Navigate the Ketogenic Diet for Optimal Health
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This book was made after studying the ketogenic diet and applying it in detail for over 5 years. After I developed skin cancer at 28, I got serious about reducing sugar and experienced incredible health while I was in a ketogenic state. The result was that I was able to reverse the cancer and dramatically improve my health.

Today, I use a cyclic ketogenic diet and don’t mandate myself to being in ketosis 24/7, but I still spend a good amount of time in the ketogenic state and enjoy the incredible benefits including improved mental function, energy levels, skin and digestive health as well as optimal lean body tissue.

This booklet was designed to help you learn more about why the ketogenic works so well, how to get into ketosis and stay in ketosis as long as you like.

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*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease. If you are pregnant, nursing, taking medication, or have a medical condition, consult your physician before doing any of these health strategies.

*This information is based on Peer Reviewed published studies and all references can be found on DrJockers.com
The Diet That Destroys Cancer:

Despite the massive growth in genetic therapies, pharmaceutical and surgical technologies chronic disease is crippling mankind. We have clearly not addressed the underlying causative factors for many conditions such as cancer. The true solutions for cancer and many other degenerative disease processes lie in the nutritional and metabolic functions of the body.

Sweet foods and starches are not genetically congruent to eat on a regular basis. Our ancestors looked at these as rare delicacies. Most people in our society today are raised on a steady diet of sugars, grains and other starches. Studies have shown that sugar is the fuel source for cancer and creates an environment of chronic inflammation that leads to other degenerative disease processes.

Traditional Cultures and Ketone Usage:

Many traditional cultures such as the Eskimos and Maasai tribesman consumed very little carbohydrates and survived from effective ketone formation in the body. Ketones are a form of
energy that is produced by the liver through the metabolism of fatty acids. Ketones are able to cross over the blood brain barrier to provide energy for neurons. Ketones are able to support life in the absence of available glucose.

During times of fasting, which were quite common for our ancient hunter-gatherer ancestors, the stores of glucose drop and high levels of ketones are formed. Diets that are very low in carbohydrates (30-50 grams daily) and moderate in protein (0.8-1.2g/kg) are able to produce ketones in higher levels.

Research has shown that the body adapts to ketone metabolism and improves the efficiency of this fuel source over time. The specific liver hormone, FGF21, which is critical for the oxidation of the liver’s fatty acids, is upregulated in individuals who are on a ketogenic diet over time. This allows for a greater use of ketones as an energy source in the body.

**Cancer and Glucose Metabolism:**

Famous cell biologist and cancer researcher Otto Warburg discovered that cancer cells have an altered metabolism and are unable to produce energy through cellular respiration. They drive all of their energy from substrate level phosphorylation through glucose fermentation.

Other researchers such as Dr. Thomas Seyfried have found that cancer cells run off of both glucose and amino acid (glutamine) fermentation.
Feeding Cancer or Starving It:

Cancer cells contain ten times the amount of insulin receptors as normal cells. This allows them to gobble up glucose and other nutrients from the blood stream at an accelerated rate. As long as an individual continues to provide this form of fuel the cancer will continue to grow. Those cancer patients who have the highest blood sugar readings after eating have the lowest survival rates.
Cancer cells have damaged mitochondria and are unable to produce energy through aerobic respiration so they are unable to metabolize fatty acids for energy. They depend entirely on glucose or amino acid metabolism. So any method that restricts glucose and amino acids has the ability to starve off cancer cells.

High protein diets will continue to feed the cancer growth as will consistent eating habits. In our culture, most people eat 3-5 times a day when you include traditional meals and snacks. The constant flow of nutrition elevates blood sugar and insulin levels and allows plenty of substrate for the cancer to continue to grow.

**Fasting and Cancer Prevention:**

Creating a lifestyle around intermittent fasting is particularly effective at creating ketones and starving cancer cells. Highly motivated individuals with advanced cancer diagnosis may do a three to seven day cleanse where they consume nothing but water with lemon.

Others may choose to incorporate a regular fasting lifestyle in which they only eat for a 4-8 hour period each day. They may choose to eat only between the hours of 3pm and 7pm and do a 20 hour fast each day. This will force the body to make ketones to fuel the brain and body deep into the fasting period. Individuals with a cancer diagnosis should do the daily 20 hour fast while individuals without a cancer diagnosis can do more of a 16 to 18 hour fast for optimal ketone metabolism.

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<td>Colon</td>
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<td>Pancreatic</td>
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<td>Renal</td>
<td>Brain</td>
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Cancer Killing Meal Plans:

Meals should be focused on good fats like coconut oil, avocados, olive oil and raw nuts and seeds. Very low carbohydrate vegetables such as broccoli, cauliflower, brussel sprouts, asparagus, kale, collard greens, spinach, celery, cucumbers & cabbage among others should be staple parts of the diet. Clean proteins in moderation such as grass-fed beef, grass-fed raw cheese and fermented dairy, organic poultry and wild game are great.

Fresh squeezed lemon/lime, apple cider vinegar and other low-sugar fermented food/drink and fresh or dried herbs should be used in abundance. These help to provide organic acids, enzymes and anti-oxidants into the body. Organic acids produce an alkaline ash once metabolized. These alkaline elements that neutralize the excess acidity that cancer produces and improve cellular oxygenation which helps destroy cancer.

Optimal Hormone Sensitivity:

This diet allows for optimal insulin and leptin sensitivity which leads the individual to feel satisfied easily. A 150lb man should keep his carbohydrates around 30-50g/day and his protein under 70 g/day for optimal ketosis. This is fairly easy when only 1-2 meals are eaten consisting of the foods listed above.

Optimal blood sugar levels for cancer starvation should be between 65-75 mg/dl and ketone levels should stay around 2-4mM. The ketogenic diet is often deficient in anti-oxidants so it is important to supplement with a multi-vitamin and probiotics. High quality omega-3 supplementation along with vitamin D3 is also extremely beneficial and synergizes the anti-tumor effects of the ketogenic diet.
How Are Ketones Formed:

The body has two major energy sources, it burns glucose or ketone bodies. The majority of people burn glucose primarily because they are constantly supplying a steady form of sugar, starches and proteins that can be turned into blood sugar. When one eitherfasts or goes on a low-carb, moderate protein and high fat diet they switch their energy source to fat.

In particular, the fatty acids are broken down into ketone bodies. The three major forms of ketones produced in the body include Acetoacetate, Acetone and Beta-HydroxyButyric acid. These are released into the blood from the liver when insulin levels are low and hepatic liver metabolism is increased (2).
Measuring Ketone Levels:

There are three ways to measure ketone body formation: breath, urine and blood. Breath testing measures acetone, urine measures acetoacetate levels and blood looks at beta-hydroxybutyric acid. Blood measurements are the most accurate but the testing is more expensive. All three areas can help guide you to understand how to maintain ketosis with your unique biochemistry.

