Seven Letters

Letter #3

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Note that each of the Seven Letters Will Have Its Own Table of Contents.
Letters (and Contents) Will Be Consolidated into a Book When All Seven Have Been Distributed.

Sugar, Insulin, Serotonin:
Monsters and Masters in the Quest for Balance

I'm constructing and distributing a total of Seven Letters.

The first addressed the power we really have over our own bodies. The second addressed mindset and false beliefs.

Two down, five to go.

Why, if I only have five letters left would I devote this one exclusively to ***sugar*** and its connection with metabolism (insulin) and mood (serotonin)? Shouldn't that be a part of a letter on nutrition, or on meals, or on carbohydrates?

Perhaps if I promised each topic equal attention I would have made it a subtopic of a greater discussion, but . . . it's important.

If something is important enough to warrant its own letter, I'd be doing you a disservice to do anything but give it the attention it deserves.

If your goal is optimal health and fitness, sugar is *that* important.

If you're going to gain control of your body and you have any challenges with energy, or if you have more fat on your body than you ever wanted . . . you have to understand the impact of sugar. Only then can you effectively master your appearance, your well being, and your health.

If you get cravings that seem uncontrollable, if your family demands snack foods and sweet treats, or if your doctor told you triglycerides are high, you're pre-diabetic, or if you've ever had the term Metabolic Syndrome discussed as a possible diagnosis for you or anyone you love, you have to understand the impact of sugar in order to facilitate positive change.

Is it important enough to make radical changes in the way you eat?

Is it important enough to consider what food advertisements your kids respond to and intervene in their choices?

Is it important enough to set aside all the email jokes you were going to read, to put off responding to your BFF's text message, and to crank up the DVR to record CSI?

Yes, it's *that* important.

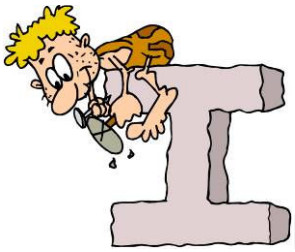
Not So Sweet Realities

Consider these facts:

- The average American consumes a wheelbarrow full of sugar every year. A big wheelbarrow!
- Diabetes is an explosive epidemic! The explosion is directly linked to sugar ingestion!
- Food manufacturers thrive and prosper on the sale of sugar laden foods.
- Sugar laden foods are a primary factor in America's struggle with obesity.

Rather than diving headfirst into a revelation of the sugars in the foodstuffs you consume, rather than getting right into the biochemistry of blood glucose's role in energy and metabolism, I'll begin by taking you back in time. Way back in time. Here we go . . .

A Caveman Story



N THE YEAR 8,000 B.C, Grunt the Caveman walked across the bear rug into his cave kitchen and poured a cool glass of iced tea. He then opened a bag of sugar and started spooning it into the glass, tasting periodically until it was sweet enough. A total of 17 spoonfuls of sugar dissolved into the icy glass. Grunt squeezed in a lemon, sat by the fire, and as he sipped his delectable sugar drink, he began trying to invent the wheel so he could finally get his Ferrari to move.

What's wrong with that scenario?

First of all, cavemen didn't have spoons, at least not premeasured teaspoons. They didn't have glasses, they didn't have Ferraris, and they didn't have bags of sugar. No, our predecessors didn't know there would someday exist little sugar crystals that were pleasing to the palate, that could cause a burst of energy, that could make anything taste good, and that would become one of the single largest contributors to an alarming obesity epidemic.

So what does the offbeat caveman story have to do with your health and fitness? Nothing . . . unless you realize that genetically, you're very much the same as he is, at least in terms of the composition of your body.

Yes, Grunt and the person who stares back at your from your mirror each day have a great deal in common.

You're both made of water, amino acids, and minerals. You both share atoms with the plants and animals that inhabit your world. You're both redesigning your physical being at any given point in time.

If a compound failed to exist in Grunt's world, his body had no need for it. If a compound has been created by a machine thousands of years after Grunt passed on, your body has not learned to recognize it as a valuable contributor to health and fitness.

But surely Grunt ate sugar, right?

Grunt and his contemporaries ate fresh caught fish, sources of vital proteins and essential fatty acids. They gathered vitamin rich fruits and edible shrubs growing in mineral rich soil. They ate meat obtained from animals that grazed, animals that had freedom to roam and to run, and animals that fed only on plants and meats found in nature.

Every rare once in awhile, Grunt and has buddies came upon honey. A few bee stings later, they enjoyed a tasty treat, but between bee tempers, bears, and inaccessible bee hives, sugar made up a very small percentage of their caloric intake.

Did Grunt eat sugar? Yes, some, but in a much more suitable condition for contributing to human health than the sugar you find beyond the doors of your local food mart.

