



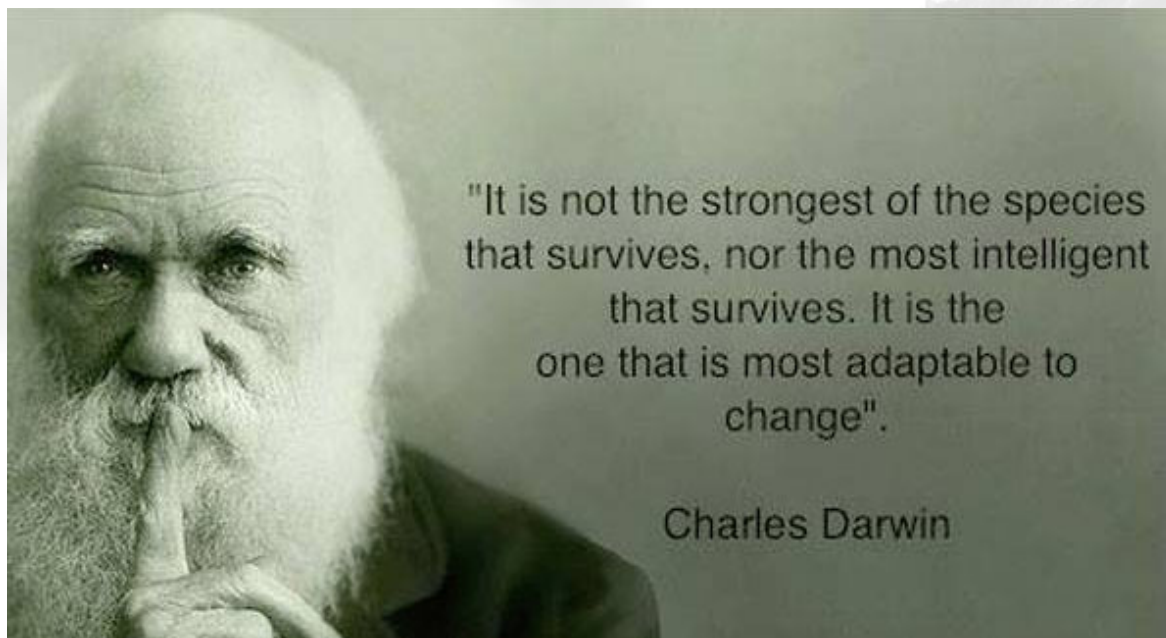
IN2GREAT
FITNESS & WELLNESS

STRESS LESS



Stress Less

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"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change".

Charles Darwin

Today many people are chronically stressed. It's estimated we have 100x more stress than our grandparents' generation due to the excessive amount of lifestyle, physical and mental / emotional stress today. We are simply not designed to deal with chronic low grade stress. Chronic stress can create multiple imbalances in the body, causing disease and widespread destruction.

Stress is by far one of the biggest threats to our health. Intense and acute stressors like death, relationship breakdown, moving house, starting a business, deadlines, or getting married, are acutely stressful times in our life, but many of us bounce back easily once the intensity of the stress dissipates. The more insidious stress that many people fail to consider, is the chronic low grade stress we encounter EVERY SINGLE DAY!

Chronic stress is a menacing and corrosive condition

Each day we are subject to many low grade stressors that our bodies must counter. The quality of our food, dehydration, pollution, lack of or too much movement, artificial lights, environmental toxins, career, family and social stress all add up. On their own many of these stressors might not pose a significant threat to our system, but compounded with other factors, day in and day out, damage can accumulate. Each small stress hit, is one that our body must counter. If the catabolic rate of stress and break down is higher than the anabolic rate of repair and metabolic reserve, then we will start to experience a negative shift in our health, towards a path of disease.

Enduring stress can be hard to notice as our health slowly slides along the spectrum from wellness to disease. As we shift further away from wellness, it's still widely accepted that not feeling as good as we used to, is merely a process of aging. But just as we cannot become obese overnight, nor can we suddenly age overnight or get cancer or diabetes. It's a process, and in order for disease to manifest, there have already been many insults to health along the way, that disrupted bodily functions.

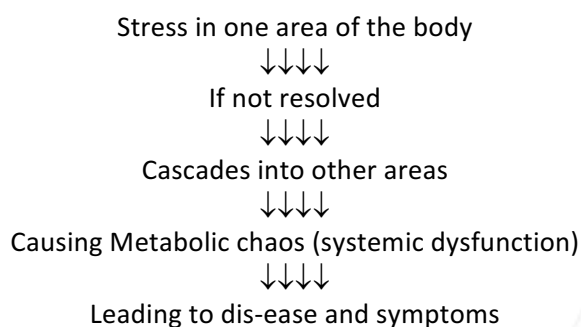
Each insult to our health is like a tiny scratch on our skin. Each individual scratch is no major threat, but repeated scratches, over time with destroy the integrity of the skin, and start to cut us more deeply. As the attacks keep coming, and the wounds don't heal, the scales tip, and we begin to lose the healing battle.

The rate of repair must be greater than the rate of stress breakdown, or else it's a losing battle

Vital Reserve

Our vital reserve is limited like a bank savings account. Stress is experienced differently in each of us. How stress affects us, is dependent on our unique vital reserve. Think of vital reserve, or resilience as our ability to bounce back or adapt after insult. If we are constantly borrowing or withdrawing from our reserve, we can quickly end up in debt. But if we are making sure we practice habits or behaviours that help replenish our reserve, we can better accommodate the stress. The rate of repair and repletion must be greater than the rate of damage, or else we are in the process of breaking down.

