Digestive Health and Nutrition

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for the

WeDoFeet Foot Zone School

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The Energy of Food

Energy and Food are Inseparable for Health

- The energy of our body is altered by everything that enters our mouths, ears, eyes, and thoughts
  - To have peace and health, we must take control of the energy we internalize
  - Many people would never listen to the terrible energy of vulgar speech, or watch the terrible energy of violence, but regularly internalize food that is just as destructive
- Food has both a biochemical shape and a vibrational frequency that change how our body functions
- For health, we have to eat well and balance our energy
  - If we have energetic blocks and imbalances, they keep our body from being able to use all the wonderful food to do its greatest good
  - If we don't give our body the ingredients it needs, it doesn't have the building blocks to carry out our energetic blueprint
- So with all the debates, how do we know what food is truly in harmony with our body?

It's Time to Cut-it-Out with the Cut-it-Out Approach

- **All** modern diets have a common thread: cut it out
  - The instant we discover that **any** food has a downside, there is a diet or campaign to completely avoid it
  - Name any food that has been naturally grown and eaten for thousands of years and someone is telling you that you shouldn't eat it at all
    - Gluten, starches, fat, dairy, salt, meat, soy, legumes, eggs, sugar, nightshade vegetables, etc.

  - Those campaigns become so pervasive that we become absolutely terrified of specific foods, even to the extent of starting to feel sick when we eat them
  - Logic and nature tell us this isn't how food or even life in general is designed to work

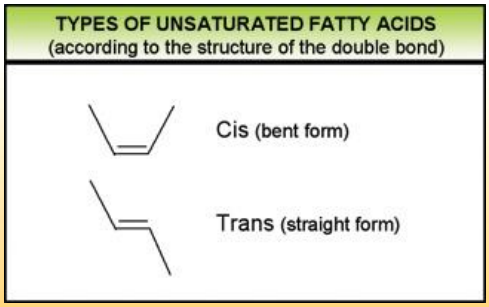
Nutrition ~~Is~~ (Should be) Simple

- Car Analogy
  - A car is designed to run on specific ingredients, and the manufacturer knows what those are
  - If you put in grape juice, you will be grounded very quickly
  - If you put in fuel that isn't quite formulated correctly, you have delayed problems as the sub-par fuel damages one part of the engine after another
  - This leads to a cycle of continually repairing parts, when the real problem is the fuel
  - That is precisely what we are doing to our bodies!
    - We are living with bodies where organs/systems are continually out of balance and failing one after another because we aren't reading or following our owner's manual
- Where do we get the owner's manual to our body? From the Creator
  - The Earth is created to provide you everything you need, in the forms you need, in the amounts you need, and in the times you need
  - The patterns of the Earth are a textbook for what God/Nature intended for our bodies
    - These patterns are so ingrained in the Earth that before 1800 it was hard not to live in harmony with these truths
    - Now we have created so many ways to override the wisdom of nature that we have to consciously learn these truths and choose to live them
    - **2 key principles** give us knowledge and the motivation we need to make truly healthy choices

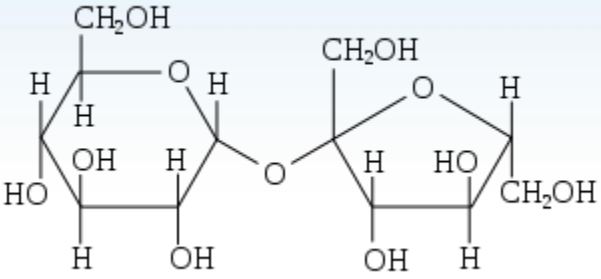
#1: Eat What Nature Created

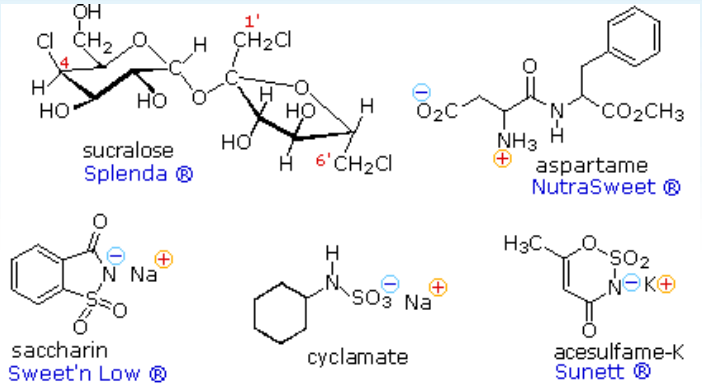
- Your body is the world's most amazing and complicated puzzle
  - Your biochemistry works with precise pieces that fit into precise locations to activate precise responses
  - When those pieces don't quite fit, our body starts to malfunction
- Synthetic substances get into our receptor sites, but they don't quite fit, so they block our natural body processes and create unnatural side-effects
- God/Nature provided the food that contains the exact pieces needed for all of those chemical and electrical systems to function perfectly
  - Two examples

Fat



Sugar





- Things we all need to avoid:
  - Chemical additives, preservatives, and dyes
    - We have to read every ingredient of everything we eat (including restaurants) so we aren't filling our bodies with synthetic ingredients that throw off our body processes
    - <u>THIS IS THE MOST IMPORTANT STEP ANY OF US CAN TAKE WITH OUR HEALTH</u>
      - We are paying such a high price for eating mystery food!
  - Artificial Sugars
    - These alter our hormone responses so that our body thinks it is starving
  - Pesticides
    - Eat organic where you can
    - The top most pesticide ridden foods are: peaches, apples, bell peppers, celery, nectarines, strawberries, cherries, pears, imported grapes, spinach, lettuce, and potatoes
    - The foods with the least pesticides are: onions, avocados, frozen corn, pineapples, mangos, asparagus, sweet peas, kiwi, bananas, cabbage, broccoli, and papaya
  - GMO's (genetically modified organism)
    - This means the plant or animal has a strip of pesticide or pesticide resistant DNA inserted into the plant DNA
    - Monsanto (the producer) argues that these toxins are broken down and never impact the body, but studies outside the U.S. show it even crosses the placental barrier and enters the bloodstream of the fetus
    - Bacteria regularly also swap DNA, so the pesticide DNA can end up in our gut bacteria and we can become literal toxin factories
    - Avoid GMO's at all costs: corn, soy, sugar beets (listed simply as sugar on ingredient lists), potatoes, tomatoes, zucchini, papaya, vegetable oil, salmon, and meat/dairy that has been fed non organic feed

#2: Eat Food in the Form it was Created

- We will look at how this principle helps us find answers to nutritional questions, one topic at a time

Notes

Eating Healthy Fat

"I am confident that God never intended for us to worry about counting fat or calories, or He would have put labels on the food himself. He took care of all the details in the creation, and all we need to do is trust and follow His system." Angie Christensen

Fat is Good!

- Recognize that fat is a natural creation, not the enemy
  - Our brains are 60% fat
  - Fat is a source of energy, especially for the heart and brain
  - Fat forms the protective membrane around each of our cells
  - Fat is critical for cellular communication and electrical transfers
  - Fat forms the myelin sheath that coats and protects nerves in our nervous system
  - Fats are necessary to make hormones
  - Fats control inflammation
  - Fats are necessary for you to absorb the minerals and vitamins you eat
  - Fats are necessary for your immune system
- Cholesterol is also critical
  - Cholesterol is so important that every cell in your body can make it for its membrane
  - It balances fluidity and structure for our cells
  - It is needed for our body to make hormones
  - It is used to make Vit D and aids serotonin function in the brain
  - It makes bile acids to digest and absorb fats
- The low-fat movement was a political decision
  - 1977: U.S. Government adopted the concept of a low-fat diet for Americans as nutritional policy based on sketchy science and the goal to lower the cost of the food stamp program
  - The results: We have fought the wrong enemy and lost the war
    - Since 1970 (the low-fat craze): Obesity rates have tripled, diabetes has risen 500%, and heart disease has not decreased at all
  - In 2010 the American Heart Association published a data analysis reversing its position
    - The data showed that eating saturated fat had no association with heart disease

The Key to Health is Eating Fat in the Right Form

- Our health problems associated with fat are because we have changed the FORM we are eating
- For millennia, fats in the diet came from 2 sources:
  - They were eaten as part of complex food (such as nuts and seeds)
  - They were naturally pressed from high fat seed and fruits (flax, olives and coconut), or rendered with low heat from animals (beef tallow, lard)
  - These fats are still in their natural form
    - Their chemical structure is undamaged and the essential vitamins remain intact
    - They fit correctly into our cells and can do their critical jobs

- The modern Western diet, however, is full of mutated fats that have been damaged and cannot do their job correctly

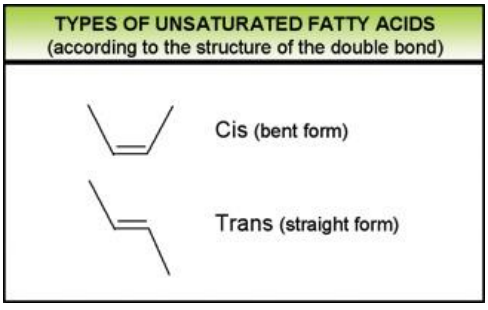
The 3 Kinds of Fat

- Saturated fats
  - These are the body-builders: they can handle just about anything
  - They are solid and stable because their carbon bonds are all “saturated” with hydrogen
  - They do not go rancid or break down when heated
  - They are solid at room temperature
  - Saturated fats are critical for the brain, heart and lungs, cell membranes, bone strength, hormones, white blood cells, and many other body processes
- Monounsaturated fats
  - These are like the average adults of the fat world: they are strong, but have their limits
  - They have one double bond that makes them liquid and more vulnerable to damage
  - They are stable with moderate heat, but they start to break down with high heat
  - They are liquid at room temperature and solid when refrigerated
  - These fats keep our body tissues supple, including our arteries and our skin
  - These include the omega 7 and omega 9 oils from nuts, avocado, and olives
- Polyunsaturated fats
  - These are like the wispy fashion models of the fat world: a slight wind will mess these up
  - They have multiple double bonds which makes them very liquid and very vulnerable
  - They can’t be exposed to light, heat or oxygen without being damaged
    - The carbon bonds break, forming free radicals, trans-fats, and other mutant fatty acids
  - They are liquid, even when refrigerated
  - These include the essential omega-6 and omega-3 oils