The skin prick blood spot test is the most accurate way to measure ketosis. Most people will enter into a light nutritional ketosis (between 0.5-1.0 mmol/L on the meter) within two or three days. It typically takes two to three weeks to get into a stable optimal ketosis of 1.5-3.0 mmol/L (3).

Urine ketosis shows the amount of ketones that are not being used through metabolism. Some people will be in ketosis, yet only show low levels of ketones on their urine strips. Others will show higher levels.

The more energy you are expending (exercise, physical work, etc.) the more you will use ketones as an energy source and the less ketones will be in your urine. However, if you were relatively sedentary you may very well notice more ketones in your urine.
The Ketogenic Nutrition Plan:

The body stores protein as lean muscle tissue and carbohydrates in the form of glycogen. During ketosis the body is primarily burning fatty acids in the form of ketosis and it is preserving protein and glycogen stores. This creates a physiological state of fat adaption where the body is burning through fat stores.

The result of fat adaption is improved lean body tissue, better brain function, improved energy and more restful sleep among other things. You become fat adapted by building all your meals around good fats sources such as avocados, MCT oil, coconut oil, olive oil, pastured butter, nuts and seeds and grass-fed animal products.

Macronutrient Percentages:

I try not to make too big a deal about macronutrient percentages and personally, I do not measure my own. I just intentionally look to avoid high carbohydrate foods and consume as much good fat as I can. Some individuals want to measure and track and so the best strategy is to have your nutrition plan contain good fat sources making up 60-80% of total calories.

Protein makes up 10-25 percent of calories based on physical demands. Someone who is exercising more intensely will need about 20-25 percent of calories from protein whereas someone is sedentary or doing lighter forms of exercise who should be on 10-15% of calories from protein. Carbohydrates make up around 5-15% of total calories.
Meal Planning on a KetoGenic Diet:

As a clinician, I believe everyone on the planet would benefit from a cyclic ketogenic diet. This means that the body uses ketone bodies as its primary fuel source a majority of the time. To get into and maintain ketosis you eat a low-carb diet with only moderate amounts of protein and high amounts of good fats.

There is a growing segment of the natural health movement that endorses the ketogenic diet as the best nutritional approach. The biggest challenge people have is navigating how to set up meals to maintain ketosis.

When meal planning on a ketogenic diet you will take into account your unique metabolism. Some people do great with intermittent fasting where they go 16-18 hours without a calorie source. Other individuals who have adrenal fatigue may need to eat every 4 hours or so to maintain stable blood sugar and elevate ketones appropriately.
What Do You Eat For Breakfast?

The first question should be whether or not you actually want to eat breakfast. Personally, I am not hungry and water fast through breakfast. I typically will drink about a half a gallon of water before 12pm.

If you are a coffee drinker, I recommend using an organic, mold-free coffee and putting 2 tablespoons of coconut oil and 2 tsp of pastured butter in it. This combines the benefits of the caffeine and anti-oxidants in the coffee along with the medium chain fatty acids (MCTs) in the coconut oil and butter. These MCTs go right to the liver where they are converted to ketones and used for energy.

You could make something similar with raw cacao and make a hot chocolate or chocolate milk depending upon what season it is and what you would like. The chocolate milk could use organic coconut milk (full-fat) which is very creamy and provides the same MCTs as the coconut oil.

How About Some Real Solid Foods?

You could also do some pastured eggs cooked in coconut oil. This is a little more challenging on the digestive system than the drinks above but it provides more quality nutrients as the eggs have tons of choline and carotenoid anti-oxidants. You could throw some non-starchy veggies with the eggs and put some olive oil on top for more beneficial fats.
Finally, you could do a protein shake with full-fat organic coconut milk, or organic almond milk with 2 tbsps of coconut oil added. You would have a small amount of frozen, organic berries and about 15-20 grams of a quality, low-carb protein powder. The protein could be a hemp, pea, brown rice or non-denatured whey source. Be sure not to put too much berries or protein in it.

**How About Lunch:**

Lunch could be a number of things such as a creamy guacamole with coconut milk, lemon, apple cider vinegar and herbs. You can serve this with flax crackers or with kale chips, red cabbage, celery, cucumbers, etc. You could also have a big salad (without tomatoes or fruit) with diced avocado, fresh squeezed lemon, extra virgin olive oil and herbs.

During the winter-time you may want to have some bone broth stew with grass-fed beef bones and meat or pastured chicken bones and meat. Load it up with non-starchy veggies and you have an incredibly nutrient dense, easy to digest meal.

You could also have a nice performance enhancing treat such as a coconut cacao butter ball. This is a combination of coconut oil/butter, raw cacao and stevia for flavor. This is high in good MCT’s and anti-oxidants from the raw cacao.
What’s For Dinner?

Due to the lack of hunger when the body is in ketosis, some choose to fast through dinner or just to have some organic bone broth. Others choose to make dinner their largest meal and sometimes their only meal of the day.

Great dinner options include a healthy meat source such as bison, grass-fed beef, lamb, venison, organic poultry, etc. Combine this with steamed, sautéed or raw, non-starchy veggies. Anything that is grilled or sautéed should be bathed in tons of coconut oil. After the dish is complete, be sure to add in generous amounts of extra-virgin olive oil, apple cider vinegar, fresh squeezed lemon and herbs.

It is always a good idea to stick with a clean meat, lots of veggies, good oils, lemon/ACV and herbs for dinner. Just rotate out the different types of meat and veggies for some variety. You could also do soups and stews which are particularly good in the winter time.
The Keto Diet and Oxidative Stress:

The cell membrane is the double outer layer of fatty acids. This structure is made up of a blend of saturated, monounsaturated and highly unsaturated fatty acids (HUFAs). The cell membrane and particularly the HUFAs are very susceptible to free radical damage. This free radical damage causes something called “lipid peroxidation” and negatively effects hormone sensitivity.

Elevated lipid peroxidation leads to issues like insulin resistance and poor blood sugar metabolism. Insulin resistance and poor blood sugar metabolism leads to fat storage and muscle tissue breakdown. This is the antagonist to healthy aging and a desirable physique. The Two biggest dietary factors that reduce lipid peroxidation include

1) The Anti-oxidant Content of the Diet
2) Carbohydrate Level of the Diet

Research has shown that a low-carbohydrate, ketogenic diet reduces oxidative stress in the body. The reduction in oxidative stress on the cell membrane allows for the formation of healthy insulin receptors and normalized blood sugar regulation.

This improves insulin sensitivity which further reduces inflammation and fat storage in the body. The more sensitive the body is to insulin, the less stress it puts on the rest of the system and the easier it is to build muscle and burn fat.
Protein Sparing & Healthy Muscle Tissue:

A healthy body is not thin and weak. A desirable physique is strong and has well-developed muscle tissue that is genetically congruent for the individual. The antagonist to this is again poor blood sugar sensitivity and insulin resistance.

High carbohydrate diets increase the level of muscle cell inflammation and reduce protein synthesis. For many body types this leads to a catabolic or cannablistic state where the body eats up the muscle tissue. This leaves the individual with a very thin and under developed physique.