The Stress Cascade



The Damage

- Stress impairs adult neurogenesis (the birth of new brain cells)
- The Hippocampus (responsible for memory and emotion) has been shown to shrink as cortisol rises, and alterations in both structure and function have been identified in long term stress.
- *'Chronic exposure to glucocorticoids (both synthetic and endogenous steroid hormones) can result in anxiety, depression, and other mental health issues.'* – The neuroscience academy
- Stress decreases production of leptin (the satiety hormone), while increasing production of ghrelin (the hunger hormone), as well as increasing insulin resistance, priming us to overeat and store fat.
- Stress blocks the production of serotonin which can cause carb cravings, an inability to calm down, and sleep.
- Stress disrupts the sleep wake cycle and decreases the sleep hormone melatonin.
- Stress breaks down the body by producing excess catabolic hormones, and depleting anabolic hormones.
- Stress dehydrates connective tissue priming us for injury

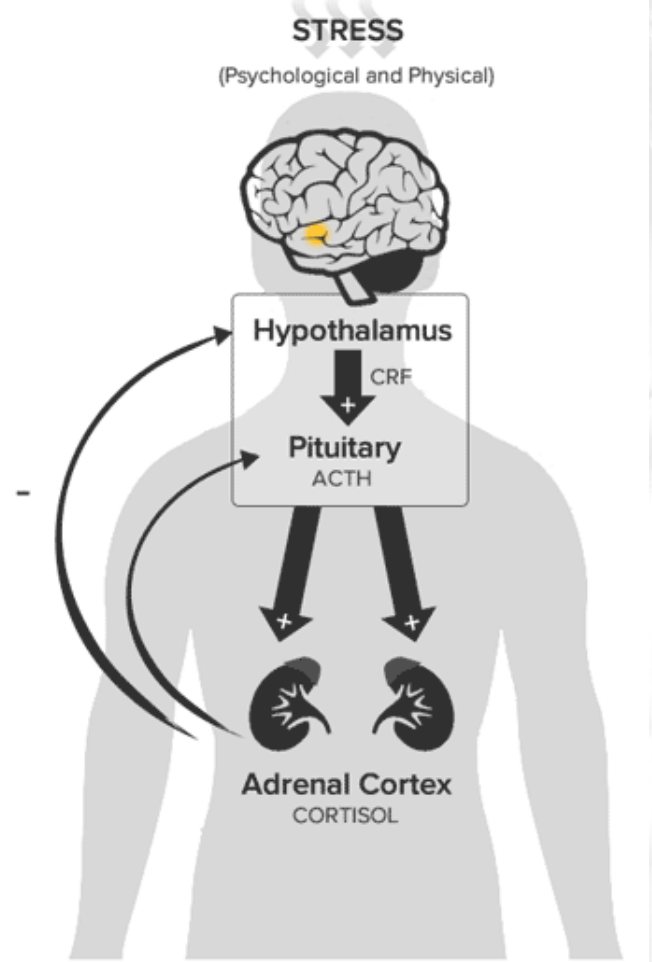
Stressed out people are told to calm down and meditate, but this is incredibly hard to do when your fundamental physiology is screaming for help. The only way to deal with stress is to get to the bottom of why you are stressed.

The Stress Response

The stress response is primarily governed by the hypothalamic pituitary adrenal (HPA) axis. Stress activates the HPA axis, and sets off a cascade of neuroendocrine signals that ultimately lead to the release of hormones and neurotransmitters like cortisol, noradrenaline, and adrenaline. Our bodies have an evolutionary survival mechanism in place to deal with stress. As dangers or threats are perceived, a distress signal is sent to the brain to “fight or flight.”

In response to stress, the sympathetic nervous system signals the hypothalamus and the adrenal medulla. The adrenal medulla releases adrenalin into the blood stream, which stimulates the hypothalamus to release corticotrophic hormone CRH. CRH stimulates the pituitary to release adrenocorticotrophic hormone, which stimulates the adrenal cortex to release cortisol which raises blood sugar and is anti inflammatory.

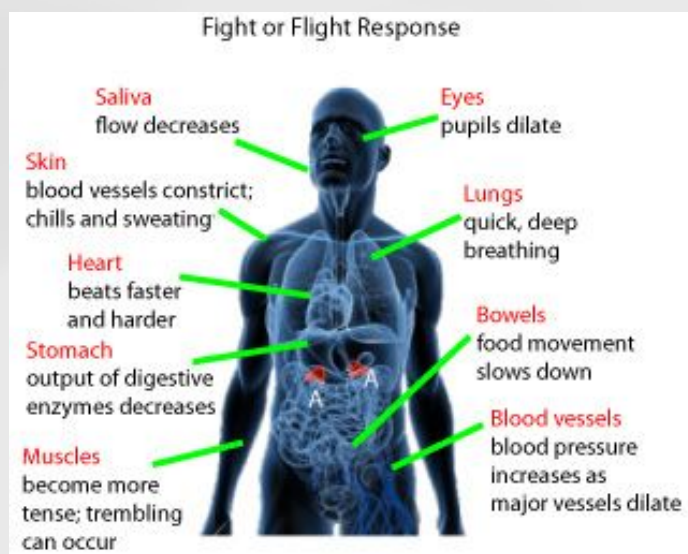
In moments of acute of stress we can feel increased breathing and heart rate, perspiration, adrenalin, butterflies etc. Acute stress is an obvious feeling and an intense hit of adrenalin. It can help us cope with the stressor like in the case of running from a threat, avoiding a car accident, or public speaking! The stress response is designed to help us have a surge of energy, accompanied by a reduction of pain, digestion, sexual function, etc. After the stress has passed, it takes some time for our body to calm down and can sometimes leave us feeling shaky, nauseous or exhausted.



The stress response is protective short term, but damaging in the long term.

Let's say you're a hunter-gatherer confronted by a lion. In this case it's a good thing that your heart rate, blood sugar, and blood pressure increase. These changes are adaptive; they are designed to help you survive that threat by either fighting or fleeing the lion.

But what happens when this same stress response is almost continually activated as it is in the modern world? Getting stuck in traffic, working two jobs, eating an inflammatory diet, not sleeping enough, and using electronic media at night aren't dire threats like getting chased by a lion, but our stress response system reacts to them as if they were. These chronic low grade stresses are corrosive and accumulative, and they contribute to chronic conditions like diabetes and heart disease and a shorter lifespan.



Imagine your normal body functions running smoothly. When stress kicks in, it's like suddenly everything stops, until the emergency has cleared. When this stress response is ignited day in and day out (as it is with many of us) normal body functions like digestion, healing or repair are decreased. The synergistic effect of multiple low grade stressors depletes vital reserve.

HPA Axis Dysregulation

As stress moves from acute stress to chronic, the sensitivity of the Hypothalamus Pituitary Adrenal axis (HPA-axis) becomes diminished. Our body has many intelligent feedback loops that help us control the delicate balance of hormones, enzymes, blood sugar etc. Just as we can become insulin resistant with continued high blood sugar levels, the HPA- axis feedback loop can become less sensitive to sustained high levels or stress hormone cortisol.