The One Fat You ALWAYS Want to Avoid

- Vegetable oil cannot be naturally pressed from vegetables, so it was never eaten before the 1900's
  - It became available when chemicals like hexane were created that can strip the oils out
- Nature has always **protected us** by making vegetable oils impossible to extract
- **Reason #1: The vulnerability of their chemical structure**
  - These are polyunsaturated fats that are super-susceptible to damage from heat, light and oxygen, all of which are used for extracting
    - Extracted vegetable is always in a mutated form that cannot fit or function properly in our body

- **Reason #2: They have to be highly processed**
  - Extracting vegetable oil takes a lot of heat and processing
    - Processing removes all the critical nutrients such as phospholipids, chlorophyll, beta-carotene, Vitamin E and minerals
    - These oils are heated up to 500° and treated with chemicals including hexane, bleach, and BHT
    - None of these chemical processing ingredients have to be disclosed on the label
    - The refined oil is rancid, but is chemically deodorized so you can't tell
  - To create margarine, these oils have to be chemically altered further to remain solid
    - Hydrogenation is done by adding aluminum, and then more chemicals to deodorize, bleach, dye and flavor it
  - If you eat vegetable oil (corn, soy, canola, etc.) or margarine, you are eating rancid oil that has added hexane, bleach, deodorizers, dyes, chemical flavorings and preservatives, and has been transformed into an all-around disease promoting food
- **Reason #3: Trans-fats and free radicals are formed every time polyunsaturated fats are heated**
  - Polyunsaturated fats become mutagenic at 302°, trans-fats form at 320°, and mutant fats form in large numbers at 392°
  - Polyunsaturated fats are naturally in the V-shaped "cis" form, but with heat they mutate into rings, crosses, and fragments
    - Mutated fats take up space where healthy fats should be, but can't do their job
    - They are solid where they should be liquid
    - They create holes in our cell membranes
    - They block electrical impulses like a misplaced spark plug
    - Because of this, trans-fats have been linked to cancer, heart disease, diabetes, obesity, immune problems



  - Our cells and neuropathways are lined with these misshaped fats, and cannot function correctly
    - Nutrients can't get into our cells, and waste can't get out
    - Depression and other mental illnesses can be reversed by healthy fats
  - The label "zero trans-fat" is an advertising gimmick
    - They alter the portion sizes until they can round it down to zero
    - Extracted vegetable oil always contains mutated fats

- **Reason #4: Vegetable oils are super high omega 6 fats**
  - Omega 3 and omega 6 are essential fatty acids, or EFA's for short
  - These critical building blocks cannot be made internally, but have to be obtained from food
    - Our body uses these fats make hormones and prostaglandins, improve immune function, smooth skin, give stamina, speed healing, and inhibit tumor growth
    - They reduce inflammation, water retention, triglycerides, platelet stickiness and blood pressure
    - They are critical ingredients for brain function
  - The balance of omega 6 and omega 3 oils in our diet is critical for health
    - Researchers believe the ancient balance of omega 6 and omega 3 oils was 1:1
    - The current recommendation is between 2:1 and 3:1, (a little more omega 6)
    - Because of eating vegetable oils our current balance is between 10:1 and 30:1
    - Increased intake of omega 6's statistically correlates to declines in our health
    - Excessive omega 6 intake interferes with EPA/DHA creation and the productions of prostaglandins, which leads to whole body inflammation
      - If you are struggling with inflammation from arthritis, asthma, heart disease, etc., start by getting rid of all vegetable oils
  - Instead of using massive doses of omega 3's supplements to combat the damage, let's correct the root of the problem by getting balanced omega fats from natural, healthy fats

Quality Automatically Balances Quantity

- The Earth naturally provides us with the perfect amount of fat based on our climate
  - We don't have to count the fat we eat, just make sure we only eat fats in their natural form
  - If you remove all the processed fats from processed foods and restaurants, you can embrace cooking with natural healthy fat without worrying about amounts
  - Most of the fat we eat is the processed fat in processed food
  - When you take control of what fats you eat, quantity will take care of itself
- Listen to your body
  - There will be days when your body will need more fat than others
  - As you remove damaging fats from your diet, your body may start craving the healthy fats it needs to repair, or it may let you know it needs a break from a higher fat diet
    - If your body is craving fat, feed it what it needs in the pure form it needs it
    - If your body doesn't feel good when you eat more fat, make adjustments

How to Choose Healthy Fats

- It is far better to eat nutrient-dense real fat than low-calorie foods
- The closer we can eat a food to its natural (whole) form, the better
  - Eat fat in whole foods, like avocados, nuts, coconut, free range organic eggs, etc.
  - Throwing seeds into a smoothie is an easy way to get truly fresh seed oils
  - Choose extracted oils that can be naturally pressed

- When you shop, look for the labels “unrefined” or “extra virgin” which mean it is still in its natural form
  - “Expeller pressed” can still be chemically processed
- Take an honest look at the fats you are getting in processed food and restaurants
  - 99.99% of all restaurant food is made with mutated vegetable oils
    - If we are eating out regularly, our bodies are made of mutant fats and our omegas are WAY out of balance
  - The oils in processed food like potato chips, French fries, fried foods, crackers, soups, pizza, bread, salad dressings, mayo etc. are all mutated vegetable oils
  - Processed nuts are also mutated by roasting and by being coated in mutated vegetable oil

***for full charts, detailed discussions and shopping guides for all the types of fat, please see the full Simply Divine Eating course**

Further Study

“How the Ideology of Low Fat Conquered America,” Ann F. La Berge, *Journal of the History of Medicine and Allied Sciences,* 2008
Fats that Heal, Fats that Kill by Udo Erasmus, 1986
Death by Food Pyramid by Denise Minger, 2013
Nourishing Traditions by Sally Fallon, 2005

Notes

Eating Healthy Sugar

*"If we eat sugar in the whole food form, we'll be protected. It is the extracted form, in the high quantities that extracted sugar allows, that is the problem. Biochemistry explains why, but long before we understood the biochemistry, God's system proves it by the fact that it doesn't provide any sources of pure sugar, unless once and a while you stumble on a beehive. The way we have interfered with this divine system is by **extracting** the sugar, mixing it with processed grains and processed fats and naming it dessert. No matter what Martha Stewart says, this isn't a good thing."* Angie Christensen

Sugar is a Natural Part of the Food System

- That means there are ways to make your cake and eat it too and still be healthy
- Changing **how** we eat sugar improves health faster than any other change
  - Eating healthy sugar improves our heart, metabolism, immunity, digestion, and so much more
  - It decreases pain, prevents illness, and reverses chronic diseases

How Did Sugar Become a Problem?

- The oldest and most natural sources of sugar are fruit and honey
- Sugarcane was domesticated thousands of years ago, but first mass-produced by the English Empire in the 1800's
  - 1820: the average American consumed 2 teaspoons of sugar per day
  - 1960 (pre corn syrup): the average American consumed 22 teaspoons of sugar per day
  - 2010 (post corn syrup): the average American consumes over 40 teaspoons of sugar every day. How?
- We are consuming twice as much sugar as we think
  - We get 1/3 of our sugar from drinks, 1/6 from desserts, and **half** from processed foods
  - 80% of all foods available in America contain added sugar
    - For example, yogurt, now has up to 30 grams of sugar in one serving!
    - Sugar is hiding in your bread, crackers, soup, spaghetti sauce, salad dressing, etc.
    - Manufacturers add LOTS of corn syrup to make up for the bad taste of processed food
- We are eating 20 times more sugar every day of the year than was eaten in all the rest of history
- A report from Credit Suisse, stated that 30-40% of all healthcare costs in the U.S. are from diseases stemming from excess sugar consumption. That is over 1 trillion dollars a year!
- Dr. Robert Lustig, an endocrinologist from UCSF, shows that the eight biggest diseases in the U.S. all stem from metabolic syndrome (a direct result of sugar overload)
  - These diseases account for 75% of healthcare costs in the U.S.
  - **Our bodies literally cannot ever process refined sugar without negative consequences**

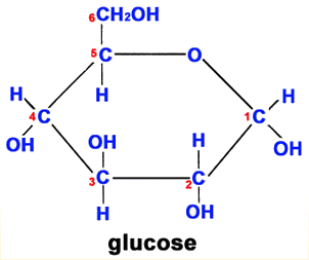
The Immediate Health Effects of Refined Sugar

- Refined sugar feeds harmful bacteria, viruses, yeasts, and others pathogens in our bodies
  - This encourages them to thrive, overgrow and gain control in our bodies
  - These thriving bacteria promote tooth decay, colds, flus, and other acute illness, as well as chronic problems in our intestinal system
  - These bacteria create sugar cravings for you so that they get enough food!
- Refined sugar suppresses the immune system by decreasing white blood cells' ability to capture bacteria
  - The two biggest contributors to a weakened immune system are diet and emotions
    - Stress plus sugar = illness.
  - If you get sick, take out **all** sugar from you diet and load up on nutrient dense food
    - This will starve the germs, feed your immune system, and cut recovery time in half
- Refined sugar creates an addictive drug response in the brain

