

Macronutrients and Health (How To Become A Fat Burning Beast)

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9/14/18

When looking at wellness and vitality, one of the most basic issues we have is where we get our energy from. What I know from my study of body physiology is that we have three basic fuels in the body - mostly fats and carbohydrates (sugars and starches), and to a lesser extent, protein. If our bodies are tuned up, if we have what could be termed “metabolic flexibility,” we ought to be able to easily and seamlessly transition from “burning” or metabolizing sugars and starches for energy to burning fat when the sugars run low.

When I talk with people about their relationship with food, what I look for is pretty simple. When we are hungry, we should just be hungry. We should not be especially tired, shaky, irritable, or craving sweets. In general, when we eat, the only change we should see is that we are not hungry. We shouldn't crash an hour or two later. We shouldn't be suddenly energized or brighter, or conversely, sleepy or dull. Nor should we be craving sweets, or for that matter, alcohol. We shouldn't crash mid-morning or late afternoon. We should be able to keep our weight in a normal range. We should be able to sleep without waking with a start in the night, wake hungry in the middle of the night, or wake nauseated and without an appetite in the morning. And most importantly, we should have relatively steady physical and mental energy through our day.

All of this is tied to our ability to easily burn fat and to transition from burning starches and sugars to burning fat again as needed.

A Fundamental and Common Problem

What commonly happens is that we lose our ability to access and burn fat easily. What seems to happen in response to how we eat is that the hormones leptin, and later insulin, go up too much. Leptin is associated with the level of fat we carry in our body. It signals to us that we have adequate fat stores. As body fat goes up, leptin goes up, helping us regulate appetite. Insulin helps us move sugar from our bloodstream into the tissues to be used as fuel. These hormones tend to go up when we eat more carbohydrates than our bodies can handle. When any hormone is too high for too long the body just “turns away” from it, the receptors for the hormone either decreasing in number or the receptors themselves becoming resistant to the hormone. When this happens we have leptin and insulin resistance and rising levels of leptin and insulin in our bloodstream.

This situation is made more difficult because the hormone levels keep going higher and higher. When insulin gets too high or if it spikes suddenly, it inhibits another hormone called hormone sensitive lipase, the hormone that is responsible for mobilizing fat out of storage in your fat cells. Now, if you eat more carbohydrates than you need in a given moment, the body, specifically the liver, will convert that sugar into fat, which is then

stored in your fat cells. Fat goes in, and with inhibition of the hormone sensitive lipase, the door closes - and it becomes a one-way door.

We are all different in terms of how much carbohydrate our bodies can handle. We have seen the thin people who can eat huge bowls of pasta with impunity. Others can handle very little carbohydrate for whatever reason. I remember hearing a talk by a low-carb medical doctor. She held up a half an apple, and with a bit of humor said, "This is Mary on a high-carb diet." Very few of us are at that extreme, but almost none of us can handle what constitutes the standard American diet with massive amounts of refined sugars and starches.

Why Is This Important?

This is a very legitimate question. Having a steady, reliable source of energy is central to us feeling vital and healthy. Depending mostly on carbohydrates for fuel puts us at the mercy of fluctuating blood sugar levels and the cravings that go with them. When the blood sugar fluctuates a lot, there is a loss of stability in energy and in mood. There is a much stronger tendency to develop inflammation. It is much harder to maintain a normal weight. With blood sugar imbalances, it becomes much harder to retain muscle mass and maintain bone density as we age. To top it off, blood sugar fluctuations cause the immune system to not work very well. For these reasons it is imperative to get this fixed.

How Do You Know If This Is A Problem For You?

When I talk to people about their eating habits I want to know how they handle periods of not eating. Most people who have difficulty tapping fat to burn become what I like to call "carb-dependent," that is, to provide energy, they must have carbs as their main fuel. When that fuel runs out, they must have more. What you will see here is someone who runs out of gas when they haven't eaten in awhile. They get tired, irritable, and shaky. They can't think clearly because their brain is out of fuel. They will commonly crave sweets or perhaps fruit. Frankly, they can become quite desperate and get pretty irritable if they haven't gotten the food (sugar) they need.

