NUTRITION 16 ADDITION STEP NUTRITION

THE HORMONE SECRETS OF HUNGER AND SATIETY

BY SCOTT SONNON
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Scott Sonnon is most known for being a martial arts champion in Sambo Wrestling, Sport Jiu-jitsu, Submission Grappling, Amateur Mixed Martial Arts, and Sanshou Kickboxing. Sonnon capitalized upon advances in applied biomechanics, stress physiology, exercise endocrinology and coaching psychology to become a multiple-time USA National Team Coach.

Sonnon trained for six years with the former USSR Ministry of Internal Affairs (MVD) and Special Operations Unit (Spetsnaz) Physical Conditioning and Performance Enhancement Specialists at the RETAL (Physical Skill Consultant Scientific & Practical Training) Center, and became the first American to be licensed by the Russian government in these studies. He is also one of a handful of individuals outside the former USSR to earn the coveted “Master of Sport” —the highest athletic distinction recognized in the former Soviet Union.

Scott strove to these athletic accomplishments due to his severe learning disabilities - dyslexia, dysgraphia and dyscalculia; using martial arts, fitness and yoga as a means of educational therapy, which ultimately led him to become a keynote speaker for prestigious institutes such as TEDx and Mensa.

Sonnon’s peak performance enhancement methods are on the scientific cutting-edge teaching how to use exercise not merely for increased physical capacity, but as a means of injury-prevention, illness-prevention and longevity; as the world’s number one killer is not guns, knives or bombs, but stress-related disease.

He consults for the United Stated Department of Defense, United Stated Department of Justice and the United States Department of Homeland Security.

Scott was “Born to Lose, but Trained to Win.” Against all odds, Scott became a champion, and has shared the discoveries he made along the way.
ABOUT ME

I couldn’t quit sugar. It was like a drug to me. Research now shows that for many people sugar and cocaine affect the brain in nearly identical ways cellurally. So, I had to spend a very long time, suffering diet after diet, before I discovered that the only way to address sugar addiction, was to ADD more good, rather than try to SUBTRACT the bad.

A young man commented to me that, “People who are overweight just need to CHOOSE to have self-control and have more faith in themselves. They can overcome any addiction all by themselves. They’re just weakening themselves by being passionate about the wrong thing.”

After I offered him sources for a more enlightened, scientific perspective on the biochemistry of addiction, he advised me that he was a part-time ACE-certified trainer, and an "expert."

Addictive biochemistry isn’t covered in any fitness certification, including online certifications like ACE. Education must be specific. Exercise education is not nutrition education. It’s not even an education on how to coach.

Will-power is a biochemical event. It takes incremental repair to recover from the diminished capacity by an addiction, especially substances like sugar/high-fructose corn syrup and grains/simple carbs. Certainly if you ALREADY have the will-power reserve to go “cold turkey” on an addiction, bad habit or inefficient lifestyle behavior, then DO IT!

However, for most people, you want to stack the deck in your favor, “win before you step in the ring,” as my coach used to say. This requires incrementally consistent and sustainable changes in nutrition, exercise and attitude, surrounding yourself with a supportive community, enlisting professional guidance (coaching allies), and establishing transparent records to maintain personal accountability.

Making judgments that “people are just choosing to be weak” doesn’t mean that you’re empowering them. Just the opposite.

Twenty years of coaching psychology taught me one very critical point: People aren’t “weak” for seeking support. They’re smart, courageous and strong because of it. They’re outsourcing cellurally-depleted will-power. As will power builds, we can face a challenge just slightly greater than our current capacity. When we overcome it, we build yet a new level. And it’s time to face an even greater challenge, requiring new or more support, coaches, accountability and transparency. And so on...

You’re not limited because “you didn’t do it all by yourself.” Rather, you’re acknowledging that you’re intelligent, dedicated, brave and serious enough about overcoming your challenges that you will enlist all the support, aid and methods necessary to succeed.
There is a biochemical reason that diets do not work. Understand the chemistry, and you can get off of the roller-coaster of yo-yo rebounding. The slow, sure path will give you greater success, by changing you at a cellular level, and creating health from the inside-out.
Understand that thoughts and feelings are a product of how your cells respond to the food that you’ve eaten.

by Scott Sonnon
Chief Operations Officer

I experimented with fasting for making my weight classes in sport (not for religious reasons, which would be outside the scope of this book). I observed a few thousand people and realized, we would have been better off keeping the weight than losing it for physique reasons. The “wear and tear” of rapid weight loss through fasting causes not merely physical damage, but psychological and emotional duress.

We think that we are thinking our own thoughts, but they’re not our rational mind. Bubbles sublimate to the surface of our consciousness from the volatile chemistry of dieting. What you think when you diet only APPEARS to be your own thought; in truth, those thoughts are merely biochemical eruptions of self-judgments designed to stop the problem. They’re doing their job, but it’s not your weight that’s the problem. It’s starvation dieting.

Instead of removing food... EAT YOUR WAY STRONG! The “weight” falls off as you ADD more of the good food, rather than trying to stop eating.

Getting off the roller-coaster of yo-yo dieting:

1. You get excited about a new diet.
2. You "fail" the diet. (Actually, it failed you.)
3. You feel like you have no willpower (and chemically, you don’t), so you rebound.
4. You start to feel bad about your physique and appearance again.
5. You start craving again certain foods because they literally "mediate your mood" about feeling badly about yourself.
6. And then you find another new diet that you think will solve your problems...

Begin making permanent change in your health...

There’s nothing that “addition nutrition” cannot do that a “subtraction diet” can... But addition nutrition does it healthier without rebounding. 83% of people rebound with MORE weight than before diets!

Rebounding from subtraction / restriction dieting including fasting in my experience as a coach, and in my research of endocrinology, happens due to the increased viscosity of toxins: we are unable to eliminate them, our cells cannot down-regulate the cravings and this causes our impulses to grow STRONGER the faster and the more weight that is lost... resulting in the vicious diet cycle.