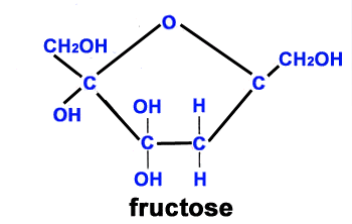
  - The changes in dopamine receptors in the brain with sugar are the same as with addictive drugs
  - A 2007 study by James Cook University found that cocaine-addicted mice actually choose both natural and artificial sugar-water as a reward over cocaine
  - Manufacturers deliberately load up processed food and drinks with sugar so you buy more

The Long-term Effects of Refined Sugar

- The most important thing to understand about sugar is that it has two pieces, and each half has a completely different effect on your body
  - **Glucose** is the energy source for your cells and critical for life
    - Glucose travels in the bloodstream to our cells
    - When the level of glucose in the blood stream gets too high, our pancreas releases insulin to move the glucose into cells
    - Prolonged high insulin levels cause our cells to quit responding to the insulin, and glucose builds up in the body, creating type 2 diabetes
    - Small, slowly released amounts of glucose are a good thing, but high levels cause enormous damage



- **Fructose** isn't necessary for a single function in the human body, and has to be processed in your liver as a toxin
  - If a small amount of fructose reaches the liver at a slow rate (such as when we eat a single piece of fiber-rich whole fruit) the liver can burn it as part of the Krebs cycle
  - Concentrated fructose is literally toxic
    - It fuels obesity, diabetes and heart disease
    - It creates uric acid (gout)
    - It raises blood pressure
    - It tells your body to **make** fat
    - It raises VLDL and triglycerides
    - It blocks leptin in the brain, so your body thinks it is starving

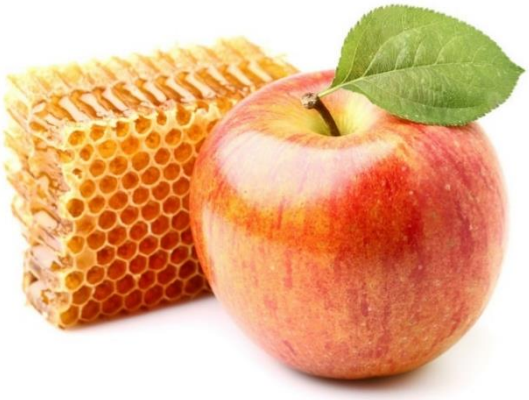


fructose

  - Fructose is low glycemic, but **very** destructive to your liver
    - Agave is 70-90% fructose (see the blog post at the end of the chapter)
    - A Coke or glass of fruit juice does as much damage to your liver as a beer
    - This is why children are now getting fatty liver disease
  - With medical students given a high fructose diet for only **6 days**, triglycerides doubled, fat making went up 5 times, and free fatty acids that cause insulin resistance doubled

Nature Packaged Sugar to Protect Us

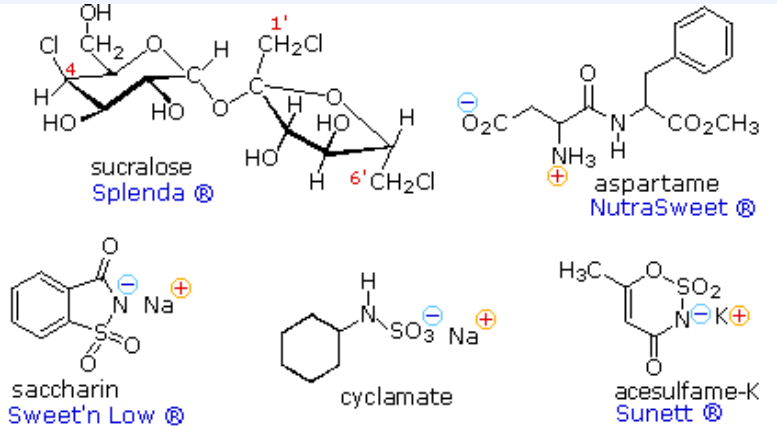
- Our bodies are not designed to ever eat refined sugar
  - This is obvious because sugar in nature **never** exists in an isolated form except as honey
    - Quantities of honey are balanced by the effort required to extract it from the hive
- Nature always packages sugar inside FIBER
  - To quote Dr. Robert Lustig, "When God made the poison, He packaged the antidote"
  - Fiber slows the release of the sugar because our body has to work to extract it from the network of soluble and insoluble fiber
  - It keeps quantity in balance by filling us up
    - We can't eat much sugar in real food
    - Having to chewing the sugar out of a sugar cane keeps the amount of sugar at a level our bodies can process



  - Smoothies seem like a good solution, but a study from Germany found that blenders break up the fiber so much that fruit smoothies create a sugar dump in our liver like fruit juice
- The quantities of sugar available in nature are designed to be variable
  - Our body's insulin system is programmed to help us store energy for winter or famine
  - The high sugar supply of the fruit harvest helps our bodies store energy (fat) for winter
  - Having fruit, fruit juice, smoothies and honey every day of the year keeps our body's famine protection system running in full gear, and we end up with chronic disease
  - We can support our body's natural system by making sure that our sugar is in the form of natural, complex foods, but also to make sure it is occasional and seasonal, not constant

Dangers of Artificial Sugars

- Artificial sugars have an altered structure that causes altered body functions
- Aspartame (NutraSweet/Equal), is the most contested FDA approval in history
  - It is found in diet soft drinks, yogurt, ice cream, desserts, **gum,** vitamins, cough drops, etc.



- Aspartame is made up of phenylalanine and aspartic acid (amino acids), and methanol (wood alcohol)
  - Free methanol is a toxin that breaks down into formaldehyde from the heat of shipping
  - High levels of phenylalanine flood the brain, causing psychiatric disorders, panic attacks, depression, headaches, etc.
  - Aspartic acid, like MSG, is an excitatory neurotransmitter that can cause over-firing of the neurons and neurological cell death
    - This was why the neurologist, Dr. Olney, fought aspartame's FDA approval.
  - This 0 calorie "diet" ingredient interferes with your body's hormones (insulin and leptin), increasing your body's appetite and fat production
  - Acute symptoms from aspartame include migraines, seizures, depression, vision changes/blindness, sleep problems, memory problems, nausea/vomiting, dizziness, mood changes, heart rate changes, fatigue, cramps, diarrhea, etc.
- Splenda has also been shown to be highly toxic
  - It alters insulin and glucose levels in humans, kills beneficial bacteria in the gut, and produces increased rates of leukemia in rats
  - The heat from cooking releases cancer-causing dioxins into the food
  - The Center for Science in the Public Interest (CSPI) has given Splenda a cautionary status
- The patterns are clear! Eat what nature created. Artificial ingredients will always wreck your health. You weren't made for them, and they weren't made for you.

Application

- Recognize that a calorie tells you nothing about **how** your body processes a food or what the consequences of that process are
  - An artificial sugar has no calories, but does a lot of damage and will cause weight gain
  - Real food with real calories is the way to health. Not processed low-calorie fake food
  - When we take our focus off of weight and put it on eating what our bodies are designed to eat, weight comes off without us even having to think about it
- Work on cutting artificial sugars out of your diet
  - These hide in places where we don't look at ingredients, like gum, medication and vitamins
  - The food industry is trying to pass a bill passed to add aspartame to milk without labeling it

- Work on cutting the refined sugar out of your diet
  - Read every label to see that 50% hidden sugar: sugar, cane sugar, cane juice, _____ syrup, malt, corn syrup, dextrose, glucose, fructose, sucrose, and fruit juice concentrate
  - You can do it gradually, or cold-turkey depending on your personality
    - If you do it gradually, make careful, conscious choices about what kind and how much sugar you eat as you continue to gradually reduce it
    - If you do it cold-turkey, you will have one intense week, but then the cravings will completely disappear for good
      - This is best for those with diseases/symptoms or who want a shorter battle
  - All of us have to have the experience of 30 days with zero sugar before we discover all the places it is creeping into our diet
  - Currently popular sugar forms like coconut sugar are still extracted, concentrated (and therefore refined) sugars
- The natural sugars in the form and the quantities God/Nature created are good. Enjoy them.

Fruit

- Fruit contains the divine package: fiber, vitamins, minerals, and other nutrients along with the sugar
- Cooking with whole fruit is the best solution
  - You can soak dates in water and then slightly puree them in the food processor
  - This paste can be used for baking, rolled into logs and coated with coconut and nuts for a treat, or mixed with nuts and seeds to make snack bars, or in fudge
  - For times when you need dates in a dry form, you can also buy date sugar, which is dates that have been dehydrated broken into a granular form so they can be added to recipes
    - You may need to add a little more liquid to the recipe because of the added fiber
  - Apples, bananas, pears, and other fruit can be used as well
- Remember that all sugars, even natural ones, need to be eaten occasionally and in small amounts so that we don't overload our body's fructose coping systems

Adapting

- Because we have been eating at least 20 times more sugar than we should, we need to give our taste buds a chance to adapt back to their natural state
  - If you try something new once and don't like it, or it isn't sweet enough, don't give up
  - Let your body go through the process of reclaiming its natural tastes and then healthy food will actually taste good, and the junk **will** taste like junk

***for full charts, detailed discussions and shopping guides for all the types of sugar, please see the full Simply Divine Eating course**

Further Study

Video: Sugar, the Bitter Truth, by Robert Lustig https://www.youtube.com/watch?v=dBnniua6-oM
Video: Fat Chance, by Robert Lustig https://www.youtube.com/watch?v=ceFyF9px20Y
Fat Chance, Beating the Odds Against Sugar, Processed Food, Obesity, and Disease by Robert Lustig, 2013
Grain Brain by David Perlmutter, 2013

Notes

The Truth About Agave: Good or Bad?