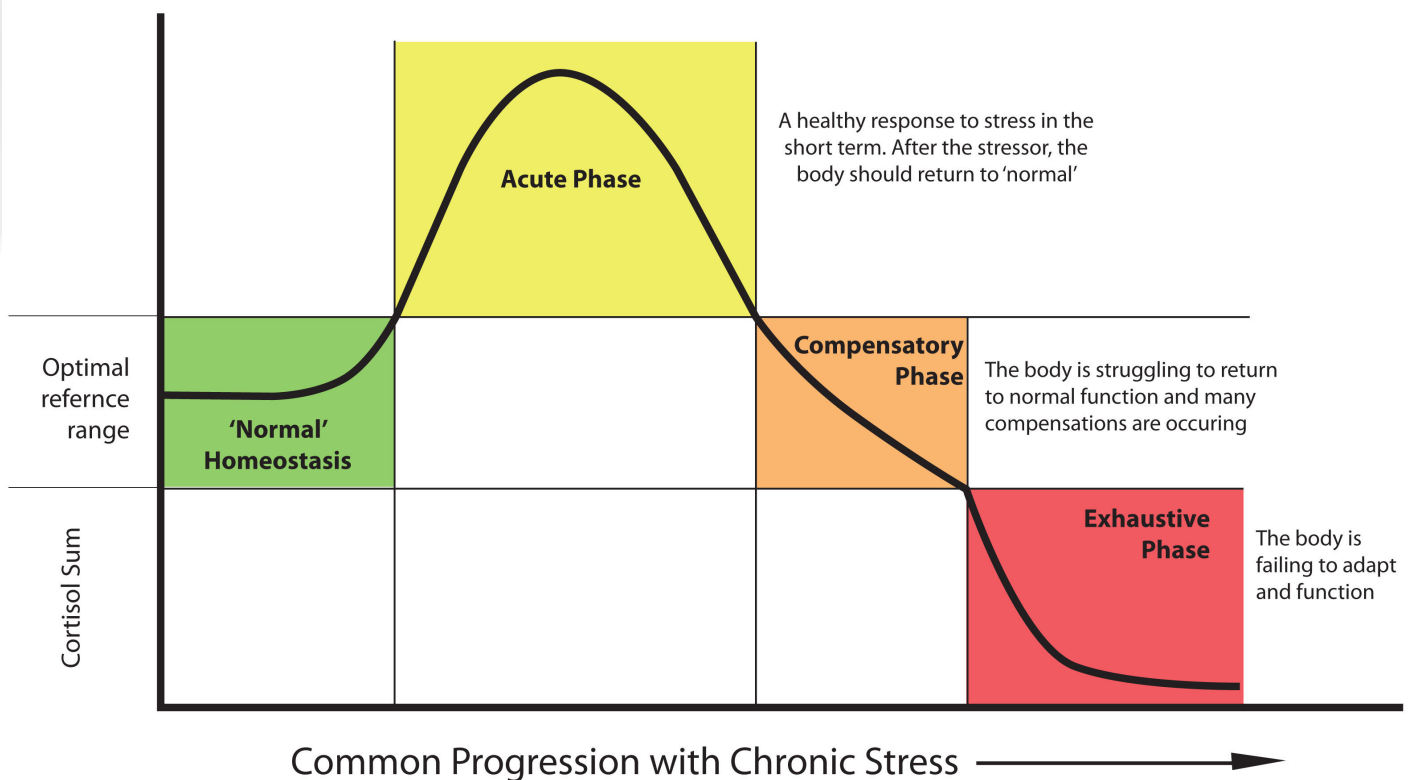
As the feedback loop becomes damaged, any part of the system can become faulty, and our body may not get the message that levels are high/low. In the case of disruption to the stress response, and a departure from health homeostasis, there are 3 main phases of HPA axis dysregulation: Acute, Compensatory and Exhaustive. Each phase is dictated by the total sum of cortisol output

HPA axis dysregulation (HPA-D) is the scientific term for the syndrome formally known as “adrenal fatigue.” It refers to a constellation of signs and symptoms caused by many different aspects of the modern lifestyle, like poor diet, sleep deprivation, chronic stress, over training, sedentary lifestyles, and inflammation. HPA-D affects nearly every cell and tissue in the body and it must be addressed in virtually all cases of chronic illness for healing to occur.

HPA Axis Dysregulation Symptoms:

- Morning exhaustion, even after a good night's sleep
- Energy crash after lunch or late in the afternoon
- Difficulty gaining muscle & poor athletic performance
- Postural hypotension (getting dizzy when you stand up)
- Need for coffee or other stimulants to get going
- Tendency to feel better just after eating
- Reduced immunity and constant sickness
- Skin rashes and breakouts
- Decreased stress tolerance
- Low body temperature
- Hypothyroidism
- Poor recovery
- Salt cravings
- “Second wind” late at night
- Insomnia
- Low sex drive
- Sex hormone imbalance
- Poor memory
- Extra abdominal fat

Progression of HPA Axis Dysfunction & Cortisol Dysregulation



Acute Phase

This is a healthy response to stress, and it helps us overcome the stressor. We may still feel fine in this phase because we have high amounts of cortisol to increase energy, reduce pain, keep their blood sugar elevated, and so we often feel we can handle or do it all. As we stay in this phase longer, we still may feel ok, but are aware our health is shifting. Blood sugar issues, sleeping problems, weight gain, fluid retention or feeling wired and tired is common in this phase.

Compensatory Phase

The compensatory phase of HPA-axis dysregulation is noted as having a cortisol sum that is within the reference range. Because reference range is regarded as 'normal' a clients results could be deemed as ok. However based on clinical correlation with the client, we know that they probably are not experiencing optimal health, and in fact may be further along the spectrum of dysfunction. The client may remember feeling better (earlier in the acute phase), or having a big stressful event, but further down the path they no longer feel so good.

Exhaustive Phase

The exhaustive phase is dictated by a daily cortisol output that is below the optimal reference range and correlates with a client feeling exhausted, and often suffering multiple symptoms. In this phase the client is really losing their ability to respond to stress, and is really struggling. Symptoms are the last thing to occur in the disease process, and once they appear, we are already headed towards a disease state.