If not for religious reasons, and purely for the belief that it will make you healthier, please stop the “fasting, cleansing and dieting” for weight loss!

WE CAN’T OUT-LIFT A BAD DIET.

We can no more out run a bad diet, than we can out lift pain. The older we become, the more we discover that the most important weight we can lift is the burden of pain from our quality of life, and the most important race we can win is the race to prevent disease before we create it through our choices.

True health care begins with self-care, not with government regulations, but in our garden and our kitchen, in our movement and in our play. Unfortunately, we are conditioned to believe marketers of luxury and convenience that this leads to lesser quantity experiences, when in truth, it opens us to our most abundant quality of life.
How does stress affect your health?

Are you adversely affected by the inability to recover quickly from stress? Slow recovery from stress can result in everything from headaches to diarrhea, suppressed immune system to memory loss, muscle ache to bone density loss, high blood pressure to heart attack.

Hormonal balancing is the real goal of healthy nutrition: waving to high physiological intensity and then recovering fully from it stimulates the GAS: General Adaptation Syndrome.

The faster that your central nervous system can cycle through the Stages of:

• Alarm
• Resistance
• Exhaustion

And back to internal homeostasis, The stronger and more resistant to illness you become.

When this process is slowed, stunted or out of alignment, hormonal symptoms are exacerbated. Fixing a lack of sufficient quality sleep, lack of sufficient clean water, and lack of sufficient nutrient dense food will be your first line of defense.

The second line of defense is how you prepare to manage stress through the way that you exercise daily. Because of the nature of the interwoven recovery techniques within TACFIT (including how to rapidly and completely recover from high intensity exercise), the restoration of hormonal balance is quickened, and hormonal imbalances are mitigated and even prevented.

See BAD45 for more information on how to properly, healthily stimulate the General Adaptive Syndrome.

IS YOUR PYRAMID OF FOCUS UPSIDE DOWN?

Invest the most amount of your time on the largest yielding output. Get good rest of approximately 5-7 hours per night. Get good clean water of about 6-8 full glasses per day, at least one after waking, after every meal and each workout. Get sufficient lean protein, good fats and complex carbs at every meal, approximately 3-6 per day. And get moving with one mobility session per week, one yoga, one conditioning and one strength sessions per week.
People who pray, meditate, take a moment of silence to express gratitude before a meal receive more nutrients from the meal, store less of the meal as fat, and grow more muscle from it.

We tend to associate stress as only life-or-death external events, but even events as simple as a toddler tantrum, or a car moving very slowly in front of you when you need to get somewhere by a certain time, release a cascade of hormones which:
1. cause your digestion to be inhibited and curtailed leading to compacting and elimination of ingested food,
2. raise your blood sugar levels (Glucocorticoids, glucagon and catecholamines collectively reverse insulin’s effect.),
3. ship food to fat storage,
4. stop the growth of muscle and bone tissue (amino acids are stored as proteins; protein synthesis is inhibited), and
5. stop burning fat (fatty acid synthesis is inhibited; excess fats are stored in adipose tissue as triglycerides),
6. as well as lower your immune system.

However, even just a few seconds of exhaling, closing of the eyes, and mentally imagining how grateful you are for a meal, switches the nervous system to the other side - to the parasympathetic tone which restarts digestion, uptakes glucose levels, synthesizes amino acids, protein, and fatty acids, so that you receive more nutrient delivery from your meal, becoming healthier (immune system restarts, and then is bolstered by what you eat), and stronger (conversion of muscle and bone growth).

It’s even more fascinating, that when you make this a consistent pattern before every meal for 2-3 weeks, the nervous system adapts by (operant conditioning) to anticipate a parasympathetic “rest and digest” response IN ANTICIPATION of the meal, because you’ve trained yourself to know the prayer/meditation/ gratitude/moment of silence is coming.
How does chronic stress affect your hormones?

Geek science, first: When highly stressed, the hippocampus (which perceives danger) tells the hypothalamus to release a stress-hormone (corticoliberin) to work together with the pituitary gland to release another stress-hormone (corticotropin), which in turn, releases cortisol.

Cortisol isn’t a “bad” hormone. It controls metabolism, affects insulin sensitivity, your immune system and blood flow. It is highly effective for your survival, when combined with the other stress hormones released (the catecholamines): enhancing your perception, cognitive function, energizing your muscles and ramping up to assist in wound healing.

But, because it inhibits certain... non-survival oriented bodily functions (such as in your skin, kidneys, reproductive organs, with your digestion, bone growth, muscle uptake of amino acids, protein synthesis and collagen formation), when you endure too much cortisol for too long, you begin to break down.

So, if you’re dealing with “normal” stress from daily life - work responsibilities, project deadlines, financial urgency and jeopardy, sleep deprivation, dehydration, illness, alarms (artificial sleep cycles), even seemingly innocuous issues such as traffic jams, teenager angst, infant tantrums and marital tension - you’re flooded with cortisol.

Now, imagine the bodily stress if you deliberately or “accidentally” skip a meal - or worse, resort to binge simple carbs and sugars because you “crashed” from skipping a meal... more cortisol.

You never deactivate the cycle (called the HPA Axis). You just keep pouring more and more cortisol. Your body needs to produce extra, so it starts stealing a different hormone (pregnenolone) to make more cortisol. Unfortunately, the body needs it to make a different hormone (progesterone) in order to make testosterone and estrogen balance. This is why chronic stress leads to low testosterone, and excess estrogen.

WHAT IS LIFESTYLE OPTIMIZATION OF HORMONES?