A properly formed ketogenic diet maintains circulating branched chain amino acids (BCAAs). These BCAA’s (leucine, isoleucine and valine) and especially leucine are critical for protein and muscle synthesis in the body. Blood leucine levels, a powerful regulator of muscle protein synthesis, increases on a ketogenic diet. Meanwhile, insulin levels decrease on a ketogenic diet as does muscle inflammation.

The result of this is that the muscle cells will have an environment that promotes proper development and optimal function. The keto-adapted state improves the efficiency of protein utilization. The greater economy of protein allows for less to be consumed while still maintaining healthy blood leucine levels for proper muscle development and recovery.

Practical Considerations:

There is a popular idea that the body needs carbohydrates and protein immediately after exercising in order to properly recover. However, with the application of a properly formulated ketogenic diet to achieve a keto-adapted state this is not necessary. Keto-adapted individuals can often fast for periods after a short high intensity workout and see improvements in strength and muscle development.
In my late teens and early twenties, I would eat around 5,000 calories a day with over 200 grams of protein. I used to have to eat before and after I exercised. My diet was probably 50% carbohydrate, 25% protein and 25% fat. This nutrition plan resulted in good strength gains but also destroyed my gut, desensitized my cells to insulin leading to blood sugar instability and chronic inflammation. The elevated carbohydrate and protein levels also promoted the development of cancerous growths in my body.

This resulted in severe health problems and a 5+ years of learning better strategies to improve my health. A few of the strategies I noticed incredible improvement with included the ketogenic diet and intermittent fasting. I also learned to focus on super hydration with anti-oxidants in the morning hours. I typically drink 64oz of water before 12pm and use anti-oxidant extracts such as lemon and/or anti-oxidant supplements in the morning hours.

Now, I eat 2 meals a day between a 4-8 hour eating window and consume around 3500-4000 calories with approximately 60-70% fat, 20-25% protein and 10-15% carbohydrates on average. Some days, it is 70%, 25%, 5% while other days it is 60%, 20%, 20%. I work out intensely in the morning and almost never eat afterwards (unless my workout is later in the day for some odd reason). I eat my meals between 1pm and 8pm on most days.

The results – I am stronger in my upper and lower body and feel significantly better than I did in my teens and 20’s.
5 Reasons to Use MCT Oil for Ketosis:

Medium chain triglycerides (MCT’s) are unique fatty acids that are found naturally in coconut and palm oils. They have a remarkable ability to stabilize blood sugar and enhance ketone body production. This process makes MCT’s a powerful tool to reduce inflammation, improve metabolism and enhance cognitive function.

The term medium is in reference to the length of the chain of fatty acids. Oils can have short, medium or long chains. Most oils are a combination of short, medium and long chain fatty acids.

Medium chain fatty acids by definition are fatty acids that contain between 6 and 12 carbon chains. These include:

C6 – Caproic Acid
C8 – Caprylic Acid
C10 – Capric Acid
C12 – Lauric Acid
MCTs Are Easily Digested:

MCTs are easily digested and do not require the production and utilization of bile. Most fatty acids depend upon bile salt emulsification in order to be metabolized & absorbed. The production of bile is an energy dependent process that takes place in the liver.

Individuals with sluggish livers and gallbladders struggle to produce adequate bile. Other individuals who struggle with malnutrition or malabsorption syndromes can easily absorb and utilize these MCTs. This includes people with pancreatitis, cystic fibrosis & Crohn’s disease among others.

MCTs have a slightly lower caloric effect than typical long-chain fatty acids (LCFA). LCFAs have 9 calories per gram while MCTs have 8.3 calories per gram.

![Fig. 1. Digestion and transport of fats. Note greater efficiency of absorption of MCTs versus LCTs, resulting in more rapid production of energy.](image)
How MCTs Work:

The mitochondria are small organs within your cells that are responsible for producing all the energy needed by your tissues. Fatty acids produce energy in the mitochondria but are dependent upon the L-carnitine compound in order for entry. MCTs provide immediate energy because they are able to cross the double mitochondrial membrane very rapidly and do not require the presence of carnitine.

This results in the production of excess acetyl-coA which breaks down into ketones. The rapid formation of ketone bodies gives immediate energy and enhances brain function and athletic performance.

Many experts say that MCTs act like carbohydrates because they provide an immediate energy source. However, MCTs do differ from carbohydrates in that they do not raise blood sugar or increase insulin levels as carbohydrates do.

**Fig. 2.** Metabolism of fatty acids in the liver and mitochondria. TG = triacylglycerols; PL = phospholipids; CE = esterified cholesterol.
What are Ketones:

The body has two major energy sources, it burns glucose or ketone bodies. The majority of people burn glucose primarily because they are constantly supplying a steady form of sugar, starches and proteins that can be turned into blood sugar. When one either fasts or goes on a low-carb, moderate protein and high fat diet they switch their energy source to fat.

In particular, the fatty acids are broken down into ketone bodies. The three major forms of ketones produced in the body include Acetoacetate, Acetone and Beta-HydroxyButyric acid. These are released into the blood from the liver when insulin levels are low and hepatic liver metabolism is increased.

Ketones as a Preferred Fuel For the Brain:

Ketones are unique energy producing molecules made from fatty acids. Our bodies can make them from stored fat or from MCTs. Ketones feed all the cells of the body, but in particular they are a preferred fuel for the brain.

Research has demonstrated that MCTs can readily cross the blood-brain barrier (BBB) and be oxidized by the brain. Thus, MCTs may provide both a direct and an indirect brain fuel source via the generation of ketones. This is incredibly important for everyone and especially those with type 1 diabetic patients as it gives us all a strategy to preserve brain function during hypoglycemic episodes without raising blood glucose levels.

Ketones activate specialized regulatory proteins in the brain called brain derived neurotrophic growth factors (BDNF). BDNF works to repair, protect and enhance the function of the brain cells and the neurological networks. BDNF also stimulates the growth of new, healthy neurons that take the place of older, dying cells. The inability to regulate dead or dying brain cells is a risk factor for neurodegenerative disease processes.
Natural Sources of MCTs:

The best natural source of MCTs are found in coconut oil. Palm oil, camphor tree oil, goat’s milk and grass-fed are all good sources of MCTs as well. Coconut oil is nature’s richest source of C12 lauric acid. Lauric acid is very good for the immune system which is one of the reasons why coconut oil has such tremendous health benefits.

Many individuals thrive off of grass-fed dairy products such as raw milk, kefir, amasai and cheese. Other individuals struggle with the lactose and the dairy proteins casein and whey. Grass-fed butter and ghee are typically well tolerated by most individuals.

Ghee is the only dairy product that is fully pure of casein, lactose and whey. When I have a client with skin issues (eczema or acne), autoimmune issues or leaky gut, I always start by removing all dairy except grass-fed ghee, which is often well-tolerated.

You can also get a pure MCT oil that is concentrated caprylic and capric acid. These are processed in a manufacturing plant to remove all the longer chain fats and other compounds except these two fatty acids. But be careful with the brand you purchase as it is important to get one that is tested for purity and heavy metals.