As symptoms manifest, multiple body systems become involved in the process because no one symptom, is the result of any one malfunction. The human body is an interdependent unit, function and wellness is a factor of how well the system as a whole can operate. If for example the gut starts to become compromised with pathogenic bacteria, then we may start to increase systemic inflammation through the body, or have toxic spill over that burdens the liver, or we may lose the ability to create neurotransmitters efficiently which will impact the brain - it's all connected.

It takes us a long time to deviate away from wellness and take notice of the bodies cries for help, and thus we must appreciate it may take awhile to get back towards optimal health.

How Serious Is Your Stress

Symptoms are the last thing to appear on the stress cascade, and once multiple symptoms manifest, it's telling that there is a fundamental issue with your biology, and you need to investigate. Given the systemic effect of the HPA axis in governing multiple systems and physiological functions, it's often at the centre of many illnesses. The below quiz can help indicate how likely you are at risk for HPA axis dysregulation.

Are you really getting away with it all as much as you think?

HOW SERIOUS IS YOUR STRESS LEVEL?	POINTS
I have been diagnosed with 'adrenal fatigue'	5
I get dizzy when I stand up	1
I have difficulty falling asleep	1
I wake multiple times during the night	1
I have difficulty waking up in the morning	1
I do not feel refreshed, even after sleeping 8 hours.	1
I have been diagnosed with hypoglycaemia	2
I get anxious and / or irritable when I miss a meal	1
I have seasonal allergies	1
I have allergies that have gotten more severe in the last year	1
I am forgetful	1
I crave salty or sugary foods	1
I get sick a lot	1
I have excess abdominal fat	1
TOTAL	

0-3: You may be at low to moderate risk of HPA axis dysregulation.

4-7: You may be at moderate to high risk of HPA axis dysregulation.

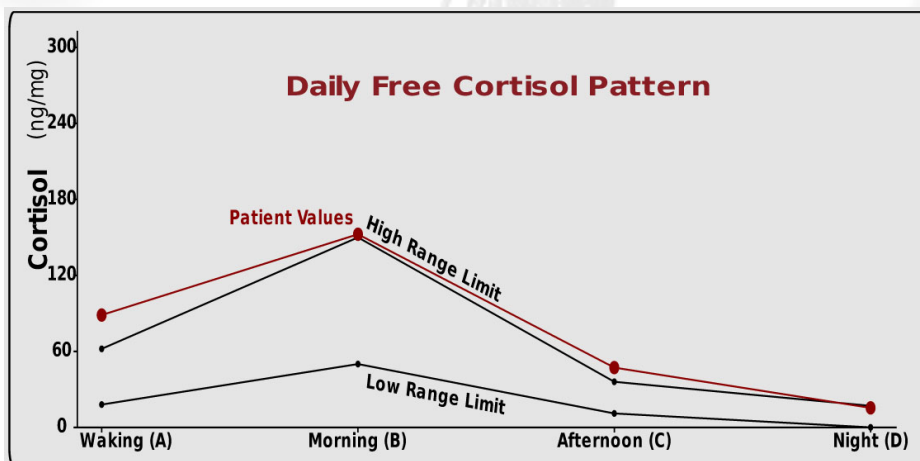
8+: You may be at high risk of HPA-D. Balancing HPA axis function should be a major focus.

'75-90% of primary care visits have been reported to be stress related, yet conventional medicine is often at a loss as to how to care for these patients. HPA axis dysregulation should be considered as a possible root cause of fatigue or stress-related illness.' - Chris Kresser

Cortisol

Cortisol is the major stress hormone and is a steroid hormone that is produced in the adrenal glands, and released by the HPA Axis in response to stress. Cortisol is secreted in a diurnal rhythm, meaning it peaks highest around 30-45mins after waking, and drops through the course of the day to be lowest at night. The Cortisol Awakening Response (CAR) in the morning accounts for 50% of total cortisol produced for the day.

Cortisol is anti-inflammatory, elevates and regulates blood sugar, and metabolises proteins and carbohydrates. Cortisol hinders us when elevated for too long as it breaks down muscles, disrupts sleep, downregulates the immune system, promotes fat storage and oxidises tissues.



A flattening of the daily cortisol curve is the biggest predictor for all-cause mortality

Measuring Cortisol

When measuring cortisol, it's imperative to avoid blood tests or saliva tests which do not provide a complete picture. Blood and saliva tests are great at measuring free hormone levels, but do not measure total output or metabolised levels. In other words, they do not show overall production of cortisol or how it's being used through the body. Urine tests are the gold standard for cortisol measures as they track the free hormones at several check points during the day to track circadian rhythm (as above), metabolised hormone, total output and conversion of cortisol from its active to non-active form.

High cortisol	Low cortisol
<ul style="list-style-type: none">• Frequent infections & suppressed immune system• Slow wound healing• Cognitive decline, Impaired learning & memory• Weight gain and Increased abdominal fat• High blood pressure• Hyperglycemia (high blood sugar)• Insulin resistance• Cravings for carbohydrates• Insomnia ("wired but tired")• Anxiety / Depression• Water retention• Muscle wasting or decreased muscle mass• Decreased bone mineral density	<ul style="list-style-type: none">• Fatigue• Inability to handle stress• Pain and inflammation• Allergies• Muscle weakness• Low blood pressure• Hypoglycemia (low blood sugar)• Dizziness / Light headedness• Inability to handle stress• Chronic fatigue / Fibromyalgia• Depression / Anxiety• Cravings for salt

What Causes Stress

Given the abundance of stressors in our environment, stress can be accumulative and therefore challenging to treat. A comprehensive and sustainable approach should address both internal, and external stressors for best results. The four major triggers of HPA axis dysregulation are perceived stress, circadian Disruption (not matching the light & dark cycles of the day), Glycemic Dysregulation (Blood sugar imbalances) and Inflammation

External Stressors

External stress can be thought of as 'lifestyle stress' or factors external to our body which are often easier to treat because they are more obvious.

- Over training
- Structural issues (pain)
- Bad relationships
- Lack of movement
- High Workload
- Artificial light
- Perceived stress
- Low food quality
- Negative mind-set
- Circadian rhythm disruptions
- Shift work
- Financial stress
- Poor sleep
- Toxin Exposure

Internal Stressors

Internal stressors occur from within the body, and are at the root of most common health problems. These conditions can lead to a slow and corrosive decline in health.