By Angie Christensen

Everyone is looking for a healthy sugar replacement. We all know that refined sugar is not good for us, and we are trying to find something better. For years agave has been hailed as the low glycemic solution to all our sweet-tooth cravings. Recently, however, there has been a lot of talk about whether agave is really good or bad. Or is it both? I have not found a complete explanation of the topic anywhere, so I am sharing it with you here. In just four minutes I can show you exactly where agave stands in the great sugar debate.

Is All Sugar, Simply Sugar?

The food industry argues that sugar is just sugar, and the form doesn't matter. Both logic and chemistry tell us otherwise. The sugar you eat breaks down into two simple forms, glucose and fructose. But those two forms have completely different metabolic pathways in your body. Glucose is the energy source for our cells. Small, continuous doses are essential for life. High doses, however, spike our blood sugar and lead to weight, heart, and insulin problems. This discovery led to the creation of the glycemic index, which measures the degree to which different foods impact our blood sugar. Suddenly, we were all on the search for low glycemic sweeteners so we wouldn't upset our delicate blood sugar balance, and fructose seemed to be the answer.

Here is the problem. Fructose is not necessary for a single function in the human body, so it is sent to the liver for processing. Now if you know much about the liver, you know its main job is to process toxins. That is exactly what fructose becomes in large amounts. If a small amount of fructose enters the liver at a slow rate, such as when we eat a single piece of fiber-rich whole fruit, the liver can burn it as part of the Krebs cycle. But when large amounts reach the liver, it causes a toxic chain reaction that effects your entire body. The popularity of agave is an example of this misunderstanding. Wahoo, everyone cried! A low glycemic liquid sweetener that is easy to add to recipes, drinks, and is even vegan. But, **and this is a BIG but**, the reason agave is lower on the glycemic index is that it is 70-90% fructose. That means it is 70-90% useless and toxic in a human body. This is a concealed disaster that actually fuels diabetes, heart disease, obesity, inflammation, and much more. You'll be shocked at how dramatically concentrated fructose sabotages all your other healthy efforts! So keep reading!

The Fructose Path of Destruction

1. The first thing that happens when fructose enters your liver is the production of uric acid, which causes gout and raises blood pressure.

2. Then it releases enzymes that signal your body to start making fat. This is not the fat you are eating, this is fat that is made inside of you. 30% of the fructose we consume will be converted by your body into fat. Some of that fat can't get out of the liver, and so contributes to fatty liver disease, just like alcohol.
3. Fructose also raises VLDL (very low density lipoproteins) and triglycerides which are the key contributors to heart disease.
4. Then fructose activates the enzyme JUNK1, which promotes inflammation. Inflammation is a huge contributor to heart disease, arthritis, asthma, and most other modern diseases.
5. The last step of the fructose chain is the final ax to the tree of our health. At this point the fructose inactivates insulin in the liver so that the pancreas has to work even harder and raise our insulin levels more. This increased insulin blocks your brain from recognizing the hormone leptin. Leptin is the hormone that tells your body you are full and can stop eating. So when we eat fructose, our brain mistakenly thinks it's starving at the same time it is programmed to make more fat.

Since agave contains the highest fructose percentage of any sweetener, even higher than high-fructose corn syrup, it fuels this downward spiral more than anything else.

Is There a "Good" Form of Agave?

The question then becomes, is all agave problematic? Isn't it natural? What about raw versions? Don't some companies claim they use a superior process that yields a healthier product? To understand the answers to these important questions, let's look at how agave nectar or syrup is made.

The agave plant stores its carbohydrates as inulin instead of as starches. Inulin is part of the family of fructans or FOS (fructooligosaccharides). These are polysaccharides, meaning they are complex molecules made up of more than two sugars. But inulin is not digestible and not sweet. So the natural "juice" of this plant is not something you would want to eat, though indigenous people have used it medicinally.
There are two ways this inulin is collected from the agave plant. Most typically, the "pina" or root of the plant is crushed to extract the inulin juice. Another option is to collect the "aquameil" liquid that forms in the steam after the flower is cut off.

To make the agave liquid sweet, the inulin must be converted from its complex form into simple sugars, fructose and glucose. This is where the problem lies, because no matter what form or brand of agave nectar you buy, you are not buying the liquid that comes naturally from the plant. Agave "nectar" is not a natural product. It is a modern concentrated, chemically converted creation that just happens to be derived from the natural agave liquid. This chemical process has only existed for 20 years.

The process of breaking down the inulin into sugars is called hydrolysis. I have found 3 different ways this is done. One is by high heat for a short time. This makes traditional agave nectar. Raw agave is hydrolyzed by using heat below 120° for a longer time, or by a patented process using vacuum evaporation and natural enzymes from black mold (Aspergillus niger). In either case, what happens is that the polysaccharide inulin is broken down into fructose to make a sweet syrup. It then goes through various degrees of filtering to remove other components.

There has been a lot of virtual buzz about the similarities of agave and corn syrup. Agave is converted to glucose and fructose in a less toxic way than corn syrup, but they do share the similar process of using enzymes to break down the carbohydrates into sweet sugar forms. However, agave is worse than corn syrup in one respect. Because inulin is largely composed of fructose, the resulting agave syrup has an even higher percentage of fructose than high fructose corn syrup. Even the company Xgave, which claims they have the "healthy" form of agave, has a 3:1 ratio of fructose to glucose in their agave nectar. Most sugar sources we eat are balanced 1:1. As we learned at the beginning of this discussion, we can say for certain that extracted, concentrated fructose is a disaster for health.

The Real Sugar Solution

So what is the solution? Am I advocating returning to white sugar? Absolutely not. Refined sugar is completely separated from all protective fiber, is 50% fructose, spikes blood sugar, and is still extremely detrimental to your health. What we need to do is eat sugar in whole foods. Then it comes with all the necessary co-factors to help your body process it effectively.

Whole fruit is a wonderful source of healthy sweetness. Dates can sweeten recipes without any of those nasty side effects. Pure stevia (not the processed forms like Truvia) is another great solution. And small amounts of raw honey also has beneficial effects on our health. Trust the system that nature gave us. Eat sugar in the forms and quantities that exist naturally. Avoid extracted, concentrated forms of sugar, including agave. Then you have your cake **and** find the health you are seeking. For example, click HERE for my healthy fudge recipe!

If you want to learn the ins and outs of 17 different forms of sugar and how and when to use them in healthy ways, check out my course on The Program page, which includes an entire 90 minute class on Eating Healthy Sugar.

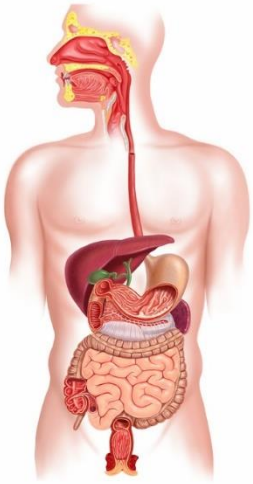
For more information

You can read more about agave processing from the companies that sell it. These companies are trying to use PR to fight back against the realization of the negative consequences of the high fructose composition of agave. But **in every single case, you will see in their own information that to make agave a "sweet" nectar, it must be converted from its natural inulin form into concentrated fructose. That is the problem.**
http://www.wholeandnatural.com/servlet/the-template/agave%20facts/Page#.U9FgVZ4g8vg
http://www.wholesomesweeteners.com/agavefactvsfiction.aspx
http://www.xagave.com/dispelling-agave-myths.html
For much more discussion of the processing of fructose, read **Fat Chance**, by Robert Lustig.

Eating for a Healthy Digestive System

"If you want to have a healthy body and mind, the gut is where all of that either begins or ends. That may sound like an overstatement, but before you even finish this class, I think you will agree that it is really an understatement." Angie Christensen

Digestive Health=Body and Brain Health



- The digestive system is the base of our immune system
  - 80% of our immunity is actually in our gut
- Our intestines contain a vast web of nerve tissue called the enteric nervous system
  - Our gut is called the "second brain" and is **full** of neurotransmitters
    - 95% of our serotonin is in our gut
  - A damaged gut leads to depression, anxiety, ADHD, etc.
  - Phillipe Pinel, the "father" of modern psychiatry, said in 1807 that "the primary seat of insanity generally is in the region of the stomach and intestines"
- The largest component of our digestive system is the microorganisms living inside of us
  - 90% of the cells in our body are not human—they are bacteria
  - Some are good guys that keep us healthy, some are bad guys (germs) that make us sick
- Because the digestive system is full of living creatures, <u>it is not a one-time fix kind of thing</u>
  - We have to continually eat to support this army of good bacteria and discourage bad bacteria
  - Our health correlates to which army has captured more territory at the moment
- We have to **eat** these bacteria to have them in our body
  - Some friendly bacteria are permanent residents and they live and multiply inside us. Others are transient and simply do their part as they pass through
  - Either we are eating to bring in and support the good guys, or our eating is killing them
  - A foot zone isn't going to create the presence of living organisms

The Protective Role of Bacteria

- Beneficial bacteria are a very powerful protective army that will guard all your borders
  - They are designed to completely cover our skin and intestinal tract to keep pathogens from having any negative effect
  - They keeps viruses from ever getting a hold inside of you
  - They protect you against antibiotic resistant bacteria (MRSA)
  - They can wipe out or prevent many chronic diseases
  - We literally can't live without them