To optimize your lifestyle so you can avoid imbalancing your hormones, avoid excess stress (distress), and recover from it through any and all of the following:

- Add positive stress (eustress) such as consistent physical exercise.
- Get ample sleep and if that isn’t possible, nap.
- Take 15-20 unbroken minutes to receive sufficient outdoor exposure to the elements (water, earth, wind, sun).
- Spend time cultivating close friendships; and if you’re in an intimate relationship, share physical contact, and also engage in healthy sex with a loving partner at least once per week.
- Keep meals at consistent time increments (3-5 hours apart), regularly hydrate with clean water.
- Regularly eliminate (hydration and fiber help here): for you are what you eat, and you are what you don’t eliminate.
- Temporarily eliminate caffeine, alcohol, sugar and wheat (approximately 2 years).
- Create time to meditate, pray, perform light joint mobility and/or yoga at least once per week.
**THE ROLE OF INSULIN**

Insulin is released by your pancreas in response to increased blood sugar. Insulin has many functions:

- Insulin helps get glucose into your cells.
- Insulin tells the liver to turn glucose into glycogen for storage.
- But when glycogen hits a threshold, more insulin causes glucose to be turned into triglycerides (fat) in adipocytes (fat cells).
- Insulin tells your brain about your body’s energy levels.
- Insulin tells your brain if you should eat.

When your pancreas detects increased glucose levels (like when you eat simple carbs and sugars), your body secretes insulin as a response.

1. You eat.
2. Your blood sugar rises.
3. Your body secretes insulin to convert it to glucose.
4. The insulin enters into your brain (in the hypothalamus):
   - 5. It tells you to stop eating.

But these steps only work if the system isn’t broken. The more body fat you have, the more that insulin is secreted when you eat. However, there’s only so much insulin that can cross over into your brain and tell your body to stop eating (called the satiety reflex). When you hit that maximum amount of insulin which can cross the blood-barrier, no more insulin can get in. But if you keep eating, your body keeps secreting more insulin, even though no more is getting in to your brain, and telling you to stop.

“Insulin resistance” happens.

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**THE ROLE OF LEPTINS**

Some "experts" are still attempting to force clients into rapid weight loss through fasting and caloric restriction. Fasting and caloric restriction lower your sensitivity to a hormone called leptin. This leads to greater hunger, cravings and lack of energy and lowered metabolism.

Like insulin resistance, your body can increase resistance to leptins. Although this happens with obesity and over-eating, it also happens by fasting, restricting too few calories and through rapid, dramatic weight loss. [Ahima RS. “Revisiting leptin’s role in obesity and weight loss.” J Clin Invest. 2008 Jul;118(7):2380-3.]

Get off the roller coaster of dieting and weight loss. What may appear to work on the outside, only rebounds and causes more problems. On a sensible exercise plan, you can make gradual changes, not merely to the exterior, but the interior, where cellular changes are made permanent.

Have complex carbs with every meal along with your lean proteins and good fats. If you feel lethargic or moody, add an extra helping of complex carbs every few days at first, and then every two weeks or so. Never skip meals if possible.
Hitting the Two Windows: Hunger and Satiety

Your hormone balance from and to your brain creates two different effects - Anabolic and Catabolic - which relate to Hunger and Satiety. As described earlier, when your hormones work correctly, your brain tells you when you’re full. But fasting and over-eating (the Vicious Diet Cycle) can break this hormonal balance.

Not just your nutrition, but how and when you exercise in relation to your meals impacts stimulation of healthy hunger, and satisfaction of sufficient nutrition (satiety).

Exercise immediately upon waking, and eating breakfast within an hour stimulates the hunger reflex. Most people do not get to a “4” in the morning on the hunger scale, because they lack sufficient movement to stimulate the call for eating. This catabolic window is short and takes practice.

Even light mobility and yoga in the morning will set the stage for proper hunger, so you can eat breakfast. You’ll start to feel more 4s over time, and even 3s eventually when you awaken.

When you begin to experience 3s, make sure that you have the right food in your house and ready to eat, so that you don’t hit a 2 or worse, a 1, and devour the first thing in sight. If you hit a 1, you’re more than likely to bounce and hit a 9 or 10 by over-eating. Remember, both fasting and over-eating hormonally cause excess fat storage!

There is also an anabolic window in the evening, an hour before your dinner. If you exercise in this window, you’ll set the hunger stage again for muscle growth. Make sure that you have the ability to prepare your dinner before you dip down into a 2 or a 1! (And never go grocery shopping if you’re at a 3 or lower.)

Start preparing your meals no lower than a 4. At a 4, you can wait a little longer, so you don’t make poor choices due to what psychologists call “ego depletion” - the vacuum of your will power due to biochemical volatility, explained earlier.

Timing meals in between your morning and evening exercise will keep you in the middle of the scale between hunger and satiety, as well. The goal is to hit a 7 with how you prepare your food (combination of lean proteins, healthy fats, and complex carbs) and how you time your meals, so that you’ll be full for 2-3 hours and need to eat another meal within 4 hours to avoid dipping down beneath a 3.

This is more art than science, more intuition by forecasting your impending stress levels which wreak havoc on targeting your pre-meal 4s for hunger and your 7s for post-meal satiety.

SATIETY SCALE

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Too late! Very uncomfortable. Even painfully stuffed!!</td>
</tr>
<tr>
<td>9</td>
<td>Beginning to feel uncomfortable! Need to stop!</td>
</tr>
<tr>
<td>8</td>
<td>Not uncomfortable, but starting to feel pressure in my belly.</td>
</tr>
<tr>
<td>7</td>
<td>Comfortably satisfied. If I stopped here, I’d be full for 2-3 hours.</td>
</tr>
<tr>
<td>6</td>
<td>Not hungry. Sense food in my belly but could eat more.</td>
</tr>
<tr>
<td>5</td>
<td>Neutral: neither hungry nor full</td>
</tr>
<tr>
<td>4</td>
<td>Little hungry, could wait, but know really hungry is coming...</td>
</tr>
<tr>
<td>3</td>
<td>I’m hungry and have a STRONG urge to eat!</td>
</tr>
<tr>
<td>2</td>
<td>Everything looks good! I’m preoccupied with hunger.</td>
</tr>
<tr>
<td>1</td>
<td>So hungry, I’ll eat anything! HANGRY!</td>
</tr>
</tbody>
</table>

HUNGER SCALE
YOUR HORMONES AFFECT BOTH YOUR HUNGER AND YOUR SATIETY

• **CORTISOL:** As written earlier, is the most famous stress-hormone. However, its role is in controlling your hunger and activating your metabolism. It decides whether you use stored carbs (glycogen) or stored fats (triglycerides). In the liver, cortisol causes the conversion of proteins (amino acids) and fats (lipids) into energy (glucose) through a process called gluconeogenesis. Cortisol as a result has a bias causing you to crave foods high in sugar and fat.