People with this issue can be very heavy. They can also be quite thin, run a fasting blood sugar close to 100 (normal being closer to 80) and have terrible hypoglycemia.

I recently read an article where people's eating habits were tracked. Very few people ate decent sized meals three times a day. Most people who were studied ate or drank something calorie containing constantly through the day. For me, this is a hallmark of someone who is carb-dependent.

On the other side, when carb-dependent people eat, they most often feel brighter, more energetic. Their mood shifts quickly from "hangry" to pleasant. Later, it is not uncommon to see a carb-dependent person become sleepy or start craving sweets or alcohol.

When you eat, how long does the meal hold you? If you have the right balance of macronutrients for your body physiology, you should not be hungry for 4-5 hours after you eat. When you do get hungry, there isn't a sense of desperation. If you eat and you

are hungry an hour or two later, this meal didn't work for you. Eat less like that. If you eat and you are satisfied for a good period of time, eat more like that.

Low Blood Sugar At Night

Another pattern is the person who wakes up with no appetite, who may even be a bit nauseated on waking. They may actually eat very little through the day but still struggle with needed weight loss.

When a carb-dependent person runs out of fuel the body will respond by raising cortisol levels. One of the things that cortisol does is to help your body convert protein into fuel for your body to burn. This process is called "gluconeogenesis." "Gluko" refers to sugar. "Neo" means new. So, new generation of sugar (mostly from protein). This is at the back of why people with low blood sugar issues are told to eat frequent, small protein meals. High levels of cortisol are thought to be responsible for the "spare-tire" effect where there is a lot of fat around the middle of the body.

The problem here is that carb-dependent people can become exceptionally good at taking protein that is needed for tissue repair and for building and maintaining strong bones, etc., and converting it into sugar. This can result in a person who is overweight with tissue that is low in muscle and high in fat. Blood sugar is elevated at least somewhat. The one-way door still only opens inward. Fat gets stored, but can't be easily mobilized and burned. These people are so good at converting protein into sugar that they may not even experience sugar cravings.

In this situation, the person's metabolism may slow to a crawl. They may experience low thyroid system function and low metabolism in the part of the cells that makes energy.

Nausea on waking might be related to a combination of higher than normal cortisol in the night accompanied by higher than normal adrenaline. Adrenaline will get produced when we are carb-dependent and our sugar is dropping. This situation can become a fight/flight emergency if the cortisol can't help make adequate amounts of sugar. If you are carb-dependent and you can't access or make sugar, you run out of fuel.

Carb-Dependent and Thin

There is a group of people who are carb-dependent and thin, maybe even too thin. For whatever reason, they have all of the hallmarks of insulin resistance except that they are thin. Testing their insulin response to a carby meal, you would see a spike. It might be absolutely normal when fasting, but then shoot way up with a carbohydrate meal, overshooting what is needed, resulting in the blood sugar plummeting. This produces an insulin and blood sugar roller coaster ride. Eventually, insulin resistance sets in.

Carb-dependence here doesn't initially result in weight gain. But energy is less than optimal, and blood sugar fluctuation symptoms are common.

When switching over their diet, it is critical for those who are thin to eat enough to maintain their weight. They should not be afraid to increase fat markedly to maintain their weight. Carbs eaten should be mixed with plenty of fat.

Frequent Small Meals Perpetuate the Problem

One of the recommendations for someone who has symptoms of low blood sugar is to eat frequent, small protein meals. What this will do is provide a more steady source of energy, and may even result in some loss of weight where needed. This happens because it helps avoid the blood sugar spikes that trigger excess insulin release. The individual avoids the excess sugar to fat conversion brought on by blood sugar excess. The problem is that when we eat frequent, small meals as is usually recommended for hypoglycemia, we essentially train ourselves to be carb-dependent.

The fundamental issue is still not addressed, that being the inability to access and burn fat. You may feel better eating frequent, small meals, but it simply perpetuates the problem. This may be a good short-term strategy, but it is not good in the long term.