Caproic Acid:
This is the smallest chain MCT at 6 carbon chains. There is an extremely small amount of this in our normal food supply. It has the potential to cause digestive problems including diarrhea and throat burning.

Caprylic Acid:
This 8 carbon MCT is found in only 6% concentration in coconut oil but is considered the gold nugget of the MCTs. It has the most potent of anti-microbial properties that help to destroy bad bacteria and yeast.
Caprylic acid is easier than lauric acid in the production of cellular fuel (8). In fact, it only takes 3 steps to turn it into cellular energy (ATP). Sugar takes 26 steps to produce cellular energy and is therefore highly metabolically expensive. The more concentrated an MCT oil is in caprylic acid the more mitochondrial strengthening the product will be.

**Capric Acid:**
This 10 carbon chain fatty acid is also a very powerful MCT that turns into easy energy within the mitochondria of the cell without any work from the liver. Capric acid has also been shown to have great anti-microbial effects against bacteria such as P Acnes, E Coli and Candida albicans.

Research has also shown that capric acid helps to reduce inflammatory activity against bone tissue. This provides evidence of its benefit in preventing bone loss and osteoporosis.

**Lauric Acid:**
This is a 12 carbon chain fatty acid that makes up around 50% of the fatty acids within coconut oil. The metabolism of lauric acid is different than the other three MCTs. In fact, even though lauric acid is considered an MCT, it actually acts more like a long-chain fatty acid. It depends upon liver bile in order to be effectively metabolized.

Lauric acid is an effective anti-microbial but research has shown that caprylic and capric acids are more effective than lauric acid against infectious organisms such as gonorrhea and chlamydia. Caprylic acid is a common supplement used in anti-yeast protocols and small intestinal bacterial overgrowth protocols.

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<th>Table 1: Approximate fatty acid content of some commonly used oils in food</th>
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<tr>
<td>Food</td>
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<tr>
<td>Short- and medium-chain triglycerides</td>
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<tr>
<td>Coconut oil</td>
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<td>Coconut cream</td>
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<td>Butter</td>
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<td>Palm oil</td>
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<td>Olive oil</td>
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1. **MCTs Lower Blood Sugar:**

MCTs raise up ketones and lower blood sugar naturally. They have a strong blood sugar stabilizing effect that helps to reduce inflammation and improve brain function.
After a single oral dose of MCTs a slight drop in blood sugar develops. It is caused, apparently, by a decrease in the liver output of glucose and not by an increase in the bodies utilization of glucose. MCTs significantly improve carbohydrate tolerance and inhibit the production of fatty acids in adipose (fat) tissue.

2. Increased Nutrient Absorption:

MCTs improve the absorption of calcium and magnesium in premature infants. One study looked at 34 pre-term infants. The infants were divided into 3 groups and fed various formulas.

Group 1 had corn oil, oleic, and coconut oil (39:41:20); Group 2: MCT, corn oil, and coconut oil (40:40:20); Group 3: MCT and corn oil (80:20). The infants fed MCT-containing formulas absorbed significantly more calcium than the control group. Magnesium absorption was significantly increased in the 80% MCT group.

These same groups were then analyzed for protein absorption and nitrogen content. The 80% MCT group had significant improvements in nitrogen absorption and amino acid sparing. This means the body will be more effective at preserving and building lean body tissue when using MCT oil.

3. Natural Anti-Convulsive:

The production of ketones has powerful anticonvulsive properties on the brain that has long been used as a treatment for individuals with epilepsy. The traditional ketogenic diet which is LCFA based that is used for anti-convulsive benefits is made up of 87% of the calories from fat. This is extremely hard to follow and compliance is often very low.

The use of MCTs, which as described are highly ketogenic, makes it much easier to get into and stay in ketosis. An MCT based diet only depends upon 60-70% of calories from fat which allows one to handle some nutrient dense sources of carbohydrate and protein. The diversity of the diet provides more micronutrients, has greater variety and is more enjoyable.

4. Improved Athletic Performance:

MCTs are an elite fuel for athletes or anyone who is performing some sort of physical exertion. This is due to their rapid rate of absorption through the digestive tract, quick metabolic conversion into cellular energy and their high energy density.
Many athletes find great performance benefits using MCTs both pre and post workout. They are the best form of fat to use right before (within 2 hours) and right after exercise due to their quick mobilization and use for rebuilding muscles and preventing the catabolic breakdown of proteins after rigorous training.

5. Appetite Control and Weight Loss:

Research has shown that MCTs suppress the appetite which helps individuals who struggle with strong cravings and overeating. In a 14 day study, 6 healthy males were put on 3 different unlimited diets: a low MCT diet, a medium MCT diet and a high MCT diet.

The study authors found a significantly lower calorie consumption for those on the high MCT diet. The researchers discussed how substituting MCTs for other fat sources can limit excess caloric intake and resulting weight gain.

A number of studies have also shown that when overweight and obese individuals were put on higher MCT oil diets, they were able to lose more weight and had better energy even though they were consuming less calories.
Problems With MCT Consumption:

Most people tolerate MCTs very well, however, too large of dosages too quickly can cause gastrointestinal problems such as nausea, diarrhea and vomiting. If you have this problem, don’t panic and give up on MCTs right away.

You can easily reduce or eliminate these symptoms by starting with very small doses at a time. This would mean ½ tsp several times daily and slowly increasing the dosage as tolerated.

Suggested Use:
Upgraded MCT Oil is a supplemental oil that acts as a substitute for some of the usual oil in your diet. It should not be used to replace all of the fat in your diet.

Begin using MCT 1 tablespoon per day and slowly increase over several days. Too much MCT, especially if consumed on an empty stomach, may result in diarrhea or a stomachache. 1-3 tablespoons per day is recommended for Bulletproof practitioners.

How To Use MCT Oil:

MCT oil is very versatile and can be used as a salad dressing, in smoothies, for cooking or just straight up off the teaspoon. Here are the most popular ways:

Cooking Oil: Highly stable under heat like coconut oil but no coconut flavor
Salad Dressing: No major flavor so combine it with herbs and vinegar
In Coffee & Tea: Great for thickening up coffee or tea and improving their health benefits.
Smoothies: Add 2 tbsps in a smoothie to curb hunger and have the smoothie keep you satisfied longer.

Introducing Upgraded XCT Oil:

Upgraded XCT oil is a combination of the 8 carbon chain caprylic and 10 carbon chain capric acid. This formulation has 6 times more caprylic and capric acid in it than coconut oil which is mostly lauric acid which is not easily metabolized to create immediate fuel for the brain.
Upgraded XCT oil is free of lauric acid and is pure caprylic and carpic acid. This means that it is instant fuel for the brain. It helps to keep ketones up and allows the body to easily switch over from burning sugar to ketones as its primary fuel source.

Upgraded XCT oil is extracted from palm and coconut oil in a time consuming process, making it the most potent XCT on the market. No metal catalysts are used in the manufacturing process, and every batch of our XCT is tested for heavy metals. Upgraded XCT is 100% pure and has a perfect 8-10 carbon saturated fat level.