- Hormonal imbalance
- Digestive issues
- Pathogens
- Poor Detoxification
- Poor Energy Production
- Blood Sugar dysregulation
- Nervous system dysfunction
- Immune disruption
- Low Heart rate variability
- Poor gut health
- Brain health
- Food intolerance

HEALTH HURTERS

NUTRITION

- ☒ Alcohol / Sugar / Gluten / Dairy / Soy / Corn
- ☒ Non organic or Free Range Meat & Vegetables
- ☒ Sports Drinks / Soda's / fruit Juice
- ☒ Canned Foods
- ☒ Artificial Sweeteners
- ☒ Micro waved Food
- ☒ Aluminium Foil
- ☒ Vegetable oils / Aerosol Cooking Oil
- ☒ Char grilled Meat / BBQ
- ☒ Plastic Storage Containers / Drink Bottles
- ☒ Non filtered water (Fluoride)
- ☒ Take away food / Processed Food
- ☒ Herbicides / Pesticides / GMO food

TOXIC BODY CARE

- ☒ Aftershave / Perfume / Deodorant
- ☒ Soap / Body lotion / cleanser / exfoliator
- ☒ Hair colour / Shampoo & Conditioner
- ☒ Makeup & Nail polish
- ☒ Toothpaste & Mouthwash
- ☒ Anti- Bacterial Hand wash
- ☒ Sun Screen

CLEANING

- ☒ Household Cleaning Agents
- ☒ Laundry & Dishwashing Powder
- ☒ Dry Cleaning Chemicals
- ☒ Aerosol Sprays

DRUGS

- ☒ Prescription & over the counter drugs
- ☒ Pain Killers (NSAIDs)
- ☒ Recreational Drugs
- ☒ Cheap Supplements
- ☒ Cigarettes

STRESS

- ☒ Overtraining
- ☒ Lack of Movement / Long periods of sitting
- ☒ Structural issues (pain)
- ☒ Mental / Emotional Stress
- ☒ Lack of sleep & Recovery
- ☒ Repetitive Movement

MISC

- ☒ Root canals & Metal Fillings
- ☒ Parasites / Pathogens / Bacterial dysbiosis
- ☒ Candida / Fungus / Mold Biotoxins
- ☒ Electro Magnetic Radiation / Wifi
- ☒ Artificial Lighting
- ☒ Energy vampires

HEALTH BUILDERS

NUTRITION

- ☒ Home Cooked Meals
- ☒ Organic Food
- ☒ Grass fed, pasture raised meat
- ☒ Seasonal Food
- ☒ Filtered Water
- ☒ Low Glycemic Index Food
- ☒ Fasting
- ☒ Healthy Fats
- ☒ Hydration 2-3 Litres per day
- ☒ Bone Broth
- ☒ Quality Salt
- ☒ Good quality supplements

NATURE

- ☒ Natural Lighting
- ☒ Time outside in nature
- ☒ Earthing / Grounding (barefoot)
- ☒ Sun Exposure
- ☒ Good Air Quality (Air filters / good ventilation)
- ☒ Natural Movement

CLEANING

- ☒ Natural Cleaning products free of chemicals
- ☒ Clean Environment
- ☒ Essential Oils / Vinegar / Bicarb Soda

BODY CARE

- ☒ Natural chemical free body care products
- ☒ Myofascial release (Foam rolling)
- ☒ Mobilisers/ Ground to standing
- ☒ Cold Showers
- ☒ Essential Oil products
- ☒ Massage
- ☒ Skin brushing
- ☒ Infrared Saunas
- ☒ Oil Pulling

STRESS

- ☒ Sleep 8 hours between 10pm-6am
- ☒ Sleep in a dark cold room
- ☒ Establish a bed time routine
- ☒ Establish a morning routine
- ☒ Blue Light Blocking Glasses after dusk
- ☒ Daily Incidental Exercise
- ☒ Low Intensity movement & activity
- ☒ Exercise
- ☒ Breath Work / Meditation
- ☒ Time with loved ones / friends
- ☒ Heart Rate Variability Training
- ☒ Hobbies

IT ALL ADDS UP!

**Repeated stresses and
minor
health insults
accumulate and
change us with
every exposure.**

Quelling The Stress Response: Movement

We all know exercise is powerful for boosting overall health and longevity. Movement is incredibly powerful for enhancing mind-set, optimising hormones, circulation and cellular health, IF it's conducted at the right dose! In appropriate amounts, it's a positive stressor: it promotes healthy adaptations that make the body stronger and more resilient. In inappropriate amounts, it is maladaptive: it breaks the body down!

Stressed people generally benefit from lower-moderate intensity activities. High intensity for a stressed out person can add more wear and tear to a body that is already struggling to adapt. Many struggle to understand why performing an intense session when vitality is lacking isn't a good idea. It's common sense to avoid taxing a body that is already compromised!



One hour of exercise a day isn't enough to offset 8 hours of inactivity at a desk.

'From a cellular perspective, you are largely a couch potato, with an assortment of cellular structures that are hardened and mis-shapen from too much stillness' - Katy Bowman

Move It Or Lose It

Just as too much exercise is stressful, so is too little. Intermittent daily movement has a greater effect on overall health, than exercise. Overcoming a sedentary lifestyle optimises all health systems, particularly the mitochondria which are responsible for creating energy. Ditch the idea that exercise needs to be structured, and just find ways to move more through your day for optimal health. Ten mins a few times through the day, has a greater health benefit than an hour of structured gym activity. A lack of movement is immensely stressful on our body, particularly the circulatory, fascial, lymphatic and nervous system

Readiness To Train

Strictly monitor how you feel when attending a training session or else you will be placing damaging stress on the body, and causing a maladaptive response, rather than a desirable adaptation. Your readiness to train is based on your heart rate variability, which is the resilience of your heart, and the efficiency of your battery pack. When HR variability is low, the HR looks stressed and it's correlated with feeling stressed. When the HR is in greater 'coherence' we experience more positive moods, and greater overall health and ability to respond.

HOW HARD SHOULD YOU TRAIN TODAY FOR BEST RESULTS?