In Grunt's world, the sugars found in fruit were accompanied by fiber and vital micronutrients, and the sugar in honey was a by-product of natural bee metabolism. Nothing consumed was "created" by man.

Science, agriculture, and commerce have taken us far beyond a world of hunting and gathering. We now have to work hard to find natural foods, we have to spend more of our hard earned money if we shop for organics, and we have to become label detectives if we're going to sort through the foodstuffs filling our supermarket shelves.

The path of least resistance today asks you to respond to the advertisements, buy the tasty stuff in pretty boxes, and wave the white flag, and lots of businesses are banking on the hope that most will choose that simple path.

Grunt's neighbors were different than yours. They were likely more concerned with survival than generating millions of dollars, driving stock prices, or selling truckloads of product.

Our neighbors include individuals who cluster together in offices and factories to create products that sell, and if you want to sell something to the modern man (or woman) and generate lots of money, you'll want to be sure to please the palate, and better yet, create an addiction.

I'm not screaming conspiracy theory, but it's impossible to deny the power of processed refined sugar as an inexpensive overly abundant ingredient that fuels the voluminous sale of snack foods, breakfasts, and beverages.

Let's accept that we live in the world we live in, most of us will not opt to move to rural areas where we live purely off the land, and let's not deny our needs.

Let's seek understanding, let's then seek simple change, and let's find a path that may require a bit of effort, but let's prove it to be an effort well rewarded.

We can't avoid sugar. We can't eliminate it. As a matter of fact, while edgy nutrition gurus might argue this point, I feel comfortable making the following statement.

We Need Sugar.

Before I get into some of the specifics, let's understand the incredible mechanism your body has for utilizing glucose. Glucose is sugar, simple sugar molecules that move through your bloodstream as a source of muscle and brain fuel. Glucose is paramount to survival, and it is the end result of the breakdown of carbohydrate foods.

Managing glucose is a function Grunt's body likely performed well. His pancreas served as a pump for the hormone insulin, and insulin is the transport mechanism for glucose. When blood sugar spikes, the pancreas increases production of insulin to grab the excess and store it in muscles and in the liver. The stored glucose, referred to as glycogen, becomes a reserve. When blood sugar drops, the pancreas initiates hormonal shifts that allow for glycogen to be released maintaining optimal blood glucose levels. In Grunt's world this was a perfect system.

He eats. He stores. He uses. He hunts. He gathers. He refuels.

Your body, as your ancestors', is capable of managing glucose provided it is well fueled and faces sufficient activity. Unfortunately, those are two uncommon provisions in 21st century America. You can find fuel in a vending machine and burn few calories in the process of obtaining it. You can eat the snack, return to your office chair, and allow blood sugar to skyrocket and plummet before the next snack calls. Far from perfect.

Flaws in the Glucose Management System

When glucose management gets screwed up, either because of pancreatic compromise or inefficiency of insulin action, blood sugar may remain elevated. In today's world this condition of elevated blood glucose has a label. It's referred to as diabetes, and it's a primary risk factor for circulatory issues, obesity, and a host of conditions that could fill a few chapters of your medical encyclopedia.

Type I diabetes is a disease of the pancreas, and the treatment involves the injection of insulin. Because the glucose management system is intrinsically broken, Type I diabetics learn to manage blood glucose manually.

When diabetes comes to exist over time, when individuals entering nursery school with ideal pancreatic function get the "high" score on their blood glucose test in their 30's, 40's, or 50's, the condition is referred to as Type II Diabetes.

Here's a belief I hold and I gladly put out there for debate:

Type II diabetes need not exist

. . . and it presently exists in epidemic proportions.

As an illustration of the ongoing infiltration of this disease into our population, note that Type II Diabetes used to be referred to as Adult Onset Diabetes. It was thought of as a condition that manifests in mid-life.

Why, after decades, would this midlife condition find its way to 11 – 13 year olds? Why would its incidence occur in younger and younger folks until "adult onset" became a misnomer?

Could it have something to do with juice drinks, snack cakes, cereals, and everything gummy from worms to eyeballs (in case you don't have young children, gummy bears have moved beyond exclusivity with the bear population and these sweet and sour gummy concoctions now take the form of skeletons, worms, eyes, and even . . . are you ready for this . . . vegetables! Yes, you can now eat candy vegetables that haven't an iota of nutritional value)?

I believe sugar, processed refined delicious sugar, is one of if not the primary culprit driving our obesity problem and statistically it is reaching further and further backward, being identified in youngsters with alarming frequency.

I've addressed this topic (sugar, cravings, and a lost sense of control) enough times to know that even at this point in my explanation of sugar's role in our health concerns, there are many who begin to doubt whether I'll be able to provide a strategy they can adhere to.