Solutions To The Problem

The simplest solution here is to help your body to easily and readily burn fat again. The proportions of fat, protein, and carbohydrate in any given diet are not really the issue so long as the metabolic flexibility, the ability to easily burn either sugar or fat, is still the default state. There are very healthy people eating a very high fat diet, and there are equally healthy people who eat quite a lot of complex carbohydrates. Because of the relative excess of simple carbohydrates in the modern diet, one of the best plans is to ramp fat intake way up, backing way down on carbohydrates until the body really has the metabolic flexibility in place again.

Every person is different as to how much carbohydrate they can eat and not shut down fat burning. In one study the blood sugar response to eating an identical piece of bread was monitored. Some people had a blood sugar rise of 15 mg/dl, where others spiked up to 79 mg/dl higher.

In some people a small increase in blood sugar results in a large insulin response. These people are very carbohydrate sensitive. In others, the insulin response is more muted. In some people even a small spike in insulin effectively stops fat burning. In others, there is much less of this kind of effect.

You need to understand what works for you and what the signs are when things are not working so well. This takes some time, so patience and a willingness to experiment are in order.

Fats To Avoid and Fats To Eat

Fat has been demonized for many years, especially saturated fat. The problem fats are by and large not the saturated fats. Saturated fats are actually quite good for you. They are an extremely important component of all tissue membranes, including brain tissue.

We need fat as a fuel and as a building block for all tissues in the body. The solid part of our brain is perhaps 60% fat. Fat is good. It is important to provide the right kinds of fat to the body to provide good fuel, and for good membrane formation. We need fats as the backbone of certain essential messenger molecules in the body. And we need cholesterol to make many of the hormones in our bodies.

An interesting factoid: Our own fat stores resemble a 50:50 combination of olive oil and butter.

It is best to avoid refined vegetable oils such as corn, soy, canola, safflower, sunflower, and cottonseed oils. These oils contain a lot of omega 6 fats which tend to cause disorder and inflammation in the body when they are isolated from the food that contains them. They are easily damaged in processing or adulterated for use in processed and fast foods. In addition, human beings were not designed to consume the quantities of these types of fats currently present in the modern diet. Getting omega 6 fats from raw, unprocessed nuts, seeds, and other foods that contain them is a very good way to consume these fats. However, getting them in processed fats and fast foods is not.

When you use most any oil for frying, the fats will be damaged. Using a fat for frying that is higher in saturated fats will be less likely to result in damage to the fat. Tallow, lard, coconut oil, and ghee, etc., are traditional fats used this way. Refined, organic coconut oil adds little or no flavor to your food. The best fat is probably ghee, a pure fat made from butter. Ghee has a delicious, buttery flavor. When making a sauté, do it as many Asian chefs do - throw in water frequently to keep the temperature at a more reasonable level. If the fat smokes or if the food that is cooked is excessively brown, you have likely damaged the fats. These damaged fats are quite a burden on the body.

Avoid like the plague “partially hydrogenated ____ oil” (there are many kinds.) These fats have been damaged in processing and contain what are called “trans fats,” which are incredibly hard on the body. Even if the label says “trans fat free,” it probably has trans fats if the oil has been hydrogenated. By law, the label can say “trans fat free” even if there are 500mg of trans fats or less. Any amount is harmful.

Fats that have been damaged by hydrogenation, by inappropriate extraction methods, and fats that are oxidized or rancid are harmful. Rancid oils can be deodorized so that they do not taste bad, but they are very harmful. There are little or no saturated fats in atherosclerotic plaques. It is the damaged oils and chronic inflammation from blood sugar dysregulation that precipitates the harm to the arteries in the body.

There is some thought that people on a highly processed diet may actually be deficient in undamaged omega 6 and omega 3 fats, while being overloaded with excessive amounts of damaged, processed omega 6 fats. For these people, stopping the processed omega 6 fats found in the above oils while supplementing unrefined omega 6 fats for awhile might be a very good idea.