Medium-chain triglycerides (MCT) work directly in cells to give you an extra boost to maximize your performance. Very little MCT oil is stored as fat because it is used for energy so quickly!

Tired of constantly craving sugar or caffeine? Want a thermogenic immune boost with your energy? Try the most advanced form of MCTs that is 6x stronger than coconut oil.
The biggest challenge with this nutrition plan is to get into and maintain the state of fat adaption. Here are several advanced tips to get into and maintain ketosis.

1. **Stay Hydrated**

This is considered a no-brainer, but is not easy to follow. We often get so busy in our day-day lives that we forget to hydrate effectively. I recommend super hydrating your system by drinking 32 oz of water within the first hour of waking and another 32-48 oz of water before noon.

I have most of my clients eat light in the morning doing smoothies or keto coffee or tea. So hydration around these dishes should be well tolerated by the digestive system.

2. **Practice Intermittent Fasting**

This is one of the best ways to get into and maintain ketosis because you are reducing calories and not consuming protein or carbs. It is a good idea to go low-carb for at least a few days before starting this in order to avoid a hypoglycemic episode. You can read all about intermittent fasting strategies here
I recommend breaking your day into a building phase and a cleansing phase.

**Building Phase:** Time between your first meal and your last meal  
**Cleansing Phase:** Time between your last meal and your first meal

I personally coach people to begin with 12-16 hour cleansing phases and 8-12 hour building phases. Over time, as your body adapts you may be able to move into a 18-20 hour fast.

During the fast, I recommend hydrating and consuming herbal teas and organic coffee with MCT oil, coconut oil and/or grass-fed butter. The good small and medium chain fats in these help to boost up ketone production and stabilize blood sugar more effectively than water fasting alone.

Most people feel very good while they are fasting like this. For women, particularly those who struggle with hypothyroid, adrenal fatigue and hormonal imbalances, I will often recommend adding some collagen protein (about 5-10 grams) in with their coffee/tea. The protein will help with blood sugar regulation and satiety levels and improves overall hormone function.

### 3. Consume Enough Good Salts

We are told in our society that it is important to reduce our sodium intake. Many individuals in our society struggle with a high sodium/potassium ratio. This is due to the fact that when we are on a higher carbohydrate diet, we naturally have higher insulin levels. Insulin effects our kidneys in such a way to retain sodium which can lead to a higher sodium/potassium ratio.

When we are on a low carbohydrate, ketogenic diet, we have lower insulin levels and therefore our kidneys excrete more sodium which can lead to a lower sodium/potassium ratio and a greater need for sodium in the diet.

On a low-carb diet you should look to get an additional 3-5 grams of sodium from natural foods and through the use of a pink salt like Himalayan sea salt. 1 tsp of pink salt is equivalent to 2 grams of sodium. Here are the ways I recommend adding in additional sodium:
1. Drinking organic broth throughout the day.
2. Being generous with the amount of pink salt you use on your food
3. Adding ¼ tsp of pink salt to 8-16oz of water throughout the day
4. Adding sea vegetable like kelp, nori and dulse to dishes
5. Consuming celery and cucumber which are low carb and have natural sodium
6. Having sprouted and salted pumpkin seeds or salted macadamia nuts as a snack

4. Get Regular Exercise

Regular, high intensity exercise helps to activate the glucose transport molecule called GLUT-4 receptor in the liver and muscle tissue. The GLUT-4 receptor acts to pull sugar out of the blood stream and store it as liver and muscle glycogen. Regular exercise doubles the levels of this important protein in the muscle and liver.

This is a very important adaptation for maintaining ketosis because it will allow the individual to handle a little bit more carbohydrates in the diet because the body wants to store them in the muscle and liver tissue.

Large compound exercises that use multiple muscle groups have the greatest impact on GLUT-4 receptor activity. This includes squats, deadlifts, push-ups, standing overhead presses and pull-ups or pull-downs or bent over rows.

Incorporating a regular exercise program that includes these resistance training exercises along with running sprints and low-intensity exercise such as walking helps to balance blood sugar and improve the ability to get into and maintain ketosis.

Just be sure not to overdo it. Small amounts of high intensity training go a long way. If you overtrain your body, you will secrete higher amounts of stress hormones that will drive up blood sugar and pull you out of ketosis.

Here is a Sample Exercise Program to Help:

- **Monday:** Upper Body resistance training for 15-20 mins
- **Tuesday:** Lower Body resistance training for 15-20 mins
- **Wednesday:** 30 minute walk around the block
- **Thursday:** Upper Body resistance training for 15-20 mins
- **Friday:** Lower Body resistance training for 15-20 mins
- **Sat/Sun:** Recreational activities and walking
*If you are a high level athlete or CrossFitter, consult with your trainer or coach who is familiar with your goal to achieve a state of ketosis and modify the training based on that.

*If you are battling a chronic disease or have stage III and beyond of adrenal fatigue than I would recommend not doing any intense exercise and instead focus on stretching and breathing exercises such as yoga and tai chi and low impact movement such as light walking or elliptical exercises.

**Human Glycogen Tank Capacity**

holds a maximum of 270 grams of glycogen, most in muscles.

If your tanks are full, glucose pools in blood stream, which increases insulin production.

Higher insulin levels cause all excess energy to be stored as body fat, or as LDL cholesterol.

Result: Body Fat Increases and cardiovascular health gets worse.

**Eating carbs creates glucose which has be stored as glycogen in the liver and muscles.**

**High Intensity Exercise** causes your muscles to use glycogen. Your tank empties which allows muscles to become more insulin sensitive. Insulin levels drop, allowing stored body fat to be burned off, reversing Metabolic Syndrome.
5. Improve Your Bowel Motility

Constipation is one of the biggest challenges people have on a ketogenic diet. This is often due to one of the following:

1) Pre-existing struggles with constipation due to small intestinal bacterial overgrowth (SIBO) or Candida overgrowth.
2) Not consuming enough fibrous vegetables & fermented foods, drinks and tonics
3) Dehydration
4) Inadequate electrolyte consumption (sodium, potassium, calcium and magnesium in particular)
5) Chronic stress which shuts down the gastrocolic contractions

To remedy this, I recommend correcting bacterial or yeast overgrowth issues, consuming fermented foods if tolerable such as kimchi, sauerkraut, coconut water kefir, etc. I also recommend doing extra magnesium supplementation and consuming a lot of clean water and adding in pink salts for extra sodium. Doing a fresh green drink everyday will also help with increasing potassium, magnesium and calcium levels.

6. Don’t Eat Too Much Protein

Many people doing a ketogenic diet consume too much protein. If you consume excessive protein than your body will turn the amino acids into glucose through a biochemical process called gluconeogenesis.

If you notice yourself coming out of ketosis than see how you are responding to the amount of protein in your meals. Some people need higher protein levels while others can do just fine on lower protein levels.