- Our bodies weren't designed to avoid bad bacteria, they were designed to keep them from causing problems
  - No other creature on earth besides humans tries to disinfect things or avoid bacteria, they simply allow the natural bacterial system to control germs
  - If we have a high concentration of good bacteria, they crowd out the bad ones and keep them suppressed so that they never have the chance to create disease
  - Good bacteria also form a protective shield around our intestinal wall, keeping us from absorbing the pathogens and toxins that come through our system
- In an uneducated effort to fight disease, we started killing ALL bacteria
  - We didn't recognize that health comes from simply supporting the good bacteria and letting them fight the battle for us
  - We acted against bacteria before we understood both sides of the battle
  - We invented powerful bombs that have killed off our protective army
    - Clorox wipes, hand sanitizer, anti-bacterial soap and chlorinated water kill the good bacteria whose job it is to protect us from the bad ones
    - As a result we are now vulnerable to every germ that slips through the cracks and are dependent on outside germ killing forces to keep us from getting sick
- To regain our natural health and immunity we have to back up and try to reenlist a protective army again and then just let them do the job they do so well, which is protecting us against germs

The Immune Role of Bacteria

- Beneficial bacteria control the development of our immune system
  - They activate the production of lymphocytes which protect us from invaders
  - They produce immunoglobulins that destroy germs and parasites
  - They also play a part in producing interferons, cytokines, and other immune cells
  - They help regulate neutrophils and macrophages which swallow up pathogens
  - They produce substances that kill viruses, fungus, and keep the ph. of our intestinal system low enough that disease cannot flourish
  - They neutralize toxins, inactivate histamine, chelate heavy metals, and suppress cancer
  - Bifidobacteria is key in the growth of our thymus gland, which programs your T-cells to destroy invaders

The Digestive Role of Bacteria

- We don't digest our food ourselves
  - Good bacteria do much of the digestions for us, feeding and nourishing our intestinal wall
  - They help transport essential minerals, and vitamins into the bloodstream
  - They produce essential vitamins for us, including the critical b vitamins
  - They break down lactose, carbohydrates, fats and fiber
    - Without enough friendly bacteria, the fiber is not broken down and it becomes a breeding ground for disease-causing bacteria
    - This is why a low-fiber, low-carb diet is often required for gut healing, because without enough good bacteria the fiber and carbs simply rot in our intestinal tract

The Effects of Pathogenic (Bad) Bacteria

- When bad bacteria overgrow, their tentacle-like fingers poke holes in the lining of our digestive tract
  - This is known as “leaky gut syndrome”
    - It allows toxins and undigested food into the blood stream and creates food intolerances
    - Gluten and dairy intolerances come from immune reactions to casomorphine and gluteomorphine, which if undigested create morphine reactions in the brain
      - Leaky gut is a contributor to child behavior problems
- These pathogens are also living things, which means they release a lot of “crap” inside of us
  - That waste is toxic, and it effects your brain
  - The yeast candida releases acetaldehyde, an alcohol that creates foggy brain
- In summary, when our gut is over populated with bad bacteria, yeast, fungus, parasites, and other opportunistic pathogens:
  - We don’t have a protective barrier on our intestinal wall, letting toxins into the blood stream altering our brain chemistry and causing auto-immune and allergic reactions
  - We don’t properly digest our food, so it ends up fermenting and feeding the bad bacteria instead of us
  - We end up with vitamin and nutritional deficiencies
  - Our immune system cannot do it’s real job, which is to fight invaders

The Effects of Diet and Drugs

- How have we upset the natural balance of bacteria inside our bodies to such a degree? Diet and drugs
  - These are like bulldozers that wipe out our protective barrier
  - Chlorine and Fluoride destroy bacteria
    - Filter your water
  - Antibiotics are the #1 enemy of our gut
    - In addition to the prescription form, we are constantly ingesting these in the meat, dairy, and eggs that have been fed them
      - Eat organic animal products
    - When you get sick, there are many, natural anti-bacterial options that do not have as destructive effect on your gut (garlic, apple cider vinegar, raw honey, essential oils, and herbs, etc.)
  - Many drugs, both prescription and over the counter kill good bacteria and promote the growth of harmful bacteria
    - This includes everyday medications like ibuprofen
    - Birth control is one of the worst offenders
  - Sugar and processed foods cause bad bacteria to multiply like crazy
  - Prolonged stress, anger and fatigue change the balance of bacteria

Symptoms of a Bacterial Imbalance

- Intestinal symptoms:
  - IBS (irritable bowel syndrome), abdominal pain, bloating or gas, stool abnormalities, heartburn, inflammation of the intestinal wall (colitis), Crohn's disease, baby reflux, colic and thrush, having less than 2-3 bowl movements per day
- Immune symptoms:
  - Allergies, asthma, autoimmune disease, acne, eczema, (our skin is our largest detoxing organ), getting sick often from everyday viruses
- Mental symptoms:
  - Depression (remember serotonin is made in your gut), anxiety, ADHD, autism (research supports this is a gut/brain/immune disorder), schizophrenia, brain fog
- Whole body symptoms:
  - Inflammation, vaginal yeast infections, cystitis, frequent bladder infections, headaches, frequent sinus infections (candida often spreads to the sinuses), fatigue

Eating to Support our Digestive System

- You can reclaim your health simply by learning to eat in a way that supports the defensive army you need
  - Nature created the symbiotic relationship between us and the good bacteria. We just need to get the good bacteria into our gut and help them to thrive
  - If we don't maintain our digestive health, we will constantly find ourselves in a need to heal

Step 1: Clean it out

- Without enough beneficial bacteria, waste builds up and becomes hard and compacted in all the cracks and crevices of our intestines
  - This impacted "crap" provides a perfect rotting environment to harbor bad bacteria, parasites, toxins, and promotes disease
- Large amounts of mucus become a biofilm hotel for pathogens
  - The biofilm protects the pathogens from treatments, both prescription and holistic
- Bentonite clay and diatomaceous earth act like sponges, sucking up the junk
  - Start with a teaspoon or so and work up to a tablespoon once or twice a day
  - Drink A LOT of water
- MANY herbal teas assist in cleaning out the colon
- Herbal laxatives like Senna can be used temporarily, but should not be used on an ongoing basis
  - If needed, Natural Calm magnesium helps with constipation
  - As your gut health improves, constipation and diarrhea should disappear
- Enemas and colonics are important at first to help clean out the dying and decaying junk
  - Enemas can be done with salt water, water kefir or probiotics, wheat-grass juice, or herbal teas
  - Professional colonics cleanse the entire colon
  - These can flush out beneficial bacteria, so make sure you are replenishing them (see below)

Step 2: Don't Feed the Enemy (Sugar)

- Sugar is the number one nemesis of a healthy gut
  - It feeds the bad guys and helps them multiply and take over
  - You can't eat refined sugar and have a good probiotic balance
  - This is the biggest key to controlling pathogens in our gut
- Sugar cravings often come from the bad bacteria trying to get you to feed them
  - Watch for your sugar cravings to go away. That means your body is returning to balance
- When starting a gut healing diet, you need to be even more aggressive about sugar temporarily
  - We have been ignorantly sponsoring the enemy bacteria with food, money, and supplies. So we need to cut off **all** support so they either die or move on
    - This means temporarily removing ALL sugar forms, including fruit and carbs
  - Once our natives are strong and in control again, they can provide effective border control themselves, and we can reintroduce healthy sugars
- GAPS and Body Ecology are diets that help reestablish healthy bacterial balance

Step 3: Reestablish the Protective Army (Fermented Food)

- The perfect storm of disease for our guts has been the combination of:
  - A high sugar, high processed food diet
  - Drugs that kill our good bacteria
  - Removing fermented foods from our daily diet
- Fermented foods are the divinely designed source of good bacteria that we need every day
  - Modern methods of preserving foods destroy the nutrition in food
  - Fermented food uses nature's preservation system which actually **increases** the nutrition
  - If we don't eat fermented food, our digestive systems are starving to death
- Fermented vegetables (cabbage, cucumbers, etc.) and drinks (kefir, etc.) have always been part of the natural food system
  - The sour taste plus the probiotics counteract sugar cravings

Step 4: Probiotics

- Probiotics in pill form are not as good of an option as fermented food
  - Most probiotics have less than 10 different strains in them, even if they have billions of cells
  - We need over 200 different strains of bacteria in our gut. We can't do that with pills
  - However, sometimes we need a probiotic supplement to kick-start the process
- Use these natural means to kill yeasts and bacteria instead of prescription medication

***There are 5 more steps in the full course that are critical for full healing, but these are the basic ones**

Further Study

Gut and Psychology Syndrome: Natural Treatment for Autism, Dyspraxia, A.D.D., Dyslexia, A.D.H.D., Depression, Schizophrenia by Natasha Campbell-McBride, 2010

The Body Ecology Diet: Recovering Your Health and Rebuilding Your Immunity by Donna Gates, 2011

Notes

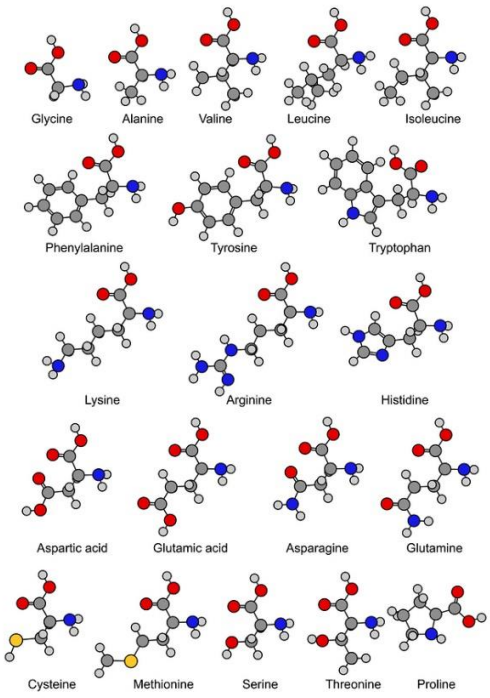
Eating Healthy Protein

"There are plenty of people and studies where healing and health have been found through switching to a plant-based, vegetarian diet, and there are just as many for those who have adopted a low carb, animal-inclusive diet. So how do we find the truth? Once again, the answer lies in eating foods in the right forms, the quantities provided by our climate, by the sweat of our brow, and allowing for individual variation. It is time to give up the quest for some single, elusive, perfect human diet. For millennia, societies have thrived by using local, natural foods, in the proportions nature provided for them and obtained by their own effort."