Too many have lost any sense of responsibility. They've been convinced that they're infected of plagued with irreversible conditions. They wear the shameful labels of sugarholics or carb addicts. These misinformed victims have typically reached out for drastic weight loss measures, or found ongoing frustration trying to lose those few pounds that never go away, yet, based on their experience, they just CAN'T give up sugar.

Never fear. You've met and defeated the Aye Kant in the previous letter. Sugar habits are simply obstacles to be overcome. Sugar is not an enemy and I'm not going to ask anyone to give it up. I'm simply going to ask you to recognize and acknowledge the impact too much sugar can have, and to take responsibility for managing your own intake.

Within these Seven Letters I'll share some strategies that can help anyone make comfortable adjustments in nutrition and exercise including reduction in excessive sugar intake. I wouldn't, however, direct you without empowering you, and the information in this letter is vital to your empowerment. I mentioned with certainty that if you are subject to excessive sugar intake, you can comfortably reduce it . . . but that brings up a new question.

What is excessive?

That's a difficult question to answer, as according to USDA figures, the average American consumes near 170 pounds of sugar annually. Even the average is excessive!

The point that bears repeating is, our bodies were not genetically programmed, nor do they have the adaptive ability, to healthfully handle what likely amounts to near 35 times the sugar ingestion of our ancestors. More importantly, we don't ingest 170 pounds of natural honey and fruit sugars. We ingest laboratory produced compounds cleverly converted into various addictive inexpensive sugars with names ranging from turbinado to High Fructose Corn Syrup.

Sugar intake can be pleasurable, and we should enjoy treats and celebrations. We just don't want to enjoy ourselves right past a state of health. If we begin to consider fruits as sources of fiber, micronutrients, and sugar, we can begin to find comfort ingesting modest amounts of fruit as components of complete, supportive meals. If we limit the processed sugars to occasional desserts and we avoid thinking of candy bars and high sugar beverages as "meals," we can well manage our intake, perhaps to the tune of 30 pounds per year. Still a lot as compared to Grunt, but far less excessive than the "average" today.

How Did This Happen? A Glance at Sugar History

If we trace how history brought us from Grunt's occasional honey find to 170 pounds per person, we have Alexander the Great to thank for introducing sugar cane as a prized commodity. It came to the U.S. along with Christopher Columbus, and with a newly developed American sweet tooth, the southeastern US and Caribbean region became sugar cane growers.

From the time of Columbus to the time of Elvis some 450 years later, sugar ingestion elevated to 100 pounds per person per year. The early 1900's brought us homemade creations of cakes and pastries and by the mid 20th century the typical household "dessert" consisted of some combination of pie, ice cream, and chocolate or pastry treats.

Perhaps we would have been OK if it stopped there, if we consumed healthful meals and relished our sugar as treats and desserts, but in the 1970's, as technology started lessening physical activity, it also opened new doors for food preparation. Food scientists learned to create and mass produce ***high fructose corn syrup***. It sounded healthy. After all, it included the word corn.

This discovery and the events that followed might have been the tipping point.

HFCS and other "Natural" Sugars

The reality is, high fructose corn syrup contains sucrose, table sugar, but combines it with fructose in a manner that limits fat mobilization. It spikes insulin, it cripples fat loss, and wow, does it make foods taste good.

Walk into a convenience store and count the candy and snack offerings. They're not thought of as "desserts." They're instead categorized as snacks, needs (I "need" a candy bar), hunger satisfiers, meal replacements, and temptations.

If you manage to count the number of offerings, you'll be amazed, but the amazement won't stop there, not if you proceed to examine the ingredient labels. High fructose corn syrup, a compound we now know as detrimental to optimal health, is a key feature on virtually *every* ingredient panel.

You can fall victim to the preposterous assertion that "because it's *fructose* it's good for you . . . fructose is fruit sugar," and that victimization promises your health will suffer. To the less aware, it does appear to be a powerful argument as fruit sugar sounds "natural."

Words such as "natural" sell product, but when you extract compounds from natural sources and process them, "natural" goes out the window. After all, isn't sugar cane "natural?" By that token, isn't opium?

Even with the acceptance that processing hinders the value of a food compound, words can continue to confuse and marketers know that well.

"Raw" sugar they promise is good for you? "Raw sugar" is . . . sugar . . . as is molasses, brown sugar, beet sugar, and maple sugar.

Oh, and while once in awhile honey might be acceptable, you're better off finding a beehive out in the woods than you are purchasing honey in the local grocery, at least from a nutritional standpoint. Commercial honey comes from bee farms, and those bees are amply fed, but they aren't fed from pollinating flowers. They are fed an ample supply of refined sugar!

Even the bees have become sugar machines, turning refined sugar ingestion into commercial sugar production.