The key variables include your level of exercise intensity and type of exercise (resistance vs aerobic) and your desire to gain muscle or lose weight. Someone who does intense resistance training in order to gain muscle will need more protein than someone who is the same size and is doing aerobic or resistance training to lose weight. Another person who weighs the same but is only walking for exercise, will need even less than the other two.

You want to aim for about 1 gram per kg of body weight. So, I weigh 160 lbs which comes out too (160/2.2 lb/per kg) 73 grams of protein. When I do heavy strength training (4 days a week), I will go up to 100-120 grams but I typically am around 80 grams a day on my off days.
Take your weight and divide by 2.2 to figure out the grams of protein per kg of body weight. Aim to get this on your lighter workout days. If you are doing more strength training or trying to gain muscle, bump it up to 1.5 grams per kg.

It is ideal to get your protein in 2-3 different servings daily with a minimum of 15 grams and a maximum of 50 grams per meal. The lower level is for a light weight individual while the upper limit is for a very large, strength training male.

Most of us should aim for 20-30 grams per meal. Here is an example of how this would work:

**Individual A:** 150 lbs – needs 68 grams of protein daily. Does not exercise other than walking. This person should eat either 2 meals with 30-35 grams of protein or 3 meals a day with roughly 20-25 grams of protein per meal.

**Individual B:** 150 lbs and enjoys doing resistance and aerobic training 3-4x a week but does not want to gain weight. This person should look to get 68 grams on non-training days and 75-80 grams on training days. So 25-30 grams of protein per meal.

**Individual C:** 150lbs and does high intensity resistance training 4-5x per week and wants to gain muscle mass. They should consume around 80 grams of protein on off days and 100 grams of protein on training days. This would mean 25-35 grams of protein per meal.

### 7. Choose Carbs Wisely

We all know that a ketogenic diet is a low-carb plan but I recommend consuming nutrient rich carbohydrate sources such as non-starchy veggies and small amounts of low-glycemic fruits like lemon, lime, ½ granny smith apple in green shake and/or a small handful of berries in a protein shake.

When you cycle out of ketosis once or twice a week, you increase your carbs on that particular day by adding in nutrient dense sources such as more berries in a shake or a sweet potato with tons of grass-fed butter and cinnamon.

On low carb days, avoid the sweet potato and keep berries down to a small handful at most. A half of granny smith apple or 1 carrot or 1 beet would be the maximum you would want to put in a green shake on a lower carb day.

3 Low carb days with no more than 1 serving of fruit (other than lemon/limes) and no starchy veggies and keeping net carbs (not counting fiber) to 40 grams or so.
1 higher carb day with 2-3 servings of anti-oxidant rich low-glycemic fruit and 1-2 servings of starchy veggies (pumpkin, yam, sweet potato, carrot or beet) and allowing yourself to go up to 100 grams of net carbs.

8. Use MCT Oil Whenever Possible

Using a high quality MCT oil is perhaps the most important thing one can do to get into ketosis and maintain it. That is because the use of a high MCT oil based diet allows one to consume more protein/carbs and maintain ketosis.

A diet that consists of long chain fatty acids, depends upon 80-90% of calories coming from fat. Adding in lots of MCT oil brings this down to 60-70% fats. This is because MCTs are immediately metabolized into ketone bodies and used for energy quickly in the body.

You can cook with MCT oil, add it to protein shakes, green drinks, coffee/tea, etc. throughout the day to keep your ketone levels up.

9. Keep Stress Down

Chronic stress will shut down your ability to be and stay in ketosis. If you are going through a tough period of your life, than maintaining ketosis may not be the proper goal. This doesn’t mean you should begin carb loading, but instead reset your goal to simply stay on a lower carb, anti-inflammatory diet.

Stress raises up stress hormones, who function to elevate blood sugar so you can fight or flight from the chronic stressor. This is fine when it is for very short periods of time, but when it is prolonged, it drives up your blood sugar and lower ketones.

Devise some strategies that will help you lower your stress load and be able to create more peace and relaxation in your life.

Improve Your Sleep

If you are sleeping poorly, you will elevate stress hormones and cause blood sugar dysregulatory problems. Be sure to set yourself up to go to sleep at a good time (before 11pm) and sleep in a completely dark room. I recommend sleeping 7-9 hours each night depending upon your stress levels (more stress means you need more sleep) and the amount you feel as though you need to feel good and mentally alert throughout the day.
Keep your room cool (60-65 degrees is usually ideal) with an overhead fan providing circulating air. I also recommend using a sleep mask to block out more melatonin disrupting light. If you are extremely sound sensitive or in a louder area than using ear plugs can be extremely helpful!

**Conclusion**

Healthy lifestyle strategies play a very important role in helping you get into and maintain ketosis. Using some sense with your lifestyle habits and activities can mean all the world of difference between a state of fat adaption where you have sustainable energy and mental clarity or a state of sugar burning where you are feeling sluggish, having brain fog and carbohydrate cravings.

By understanding how your body tolerates stress and following the strategies above you will give yourself a significant advantage in life. You will be able to understand what unique factors keep you in ketosis and what factors knock you out of it. This will help you prepare yourself for optimal career performance, a lean physique and great energy for relationships and recreational activities.

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**7 Benefits of the KETO DIET**

- Reduced Inflammation
- Improved Fat Burning
- Mental Clarity and Sharpness
- Abundant Energy
- Clear Skin
- Reduced Cravings
- Mitochondrial Biogenesis
- Anti-Aging Effects
- Reduced Risk of Chronic Disease
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Following a ketogenic diet without a gallbladder can pose complications because of the body’s inability to adequately secrete bile to break down fatty meals. Fortunately, there are 7 strategies that are very important to follow for maintaining ketosis without a gallbladder.

The gallbladder is an organ that aids in the digestion of fatty foods by storing up bile reserves. Bile is generated in the liver and carried to the gallbladder via the bile ducts. The gallbladder will contract to force bile out when it receives cues that fats have been eaten.

Bile serves four primary functions in digestion:

1. Breakdown fatty acids
2. Stabilize blood sugar
3. Inhibit bacteria overgrowth
4. Remove toxic waste and cholesterol from the liver for excretion from the body.

If your gallbladder has been removed, the liver still produces bile. However, because bile cannot be stored for efficient fat digestion, it slowly seeps into the intestines. This results in its inadequacy to properly digest a fatty meal.
Gallbladder and Liver Issues:

Addressing the health of both the liver and gallbladder is vital to improving health. When the bile ducts of the liver harden, they can form a crystallized structure called gallstones that obstruct bile flow and secretion. Gallstones are created from the combination of excessive cholesterol and/or bilirubin.
The liver is responsible for the production of bilirubin. Therefore, the presence of gallstones and gallbladder dysfunction indicates an underlying liver problem.

**Common Symptoms:**

If fats are not properly digested, someone that has had their gallbladder removed or has a gallbladder disease will experience malabsorption of valuable nutrients. Essential fatty acids like omega-3 and omega-6 fats as well as vitamins that require fat for absorption (vitamins A, D, E, and K) become deficient. This nutrient loss causes systemic issues including dry skin, thinning hair and even autoimmune symptoms.