• **INSULIN:** As written earlier, the pancreas secretes insulin when it detects high blood sugar levels. It causes glycogen to be stored by making your liver, muscle and fat absorb glucose, as well as fatty acids. When you eat carbs, insulin also causes you to be HUNGRIER, which is why when you eat carb-heavy meals - lacking a balance of protein and good fats - you don’t feel as satisfied. It’s also the reason snacking is so addicting: the more you eat, the hungrier you get.

• **GLUCAGON:** The pancreas secretes this hormone when it detects low blood sugar. So, when you’re in between meals, or you get slammed with a “crash” from a carb-rich meal or snack, glucagon is released to tell your liver to turn that stored glycogen into glucose (through the process of glycogenolysis). From a fat loss standpoint, if glycogen stores are slim, then the high volume of secreted glucagon causes a different process (gluconeogenesis) to create glucose from amino acids and fatty acids, instead. But, glucagon signals the brain that you’re hungry, so instead of losing excess fat, you may be inclined to eat a snack, or a meal too early...

• **GHRELIN:** Saving the primary hunger hormone for last, ghrelin is released from the lining of the stomach when its nearly empty (and in the pancreas when low blood sugar is detected). If glucagon levels are high, and glycogen levels are low, then the liver secretes ghrelin, as well. If leptin causes satiety in the brain, it’s twin would be ghrelin, which causes hunger. Human growth hormone is stimulated by ghrelin, which is why it is so critical to exercise repair and growth.

• **CHOLECYSTOKININ:** CCK is secreted in (first segment of) your small intestines when fat is detected. Your pancreas responds by releasing digestive enzymes, and your gallbladder releases bile. This also causes your stomach to down-shift digestion to give the small intestine sufficient time to digest the fats. Since CCK acts on your nerves to tell your brain that you’re not hungry, it’s important for you to eat good fats at every meal.

• **OXYNTOMODULIN:** This hormone is released when proteins and carbohydrates are detected. It sends a message to your brain about your levels of available energy. It also helps digestion.

• **PEPTIDE Y:** When you eat, in particularly, protein, PYY is also released in the small intestines (in the 2nd and 3rd segments) as well as in your colon. It sends a message to your brain about your levels of available energy. It also helps digestion.

• **GLUCAGON-LIKE PEPTIDE-1:** When you eat carbs, proteins or fats, GLP-1 is secreted to quickly enter into circulation and rapidly signal that you’re no longer hungry. GLP-1 will cause more insulin to be secreted and at the same time decrease the secretion of glucagon, stomach acid and gastric emptying. By lowering NPY, it also decreases your degree of hunger.

• **LEPTIN:** As written earlier, leptin is a pivotal player in modulating your energy input and output, controlling your hunger and your metabolic levels. To signal your brain that you have sufficient energy stored, and that your body doesn’t need any more food, fat cells lining your stomach called adipocytes release leptin. Unlike the quick-but-short inhibition by CCK and PYY, leptin works for much longer at suppressing hunger between your meals and inhibiting cravings.

• **ADIPONECTIN:** Fat releases this hormone into your blood to tell your body to stop converting fat and proteins into glucose because it detects sufficient fat for energy, and doesn’t need anymore glucose produced (from gluconeogenesis). It also accelerates how fast you utilize glucose, how fast you break down your fats (lipid catabolism), and increases your sensitivity to insulin. Like leptins, this hormone combines with it to tell the brain that the body isn’t hungry, and that it feels satiety.
**Chemical messengers in your body communicate virtually each and every one of your bodily needs.**

**Exercise has a significant impact on those messengers.** ...

When you exercise, the type of exercise you do, how intensely you do it, and how fully you recover from it all determine how it affects your hormonal system. How long you have been in a fasted state, as well as the host of other stressors your body can experience, all regulate the hormonal event inside your body.

Let's state the obvious first: fit, strong, supple people are harder to kill, and can experience greater quality of life.

Everyone knows that exercise will make your muscles stronger, and sometimes bigger (depending on how you exercise and how you eat, and WHEN you do both in concert.) It is also fairly well known that it makes your bones denser. This is important to prevent the onset of osteoporosis, and the brittleness which comes from it.

But, if you want to have a truly accurate picture of your health, you need to consider it from the standpoint of

“exercise endocrinology” - how your exercise impacts your hormonal life.

Exercise impacts your appetite through the regulation of hunger hormones discussed earlier: leptin and its opposing twin ghrelin. Most people assume that when they exercise, they’ll get hungrier and want to binge. In reality, the right type of exercise at the right time can actually make you consume less. And when you do become hungry, you’ll feel overwhelmingly pulled to eat more nutrient-dense and rich foods, rather than carbs, sugars and snacks.

Through the cells of your muscles, you will actually enhance your insulin sensitivity, which means you’ll regulate your blood sugar more effectively.

Exercise will rev up your metabolism and give you more energy throughout the day by releasing a cascade of hormones which access your energy stores and dictate how efficiently that energy is utilized.