Do use cold pressed, organic, unrefined olive oil, organic coconut oil, and what is called “pastured butter”. Pastured butter is from cows that live almost entirely with grass or pasture as their food. Organic Valley has a pastured, summer butter. Kerrygold butter is mostly pastured. Ghee is an excellent fat. Sesame, flax, and macadamia nut oils can be used in moderation. Coconut oil and palm oil got a bad rap in the early 60s because of their saturated fat content. The saturated fats are short and medium chain fats which the body will burn rather than store. They will not clog your arteries. When you hear about these fats causing a problem, the studies that are cited used hydrogenated coconut oil, which is very harmful. Use organic, raw, unprocessed coconut oil. Flax oil should never be heated. Use it straight up as a supplement or as part of a homemade

salad dressing. Use MCT oil (an extract made from coconut and palm oils), or preferably, the eight-carbon fraction of MCT oil sold as Brain Octane.

Dr. Weston Price was a dentist who traveled the world in the 30s and 40s studying cultures where people ate in the traditional ways, looking for diets where the people were exceptionally healthy. One of the common denominators found in all the diets that Dr. Price looked at was the relative abundance of fat-soluble vitamins, especially vitamins A, D, and K2. All of the people Dr. Price studied especially valued food sources that were high in these vitamins and the fats that carried them - high vitamin butter (from grass fed cows), fish eggs, cod liver oil, eggs, liver, and other organ meats.

The bottom line is that fat is a good and essential fuel for our health. It is an essential component of all the membranes of our body and is a huge part of the structure of our brain. Please, let go of the misplaced fear of fat. This fear was created over fifty years ago based on biased and very inaccurate, unscientific information. It is time to let it go.

What Does Higher Fat Look Like?

This is tricky. We have been told for many years that fat is bad for you, so naturally, when we cut back on carbohydrates to address carb-dependence, we probably haven't a clue how to increase fat. Mostly we don't eat enough calories and end up hungry, or we end up eating more protein than we need.

Our ancestors three or more generations ago knew how to include fat as a natural part of their diet. Today we are alternately terrified and horrified when we think about what this looked like.

First, high fat means including fat with every meal. Steamed greens hold butter very well. Put two or three tablespoons of butter on a serving, or add a lot of olive oil, or both. I often start a meal with a few flax crackers and about $\frac{1}{4}$ inch of butter over the whole cracker. Doing this sends a good message to your body that fat is abundant as a fuel and that fat can be readily burned.

Go to bulletproof.com and buy Brain Octane, a MCT oil variant that readily convert into fuel for our bodies. Add it liberally to soups. Put it on salads and cooked vegetables. Add it to smoothies. It adds a nice mouth feel without adding much flavor. Bulletproof coffee has about four tablespoons of fat when you are up to the full recipe. More on this later.

Eat plenty of avocados. Eat fatty fish like Alaskan, wild caught salmon, and sardines packed in olive oil. If you can find lard or tallow from well raised, grass fed animals, use that as well. For frying, use plenty of ghee. Eat plenty of organic eggs being careful to not damage the yolks by overcooking them. If you are up for it, learn to cook organ meats, especially liver from animals that are 100% grass fed or pastured.

Ramp up your good fat intake slowly to give your body some time to adapt.

Fat absorption

Eating the right fats won't do much good if you have problems absorbing them. If you are having problems in this area, eating a fatty meal will not feel very good. Taking even

a good quality fish oil won't go so well either. Fats won't smell good to you, giving a "yuck" factor when you get a whiff. You might get queasy from eating fat, or get diarrhea, or see an oily sheen in the toilet bowl when you have a bowel movement.

Properly absorbing fat is critical. This is counterintuitive if you want to lose weight or improve overall body composition, but if you can't absorb fat or if you don't eat enough fat, your body gets forced into carb-dependency. This is not uncommonly the underlying cause of excessive weight gain.

If you are having problems with your digestion after eating fat, the first thing to look at is your stomach. We need adequate acid to help trigger bile release from the gall bladder. Bile is a kind of "soap" to the fats that we eat. It emulsifies the fat making it available to the lipase released by our pancreas. Lipase is an enzyme that helps break down and absorb the fat that was emulsified by the bile from the gall bladder. Adequate acid in the stomach is needed to release both bile and pancreatic enzymes.