Unfortunately, symptoms of gallbladder and liver issues do not disappear with the removal of the gallbladder. Individuals can suffer from digestive distress including nausea and vomiting, abdominal pain, gas and bloating, as well as symptoms distant from the abdominal region such as itchy skin, pain between the shoulder blades, headaches and migraines, fibromyalgia and hormonal imbalances.
7 Key Strategies:

If you have had liver or gallbladder problems in the past or no longer have your gallbladder than be sure to follow the strategies below. Many people without a gallbladder are able to thrive when they successfully apply these tips, so give them a shot and see how you respond.

If you feel extremely tired and irritable for more than a few days than try adding back more healthy carbs with your evening meals. People with liver or gallbladder issues typically do very well with beets, carrots, green apples, squash and berries. These would be better sources of carbohydrates than grains and sugar sweeteners.
1.) Bile Healthy Foods:

Ginger is a carminative herb and one of the best foods for producing stomach acid. Adding apple cider vinegar to your meals and beverages can help thin bile for efficient flow from the liver. Artichokes stimulate bile production in the liver and increase its flow into the intestines.

Add plenty of sour foods into your diet like lemons and limes to improve your tolerance of fats. These citrus fruits cleanse the liver and thin bile for improved digestion and nutrient absorption. Fermented vegetables and drinks such as coconut water kefir are excellent for improving digestive juice production.

Fibrous vegetables and fermented foods and beverages are excellent to stimulate a healthy digestive system and prevent the overgrowth of intestinal bacteria that can lead to digestive disturbances. Celery and cucumbers are great low carb foods that naturally contain sodium, vitamins B and C and trace minerals for liver health.

Celery as well as asparagus are good foods for detoxifying the liver and improving bile flow. Add radishes to your meals to support the metabolism of fats from increased bile production.

2.) Ginger and Dandelion Tea:

Both ginger and dandelion are considered bitter herbs that increase bile production and boost bile flow for a healthy liver.

Ginger has well known carminative properties that can help relieve symptoms of indigestion and prevent nausea and vomiting. Ginger stimulates the secretion of gastric juices like hydrochloric (HCL) acid. It has also been shown to inhibit inflammation of liver tissue aiding in the removal of toxins. Here is my favorite ginger tea and a great green tea and ginger tea combination here.

Traditional Medicinals offers an Organic Dandelion Leaf and Root Tea that is excellent in supporting healthy digestion and enhancing detoxification. Dandelion leaf or greens is also a prebiotic food source that supports a healthy gut microflora and keeps pathogenic bacteria at bay.
BILE HEALTHY FOODS

APPLE CIDER VINEGAR
LIME/MINT COCONUT WATER KEFIR
LEMON/LIME

CELERY
CUCUMBERS
PARSLEY

MINT
CILANTRO
RADISHES

TURMERIC
DANDELION GREENS
MILK THISTLE

GINGER
SAUERKRAUT
GREEN TEA
3.) Good Hydration:

Without plenty of water available to the liver, bile production decreases and contributes to thick, sluggish bile flow. Aim to drink 32 ounces of purified water within the first hour of waking up and between 32 and 48 ounces of water by noon.

Drinking plenty of purified water is essential to improving gut motility and preventing constipation while maintaining ketosis. It is also critical for healthy liver function and bile release.

4.) Support Stomach Acid Levels:

Optimal stomach acid levels are necessary for stimulating bile secretion from the liver and destroying pathogenic microbes that can overpopulate the intestines causing inflammation and indigestion. The combination of optimal stomach acid and bile flow is critical to the detoxification process of the liver and digestive tract so that you feel healthy and energized while maintaining ketosis without a gallbladder.

Producing adequate stomach acid will support your body’s ability to metabolize fats, absorb essential nutrients, and prevent feelings of discomfort and digestive problems.
Support stomach acid levels by avoiding water intake within a 30-minute window before and after meals and relaxing to enjoy your meal. Higher stress blocks the secretion of stomach acid, so it is very important to relax the body before meals. You may also consider a hydrochloric acid supplement in the form of betaine HCL tablets taken during or immediately following a meal.

5.) Use Digestive Enzymes and Ox Bile:

Supplementing your diet with digestive enzymes and ox bile can significantly support fat metabolism without a gallbladder.

**Digestive Enzymes:** Digestive enzymes contain natural bile salts, betaine HCL, herbs and a complex of enzymes that support the function of other digestive organs like the pancreas. Finding a good quality digestive enzyme is an effective way to produce adequate stomach acid, inhibit inflammation of the intestines and aid in fat metabolism and the assimilation of fat soluble vitamins.
Ox Bile: Ox bile supports the body in breaking down fats without the presence of bile. Some digestive enzymes contain ox bile but it is recommended to be supplemented separately.

Ox bile serves similar purposes in sanitizing or killing off microbes and helping to assimilate fats for absorption. Ox bile can help relieve your symptoms of indigestion and feelings of an upset stomach that you may otherwise experience consuming a high fat diet without healthy bile concentrations. If you want extra bile support, I recommend using BioGest with your meals.

6.) Avoid High Amounts of Long-Chain Fats:

The body uses 80 to 90% of calories from fats on diets containing high amounts of long chain fatty acids (3). In other words, long-chain fats such as triglycerides take a longer period of time to break down and require significantly more bile for digestion.

It is especially critical for individuals without a gallbladder to eat small meals. Inadequate gastric juices and bile secretion will cause digestive distress from the inability to break down
long-chain fats. Instead, consume 3 or 4 small meals throughout the day. Substitute liquid nutrition that is easy on the digestive tract with shakes and smoothies to support liver function.

7.) Use MCT Oils:

Medium chain triglyceride (MCT) oils are rapidly metabolized into ketone bodies for efficient energy use. Consuming MCT oil reduces your energy dependence on fats to 60-70% making MCTs easily absorbable by individuals without a gallbladder and those with slow liver function.

You may be surprised to know that coconut oil is actually made up of 35% long chain triglycerides, only 15% medium chain triglycerides and 50% lauric acid which is utilized as a long chain fatty acid.

Adding MCT oil to your diet is one of the best ways to increase the medium chain triglycerides that favor maintaining ketosis without a gallbladder. Unlike most fatty acids, MCTs do not rely on the production of bile to be metabolized and begin breaking down immediately from contact with enzymes found in saliva. MCTs have been shown to effectively synthesize ketones and cross the blood-brain barrier for brain function.

Conclusion:

Greater than 700 toxins are carried by any individual in organs including the digestive tract and liver (11). It is especially critical for individuals without a gallbladder to practice lifestyle habits that support liver function. Preserve nutrition by consuming organic foods and drinking purified water to reduce the toxic burden on your liver and body.