Give yourself 1 point for each you have done well

- ☐ I slept well & feel rested
- ☐ I have fueled my body with good nutrition
- ☐ I have hydrated with 2+ litres of water
- ☐ I have moved well & often in the last 24 hours
- ☐ I feel energised and strong
- ☐ I have no pain or stiffness
- ☐ I feel emotionally happy, calm & not stressed
- ☐ I feel mentally ready & motivated to train



6-8

Work it! You are ready to perform



3-5

Reduce the intensity or weight today



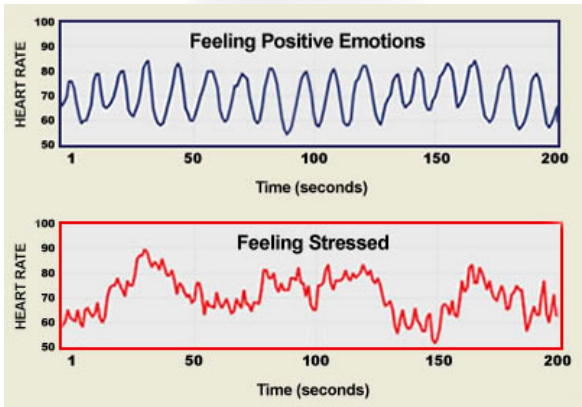
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Take it very easy today!

Use Heart Rate Monitors

Although you may feel good, HR monitors accurately track how well you are coping with the stress of your workout (and life.) If stress is burdening your system, intense training will further launch inflammation and maladaptation. Common sense prevails, is the tank is empty, then depleting it further leaves us with a debt that is hard to replenish. Watch for heart rates that are slow to go up or down, or seem to be stuck high or low as it often indicates a stressed out body!

Studies have shown that hitting maximum intensity on a day when cognitive performance is needed is not a good idea. High intensity exercise can take 48 hours to recover from, and there can be a reduction in immunity of up to 2 weeks! You can see how intensity gym junkies can quickly run into trouble!



ADELAIDE 170 94%	ANDREW 172 92%	CAMERON 164 91%	CELINA 121 66%
CHERYL 155 82%	DAVID ELIMALECH 136 78%	ELLE K 179 88%	JANE 154 84%
KRIS 133 76%	LEE 150 91%	RANI 167 97%	STELLA 157 92%

Mitochondria Matter

Mitochondria are the energy battery packs in every single cell. Mitochondria make around 400 pounds of ATP energy every single day. ATP fuels cellular functions, and we cannot survive without it. Think of your mitochondria like your engine: we can control the fuel we feed the engine, but we also need to make sure the motor works efficiently.

Many illnesses have roots in mitochondrial dysfunctions. Mitochondria buffer oxidative stress, and so the more of them you have, and the more efficiently they function, the better you can combat stress. Both low intensity aerobic training, and high intensity interval training promote mitochondrial density. Mitochondria burn cleaner when burning fat, and create more energy from fat or ketones as opposed to carbohydrates.

Stress Dehydrates Connective Tissue

This occurs because of the restriction of water transfer into cells to maintain blood volume. When fascia gets dehydrated we become sore, stiff and inefficient. Dehydrated tissue decreases our proprioception or navigation of our environment as well as decreases our force transmission and viscoelastic properties. When you are stressed your body needs help to de-stress the tissue with fascial freeing (foam rolling, massage etc) or low intensity movement. Dehydrated tissue is stuck stress, and releasing it unburdens the body to promote wellness.

Stress Requires Simple Enjoyable Movement

If you are stressed executive function, learning and complex movement are decreased – this is not the time to try and learn a ViPR flow sequence, or try a new heavy multi joint move. Rhythmical, sub maximal movement is ideal on these days. Play and games based fitness is a huge winner in stressful times to allow the body opportunities to release feel good endorphins and mitigate stress.



Quelling the Stress Response: Nutrition

Stress taxes our physiology and places an even greater need for quality nutrition. Quick fix, processed food options may be what a stressed mind is craving, but it only exacerbates the problem and reinforces the vicious cycle of stress. Eating is one of the most inflammatory actions we take every day, and hence diet is the most important pillars to nourish and support a stressed out system.



Nutrition Principles For Ultimate Health

- There is no one diet that works for everyone!
- Just Eat Real Food. Your diet must be comprised of real, whole, nutrient dense food that is minimally processed and maintains its natural integrity.
- Aim for nutrient dense food. Foods like organ meat, bone broth, fibrous vegetables, and antioxidant rich foods.
- Cravings are powerful information, if you are hungry only hours after eating, something you ate wasn't right.
- Maintain stable blood sugar control (avoid the highs and lows)
- Most your diet should be a variety of fibrous vegetables (lettuce, broccoli, cauliflower, eggplant, capsicum)
- Calories don't matter, but calorie *quality* does.
- Your first meal of the day is THE most important for setting you up to fail or thrive
- Cut gluten, dairy, soy, vegetable oils, corn, GMO foods, sugar, preservatives, artificial sweeteners, and alcohol for ultimate health & rapid results these are known allergens, toxins or hormone disrupters which stress our bodies!
- Hydrate with at least 2-3 litres per day
- Eat your carbs later in the day, and especially at night (not in the morning!)

A Moderate-Carbohydrate Diet

Most people with HPA-D have problems with blood sugar regulation so it's best to avoid a high carb diet. On the other hand, many people with HPA-D don't do well on very LOW carbohydrate diets either, which tend to worsen insomnia, fatigue, brain fog, and other symptoms. It's best to follow a moderate-carbohydrate diet if you are stressed, and tweak from there on a day to day basis.

Many people still think that carbs are best eaten in the morning and not at night. The opposite is in fact true, and your body is best suited to avoiding carbs in the morning. When cortisol levels are the highest in the morning, we are least insulin sensitive, meaning it's the worst time to eat them. At night our cortisol levels are the lowest (or should be!) Eating quality carbs at night will help improve sleep. Great options: sweet potato, pumpkin, white rice,

Many stressed out people do exceptionally well on a high fat diet, which helps calm the stress response and regulate blood sugar, seeing as though fat has the least impact on blood sugar compared to protein and carbohydrates. Burning fat for fuel creates less oxidative stress than carbohydrates.