Let's simplify.

- As our population becomes more reliant on sugar consumption, our population becomes fatter, unhealthier, and more prone to disease

- As our population becomes more prone to disease, sugar commerce drives billions of dollars and the sugar machine is already rolling big time. Big business is not likely to stop for something as insignificant as subtly growing human disease.

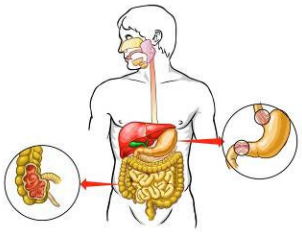
- In order to sell foods that are laden with sugar, food manufacturers hire marketers and advertisers who recognize the labels are billboards and creative develop attractive copy that speaks directly to impulse. "The Delicious Sugar Free Cookie, sweetened with natural fruit sugar!"

- People who fill their pantries with tasty crackers, snack foods, and fruit-filled breakfast pastries have not only developed rituals and habits that make sugar hard to avoid, but they've also created biochemical addiction which feels as if it's impossible to break.

Understanding Insulin

As we further understand insulin, let's begin to understand why the perception of the sugar addiction is so powerful.

Remember, the pancreas has good intentions. It wants to keep things stable, to balance its production of hormonal compounds so blood sugar remains near a constant, so energy is abundantly available, and so the components of foods are readily sent to their rightful places to meet the body's demands. In response to a blood sugar elevation, the pancreas produces more of the "sugar transport vehicle," more of the hormone that grabs on to sugar in the bloodstream and shuttles it into the muscles and the liver for future use, more of the hormone named insulin.



When you swallow a candy bar, a sweet fruit juice, or sugar sweetened flour in the form of donut or pie, the sugar is absorbed into the bloodstream quickly, spiking blood glucose.

As expected, the pancreas cranks out additional insulin to remove the extra glucose (sugar) and restore things back to pre-snack levels. Because of the sudden and radical spike, the pancreas tends to produce more insulin than is immediately needed to remove "the extra" sugar, so after insulin aggressively goes to work, the resultant residual effect is low blood sugar (hypoglycemia).

In this low blood sugar state you feel a bit lethargic. Your internal workings, the same workings that allowed Grunt to find the motivation to hunt for berries when he was tired, combine hormonal messengers and neurotransmitters to send the "eat sugar" signal up to your brain.

Again, the intentions are good. Blood sugar is low, the body wants to keep things stable, so it sends out sugar cravings to drive you to consume the "energy substrate," sugar.

This is the underlying mechanism behind the "sugar roller coaster." If you eat sugar, you'll crave sugar.

A similar hypoglycemic condition (followed by cravings) exists when you go long periods of time without food, or when you consume a meal consisting wholly of carbohydrates. The trick is not to avoid food, nor is it to randomly seek out glucose-supplying carbohydrates, as these complicate the roller coaster and amplify the challenge.

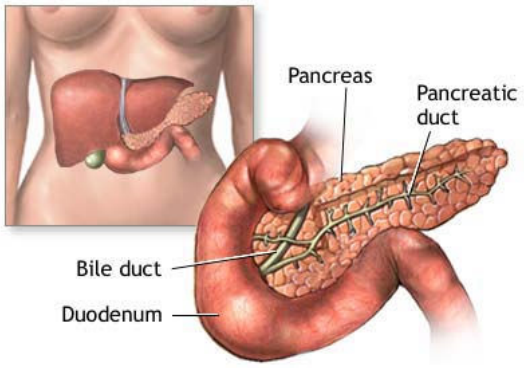
Ideally, you'll avoid glucose ups and downs. You'll create a situation where your body has sufficient glucose, but its delivery will not be reliant upon simple sugar ingestion. Ideally, you'll adopt a strategy where the foods you eat provide a "slow and ongoing release" of glucose into the bloodstream so you never get the spike nor are you subject to the residual drop.

Sugar Management

Managing sugar cravings has everything to do with managing blood sugar, and managing blood sugar has everything to do with managing insulin. If, therefore, your lifestyle allows for insulin balance, you become free of debilitating sugar cravings, your energy production remains consistent, and . . . you can lose fat virtually all day long.

Allow me to explain the pancreas-sugar connection a bit further and this will all begin to make complete and total sense.