Angie Christensen

The Role of Protein

- Protein is a chain of amino acids, which are the building blocks of the human body
- Plants can create their amino acids, but humans cannot synthesize all the amino acids we need
  - We get amino acids by eating plants or plant-eating animals
- Amino acids work in cycles in our bodies, like dominos
  - If you are missing any one of them, the whole cycle gets thrown off
  - Each conversion step requires additional vitamins and minerals, so if you are deficient, your body can't convert the amino acids you have into the next one
- Protein is not stored by the body, it must be eaten every day
  - Since protein is critical, God/Nature made it easy to get
  - We don't need to eat every amino acid at every meal, just all of them over the course of the day
- There are plant combinations that give you a complete source of protein in one meal
  - Beans and Rice: legumes are deficient in methionine, grains are deficient in lysine, but together they make a complete protein
  - Ezekiel bread: the Biblical grain/legume combination (wheat, barley, beans, lentils, millet, and emmer)
  - Hummus: combining chickpeas and sesame seeds
- There are also individual Foods that are complete proteins
  - Quinoa, Buckwheat
  - Hempseed, Chia Seed (also contain healthy omega fats)
  - Goji berries: these contain 18 amino acids, including all 8 essential amino acids
  - Spirulina: this is an algae that is technically a complete protein, but it has reduced amounts of methionine, cysteine and lysine, so it would need to be combined with other foods
  - Animal protein sources
- Unless you are on a very restrictive diet, you will get plenty of protein without trying
- Too much protein without other balancing nutrients creates protein toxicity because of the burden on the liver and kidneys to process it



The Great Modern Debate

- If meat, milk, or other animal products are not really necessary for protein, why would they be something we would even want to consider?
  - The Paleo crowd argues that before organized agriculture, humans were hunter/gatherers, eating wild fruits, vegetables, and animals, but not eating grains
    - The truth is that we **have** genetically adapted to carbohydrates, with a specific starch digesting genes in greater numbers in those whose recent ancestors ate higher carb diets
  - Vegetarians/vegans argue that the human diet was plant-based until the invention of tools, and that we are genetically similar to primates, and so should be vegan

    - The reality is that a chimp's intestinal system is 60% large intestine, and a human's is 30%, allowing them to process a much higher fiber diet than we can
  - Everything points to the fact that are bodies are designed to eat both meat and vegetation so that our bodies can adapt to different climates and situations
  - We require nutrients that come from plants and ones that only come from animals
- Studies are misleading, because they almost never take into account the FORM of the food
  - For example, in the *China Study* that supposedly showed a link between animal protein and cancer, they used **extracted** casein protein combined with methionine, not real milk
    - Whole, raw milk also contains balancing anti-cancer ingredients
  - On the other hand, studies from the Paleo side are not objective either
- To find the truth, we have to look at what the Earth is teaching us and allow for individual variation

Fat Soluble Vitamins

- There are some nutrients that animal foods contribute
- Vitamin A was discovered from the ability of cod liver oil to heal eye disorders and rickets
  - Vitamin A in animal products is in the active form called retinol
  - Vitamin A in plants is beta-carotene, which must be converted by our body
    - It takes 2-24 times as much beta-carotene to have the active function of retinol
    - There is no toxic dose of beta-carotene, but there is such a thing as too much retinol if you are getting it from supplements
  - Vitamin A conversion rates vary in individuals, so some people need more animal sources of this vitamin, and others can adequately convert it from vegetable sources
- Vitamin D was also first discovered in cod liver oil
  - It is found in fatty fish, fish livers and in small amounts in pasture-raised animal products
  - Humans can convert some vitamin D in their skin from the sun, though that is affected by distance from the equator, time outside, personal conversion ability, and sunscreen
    - The farther north we live, the greater need for food sources of vitamin D

- Vitamin K-2 was discovered by Weston Price, but he called it the mysterious vitamin X activator
  - K-2 binds calcium into bones/teeth and protects the blood vessels from calcification
  - K-1 that is found in green leafy vegetables, but K-2 is not found in any plant sources
    - It is highest in chicken, then in other meat, fermented dairy, and eggs
    - Most seafood is not high in K-2, but the fish livers and eggs are
    - The one vegan source of K-2 is natto, because it is produced by the bacteria

Looking to the Patterns of the Earth with Animals

- Nature provides the correct quantity balance of animal and vegetable products in each climate
  - Climates where people need to rely on higher proportions of animals foods also provide the balancing nutrition for that situation, such as lots of nutrient dense fat and very few carbs
  - In most climates, the earth provides a foundation of plant foods, with animal products for limited, specific nutritional support
  - These balances also change seasonally
- The "the sweat of our brow" puts animal products into perfect proportions for our climate
  - Think about how this was designed to work:
  - When you have to raise and feed the animals, milk the cows every day, head out in the cold to hunt, or go dive in the ocean in search of your lunch, you don't do it unless you really need to
  - In the modern world, the "sweat" invested to keep the system in balance can be to hunt/raise animals **or** to invest more of our hard earned cash to buy animal products raised in harmony with the patterns of the Earth
    - How an animal is cared for and slaughtered will change the energy of the food
  - If that is too much effort or too much money, then nature is telling us to eat less of them
    - Animals aren't designed to be fast food; They are supposed to be slow, extra-credit-work-required food to keep quantities in balance

- Eating meat according to the patterns of the earth means eating the entire animal: organs, etc.
  - If you need the nutrition from a fish or mammal enough to take its life, God/Nature did not intend for you to eat a few steaks and discard the rest
    - We are supposed to eat none of it or all of it, because that is what nature provides
    - The majority of the nutrition is in the non-muscle parts of an animal
  - With chicken breasts or steaks, we eat too much meat and are still nutritionally deficient
  - The easiest way to use the whole animal is to make broth
- A truly Paleo diet can be very healthy, because it means eating local, wild-growing food that is gathered or hunted and eaten in the quantities nature provides in their natural form
  - That creates a diet rich in fruits, vegetables, and only as much animal products as you really need, because you have to hunt them yourself
  - Only in areas of the world that are devoid of plant-based food would this diet naturally have a high meat content, and there the earth also provides the necessary balancing nutrients
  - A truly ancestral diet does not include "Paleo-legal" baked goods or lots of steaks

Eating Protein in the Right Form

- With all protein sources, we have to be very careful about what FORM of them we eat, because they have been altered in our modern world so that they no longer match our divinely designed bodies

Soy

- Most soy is GMO (genetically modified)
  - Only eat organic soy
  - Read ALL your labels, because GMO soy is added to almost everything, including in medication and vitamins
- Most soy has been highly chemically processed
  - Soy protein isolate is a highly altered product whose proteins have been completely denatured
  - Don't ever eat processed soy, including protein shakes, protein bars, protein cereals, and fake soy meats, burgers, and cheeses
- If you eat soy, eat fermented soy
  - Soy has to be fermented for the nutrients and protein to be absorbable
  - Asian fermented soy forms include miso, tempeh, and natto
  - Avoid soy baby formula or soy milk--these are forms of soy your body can't process
- There is a lot of debate on the hormone and thyroid impacts of soy
  - Many plant foods contain components that can be both good and bad
  - Eat soy in small to moderate quantities if your body tolerates it
  - If you have thyroid issues, you will likely want to avoid soy altogether

Meat and Fish

- For any animal product to be in the form it was created, it must be fed what it was designed to eat
  - Feeding grain to animals who are meant to graze on grass changes their digestive bacterial balance, disease rates, and creates unhealthy omega fats in them instead of healthy ones
- Look for beef that is grass-fed and finished, and check to make sure the alfalfa is non-GMO
- Look for chicken that is organic-fed, and free range/pastured if possible
- Pork is fed both grass and grains, so talk to the farmer about the sources of the feed
- You can also buy the organs, fat, and bones for more nutrition and more bang for your buck
  - You can get an extra $8-12 of products by buying a whole chicken, saving the fat for cooking, and using the bones, extra skin, cartilage, and organs to make broth
- Fish is the most potentially toxic animal product, so be careful about which fish types you buy
  - Farmed salmon is one of the highest toxicity fishes because of the junk they are fed
    - They are so low in nutrition they have to be artificially dyed pink
    - The U.S. government has approved salmon as the first genetically engineered animal
    - Only eat salmon (including in restaurants) that is listed as wild Alaskan salmon
- Bi-valves like clams, mussels and oysters have B-vitamins, folate, B-12, iron, minerals, and omega 3
  - Oysters are the highest food source of zinc, for immunity, fertility and fetal development