Getting digestion up to speed is a whole conversation beyond the scope of this article. If this is an issue for you, you will need some help getting this straightened out.

Switching On Fat Burning

So here we are at the crux of the matter. How do we do this? Assuming that we are eating the right fats and absorbing them properly, what is next?

Sometimes it is enough to simply tweak the proportions of our food to get good results. A higher fat, moderate protein, lower carb diet will work well for many people, especially if carbs are not eaten in isolation, but always accompanied by some fat and protein. You can consider alcohol to be like a carb in this regard. If you start eating this way and your energy evens out and the issues discussed above disappear, then just keep this up and you will do well. For some people just cutting out grains is enough to trigger this healthy change.

Not snacking between meals and avoiding evening snacks can help quite a lot.

Switching On Fat Burning - Atkins

For those who have more problems, there are several approaches that can work. The Atkins diet or a neo-Atkins diet can work very well. One misunderstanding of Atkins is that it is thought to be a high protein diet. It is a higher fat, moderate protein, low-carb diet. People who have discovered paleo diets often make the same mistake, eating a very large amount of protein, perhaps even avoiding fat while also avoiding carbs. Eating this much protein is a somewhat difficult, expensive diet to eat. Excessive protein contributes to the problem discussed above where protein is easily converted into sugar.

There are excellent books on Atkins. The best one is by Eric C. Westman and Stephen D. Phinney called [A New Atkins For A New You](#). See also [The Art and Science of Low Carbohydrate Living](#) and [The Art and Science of Low Carbohydrate Performance](#) by Jeff S. Volek and Stephen D. Phinney if you really want the back-story. [Keto Clarity: Your Definitive Guide to the Benefits of a Low-Carb, High-Fat Diet](#) by Jimmy Moore and

Eric Westman, MD is also very good. [Eat Fat, Get Thin](#) by Mark Hyman, MD is a new book that promises to be helpful here as well.

The idea behind Atkins is to get your body to figure out how to burn fat and to lose the carb-dependency. The first few weeks are a kind of boot camp where basically we are saying to the body that the jig is up and that you get fat to burn, and that is mostly it. This will most often work well though the initial ride can be especially tough.

This is a therapeutic diet. You do this for several weeks to months, then you gradually increase your carbs once you have reached your weight goal or are well on the way to being able to burn fat. Many dieters make the mistake of thinking of this as a diet that you do and then stop doing it. They will gain the weight right back, and then some, by going this route. As the diet opens up more, you will find your place where you are able to avoid carb-dependency and you are able to easily and readily burn fat. The dieter will need to figure out how much and what kinds of carbohydrates can be eaten without spiking insulin and shutting off fat burning.

Switching On Fat Burning - Fasting

There are several types of fasting that all have the goal of improving insulin levels and upregulating fat burning. This is probably the best, most straightforward method of improving your body's ability to burn fat. There are partial fasts, also known as fasting mimicking diets. There is time restricted eating where you eat within a certain time period each day and avoid snacking. There are full fasts where you only take in certain fluids for one or more days. All of these methods are effective. Please see my paper, "Fasting Basics" for more information.

Switching On Fat Burning - The Bulletproof Diet and MCT Oils

Yet another way to get at this is discussed in a book called [The Bulletproof Diet](#) by Dave Asprey, and with his bulletproof coffee. Bulletproof coffee is a combination of coffee blended with pastured butter along with Brain Octane oil. The ratio here ends up being about 12-16 ounces of coffee with up to two tablespoons of butter and two tablespoons of Brain Octane oil. This is blended together with an immersion blender or a regular blender. This is what you drink in the morning. It is best to drink this over a few hours, keeping it warm in a Thermos. Wait until you are hungry, then have your lunch - preferably of the higher fat, moderate protein, low carbohydrate sort.

Start low with the fats, one or two teaspoons each of the butter and the oil, and work your way up. You might add bulletproof.com's Upgraded Cacao Powder for a mocha flavor, which is quite good. If you have had bad reactions to coffee, it may be that you are sensitive to the mold toxins sometimes found in coffee, in which case bulletproof.com's coffee would be a better choice as it is tested to be free of mold toxins.