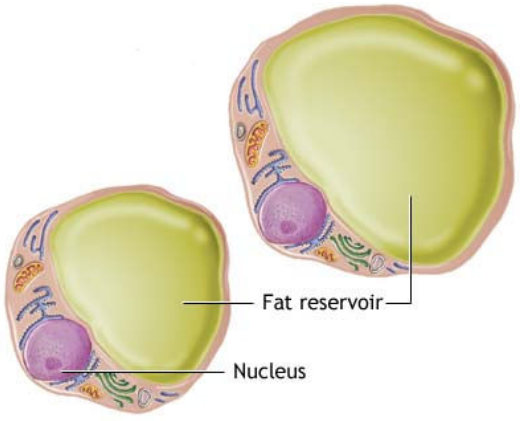
The pancreas is a neat little hormone factory, and it not only manufacturers the "storage hormone," insulin, but it also makes a "release hormone," glucagon. A healthy and supportive internal environment allows the pancreas to balance both.



Insulin stores the breakdown components of the foods you eat, glucagon allows you access to stored energy substrates so you can find constant energy.

Insulin stores, glucagon releases.

The fat loss challenge that plagues most Americans is amplified when we consider the glucagon effect during a sugar-induced insulin spike.



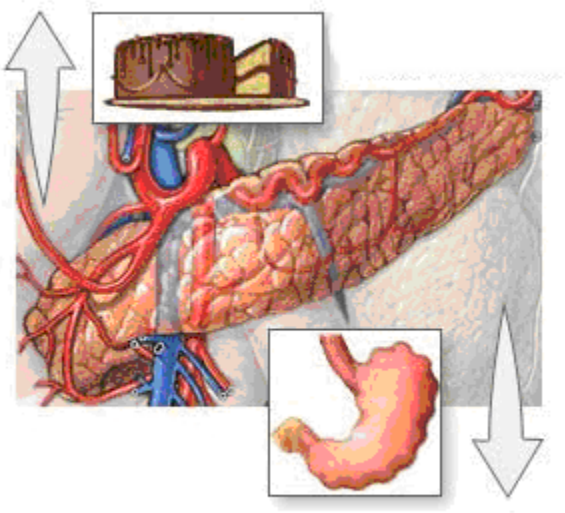
When you attempt to "lose fat," you really have to consider a two-step process. You don't simply "burn fat," but you first liberate it into the bloodstream. In other words, the excess fat you have around your waist or padding your thighs is actually adipose material, fatty acids, and these little chains of fat stay in place in a cellular fat reservoir because they've moved into a cell membrane.

You can't burn that fatty material unless you release it from the cell and send those fatty acids back into the bloodstream. Once they're accessible, you have the ability to shuttle them into the mitochondria of the muscle cell (the activity center of a muscle cell) where they are burned as fuel.

Glucagon is the release hormone, the hormone that allows the stored fatty acids to leave the fat call and free themselves up as a fuel source. If you're not producing ample glucagon, you cannot burn fat, simply because you can't release it.

Let's consider the "shift" the pancreas makes in response to a blood sugar spike; a shift into *insulin dominance*. It has to focus its manufacturing power on creating lots of insulin, thus, in an insulin dominant state, glucagon production shuts down.

When glucagon production shuts down, so too does the ability to burn fat.



The blood sugar spike that messes with energy, that shifts you from a hyperglycemic state to a hypoglycemic state, that stimulates sugar cravings, and that contributes to the likelihood of insulin resistance (to be addressed shortly) also prevents you from losing fat.

Avoid blood sugar spikes and allow your pancreas to do its job, to balance insulin and glucagon. This simple process allows you not only to efficiently utilize a consistently available energy supply, but it also allows you to burn fat . . . all day long!

The "other" IRS

IRS is the abbreviation clinically used for ***Insulin Resistance Syndrome (IRS)***. This is often confused with Metabolic Syndrome and Type II Diabetes. While these terms are not synonymous, they are closely related, and not a one of them is "good."

I'll do the best I can to provide a simple explanation of these terms, the relationship, and why you want to understand them.

Insulin Resistance is a condition where the pancreas secretes adequate insulin, but there is an inadequate insulin response. In other words, the insulin is produced, but it doesn't all work to store sugar as efficiently as it's supposed to. This results in continued pancreatic production resulting in compensatory hyperinsulinemia.

This condition drives abdominal fat storage and with it come a host of associated risk factors increasing risk of cardiovascular disease.

Insulin Resistance makes you fat.

Insulin Resistance makes you sick.

IRS might be considered a precursor to Type II Diabetes, and as the body begins to suffer the ill effects of this hyperinsulin condition, other "diseases" are frequent outcomes including hypertension, obesity, impaired uric acid metabolism, and inflammation affecting function, digestion, and cognition.

When obesity, high blood sugar, and high blood pressure are clustered together, the "dis-ease" may be diagnosed as metabolic syndrome, a high risk condition which medicine readily accepts as a cardiac incident waiting to happen.

