| --- | --- |
| Use this movement to stretch the Para-spinal muscles and strengthen the abdominal muscles. Lie on your back with your legs extended straight out. Bend the right knee up and cross it over the left side of your body. Hold in a position that allows you to feel a gentle stretch through the back and buttocks muscles for 20 seconds. Tighten your core muscles and rotate back to center. Repeat three times on each side. |  |

**Yoga Cat/Cow**

|  |  |
| --- | --- |
| Start this more by kneeling on all fours with your hands beneath your shoulders and your knees directly below your hips. Exhale and gently arch your spine. Inhale, then tighten your core muscles and round your back, like a cat. Move slowly between movements and hold in each position for 5-10 seconds. Repeat 10 times. |  |

**Piriformis Seated Stretch**

|  |  |
| --- | --- |
| This stretch is designed to help lengthen the piriformis muscle over time. This muscle is often the source of sciatica or radiating leg pain. Sitting with a straight back, cross your left leg over your right leg placing your foot next to your thigh and tuck your right leg in towards your buttocks. Place your right arm on your leg as pictured and slowly ease into a stretch. Be sure to keep your back straight and chest lifted. Hold for 20 seconds and alternative sides, three times. |  |

**Cobra Stretch**

|  |  |
| --- | --- |
| This movement is helpful to stretch tight abdominal muscles and the lower back. Start by lying on your stomach with your legs extended and with palms planted on either side of your head with your forearms and elbows flat on the ground. Slowly, push your body upwards so your weight is resting on your forearms. Be sure to keep your hips on the ground. Once you reach a comfortable position that gently stretches your abdominal muscles and lower back, hold for 10 seconds. Slowly return to starting position and repeat five times. If you have more flexibility in your lower back, try straightening your arms. |  |

**Restful Pose**

|  |  |
| --- | --- |
| A common pose in yoga, the restful child’s pose can help you relax your body. Position yourself on the floor on hands and knees with your knees just wider than hip distance apart. Turn your toes in to touch and push your hips backwards bending your knees. Once you reach a comfortable seated position, extend your arms forward fully and allow your head to fall forward into a relaxation position. Hold this pose for 20 seconds and slowly return to starting position. Repeat three times. For modification if you have shoulder pain, place your arms on either side of your body, extending towards your feet. |  |

**Simple Resistance Start**

This routine can be done 3-5 times a week for 10 minutes as a part of your Green Focus Power Hour. Take it easy and use this time to connect your mind and your body.

**Prisoner Squat**

* Prisoner squats are good for beginners—the hand position above your head forces a tall chest and teaches you good thoracic extension. Complete 20 squats. Total of 3 sets.



**Bodyweight Lunge**

* Lunges are great for the lower body—like glutes and calves—and they can help correct imbalances. Complete 15 lunges each leg. Total of 3 sets.



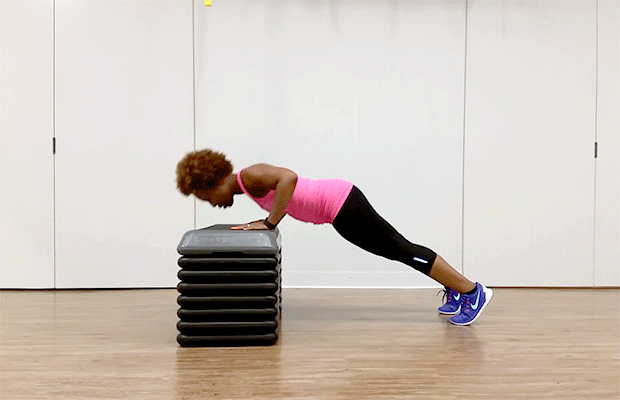
**Plank**

* Planks are key in developing core strength—they work the abs, lower back, and engage the quadriceps and glutes. Hold for 30 seconds. Rest for 30 seconds. Total of 3 sets.



**Incline Push-Up**

* Start by placing your hands shoulder-width apart on the box or elevated surface. Engage your core so your body forms a straight line from head to toe, keeping your legs together. Your arms should be straight but not locked. Complete as many as you can for 1 minute. Increase the reps and you increase your resistance strength.



**Advance Resistance**

**Weekly workout routine:** Version 1.0

**Current resistance training schedule:** Five days a week. Two rest days.

**Cardio training schedule:** Three days a week. (more is optional but not required)

**Day 1: CHEST**

* Flat bench press (barbell press)
  + Rep range: 6-8 reps
  + 5 sets
* Decline bench press (barbell press)
  + Rep range: 6-8 reps
  + 5 sets
* Incline dumbbell press
  + Rep range: 8-10
  + 5 sets
* Flat bench dumbbell fly’s
  + Rep range 6-8
  + 5 sets
* Heart rate monitored cardio
  + 30 minutes to 1 hour of cardio
  + keep heart rate 115-130 bpm

**Day 2: BACK**

* Wide grip pull-ups
  + 30 pulls all together.
  + (do as many as possible each time until you hit 30 \*\*can be assisted\*\*)
* Lat pull downs
  + Rep range: 8-10
  + 5 sets
* Bent over dumbbell rows
  + Rep range: 6-8 (heavier workout)
  + 5 sets
* Deadlift
  + Rep range: 4-6 (heavier workout)
  + 5 sets

**Day 3: REST**

**Day 4: Shoulders**

* Front lateral raises
  + Rep range: 8-10
  + 5 sets
* Side lateral raises
  + Rep range: 8-10
  + 5 sets
* Rear delt fly’s
  + Rep range: 8-10
  + 5 sets
* Military press
  + Rep range 6-8
  + 5 sets
* Heart rate monitored cardio
  + 30 minutes to 1 hour of cardio
  + keep heart rate 115-130 bpm

**Day 5: REST**

**Day 6: Legs**

* Back squats (normal squats)
  + Rep range: 6-8
  + 5 sets
* Dumbbell weighted lunges
  + 10 lunges each leg (20 total = one set)
  + 3 sets
* Dumbbell weighted calf raises (hold the weights and do calf raises)
  + Rep range: 15-20
  + 5 sets
* Stiff leg deadlifts
  + Rep range: 6-8
  + 5 sets
* Heart rate monitored cardio
  + 30 minutes to 1 hour of cardio
  + keep heart rate 115-130 bpm

**Day 7: ARMS**

* Dumbbell bicep curls
  + Rep range: 8-10
  + 5 sets
* Hammer curls
  + Rep Range: 8-10
  + 5 sets
* Dips (off the side of the bench)
  + 30 total (do as many as possible each time)
* Skull crushers
  + Rep range: 8-10
  + 5 sets
* Bent over triceps extension
  + Rep range: 8-10
  + 5 sets
* Heart rate monitored cardio
  + 30 minutes to 1 hour of cardio
  + keep heart rate 115-130 bpm