The back-story is that Dave Asprey was overweight in high school. He was told by doctors to eat less and exercise more, which naturally did not work. He ended up losing the excess weight by changing his diet to a more low-carb approach. Somewhere along the way, he was traveling in Nepal and noticed the yak herders would get up in the

morning and have strong tea with yak butter for “breakfast” and then eat their first food later in the day. This seemed to sustain them very well. He didn’t have yaks and he loved coffee, so he thought about grass fed cow butter and coffee and went from there.

Later, he started adding MCT oil from coconut and palm oil, and then developed two variants of the MCT oil he calls XCT oil, and Brain Octane. The fats in XCT oil and Brain Octane very readily convert into ketones, which the brain and the rest of the body love to burn. Go to bulletproof.com for more information.

What this does is brilliant. The ketones that are generated from fat provide an alternate fuel while your blood sugar is dropping. The low blood sugar symptoms don’t develop so there is no great urgency to eat, no craving for carbs, and a gradual improvement in the body’s ability to burn fat. In time, insulin and leptin come down and the doors to the body’s fat stores swing open again. Another wonderful result of the butter, Brain Octane oil coffee is that the oil inhibits the part of the gut microbiome that promotes weight gain, and the polyphenols in coffee act as prebiotics - basically food for the bacteria in the gut that promote weight loss.

You can also do this with tea. I like a black tea bag and a green tea bag with a licorice tea bag in 16 ounces of water, then made into bulletproof tea. I like to add cacao to this for a delicious flavor. See my “Bulletproof Coffee and Tea Recipe” article for specific instructions.

Benefits of Being Able To Easily and Readily Burn Fat

Probably the most interesting aspect of being able to easily and readily burn fat is that your energy will be much more even. No more crashes or foggy thinking when you haven’t eaten.

Fat burning diets naturally result in lower oxidative stress. Essential fatty acids come back into balance naturally without needing a lot of fatty acid supplementation.

When you are able to burn fat easily, it is much easier to maintain your resilience in the face of day-to-day diet variations. You will not be so brittle, suffering with the least dietary indiscretion. You will not get slammed if you have some sugar now and then. You will be able to handle the occasional bad or damaged fat, your body quickly burning it off rather than storing it in your arteries or membranes.

Your requirement for protein will diminish markedly because you will not be siphoning it off as a substitute fuel. Your muscles and bones will retain their integrity while eating a more moderate level of protein.

When you are able to burn fat well, your arteries become more supple. They are more easily able to accept the blood pumped out of the heart, the net result being that the blood pressure is lower.

When you are less carb-dependent, inflammation diminishes because high levels of insulin cause pro-inflammatory chemicals in the blood to rise. With this way of eating insulin comes down. Pain lessens. Tendencies toward arthritis diminish.

When the brain has a good, steady source of fuel from fat, thinking is much clearer. A state called “keto clarity” can develop.

If your sleep is disturbed in the middle of the night, it may be that your blood sugar has dropped and your cortisol elevates in response. Cortisol is antagonistic to melatonin. As cortisol rises, melatonin drops. Melatonin is the sleep hormone. Later, as your cortisol isn't able to rise as it should in response to a dropping blood sugar, your body will produce adrenaline in an effort to mobilize blood sugar. This will wake you up with a start. You will be wide-awake. If you wake up in the middle of the night hungry, this is a clue. When your blood sugar is in balance you will sleep better.

Eating a higher fat diet and losing the carb-dependence will make midlife hormonal transitions for both men and women much easier. It is very common for women in menopause to rapidly lose the ability to adequately burn fat. Estrogen, testosterone, and progesterone all have a positive, beneficial effect on the body's ability to burn fat. The blood sugar ups and downs are in part the cause of weight gain in menopause, as well as the foggy thinking that can sometimes occur. Hot flashes and sleep disturbances are markedly aggravated by blood sugar issues. In men, the drop in testosterone has a similar effect. All of these issues are favorably influenced by being able to burn fat.