Cortisol levels are managed through exercise, when done appropriately. Excessive exercise, without full recovery, can increase cortisol levels, and eventually trigger adrenal fatigue. But when exercise is properly programmed and timed, varying intensity and recovery, with consideration of your current fitness level, then exercise decreases and balances cortisol.

Remember from earlier: reduced cortisol levels help you use stored fat, help you have better rest, and lend you greater ease throughout your life.

So, about sleep: you have a particular bio-rhythm called a circadian. This cycle is fairly simple: eat and exercise at the right times in the right way, integrated together, and you have greater recuperative sleep. Sleep is your number one method of recovery!

**MOVE AND YOUR MOOD MOVES**

We already discussed the impact of exercise upon cortisol. Endorphins - the “feel good” hormone - are also released during exercise, affecting other hormones.

If you have a troubled, down attitude, one of the quickest solutions is to exercise. It will boost your mood, and give you a better outlook on the food that you want to eat, and how much of it will be needed to give you satiety.

Your mood is critical to your meal content and your meal timing. Think of exercising as priming your attitude for the optimal mood for food!
How do you prioritize eating changes?

1. Macronutrients: firstly, get all of your basic nutrition balanced with lean protein, complex carbohydrates and good fats in your meals. The combination depends upon your lifestyle and genetic tendency. But even if you balance all three equally, you’ll feel the most significant health and fitness benefits immediately, rather than having an insufficient quantity of one of the three. The ratio will change over time, and by your activity level, so if you can, journal those changes, or at least be aware when they change.

2. Food Preparation: secondly, prepare your own meals or have someone you trust do so, without seasons, sauces, or creams. Since you can’t yet control how your food is grown, begin with how it is prepared to eat. The closer you are to the preparation of your food, the more aware you become to the macronutrients you need. Also, the closer you are to your food, the more your become aware of the impact of quality upon your healthy energy and mental clarity. Preparation sets the stage for both quality and timing of your nutrition.

3. Quality: thirdly, with the largest sliding scale of cost, choose higher quality food over quantity. Some foods you don’t necessarily need to purchase the more expensive version, and I will publish an article on that in the future. Begin by increasing the quality of the highest foods on the food chain: the farther something is from the soil, the more dangers it ingests. If you eat a plant, you have the least dangers; if you eat a predator, the most.

As you increase quality in your high food chain foods, decreasing quantity to increase quality on the same budget, remember to not increase the other macronutrients out of balance: if you are eating less volume of higher quality meat, don’t substitute more carbs and fats for lack. Instead add more of that macronutrient from a lower food chain source: like a soaked bean for added protein to that meal.

4. Timing: fourthly, eat your meals at a consistent time. It is better to eat at a regular time, than it is to eat sometimes at the right time. Then your body knows that food is coming, and not downshifting your metabolism for fear that a meal may be indefinitely delayed, and hibernate you to compensate. Different individuals respond differently to meal patterns at different periods of their lives, so experiment, in three week durations with any one pattern. If you feel compelled intuitively to modify your regular pattern, test changing it for three weeks, for over time, your tendencies change (as does the strength of your willpower from the regular consistency.)

Optimally you have two windows to time your body’s (circadian) biorhythm, one in the morning (exercise before your breakfast), and one in the evening (exercise before your dinner). If you have to choose one to do consistently, choose the first: you won’t grow as much muscle, but you will be healthier, and more naturally alert, productive and vital all day.

5. Vitamins and Minerals: fifthly, get tested for any deficiencies you may have. If you don’t have health insurance, this can be costly, but necessary. Once you have balanced sufficient macronutrients for your individual needs, prepare them with high quality food and time your meals with regular consistency. If there is a choice, eat your vitamins and minerals rather than taking pill or fluid forms. But whenever you can, as soon as you can, never underestimate the precisely targeted value of knowing precisely what you need genetically, through a battery of tests.

6. Supplements: lastly, add any extra benefits you may need AFTER you’ve balanced your macros you’ve prepared with high quality, well timed, individually tested precise nutrition profile. Most people waste their hard earned money here, when this accounts for the final 5-8% of benefits. We use this as substitutes (for the first 5 steps) rather than supplements. Bringing supplements into a diet lacking the first 5 points is like bringing a spoon to dig a hole when you need a pickaxe. If you follow the above 5 steps first, you’ll actually need very little supplementation.
Muscle Cramps and Muscle Soreness

Calcium is the activator for muscle tension - and its twin opposite is magnesium - needed to shut down tension. Most of us do not get a sufficient amount of magnesium due to the way food is now produced and processed. Those with high stress occupations also magnify magnesium deficiency due to stress hormones; compound this with alcohol, caffeine, sweets, and carbonated drinks - which all leech magnesium; also if you’ve had any surgery, and if you take a calcium supplement without magnesium.

Because of magnesium deficiency, muscles (especially if you exercise) don’t shut off at night. The tension creeps, disturbing quality sleep, and causing you to awaken tight and sore (Delayed Onset Muscle Soreness, or DOMS).

Contact your health provider if you experience any of the symptoms associated with magnesium deficiency.

If your health provider detects a deficiency, consider ZMA (Zinc Monomethionine Magnesium Aspartate) for about 2-3 days. Muscle cramps and soreness disappear fast, because the tension shuts off at night, you get better quality sleep, and you achieve “resting length” in your muscles, so they actually grow stronger as a result. It is advised to only take ZMA before bed, because it can cause drowsiness. It’s recommended to take it an empty stomach approximately 30-60 minutes before sleeping.

Taking a ZMA is about the same price as taking the magnesium separately, but it adds zinc which is helpful in maintaining testosterone production (testosterone deteriorates under stress, with poor sleep and nutrition, and with aging.)

The study most often used to support the hormone effects of ZMA is one done at Western Washington University. Dr. Lorrie Brilla (and a ZMA supplement manufacturer) studied 12 NCAA division II football players who took ZMA nightly during an eight-week spring training program and a separate group assigned a placebo pill. The athletes taking the ZMA had 2.5 times greater muscle strength gains than the placebo group; the ZMA group increased by 11.6 percent compared to only 4.6 percent in the placebo group. The ZMA group also had 30 percent increases in testosterone levels (compared to 10 percent in the placebo group).