Instead of the forementioned "path of least resistance," the typical acceptance of the diagnosis and the search for adequate medication, the integration of strategic exercise, adequate recuperative time, and . . . supportive eating (including a distinctive effort to manage sugar intake) are not only the most promising preventative measures, but there is enough evidence to suggest they may be fully curative in a significant percentage of diagnosed cases. The synergy between exercise, eating, and downtime is the magic, however, the magic can be destroyed by failing to take responsibility for sugar intake.

Let's get blunt.

If you're fat, you need to control sugar.
If you're sick, you need to control sugar.

Who's In Charge Here? Serotonin!

Think of the activity of the hormonal system as a musical symphony with the glands acting as the players. The pituitary plays its tune, the adrenals handle their part, and the pancreas, as you now know, contributes to the orchestral work. As a musical piece, the hormonal environment moves and changes, and the players have to interact accordingly to create a harmonious and pleasing work. In order for the musical elements to come together, someone has to conduct, someone has to control to some degree the interaction between the players.

Think of serotonin as the hormonal conductor. It is the neurotransmitter that conducts the hormonal symphony to create a desired internal environment, or . . . it does the best that it possibly can with the input it receives.

Serotonin has power. It has the power to take a ravenously hungry human being and create the sensation of satiety, and in that role, it cannot be separated from the conditions that lead to cravings and a sense of nutritional fulfillment.

We seek a condition where 3 hours after a meal, the hunger signal emerges, driving not ravenous behavior, but satiation. Modest elevation and falls in serotonin levels account for modest alteration in appetite and satiety. One simple way to turn "modest" into "monstrous" is to allow sugar intake to become the serotonin trigger.

Sugar ingestion leads to serotonin spike followed by serotonin drop, which means, "I feel wonderful" is shortly thereafter followed by "I feel miserable, I need sugar." This, combined with the energy roller coaster explained earlier by the variations in pancreatic production of insulin, leads to the sense of addiction.

To make matters worse, remember that delicious evil compound high fructose corn syrup? It gives you the taste of sugar, makes you feel as if you're attempting to battle the sensation of hunger, but has limited impact on serotonin, causing the "hunger" part of the cycle to last longer, and the ultimate spike and drop to be much greater.

Eat lots of refined sugar and the orchestra starts playing a symphony of sweet cravings with little chance for refrain. The "eat sugar, feel good, feel bad, crave sugar" cycle can rival the addictive properties of daily ingestion of cocaine. When you give the conductor the power to create radical spikes and drops in the music, you suffer the consequences by way of a disastrous outcome.

Bear with me as I attempt to further explain the complexity of the serotonin connection.

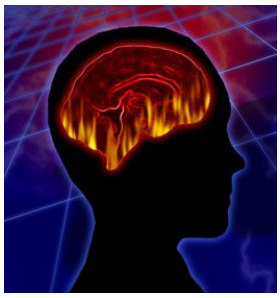
A Little Serotonin Neurobiology – For Your Own Good

I know, I know, you asked for explanation, not for a complex lesson in brain and body chemistry, and I wouldn't subject you to unnecessary science. I do, however, feel that in order to fully understand the magnitude of the issues I'm discussing herein, in order to remove questions and in order to prevent you from believing these might be my "opinions" which can be countered by following the latest diet trend or writings of the newest diet whacko (forgive me, but in so many cases the term applies), I'm going to throw in just a bit of science. For your own good. It will allow you to better understand how the "feelings" associated with sugar ingestion link to the outcomes and challenges discussed herein. Remember, before you "fix" the problem, you want to understand it.

Remember hearing of tryptophan? You might have heard it referred to as "the turkey enzyme" as word has it this compound in turkey is responsible for millions of Americans plopping their overstuffed bodies on couches on Thanksgiving Day to watch football. Tryptophan is not actually an enzyme, but rather an essential amino acid found in complete proteins, and this amino acid is the material from which the body and brain manufacture serotonin. An essential amino acid is one we need to ingest, thus, if we are going to make serotonin, tryptophan ingestion is vital.

In order for the manufacture of serotonin to take place, we require not only sufficient tryptophan, but also sufficient vitamin B6 and magnesium. If either of these micronutrients are lacking, so too is serotonin production.

There is one more challenge.



Tryptophan must cross the blood:brain barrier for the serotonin conversion to take place, and there are five other amino acids, tyrosine, phenylalanine, and the three branched chain amino acids, that compete to get across this sometimes crowded pathway.

High protein diets will increase amino acid activity, so they will inherently limit the amount of tryptophan that gets across the barrier.

When high carbohydrate meals are consumed, insulin production escalates as you already know. What you may not know is that insulin is a transport and storage vehicle not only for glucose, but also for amino acids . . . . all but tryptophan that is. When the other five aminos are eliminated as competition for travel across the blood:brain barrier, tryptophan crosses without interruption and has a direct route to the brain.