Eat Enough Food

Day to day, we need to eat enough calories for the body to understand that we can burn fat. The tendency with low carb diets is to eat an inadequate amount of fat or to eat way too much protein. We need enough calories to let our body know that "times are good", that there is "fat of the land" available. Too little fat intake, especially on a low calorie diet, will result in a starvation response. Cortisol will rise, stressing the adrenals, and the thyroid will slow down. You will rob out your protein excessively to make blood sugar. All of this is especially the case if you eat a diet that keeps insulin levels somewhat elevated.

On the other hand, if you have plenty of body fat, you can eat fewer calories overall for an extended period with fasting or fasting mimicking diets without shutting down metabolism *so long as your insulin levels remain low and you have access to your body fat*. In this case, the cortisol response will be blunted and your thyroid will not slow.

Eat Protein, But Not Too Much

For some people who eat a higher fat, lower carbohydrate diet, the weight doesn't ever come off. I listened to a talk from a low carb conference where this was discussed. A doctor at the conference spoke up, saying that in his practice, what he finds is that the people with this issue are eating too much protein. When I first heard this, I was quite startled. I had been under the influence of Donald Layman, Ph.D., who has done some excellent work on the need for protein, most especially as we age. He was recommending 25-30 grams of protein from mixed animal and vegetable sources three times a day, with the protein being taken in over a relatively short period of time. That is, when you have the protein, it needs to be taken in over no more than 15-30 minutes and not trailed out through the day, as in having a protein shake over several hours or snacking on protein rather than having a meal.

It took me a while to understand that if you are carb-dependent, you will tend to rob too much of your protein to provide fuel for your body. Instead of the protein being primarily used for tissue maintenance and repair, it gets siphoned off too much for fuel. People on a moderate protein Atkins type diet who don't lose weight are probably super-efficient at converting protein to sugar for fuel. This does not bode well for body composition, muscle mass, or for bone health. In this situation it will be necessary to restrict protein somewhat more for a while and increase fat even a bit more to get your body to figure out how to burn fat.

According to Dr. Layman, we do need a threshold level of protein. If we don't get to that threshold, the protein will mostly be turned to sugar for fuel and tissue repair will not take place as readily. Eating frequent small meals essentially guarantees that we will not reach that threshold. That protein will then mostly be converted to sugar for use as fuel in the body. This is why consuming the protein over a short period of time is so important.

When we are able to burn fat, protein will not be siphoned off as much and we will reach the threshold needed for tissue repair more easily. The signal for tissue repair is the amino acid leucine. Animal protein has more leucine than vegetable protein. You will need to consume larger servings of protein if you get it only from vegetable sources. A mix of animal and vegetable protein is probably best. Incidentally, whey has a lot of leucine.

It is necessary for someone who is carb-dependent to eat more protein - 25 to 30 grams three times a day. If you can burn fat, much less protein is needed - perhaps 25 grams 2-3 times a day, more if you are working out doing strength work. The 25 grams is for those who are very efficient at burning fat, that is, they can easily transition from burning sugar and starch in a meal to fat after the meal is digested and utilized.

Don't flood protein in the morning. You want a higher fat, moderate protein, lower carb combination for your first meal to encourage the body to adapt to burning fat. Combined with the overnight fast, this gives a longer time where carbs (and proteins that convert to carbs) are less abundant. If you are able to easily burn fat, the protein you take in will be enough to initiate tissue repair.

Skipping Meals; Extending Your Night-time Fast

If your body is adapted to easily burn fat, skipping a meal is not generally a problem. It is a problem though if you are carb-dependent.

If you want to lose weight and you are just skipping one meal a day, try skipping the evening meal. Make sure that breakfast is mostly fat with a moderate amount of protein and a small amount of carbohydrate. If this doesn't work, skip breakfast, have a moderate protein, higher fat, lower carb lunch, and see whether that works.

Another food option to help initiate more efficient fat burning is to limit your food intake to six to eight hour intervals. This is called "time restricted eating".