Don’t take it with calcium as the calcium blocks absorption. Unless you are calcium deficient, I wouldn’t take calcium as a supplement. Eat your broccoli, if you’re not deficient, and you’ll be fine. Get a check, and consider adding a ZMA, if you’re feeling any of the symptoms.

Once you no longer feel the symptoms, consider cleaning out the main suspects of magnesium depletion: sweets, carbonated drinks, eliminated alcohol and caffeine (for two years before reintroducing them), significantly reduce stress levels, and create a balance between exercise and my nutrition for hormonal balance.

The most sound supplement approach involves removing anything that isn’t having an effect, to the degree that it isn’t, and err on the side of just barely enough. But until that time, use a supplement to bridge the gap, if your health provider determines a deficiency and guides you to take a supplement.
Some “experts” are creating wild theories about how “cavemen” ate, and assume that their “natural” approach to nutrition is how we were biologically designed; so they invented a “feast and famine” theory to eating and exercise recovery.

Our ability to adapt to our environment is our greatest attribute; if we use that intelligence, we can study our hormonal environment and adapt the best exercise and nutrition strategy to regulate our muscle growth, health and longevity.

Are your skipping meals or fasting? This will have the reverse effect than you think. It irregulates your internal environment, breaking down your muscle and storing additional fat. It will also lead to serious health problems.

During intense exercise, starvation and fasting, cortisol is released from your adrenal cortex, which stimulates an enzyme to produce epinephrine (adrenaline). Epinephrine reaches your pituitary gland through your blood circulation and stimulates more cortisol production. In addition, these stresses release, glucagon and growth hormone, which all play a role in blood sugar levels. Your blood sugar should be within a range (73-110mg/dl). Below the range, your body secretes glucagon which increases your blood sugar.

Increases in cortisol are associated with decreases in protein synthesis, as one of cortisol’s actions is to provide alternate fuels for the body when there is not enough glucose during starvation, fasting, and intense exercise. Cortisol mediates muscle breakdown so that the amino acids in muscle tissue can be used to create sugar (gluconeogenesis). Your body cannot afford to waste energy during this stress, so cortisol stimulates the breakdown of muscle, and also inhibits protein synthesis.

During intense exercise or any type of emotional or physical stress, your body prepares itself to have enough blood sugar available for the perceived crisis. Your insulin levels drop. Glucagon and epinephrine levels elevate - which cause your muscle and fat to be less sensitive to insulin. All this happens to give you more blood sugar availability (and insulin insensitivity).

The hormonal response to a low blood sugar includes a rapid release of epinephrine and glucagon, followed by a slower release of cortisol and growth hormone. These hormonal responses to the low blood sugar may last for 6-8 hours; during that time the blood sugar may be difficult to control. This phenomenon of low blood sugar followed by a high blood sugar is called a “rebound” or “Somogyi” reaction.

Insulin is needed for proper control of blood sugar; to move sugar from your blood into most of your body’s cells, where sugar is used for energy, and where muscle is built. During intense exercise, and starvation dieting, insulin that the pancreas makes does not work the way that it should, because of your hormonally-decreased sensitivity to it.

As a result, sugar in the blood cannot enter most cells and the cells are unable to use this sugar for energy, while the liver makes too much sugar. This in turn, causes blood sugar levels to get too high, which makes it difficult to build muscle and burn fat. It can also cause serious long-term health problems, such as diabetes.

If you exercise hard, or have high stress in your life, and couple that by fasting or skipping meals, not only will you find it difficult to build muscle and burn fat, but you will find that you’re gaining fat and losing muscle the harder that you exercise.

Leave the “caveman” mentality in the cave. Exercise like a savage, but recover (eat) like a scientist: tracking your results, and responding to actual data, rather than concocting wild theories.

Keep your meals evenly and consistently spaced, so that you can regulate your internal environment. After a meal your blood sugars return to the regular range (called post-prandial hyperglycemia) which returns your blood sugar to the regular range by facilitating glucose uptake in your muscles. So, exercise immediately before your meal, and the post-prandial hyperglycemia will inject its payload directly into your muscles.
Even mild dehydration causes you to secrete stress hormones because the body interprets dehydration as life-threatening. Dehydrated, you produce a hormone called vasopressin: causing your kidneys to retain water and also prompting your liver to produce blood sugar, leading to elevated blood-glucose levels. Spiked blood sugar levels causes your body to release insulin.

Insulin is the primary regulator of fat storage. When insulin levels are elevated—either chronically or after a meal—we accumulate fat in adipose tissue. When insulin levels fall, we release fat and oxidize it for fuel.

dehydration > vasopressin > glucose > insulin > hyperinsulinemia > insulin resistance > obesity and diabetes

Dehydration, as a result, eventually leads to chronic hyperglycemia, or high blood glucose, which can even cause insulin resistance (diabetes). According to a study published in “Diabetes Care” in 2011 of 3,615 adults over 9 years: those who drank the greatest amount of water were the least likely to develop hyperglycemia, while those who drank the least amount of water were the most likely to develop hyperglycemia.

Endocrinologists recommend 1 oz. of water for every 2 lbs. of body weight per day; a 150lbs person should drink 75oz of water every day to maintain hormone balance.
Follow even just one of these 16 nutritional steps, and you will have results.

Follow them all, and your life will change.

Make them a lifestyle and in several months you’ll be in awe of your energy level, the spring in your step, and yes, how you feel in your healthy performance throughout the day.