Get more tryptophan to the brain, and with adequate B6 and magnesium serotonin conducts the orchestra to play "I Feel Good." Suspected carb addicts know this process well, as their consumption of chips and candy bring about that sense of pleasing satiation. It even, at times, serves as a short-term "cure" for the blues.

What alleged "carb addicts" also know all too well is that the blues return . . . louder and heavier than before, and the strategy they rely on to push the blues away is . . . eating refined, processed, and simple carbs leading to continued bursts of sugar in the bloodstream.

The ongoing quest for "feeling good" further drives hyperinsulin conditions, increasing the conversion of the foods ingested into fat.

As insulin production continues to achieve erratic highs, the insulin receptors at the cellular level begin to "down-regulate" or shut down reducing the effectiveness of the insulin produced.

This would be the first stage in the full blown development of Insulin Resistance Syndrome. The mild insulin resistance leads to the pancreas manufacturing more of the hormone attempting to compensate for the inactivity at the inactive receptors. The excess (hyperinsulinemia) reduces blood sugar leading to a low blood sugar condition (hypoglycemia) which is followed by the inevitable sugar ingestion and the residual, radical blood sugar spike.

Over time the insulin resistance increase and the level of hyperinsulin production leads to increased reduction of stored fat availability (remember, if you can't release it, you can't burn it).

As you get fatter, you struggle at greater levels to achieve the eat-carbs-feel-good condition and the erratic production of serotonin leaves you often feeling depressed and wanting for sugar. The brain itself uses glucose as fuel, so the cravings begin to feel insurmountable. They aren't. They just feel that way.

Before you stop a roller coaster, you have to slow it down, and since sugar, insulin, and serotonin are all tied together, slowing it down requires a bit of focus and discipline. Once the roller coaster loses momentum, the perceived effort is reduced and things just seem to find a new sense of balance. When you are at the controls, new outcomes and destinations begin to take shape, and once you take a few steps in the right direction, you're on an entirely new path with an entirely new destination.

Putting the Brakes on the Sugar Roller Coaster

Let's discuss some proactive steps for stopping the roller coaster and gaining that sense of control. Let's understand what we can do to create the "I Feel Good" music and keep it playing as long as we'd like.

I told you earlier I have a strategy that can "work," even if you're apprehensive, even if you've gone through years of doubt as to whether or not you can get things under control. It starts with providing a slow-release of glucose, a slow and constant pump so modest levels of insulin can adequately handle sugar management. If you avoid the sugar spike, you minimize the erratic bursts of insulin, and if your carbohydrate consumption is sensible, if your new dietary habits include complex carbs ingested with protein and fiber, and if your overall food intake is adequate to meet metabolic needs, the new stability of blood sugar diminishes the incidence of sugar cravings.

More important than the much-touted Glycemic Index, the propensity of a given food to spike blood sugar, you want to consume meals that have a low-modest glycemic load, meals that combine nutrients so carbohydrates are effectively used for fuel and the pancreas avoids sudden shifts in hormone manufacture.

If you feel a recurring need to eat sugar, just plain old candy, jelly donuts, and malted milk balls, the idea of consuming "meals" rather than snacks may initially seem alien. Before I close this letter out I'll tell you how three days can change your perceptions and your reality in this regard.

For now, I'll provide you six elements of an overall strategy that can help even the most extreme self-confessed sugarholic find a sense of control

1. Eat supportive meals frequently combining fiber, protein, and modest servings of starch from the most natural sources possible

2. Eat fruit, not by themselves, but as meal components along with proteins and fiber, and minimize or eliminate intake of high sugar fruit juices

3. To fill in the spaces when meals are not convenient, make your own protein smoothies rather than relying upon store bought smoothies. Store bought smoothies contain ridiculous amounts of sugar, even if it isn't readily advertised. The "liquid flavor" they add is usually turbinado or sucrose sweetened liquid, and the fruits they add come in sweetened syrup. Mix pure egg protein with a handful of frozen berries and you have a lower sugar meal replacement that helps to provide vital nutrients and manage hunger.

4. Consume adequate fiber while avoiding excesses of refined carbohydrates

5. Clean your kitchen so it contains nothing processed discarding cakes, white breads, cookies, and snack foods. Fill your fridge with a variety of vegetables, and protein sources so salads, omelets, and supportive meals can be prepared with little effort.

6. Apply Synergy – the combination of the Right Nutrition, some aerobic movement, and some resistance exercise to manage fuel ingestion and fuel usage should be three elements present in a synergistic structured exercise and eating program.