Milk

- Not everyone's body wants/needs milk at all
  - But many people who react negatively are reacting to the FORM
- There are many forms of milk besides dairy
  - Goat milk, donkey milk, and camel milk have some amazing unique properties
- For any milk to be beneficial it MUST BE RAW!
- Pasteurizing milk kills all the beneficial bacteria, enzymes, immune factors, and many vitamins
- Homogenization breaks the fat up into tiny particles and binds them to broken protein fragments
  - Our body doesn't recognize or process these correctly
- If we drink milk, our body needs it whole
  - Low fat milk is missing the CLA, K-2, and other essential co-factors stored in the fat
  - These nutrients help you process the milk and utilize the calcium
- Raw milk is not as risky as you have been told
  - According to the CDC, between 1993 and 2006 there have been 5 times more people sickened from lettuce and spinach than from raw milk
  - The solution is not to avoid raw milk, but to get it from a farmer where you know what they feed their animals and they are cared for in a way that keeps them disease-free
- Make sure you know what the cows have been fed
  - Feeding cows grains changes their stomach's pH balance and their digestive bacteria
    - Grain-fed cows have omega 6 dominant milk, less K-2, and less CLA
      - CLA is a powerful fat that is anti-cancer and signals the body to build muscle mass instead of fat
  - rBGH is an artificial growth hormone used to increase milk production in cows
    - Every industrialized country in the world outlawed this hormone because of the health risks, except the U.S.
- Some forms of milk are much easier for most people to tolerate
  - Fermented dairy (kefir and homemade yogurt) is the easiest to digest, has very little lactose, and contains essential probiotics
  - Ghee (clarified butter) has the casein removed, but contains the K-2, vitamin A, and CLA
  - Baby formula is the most processed form of milk, full of all those concentrated toxins
    - Breastfeeding matters so much more than we realize!
    - You can make your own fresh formula from raw goat, donkey or camel milk
- If you can't get raw, pasture fed milk or feel better without it, there are many sources for calcium
  - Bone broth, eating small fish like sardines with the bones, molasses, chia seed, sesame seeds, bok choy, and herbs like alfalfa, nettle, horsetail, oat straw, and kelp
  - Keep in mind that in most leafy greens, like spinach, the calcium is not absorbable because of the accompanying oxalate that binds to it (steaming does NOT fix that)
  - Never drink powdered milk because it has no resemblance left to the natural product
    - For storable calcium, go for plant sources

Eggs

- Eggs are nutritional powerhouses because the yolk is the concentrated nutrition for a developing chick
  - The fact that birds lay eggs with completely intact yolk sacs even if they do not mate indicates that nature had more than one purpose in mind for eggs
- The white of an egg contains the protein, but the yolk contains vitamins A, D, E, K, B5, B6, B12, B2, folate, calcium, phosphorus, selenium, zinc, and choline
- If the eggs are pasture raised, they have a good balance of omega fats and higher levels of vitamins that you will see in the deep orange yolks
- Chickens are designed to eat bugs, not to be vegetarian
- Look for labels that indicate that the chickens have eaten their divinely designed diet
  - **Regular**: chickens crammed in cages where they never get sunlight and are fed GMO food
  - **High omega**: chickens are fed extra flax or fish oil along with their GMO feed
  - **Cage-free**: the chickens are allowed to walk around, but still fed GMO feed
  - **Free range**: The chickens can go outside and search for their own food, including bugs, but may still be supplemented with GMO feed
  - **Free range organic**: we have a winner!
  - **Raising organic chickens** is often simpler and cheaper than finding good quality eggs

Finding the Right Balance for You

- Instead of listening to all the theories and fads arguing that there is some single, elusive, perfect human diet, listen to your body
- As you start to eat more quality food, your body will have a better food vocabulary to use food cravings to tell you what it needs
  - If your body is craving a specific protein food, honor that!
- If you eat and feel your energy drop, that means you have fed your body something that is stressing it instead of supporting it
  - If you feel worse after eating soy, milk, meat or eggs, listen to your body and make the needed changes!

***For the detailed discussion of all the different types of protein, as well as an in-depth look at healthy versions of Paleo, vegetarian, mucusless, and Weston-Price diets, see the full Simply Divine Eating course.**

Further Reading

Nutrition and Physical Degeneration, by Weston A. Price, 1939
The Omnivore's Dilemma, By Michael Pollan, 2007
China Study analysis: http://rawfoodsos.com/2010/07/07/the-china-study-fact-or-fallac/
Forks over Knives analysis: http://rawfoodsos.com/2011/09/22/forks-over-knives-is-the-science-legit-a-review-and-critique/

Notes

Eating Healthy Carbs

"No one can effectively argue that all humans thrive on either a grain-free or a grain-based diet. There is no one ideal way to eat. The variety in the earth matches the variety in humankind. We humans have adapted to carbohydrates over time, but we have not all adapted to the same degree." Angie Christensen

The Role of Carbohydrates

- Carbohydrates/starch are a sugar found in vegetables, fruits, grains and legumes
  - A starch is a long chain of many glucose molecules hooked together to fuel our cells
- Starch is the energy storage system of plants
  - All plants that we eat contain carbohydrates, including fruits and vegetables
  - Grain is not a necessity for nutrition
- Our bodies have two metabolic pathways to get glucose
  - 1) Digest and use the carbohydrates in plants
  - 2) Create carbohydrates from fat
    - This is the basis of the low-carb diet
  - The body has two options for a reason: it wants to have options
  - People in different areas of the world have adapted to either mainly plant metabolism of carbohydrates or fat metabolism of carbohydrates, **but not both at the same time**
    - If we eat meat and potatoes, it creates a metabolic disaster
      - Individual foods tend to either contain fat or carbs, but not both
      - Areas of the world with high fat diets are naturally devoid of carbs
      - Areas with higher carb diets are naturally lower in fat
- If we don't need grains for carbohydrates, why would we eat them at all?
  - Grains are carbohydrate forms that are uniquely storable for thousands of years
  - Even after storing for prolonged periods of time, these seeds can be soaked and sprouted, turning them into vegetables loaded with essential enzymes and vitamins
  - Grains and legumes also contain protein and significant amounts of vitamins and minerals

The Problems with Grain

Grains can contribute to disease

- The anti-carb set argues that it was when mankind introduced grains and legumes to the family dinner table that dental disease and diabetes became prevalent
- *Wheat Belly* and G*rain Brain* document that removal of wheat and other grains from the diet can result in normalization of diabetic blood sugar levels, elimination of acid reflux, IBS, rashes, arthritis, asthma, chronic fatigue, depression, obesity and heart disease; improvements in schizophrenia, autism, and ADHD; and prevention of dementia and Alzheimer's. Why? Let's look at three reasons

Gluten

- Gluten is the protein that is contained in wheat, rye, barley, spelt, and triticale
- Allergies (IgE reactions) and sensitivities (IgG reactions) create an inflammatory immune response when we are exposed to gluten
  - Gluten components become labeled by our immune system as an enemy, and so our body creates antibodies that attack the gluten as if it was a pathogen
  - This inflammatory response damages the gut, other mucus membranes, and even the brain
  - Food sensitivity symptoms become chronic instead of instant with constant exposure, and so many people have these immune reactions going on in their body without knowing
    - Inflammation, arthritis, digestive issues, reflux, brain fog, behavior problems and other mental symptoms can all be chronic symptoms of subtle food reactions
- Celiac disease is an immune response where the body creates antibodies to the intestine itself
  - If gluten is present, the body destroys the villi that digest and absorb our food
  - Symptoms include abdominal pain, malnutrition, depression, and autoimmune diseases
  - Celiac disease has increased 400% in the last 50 years, and studies have confirmed that this is actual increase in the disease, not increase in diagnosis

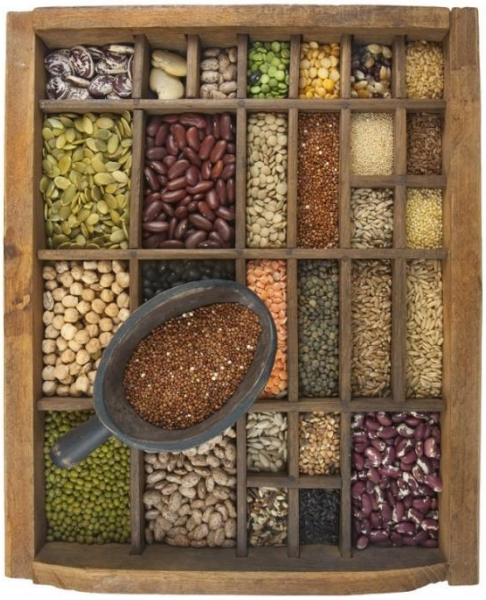
Glucose

- The natural sugars in carbs are as big a contributor as refined sugars in destroying our health
  - a slice of whole wheat bread has a higher glycemic index than a candy bar or a banana
    - Whole grains foods often have equal glycemic indexes to refined carbs, so eating a whole grain diet doesn't fix the problem
    - Gluten-free breads are equally problematic for blood sugar
- Higher blood sugar levels, even within the normal range, create:
  - brain shrinkage, which is linked to dementia, Alzheimer's and other brain disorders
  - the deterioration of cartilage (arthritis)
  - stiffening of the arteries
  - impaired kidney function
  - cataracts formation
    - Most of these diseases that we associate with ageing are just the long-term results of glucose overload

- Higher blood sugar levels also stimulate the formation of belly fat, known as visceral fat
  - This unique form of fat can exist internally, even if we are not obviously overweight
  - It causes a whole host of metabolic changes in the body, including inflammation, insulin resistance and hormone changes
    - This creates diabetes, inflammation in joints, hypertension, higher triglycerides, heart disease, cancer, dementia, and an increase in mortality
  - With our high carb diet more than 35% of Americans are obese, and 40% are diabetic

- Our blood sugar response to starch is based on how many amylase (starch enzyme) genes we have
  - Low amylase producers actually have much higher blood sugar levels after eating starch than when fed pure glucose sugar
    - These are likely the people who have developed insulin resistance, obesity and diabetes from the food pyramid recommendations and who have seen amazing improvements in their health from following Paleo, Wheat Belly or Grain Brain diets