'Carbohydrate dependency leads to burnout because the body perceives fluctuating blood sugar as a stressful event , leading to an overstimulation of the fight-or-flight response, and eventual burn out'

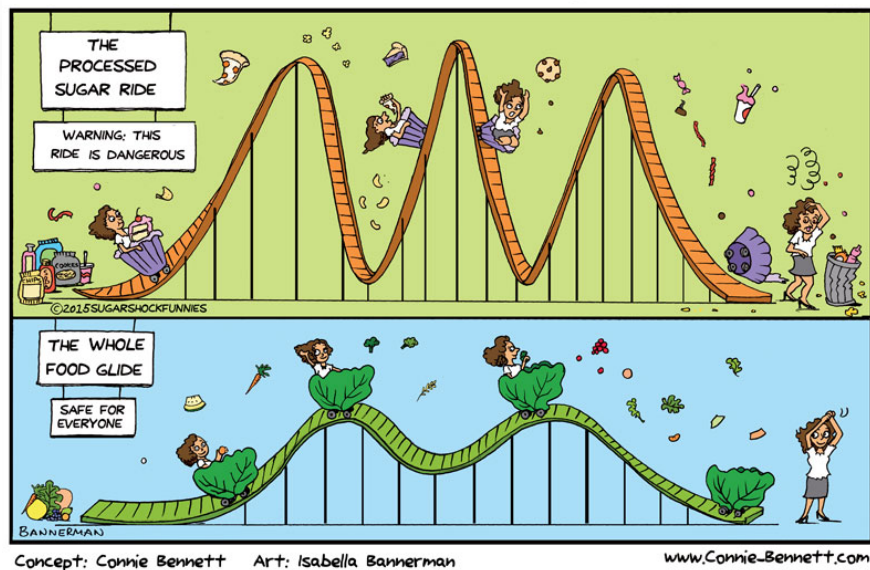
– Mark Sisson, Primal Endurance

Eat Frequently Throughout The Day – Avoid The Highs and Lows

When blood sugar is low, the brain literally perceives it as a stressful event and the adrenal glands produce cortisol in order to boost blood sugar. This places stress on the adrenal glands and can contribute to or exacerbate HPA-D if it happens repeatedly. People with HPA-D can benefit from eating every few hours will prevent blood sugar fluctuations and cortisol release. Meals should always have some protein and fat, never just carbohydrate alone.

Avoid the high sugar, high carbohydrate roller coaster which spikes blood sugar short term for quick energy, setting you up to crash later, and priming you to further crave more junk food!

SUGAR SHOCK FUNNIES™: Blood Sugar Rollercoaster



Potassium & Sodium Balance

The sodium and potassium cellular balance is often askew in HPA-D, and as sodium levels decrease, blood pressure drops. A commonly used hack to reduce stress is to drink one-half a teaspoon of sea salt in water in the morning. Although this might sounds unappealing, many people feel better within 10 minutes from this practice, and find that the taste of salt is actually welcomed because their body needs it so much.

Too much potassium when sodium levels are already low can worsen HPA-D. If HPA-D is severe and the patient has low blood pressure and/or salt cravings, he or she should limit intake of potassium-rich foods like bananas, dried figs, raisins, dates, potatoes, and sweet potatoes and avoid potassium supplements.

Digestion Is Compromised In Stress

The very nature of stress inhibits blood flow from the stomach, meaning digestion is halted to deal with a perceived threat. Given this fact, we need to optimise digestion when stressed by choosing quality foods, and potentially using digestive enzymes to enhance absorption and assimilation is imperative in stress.

Being sure to limit distractions while eating, and avoid eating while checking your phone or watching TV, will help you eat more mindfully, and calmly. If you are in a wound up, stressed state, try to take some deep breaths to calm down before eating, and be sure to chew your food thoroughly. Digestion starts with chewing which realises enzymes to break down our food!

Avoid Caffeine & Alcohol

Caffeine is a stimulant, and it places additional stress on the body. If the body is already jacked up with stress, caffeine will ignite the stress response and exacerbate the vicious cycle of chronic stress. Alcohol stresses the liver, which often functions sub-optimally in HPA-D. It's best to avoid or limit caffeine, and alcohol consumption until the HPA axis is balanced and functioning optimally again.

Quelling the Stress Response: Recovery

If stress is higher than recovery, then we are running a costly health debt that will eventually lead to disease. Enhancing recovery is one of the fastest pathways to optimal health, but often one of the hardest to do for someone who is stressed out.

Prioritise Sleep

If you are stressed, there's nothing more important than getting enough sleep. Getting to bed before 10pm is essential to get the most restful sleep. Physical repair takes place between 10-2pm, and psychological repair between 2-6. If you have HPA-D, your sleep cycle may be disrupted, and you may need some lifestyle, nutritional or supplemental strategies to help induce restful sleep.



Circadian Rhythm Disruption

Most people undervalue the importance of being in sync with our circadian rhythms, and our environment. The reality is, it's a **crucial** part of thriving. As humans we thrive when our lives match the rise and fall of the sun. Our circadian rhythm is a diurnal one, meaning that ideally we should be active during the light hours, and switch off and unwind for sleep when it's dark. Humans have evolved to function this way, but modern life causes an immense and destructive disruption to our innate biological rhythms. Specifically the invention of electricity, has enabled us to stay up long past the sunset, and be just as busy in the dark hours.

Your biological clock is located in your hypothalamus in your brain, and it's called the suprachiasmatic nucleus (SCN.) The SCN is a master clock for your body, and it regulates many other body clocks like your core temperature, blood pressure, cognition, hormones, alertness, hunger, metabolism, sociability, healing processes, sleep etc. The SCN is activated in the morning when sunlight meets the eyeballs, and travels along the optic nerve. As the SCN activates, our body begins to release hormones and chemicals that wake us up, and get us going. Over the course of the day as the sun sets, our bodies begin to wind down for sleep.

The more we stray from the light and dark cycle of the sun, the more we suffer a lack of wellness, and slide down the spectrum towards disease. Being out of sync with our bodies biological time, or chrono-time, is devastating to our physical and mental health.

It's extremely well known, and well proven that shift workers have a higher degree of health issues, and an increased risk for all-cause mortality as a result of being out of sync. Jetlag is another common symptom that occurs as the body attempts to catch up and adjust the biological clock to different time zones, leaving us tired, emotional, and frazzled.