If you've already progressed along the sugar dis-ease continuum, if you already have suspicion or evidence of insulin resistance, here are additional steps to take:

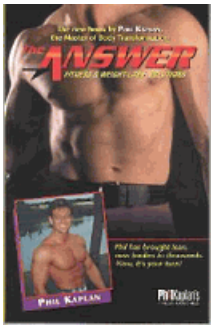
1. Get a medical test measuring not only fasting glucose, but also insulin response. This will require a conversation with your doctor, as the standard "work up" measures blood glucose as a snapshot, a moment in time. You'll want to identify not only fasting insulin, but pancreatic activity in response to glucose.

2. Begin self-tracking using a glucose meter upon waking and after meals. Your doctor can prescribe the testing apparatus. You'll receive lancets which allow you to painlessly draw blood, strips that collect a tiny sampling, and a meter that provides instant result.

3. Begin a synergistic structured exercise and eating program

You'll note that "a synergistic structured exercise and eating program" is provided as a curative procedure as well as a control procedure. It's the pivotal element of the overall program. A synergistic program incorporating strategic exercise and supportive eating will prove to be "the magic" that heals, that optimizes, and that empowers.

The 17 Day Answer Program:



A Synergistic Structured Exercise and Eating Program
Available at www.philkaplan.com

Three Days You'll Love to Hate

I've had countless people who felt out of control find not only control but mastery of their bodies by preparing them for three difficult days.

Remember, the sugar roller-coaster is an addiction, albeit a breakable one. The sense of addiction comes from the chemical stimulation and erratic production of insulin and serotonin. A "victim" of powerful sugar cravings is typically an individual who hasn't yet learned to master the habits of sugar management.

Stabilizing blood sugar takes time, but with the implementation of supportive eating and exercise, far less time than you might imagine. I find most people who are willing to commit to adopting some new habits can rid themselves of sugar cravings in three days. The three days, however, are rough.

If you are in fact riding the sugar roller coaster, the first day you eliminate simple sugars and implement supportive eating and exercise you may find yourself irritable. The second day you may get headaches and suffer insomnia, and the third day may be worse than the second.

This is sounding so exciting, is it?

Never fear. There's good news coming.

If you learn to strategically implement a simple resistance based exercise program, if you combine it with something that challenges the heart and lungs a bit, and if you are willing to trade simple sugar and snacks for the frequent intake of supportive meals, after Day 3, it just sort of "kicks in." The pancreas tends to understand something new is happening. Serotonin drops are lessened. The new "fueling strategy" allows for insulin stability and an energy quality that feels good.

To make tomorrow Day 1, get up after 7 – 8 hours of relaxed sleep, do a four-exercise resistance routine* followed by a brief walk, and then enjoy some bran cereal, fruit, and protein (a protein shake, some egg whites, or an egg white omelet). Then eat supportively combining lean proteins, natural complex carbs, and fiber in frequent meals the rest of the day.

After three days, a new sense of control emerges. That new sense of control marks a new beginning, a new power to reshape your body and optimize health, a new power to offset the dis-eases our population is coming to accept as inevitable.

* If you don't have access to a structured exercise program, consider simple movements that challenge muscle such as squats, pushups, an overhead press, and a pulling movement. Simple dumbbells can offer sufficient resistance. Over time you'll increase the volume and intensity of the movements, but as a starting point four movements can bring about significant change.

Closing Notes follow on the next page . . .

Closing Notes

I promised you a letter, not a book on sugar, so while there is much more I could share, I'll stop here.

I'll tell you as a general rule, when you begin to explore labels anything ending with –ose indicates sugar.

I'll also mention that alcohol is a sugar, a sugar that contains almost twice as many calories as glucose, a sugar that is so simple in form it is absorbed before it even makes it into the intestinal tract. If sugar is sugar, and alcohol is sugar, anything that falls on the spectrum between sugar and alcohol would also be a sugar.

Many foods are sweetened with sugar alcohols which are . . . sugars. They vary in structure, in caloric value, and in insulin response, but they are NOT sugar salvation. If you scan ingredient levels and find the suffix –ol, you're likely looking at sugar alcohols.

If you want more information on sugar, I've set up a short menu of sugar related articles at my website. Just go to:

http://philkaplan.com/sugararticles.htm

Additional Resources

I'll also mention that as of the writing of this letter, I have in my warehouse a surplus of my 17-Day Answer programs. I included mention of it on a previous page.

The program was one of my top offerings until I released the 21-Day Journey to Excellence I now share in workshops.

The Answer program is an ideal program for anyone looking for a structured program consistent with this letter. It comes with a simple booklet and an audio CD and its helped thousands of my clients over the years overcome sugar challenges and gain control.

You can order the Answer program for $39.99 at the online Superstore at www.philkaplan.com, or you can call 1 800 552-1998.

In the next letter . . . the only eight exercises that matter! Until then . . . take what you've learned, implement it, and watch how life continues to just . . . get better!