Anti-nutrients



- All seed foods (grains, nuts, legumes, and seeds) have special protective coatings to keep them stable until they germinate
  - Those natural coatings are great for the seed, but they deplete our nutrition instead of increasing it
- The more seed foods you eat, the more the anti-nutrients become a problem, so this point is critical for vegetarians
- The most famous anti-nutrient is phytic acid
  - Phytic acid binds to minerals like calcium, magnesium, zinc, and iron
    - Though grains, seeds, nuts and legumes contain a lot of minerals, the phytic acid acts like a magnet, holding all those minerals captive so your body can't use them
  - Phytic acid can also strip minerals already in your body and inhibits enzymes required for digestion
- There are many other anti-nutrients in whole foods, like oxalates, tannins, enzyme inhibitors, lectins, saponins, and more
  - All of these anti-nutrients can negatively impact nutrient absorption, digestive health, and exacerbate various diseases
- It doesn't matter how much nutrition a food has, it matters how much we can absorb!
  - In diets with a lot of grains/seed foods, osteoporosis, tooth decay and anemia are common
  - We get no more minerals from whole grains than white ones, because all the nutrients are held captive
- If we look at history, all the cultures around the world eventually learned how to prepare their locally grown grains, legumes, nuts, and seeds so that they became life sustaining

Vegetarian Eating

- These three issues with grains, legumes, nuts and seeds show why a vegetarian diet can be either very healthy or very harmful
  - If someone simply removes meat, and substitutes lots of processed carb foods, soy, or processed meat and cheese substitutes, it going to cause a lot of biological problems
  - Likewise, if they eat a lot of whole grains, legumes and seeds in the wrong form, it will lead to insulin resistance, nutrient deficiencies and an injured digestive system
  - Vegetarian eating can be healthy over the long run, if the diet is vegetable based and supportive grains and legumes are carefully prepared

The Critical Component of Preparation

- We can learn the solution to our 21st century health crisis with grains from what happened in history with corn
  - With the discovery of America and exporting of corn came a disease called Pellagra
  - Pellagra was called Austrian leprosy because it produced skin lesions, mental dysfunction, and death
  - This disease was the "Zombie Apocalypse of the 18th Century" (The Art of Cooking with Natural Yeast)
  - It was identified in Spain in 1735 and by 1900 it was an epidemic in the American South

  - In 1937 scientists discovered that pellagra is caused by a niacin deficiency from a corn-based diet because the niacin in corn is bound so that your body can't absorb it
  - Native American's soaked their corn in lime, which made the niacin bioavailable, so they didn't suffer from pellagra even though corn was the staple grain of their diet
  - When corn was exported without the wisdom of how to prepare it, it became deadly

Eating Grains/Legumes in the Right Form

- With grains and legumes, the package is a tutoring from Mother Nature
  - You can't really eat grains or legumes in the form they are created because of the hard shell
  - Nature is teaching us that these foods need additional preparation to be healthful
  - When we use the natural forms of preparation that make these seed foods edible, it also automatically counteracts every problem we have discussed
- For us to get the nutrition nature intended from these food sources, we need to mimic the germination process by giving the seeds similar moisture, warmth and time
  - This can easily be done by soaking, sprouting, and fermenting
  - These processes release vitamins, break down gluten, and eliminate anti-nutrients
  - As evidence that this is what nature intended, soaking, sprouting and fermenting all create a soft, edible seed
- Just like with corn, when we tried to make carbs fast and easy, we made them dangerous
  - Food shortcuts don't get us to a good place faster; they skip part of the journey that is critical!
  - If nature designs a process to be slow, it has a good reason: it is trying to support our health

Yeast

- Commercial yeast is a modern invention, to make bread-making fast and predictable
  - The yeast is isolated, concentrated, and coated, but is not in a natural form anymore
- Natural Yeast (sourdough) contains the wild yeast strain, saccharomyces exiguous, in a complex, synergistic, biological ecosystem with many strains of healthy lactobacteria
  - It breaks down the gluten and anti-nutrients in the bread and adds probiotics
  - The slow rising process mimics the wheat germination process, making wheat more nutritious and much easier to digest, preventing and even overcoming celiac disease

Soaking and Fermenting

- All grains and legumes need to be soaked to remove anti-nutrients
- Ancient societies always had soaking/fermenting processes for grains, legumes, nuts, and seeds that took days or weeks
  - Every culture on earth figured out how critical that was for health
- Commercial breads, cereals, and snack bars contain carbs in highly processed, unsoaked forms that cannot nourish our bodies and do damage as they pass through
  - These are the carbs causing all the diseases listed in *Grain Brain* and *Wheat Belly*

Growing and Harvesting

- Wheat is a polyploid, so when it is bred it doubles its number of chromosomes
  - Einkorn, the original wheat has two sets of chromosomes
  - Emmer (the first bred wheat), Kamut, and durum wheat all have four sets of chromosomes
  - Modern wheat has 6 sets of chromosomes
- There are significant structural changes to the gluten proteins with hybridization
  - The amount and the kinds of gluten in modern wheat are different than ancient strains
  - A study in the Netherlands found that ancient wheat has much less of the specific glutens that trigger celiac disease
  - Many people who have digestive and other symptoms with modern wheat find that they can tolerate certain varieties of ancient wheat just fine

The Experiment

- Could preparing wheat in its ancient form and with natural yeast reverse all 3 problems chronicled in the anti-grain movement: gluten, glucose, and anti-nutrients?
  - We already knew from personal experience that we felt better on the gluten of ancient strains
  - Science has long since proven that sourdough eliminates anti-nutrients, so we didn't need to worry about monitoring that
  - We tested to see if there were real differences in blood sugar spikes between different strains of wheat and types of yeast
    - We tested Einkorn, Emmer, Kamut, Hard Red Wheat, and Hard White Wheat (white wheat is a variety of whole grain wheat, not white flour)
    - We made each of them with both sourdough starter and commercial yeast
    - We also tested the cleanest store-bought breads

- Conclusions
  - Ancient wheat creates less of a sugar surge than modern varieties
    - The highest spike by far was from homemade modern hard white wheat bread
    - The super-clean store-bought breads (like Ezekiel bread and a natural whole wheat bread with no preservatives or GMO's) were in the middle
    - Ancient wheat had the lowest blood sugar spike

- Natural yeast breads create a lower sugar spike than commercial yeast breads
  - With modern white wheat, the glucose spike was 30 points higher with commercial yeast than with natural yeast
- White wheat bread with commercial yeast had an average blood sugar spike of 85 points
- Ancient Einkorn bread with natural yeast had an average blood sugar spike of 35 points

- This proves that cutting out grains is not the solution to reversing and preventing disease
- We simply need to go back to eating them the way nature designed, and then all of the terrible wheat-based statistics in *Grain Brain* and *Wheat Belly* would disappear

Finding the Right Balance for You

- The 9-11 servings of carbohydrates recommended in the food pyramid is not a match for the Earth
  - Louise Light, the nutritionist who created the original food pyramid, recommended a vegetable based diet with just 2-3 servings of carbohydrates per day (one sandwich)
  - We have to adjust our thinking after having been raised in a carb-centric era and get back to a vegetable-based diet
- When it comes to the details of quantity, individuality is key because of genetic adaptation
  - If you are a high amylase enzyme producer, you will likely do well on a diet with more grains
  - If you are a low amylase producer, a grain-based diet will be a metabolic disaster
  - Listen to your body. Look at how it is doing on your current diet
    - Obesity, insulin resistance, and diabetes are all signs you have had more carbs and/or refined sugar than your personal metabolism can handle
- There are times when a low-carb diet is appropriate
  - There are many versions of this, from raw diets to Paleo to GAPS and more
  - If you are healing your gut, a low carb diet is often necessary for a time
  - If you are insulin-resistant or diabetic, it is something to consider, because insulin resistance is, by definition, the consequence of too high of blood sugar for an extended period of time
    - A low carb diet can give your body a chance to "re-set"
  - In neither of these cases does a low-carb diet need to be permanent
    - Eating carbs in the correct form and amounts is the permanent way to health

***for details on different types of grains and how-to's for healthy preparation of carbohydrates (soaking, sprouting, and natural yeast) see the full Simply Divine Eating Course**

Further Study

The Omnivore's Dilemma, by Michael Pollan, 2007
Wheat Belly, by William Davis, M.D., 2014
Grain Brain, by David Perlmutter, M.D., 2013
Fat Chance, by Robert Lustig, M.D., 2013
Death by Food Pyramid, by Denise Minger, 2014
Phytic Acid Digital Report, by Amanda Rose, Ph.D. (also see www.phyticacid.org)
The Art of Baking with Natural Yeast, by Caleb Warnock and Melissa Richardson, 2012
Beyond Basics with Natural Yeast, by Melissa Richardson, 2014

Conclusion

The Earth is here to support you. It knows what you need, and it provides it in every way it can. It will show you what to eat and how to eat if you pay attention. Look around in your particular climate and see what it is trying to teach you. See what it is working so hard to provide for you and accept those gifts, don't reject them based on the fads that surround you. Listen to nature for hints on how to prepare and store what it provides. Obtain food that is grown and raised in the way the Earth intends to the greatest degree possible. As you do that, listen to your body. It will tell you what it needs more of and what it needs less of. It will help you adapt the specifics from day to day and from situation to situation. Then eat with joy! Eat with gratitude! Eat with your own sweat and with your family! And share what you have learned with those around you because our world is really lost when it comes to food. But the answers are here. The Earth is wise. We only need to listen. And that, in both its comprehensive scope and beautiful simplicity, is the power of Simply Divine Eating.

This material contains basic components of the Simply Divine Eating Course by Angie Christensen. For the complete step-by-step program based on the 4 cornerstones, visit www.simplydivineeating.com.

Notes