Yet another option is to do the bulletproof coffee in the morning, then wait to eat until you are hungry. Or, have tea mid-morning after having the morning bulletproof coffee and then have your lunch. If it is just coffee and fat, the effect on your insulin levels will

be as if you are fasting when you are drinking the coffee. If you do this, it will be easy to confine your food to a six to eight hour interval.

Sugar Cravings and Adrenal Stress

Sugar cravings are physiological and to be expected in someone who is carb-dependent, not a failure of will or a moral failing. Your body wants sugar because your brain is out of fuel and your system is going into a major or minor panic about it. You will naturally want carbs. This is what we need to fix. If this is the reason you are craving carbs, then it will take some time to resolve.

You will learn, once you have lost the carb-dependency, that you will not die if you get hungry. It will no longer be a metabolic emergency worthy of a panic reaction.

If you are craving carbs because of yeast overgrowth, stopping sugar and markedly cutting back on starches and fruit for four days will generally halt the cravings, though this will likely not be enough time to clear carb-dependency.

Avoid fruit juice, excessive amounts of dried fruit, and artificial sweeteners. The former two are much too sweet, and the latter confuses the body into thinking that a load of sugar is coming in, spiking insulin.

The constant stress on the adrenals of having carb-dependent sugar ups and downs can eventually lead to adrenal burnout, or sometimes a disorder in the brain regulation of the adrenals. Initially cortisol will elevate. This will disrupt sleep and cause weight gain around the middle. Later, cortisol may, with the constant elevation, cause an insensitivity to cortisol. The cortisol will be high but the cortisol receptors become resistant similar to what happens with insulin or leptin resistance. This will ramp up the desire for carbohydrates in the diet. Later still, the cortisol levels will drop as the adrenals get tired. In this case, protein will not be as readily converted to sugar because of the lack of cortisol to drive this process.

Grain and the Gut Microbiome

For some people, clearing the carb-dependency will be next to impossible when eating grain. This is especially true with wheat, especially non-organic wheat, which is frequently contaminated with gut microbiome damaging glyphosate.

Speaking of the gut microbiome, certain foods support the growth of a “skinny” gut microbiome. These foods include asparagus, carrots, garlic, Jerusalem artichoke, jicama, leeks, onions, radishes, and tomatoes. Supplemental arabinogalactan and inulin are also helpful in this way. Natural probiotics, which replenish your microbiome with additional healthy bacteria, include fermented vegetables, such as sauerkraut, kvaas, and kimchee, and fermented dairy products, such as kefir and yogurt made from sheep’s, cow’s, or goat’s milk.

Exercise and Carb-Dependence

If you exercise and get shaky afterwards, you are having trouble with using up your sugar and not being able to access fat. If you continue with this, you will start to chew up your protein mass to provide fuel for your body and brain. If you push beyond your limits here, you will “bonk,” a situation where you are flat out of gas and can no longer go even another step. This is where the stories about runners crawling toward the finish line of a marathon come from.

Children, Carb-dependence, and Fat Burning

Children are subject to the same issues with carb-dependence and fat burning as adults. When children are very active physically, they can “burn off” more of the sugar taken in. However, they are still very susceptible to blood sugar swings and the mood and energy swings that go with them. I have counseled many parents to give their children some good quality protein and fat in the morning and to keep the refined carbohydrates to a minimum in their overall diet. Energy, mood, and concentration improve in children fed this way.

Very important here is for parents to model good eating practices so that children grow up knowing what a balanced diet is. Children need to know what real food is. They need to know how to make good food choices and that dietary choices have consequences. I suggest that parents ask their children in an “educational” tone of voice what they had to eat when they complain of not feeling well so that they can begin to see the relationship between what they eat and their mood when this is the issue. This will serve them for a lifetime.

Have Fun

One very important factor with any diet change and any sustainable way of eating is that it needs to be fun at some level for it to work for you. If you really aren't enjoying this, aren't having some humor about it, if it's deadly serious and oh-so-important, then you might need to rethink things. This isn't about doing it right or doing things perfectly. There are so many individual dietary factors that need to be explored. The goal is to find what works for you, what will bring you good energy and help you to thrive.

Food is life, so play a bit. Trust the process and see what works for you.