Be sure to read my other nutrition book for free at: www.primaleatinggift.com
1. **Write it down!** Journal your meals; when you have them and what you eat and drink. Include everything even to a handful of almonds, or that sneaky glorified candy bar that supplement companies call “energy.” What you don’t realize will hurt you. But what you write down guarantees that you understand why your energy fluctuates, and empowers you to make specific and lasting changes!
2. **Eat a meal every 3-5 hours** approximately with protein and complex carbs (greens and browns, no whites) at every meal. Front load your protein by eating more good stuff. If you eat more good stuff, you’ll displace the need for snacks which because of their fast-burn make you crave more sugars. That’s right. I’m telling you to eat more at your meals!
3. **Stop the Belly at 7!** After 7PM don’t take in anything but water or herbal tea. Filling makes for unfit sleeping habits, gives insomnia, and makes it harder for you to eat the right amount of food you need for breakfast - the most important meal of your day. You should be ravenous by morning, and that’s a good sign that you’re on track!
4. **You become what you eat**, regardless of whether you eat fast junk or if you eat sustainable quality. So, choose greens over browns and browns over whites. Choose whole, live, raw, local and organic over inert, mass-produced, foreign packaged and processed. If you want to feel like a million bucks, invest in the most important virtue of your success, your food!
5. **No refined sugar, no sugar substitutes.** No whites of any kind. Sure, if you use sugar, realize it, experience it and appreciate it. But sugar and its substitutes are the most insidious socially acceptable drug abuses. Just because 100 years ago, cocaine was socially acceptable, doesn’t mean it was healthy. It takes time for your taste to recover from refined sugar, but if you displace it with naturally occurring nutrient dense foods like dates, you will not believe the difference not only in your energy, but how great you look and feel!
6. **Kick the habit.** Tobacco, soda, alcohol and sugar are just pale substitutes for the infinitely abundant vitality which lies concealed beneath their frazzled effects. Sure, moderation is fine, if you can handle it. But most people “crash” diet off of them and then fall “off the wagon.” So, it’s best to clear them totally out of your system for two years before you try to have that healthy glass of wine with your small evening meal.
7. **Eat seasonally.** Change your nutrition at least once every three months with the local produce and catch of the day. This guarantees the freshest aliveness of the food you’re ingesting. The closer the food is to being alive, the greater the nutritive density. Remember the purpose of food is to transfer its alive-energy to your energy. Life for life. This is why we must honor its sacrifice to us, and bless each bite for the energy it has chosen to give us.
8. Structure your **exercise around your meals**, not the other way around. Do the bulk of your “training” in the kitchen, because healthy nutrition precedes exercise. Basically, how you feel today is because of what you ate 12-48 hours ago.
9. **Hunger offers a truth.** Do you always feel content and never hungry? We are not talking about feeling like you’re not full and craving something to chew and taste; but about rumbling, gurgling hunger. When’s the last time that you felt that? Most of us have been conditioned to eat when we feel less food digesting, rather than when they actually are hungry. This is why the kitchen is your best fitness equipment. Prepare your meal by the time you hit actual hunger.
10. **1GPD**: drink one gallon of water per day. We’re composed 90% of water. Most insufficient recovery, most headaches, most joint pains, most lack of concentration, most everything is due to chronic dehydration. Drinking coffee, soda, beer, “energy” drinks, all contribute to dehydration. It takes time to shift over to craving actual water again, because of the sugar, caffeine and alcohol cravings overriding that base-line need. Herbal tea - hot - will help you transition.
11. **Wait 15 minutes after your meal to have any drink.** Most of the bloated feeling comes from all of the drinking. If you need to drink because of the seasoning, then consider that your food has been seasoned to make you consume more.
12. **First Burp.** If you’re adequately chewing your food, and not drinking at your meal, then when you feel that first burp, your stomach just informed you that you’re done. Satiety reflex takes time to reclaim, because we’ve associated the absence of hunger to be “meal success” - when it’s actually based on certain cues that our body gives us like “first burp.”
13. **Drink your food by chewing.** Chew your food until it’s liquid. Don’t do this and you will need to eat more to get the same level of nutrition, and you’re usually “full” before you get adequate nutritive benefit from your meal because of gobbling and choking it down. Most of us store fat because our body feels starved for nutrients… because we eat too fast. Slow down. This isn’t a sprint. It’s a marathon. Savor each morsel.
14. **Take a short walk immediately after your meal.** This aids in digestion, and avoids the “fullness” feeling that plugs you and pushes you into “food coma.” It’s also the best time for a great talk with your loved ones. Or on your own, just experience the food as it becomes you.
15. **Be in your process**. Just because you’re learning discipline on your healthy nutrition doesn’t mean that you should fixate on doing everything perfectly. When you “fall off the wagon” jump back on without judging yourself. Appreciate your little tangent like you would any child-like distraction. You’re your own parent. Treat yourself like you would your darling little babe.
16. **Honor elimination.** What goes out and how is as important as what goes in. I know that most people don’t want to talk about elimination, because it’s viewed as “waste” because it’s not useful to you. But that’s just all perspective, and one of the fundamental beliefs leading to diseases like colon cancer. Be grateful for what has become you and what goes on to something else. The first 15 steps will help you cleanse out undigested food, so that you can more efficiently process the nutrition you ingest.
What are the 8 keys to get back into shape after becoming ill (like after a near deadly case of MRSA in the photo on the left)?

1. **What have you set your mind to think about right now?** As you think, so shall you become. Are you thinking about healthy meals, or fast junk? Are you thinking about drinking soda and beer, or tea and water? Are you focusing on how well you'll move in your exercise, or how awfully hard it will be. Thought alone is not the only step, but it is the first step. Set your mind upon your goal with vivid detail. Visit it frequently.

2. **Simplify.** It’s not the daily increase but the daily decrease. Hack away at the unessential. You don’t have to add more and more, when you feel like you have no time. You only need to remove the mismanagement. More than enough time exists, when you actually sit down, write it out, organize it, and apply your plan.