Unless you turn off screens and lights at sunset, you are likely out of sync with your innate circadian rhythms and dealing with chrono-misalignment to some degree. The result is a subtle lack of efficiency and wellness with symptoms like morning fatigue or foggiess, weight gain, inflammation, stress, or just not feeling you are performing at your best.

'In the last 15 years, scientists have been connecting the so-called diseases of civilisation (mood disorders, heart disease, diabetes, cancer and obesity) with chrono-misalignment. Symptoms include insomnia and sleep deprivation, which lead to depression, anxiety, and accidents to say nothing of what feeling overwhelmed and exhausted does to relationships, careers and health.' - Michael Breus, The Power of When

Avoid Artificial Lights After Dark

We are programmed to be awake and alert during the day, and at night time we are programmed to release Melatonin to induce sleep. Light exposure, particularly from the blue light spectrum (artificial lights and lights from screens) destroys Melatonin, and consequently compromises sleep quality. Ways to overcome this might include using softer ambient red lights at night, avoiding screens after sunset, wear blue blocking glasses etc. It is equally important to get good exposure to natural daylight during the day and especially in the morning.



'Blue light after dark spikes cortisol and ghrelin, hampers leptin signalling, increases insulin production, and suppresses melatonin. Habitual screen use after dark makes you tired, fat and vulnerable to oxidative damage and accelerated aging.' - Mark Sisson, Primal Endurance

Sleeping Tablets And Pain Killers

While these might seem like a good idea at the time, they often substantially compromise sleep quality and can create a viscous cycle of reliance. Pain killers and sleeping tablets also create nutritional deficiencies and other hormonal regulations problems, adding further stress to the body.

Frequent Waking Through The Night

Frequent waking is common with HPA-D, blood sugar issues, and immune activity like from pathogenic gut bacteria or parasites. If you are waking frequently you could seek to snack before bed to see if it helps with blood sugar. In addition poor gut health will mean higher levels of inflammation, higher immune activity, decreased liver function, hormonal imbalances, neurotransmitter imbalances, malabsorption issues and more. Your gut makes 400x the Melatonin than your brain, and 500 x more serotonin - meaning if gut health is poor, you are programed to feel wired, anxious, hungry and unable to sleep!

Structured Recovery

Reducing daily physical, lifestyle and emotional stress which will assist with better sleep and greater overall recovery. The more health building habits you collect and implement, the more you can counter stress.

Those who are the most stressed out are also the least likely to carve out the time for it. It can be helpful to think of recovery as preparation, or structured health building time to enhance all other activities.

Recovery Ideas:

- Heart Rate Variability training (Heart Math)
- Meditation: Try the head space application
- Massage or Rolfing
- Fascial freeing (foam roller)
- Vibrational recovery
- Flotation tank
- Walking in Nature
- Time with Friends / family
- Light Intensity movement to mitigate stress
- Playing with pets or kids
- Breathing – This can be exceptionally powerful for reversing sympathetic tuning of the nervous system. Try elongating the exhale to spend more time in parasympathetic mode, or try breathing methods like Buteyko or the Wim Hoff method. The 6:4:10 method, or box breathing are highly researched breathing practices that calm the body and brain.

Adaptation only occurs if we recover after a stress

Supplementation Support for Stress

It is nearly impossible to obtain all the necessary nutrients from food alone. Supplements provide the missing link between what is necessary for optimal health and what is missing from our food supply. Supplements are an important part of a healing protocol, but should never be the first step, or the only one.

Our demand for nutrients is increased with stress to combat potential damage. Plus if digestion is compromised (which it is when stressed!), and our physiology is struggling, we need supplements more!

When it comes to stress, it's so important to know the root causes of your stress, and not just treat the symptoms. Many supplements are sold to 'reduce cortisol' levels, but this might not be a good solution if cortisol levels are already reduced. And so, it's recommended to test your HPA Axis Function to see whether you are producing high amounts of cortisol, and see how your body is actually using it, as well as what your circadian rhythm function looks like. Taking the wrong thing can make things worse!

3 Basic Functions Of Supplements

- **Substitution** – These supplements replace something that is missing in the body or lacking in production.
- **Stimulation** – These supplements stimulate organs, glands and systems in the body to do their jobs.
- **Support** – These are short term aids to the body while function is being restored.

We use supplements to provide targeted therapy that facilitates healing and the restoration of normal function and balance to the body. Supplements may also be used for "*intelligent allopathy*" to provide some relief and comfort while health is being restored. Supplements are not intended to treat any specific disease, but rather support the health building process. Once health is restored, many supplements will no longer be needed.

HPA-Axis & Stress Supplementation

- **Adaptagenic Herbs:** rhodiola, ashwagandha, holy basil, cordyceps can help balance the cortisol response and HPA Axis and can be used if you are high or low cortisol, hence their name 'adaptagenic'
- **Calming:** Gaba, L-theanine,
- **High cortisol:** phosphatidylserine, relora, seditol
- **Low cortisol:** licorice root
- **Antioxidant support:** Multi vitamins, glutathione, astaxanthin, vit c
- **Bloody sugar support:** chromium, alpha lipoic acid, berberine
- **Inflammation:** curcumin, boswellia, Omega 3 fish oils
- **Basic nutrients:** vit b5, vit c, mag, zinc
- **Digestive Enzymes**



Sleep Supplementation

- **Magnesium** should be the first point of call for anyone with stress, anxiety or sleep issues. Magnesium is crucial for over 300 physiological functions and most of us are severely depleted in this essential nutrient. The recommended daily dose is 10mg per kg of body weight, potentially more if stress is an issue. It's important to get a highly bioavailable form of magnesium that is chelated with amino acids.
- **L-Glutamine** is fuel for the gut lining and helps boost immune function. Studies also show it helps increase growth hormone release, and assists sleep. 1 heaped teaspoon before bed does the trick.
- **GABA, Taurine, 5HTP, and Phosphatidylserine** are calming substances that reduce anxious thoughts & help sleep
- **Melatonin** will help induce sleep, and keep you asleep. It's especially great for overcoming jetlag



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When it comes to Stress and measuring HPA Axis Function, we only use the DUTCH (Dried Urine Comprehensive Test for Hormones) test by Precision Labs for a thorough full picture. This test is the best on the market and provides the full picture of cortisol, DHEA, melatonin, sex hormones levels, as well as how they are being used by the body.

For more specific help, please feel free to contact us for expert exercise advice.

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