Do you need that energy drink, or could you plan your meals more effectively so you’re not using stimulants? If that exercise is causing you painful joints, is it really helping you; is there something simpler that would be more effective? Ask yourself, when prioritizing, does this add to my mental clutter; what is redundant, what is wasteful, what is unnecessary... remove it. What remains is your serenity.
3. **Learn about yourself in interactions.** To know oneself is to study oneself in action with another person. If your movement and nutrition are truly on, then social and family settings should be no problem, but they’re the most complained about issue.

Exercise with a friend, and you’ll discover that you are more motivated by their effort. Eat with a friend, and find that your conviction increases with their respect in your efforts. If you find yourself receiving negativity from an individual for your exercise and nutrition goals, ask yourself what about the relationship is not healthy for you? Surround yourself by those who will lift you up and who believe in you.

4. **Do not divide.** Take no thought of who is right or wrong or who is better than. Be neither for nor against. Nutrition and movement are among the most highly individualized activities in our world. You cannot find the best way; only the best way for YOU and only for right now. Don’t become involved in nutrition or exercise beliefs, for how you feel about a thing now will change over time. They’re all tools in the toolbox, and all are context-specific to a time and individual. Be open to all approaches, but be dedicated to your current one. Honor that in others.

5. **Avoid dependency on validation from others.** You’re not in this world to live to someone else’s expectations and they’re not in this world to live up to yours. If you intend for your nutrition and movement to improve, do not wait for others to encourage, support and direct you. Expect to go it alone. Be grateful for the validation you might receive from loved ones, but be willing to go, without hesitation, when it disappears. Do not expect people to change because you disapprove of their behaviors, or for them to remain the same because of your approval. We each have our own process. Stick to your own.

6. **Be proactive.**
Circumstances, be damned; create opportunities. There will be no perfect time to improve your nutrition and your movement. By the nature of the fact that you believe that your nutrition and movement can improve, this is the perfect time. You will perceive obstacles and problems. You can either change these circumstances, or change your mind about them; realizing that they’re opportunities and potentialities. Take action on them. They will not change by waiting them out. They’ll only strengthen. You’re not too late. You early now. Much worse will happen if you wait. You’re ahead of the game. This is the perfect time.

7. **Be you. Always be yourself.** Express yourself. Have faith in yourself. Your movement comes from your food. You move as you eat. Eat how you want to move. Express your nutrition. The menus that you encounter will be enormous, complicated and overwhelming. You don’t need to do it all or be everything. Find what you like (right now) and just do that. If you do it in a balanced way, you’ll find that your faith in yourself grows, because you’ve honored your own preferences and tendencies, rather than imposing some perceived expectation from others.

You’re never too heavy, too little, too tight, too old, too beat up, too late, too early, too young, too inexperienced, too broke, too busy, too preoccupied, too bored, too hungry (okay maybe too hungry; no... never mind, never too hungry either!) No more “Terrible 2s.”

8. **A dream written down with a date: becomes a GOAL.** A goal broken into steps: becomes a PLAN. A plan launched into action: becomes a REALITY. Your dream has been written. Your steps have been followed. Your reality is HERE. Now go out there and show the world the reality you’ve worked so long and hard to create.
If you can’t say NO.... yet.

Emotional eating is not a failure of character, but insufficient tools and timing for volatile biochemistry. Emotions aren’t “bad or good” - emotions are the human experience, but some kinds and degrees of emotions can compel us with impulses to make unhealthy choices. Emotions are specific molecule, so prepare yourself proactively, counter actively and even retroactively for the fall out with these 7 strategies for strengthening will power to overcome cravings:

1. If you can’t say “No,” say “Not Yet.” The impulse can be very strong, but each time you deny the craving, you release chemistry which makes it easier for your brain to abstain the next time, and eventually the craving comes only to your mind as an idea, rather than a flood of emotion. You can fight a bad idea with a good reason, but it’s hard to fight a strong emotion with good logic.

So, if you can’t say no to a craving, tell yourself that you will choose to satisfy the craving, but only in 15 minutes exactly. Firstly, this releases some of the will-building chemistry that saying no releases, so over time, you can add 5 extra minutes each time, until you finally get to a large, healthy meal. Secondly, the craving diminishes the volume you will eat more each minute you wait, so that by the time you satisfy it, you’ll only need a tiny taste.

2. If you can’t say “No,” say “Next.” The impulse may be too strong a chemical wave to stop, but you can say no to the initial craving, and move on to an alternative. Practice until you can say “Next” three times. The 4th alternative choice tends to be almost optimal. But start out just saying “next” twice: the second “next” choice tends to be as bad as the first, but the second is usually a little bit healthier, and like saying, “Wait” this builds the chemical willpower to eventually say, “Next” until you are actually eating a healthy meal.

3. If you can’t say “No,” say “Nutrient.” Instead of trying to say no to eating, say yes to a healthy alternative. Eat a meal with a combination of food: some lean protein first, then some complex carbs with some healthy fats. Even if it is a small meal, but front loading this healthier chemistry, you’ll eat less of the actual impulsive craving, but you’ll also build the chemical willpower to choose only the healthy meal the next time the craving comes.

4. If you can’t say “No,” say “Nibble.” If you can’t say no completely, then purchase a small amount, or break off a small amount, have it, and then add in some type of movement after. Mobility (www.intu-flow.com) even just a little releases similar chemistry to the satisfaction chemicals of giving in to the impulse. Over time, the craving becomes an idea rather than an emotion, and you have grown the willpower to choose movement over the initial impulse.

5. If you can’t say “No,” say “Neighbor.” Studies show that we have greater willpower with a support group. If you’re going to concede to it, share the experience. Not only will you avoid feeling guilty (which reinforces the impulse next time in a downward spiral) but you will enjoy your time with your friends, and as a result release similar satisfaction chemistry which will cause you to eat less of the actual impulsive craving.

Read Willpower: Rediscovering the Greatest Human Strength by Dr. Roy Baumeister for more strategies.