Incorporating a lifestyle of habits that supports your body’s need for detoxification rather than inhibits it will leave you feeling great on the ketogenic diet even without a gallbladder.
Make Your Barbeque Healthy

Personally, I love the taste of barbeque. Unfortunately, grilling out regularly is a dangerous habit that radically increases one’s risk of heart disease and cancer. Although we don’t recommend making barbeque during the cancer cleanse, we all need to be aware of the right strategies to ensure we are reducing the toxic effects of barbeque when we do choose to consume this.

This is one of the BIGGEST MISTAKES I see people make on the ketogenic diet. They hear that they can eat meat and they go right to their grill without considering the damage that occurs with high heat grilling.

In general, I recommend cooking on a stainless steel or ceramic pan at a low temperature (low-medium on the stove-top) in a few tbsp of MCT oil or coconut oil. This will prevent over cooking and the damaging free radicals that are formed through that process. If you are going to grill, there are some specific principles we need to follow in order to minimize the production of highly reactive cancer causing agents.
High Heat Grilling and Carcinogenic Chemicals:

There are 3 major cancer causing molecules that are present when meat gets heated at a high temperature. One is caused by the smoke that is released when fat drips from meat or fish onto a heat source. This potent carcinogen is called polycyclic aromatic hydrocarbons or PAH’s.

The second set of molecules formed by cooking meat at high temperatures are heterocyclic amines (HCA’s). HCA’s are formed through a chemical reaction between naturally occurring amino acids and creatine in the meat.

Low Temp Cooking and Anti-Oxidants:

Finally, grilling meat at high temperatures increases the amount of advanced glycolytic enzymes (AGE’s) present in the meat. When you eat the meat the AGE’s get transferred to your body. AGE’s cause inflammation and oxidative damage in the tissues of your body. These are the leading causes of degenerative diseases such as heart disease, diabetes, cancer, arthritis, etc.

Fortunately, there are certain steps we can take to enjoy our barbeque while minimizing exposure to these toxic molecules. A report published in the Journal of Agricultural and Food Chemistry in 2008 showed that marinating meat in anti-oxidant rich substances can be effective.

The researchers found that an olive oil, lemon juice and garlic marinade cut HCA levels in chicken by as much as 90%. Marinating in red wine for 6 hours before grilling cut down HCA levels by up to 90% compared to unmarinated steak. Other studies have shown similar results.
Healthy BBQ Tips:

1. **Cook at Lower Temperatures:** Lower temperatures cause more of a “roasting” effect than grilling, but they significantly cut down on the amount of HCA’s formed in the meat. Well-done meat has much higher levels of HCA’s than meat cooked medium-rare.

2. **Avoid Char-Grilling or Blackening Your Meat:** This causes the largest amount of HCA’s to form. Do your best to avoid eating any blackened regions.

3. **Prevent Flaring:** Flames from grill cause the formation of both HCAs and PAHs. Keep an eye on your grill & turn meats frequently to minimize flaring.

4. **Use Grass-Fed Meat Sources:** Grilling grain-fed meat causes more AGE’s to form due to a higher sugar content within the meat. Grass-fed meat is lower in total fat than grain-fed meat. Cooking leaner meat reduces the PAH formation. Grass-fed meat also contains a significantly higher amount of healthy omega 3 fatty acids and conjugated linoleic acid.

5. **Marinate the Meat in Anti-Oxidant Rich sources:** Not only is this tasty but it reduces HCA levels by as much as 90%. Use lemon/lime, red wine, apple cider vinegar, & superfood herbs.
Here are some helpful herbs, foods and supplements that are often overlooked by individuals who are trying to achieve stable ketosis.

1. **Use Fresh Lemon/Lime**

   Lemon and lime contains citric acid which helps to reduce blood sugar levels naturally. Additionally, the anti-oxidants and trace minerals such as potassium help to improve insulin signaling boost liver function and stabilize blood sugar.

   **How To Use:** Put lemon or lime in your water and use it in your green juices, salads and squeezed over meat and cooked veggies to help improve your blood sugar and state of ketosis.

2. **Use Apple Cider Vinegar**

   Apple cider vinegar (ACV) is naturally high in acetic acid. The use of acetic acid with meals has been shown to reduce the glycemic response of a typical carbohydrate meal by 31%.
One study actually showed that using acetic acid reduced a carbohydrate rich meal from a typical glycemic index of 100 to 64. Beyond the acetic acid, apple cider vinegar supports the production of hydrochloric acid and contains enzymes that enhance the metabolism of protein and fat.

**How to Use:** Use ACV on as many foods as possible and/or add it to water with 1-2 tbsp per 8oz of water. You can also get a calorie free Bragg’s ginger aid that contains ginger, ACV and stevia for a great refreshing drink that improves digestion and supports ketosis.

### 3. Use Fermented Foods

Fermented foods such as coconut milk yogurt, coconut milk kefir, coconut water kefir, sauerkraut, pickles and kimchi are extremely beneficial to the digestive system and improve bowel motility.

Additionally, these foods have natural acids that stabilize blood sugar levels. Additionally, the probiotics, enzymes and other bioactive nutrients help to improve digestion and support ketosis. Use a variety of different fermented foods each day. Focus on ones that you enjoy the taste of and feel good when consuming.

**How To Use:** For best benefit, use these in the beginning of a meal to provide enzyme support and probiotics that will help the body to metabolize the rest of the food you will be consuming.

### 4. Use Cinnamon Daily

Cinnamon helps to improve insulin receptor activity and inhibit enzymes that block insulin receptors. It is also a very powerful anti-oxidant that prevents inflammatory conditions that damage cell membranes and insulin receptors.

**How To Use:** Put a ½ tsp of cinnamon in your shakes and apply it to any sort of ketogenic dessert recipe or anything with berries. Additionally, use it sweet potatoes, pumpkin or yams on your higher carb days.
5. Use Turmeric

The orange Asian herb turmeric has been traditionally used for centuries by Ayurveda and Chinese medicine. Curcumin is the most powerful active anti-inflammatory compound within turmeric. Curcumin has been shown to be a powerful suppressor of chronic inflammatory mediated disease processes.

Curcumin modulates blood sugar and improves insulin receptor function by improving its binding capacity to sugar. Curcumin activates PPAR (peroxisome proliferator-activator receptor) which is a group of key nuclear proteins that regulate gene expression and modulate sugar uptake and utilization in the bloodstream.

Curcumin also reduces the activity of specific liver enzymes that release sugar into the bloodstream while activating enzymes that store sugar as glycogen. Research on type 2 diabetes patients resulted in blood glucose stabilization and lowered triglyceride levels in the group that consumed curcumin.

**How To Use:** Turmeric is absorbed best when it is combined with a good fat source and with black pepper as the peperine molecule helps to activate the curcumin.

Add turmeric to your smoothies, green drinks (juice the root), meat and vegetable dishes. Be sure to add in the turmeric after the meal is finished cooking in order to maximize the anti-oxidant content. I enjoy making steamed veggies and smothering them in grass-fed butter or ghee and adding turmeric, black pepper, pink salts and other herbs.

6. Chromium and Vanadium

Chromium and vanadium help improve blood sugar regulation. Chromium acts to increase the production and the release of glucose transport molecule called GLUT-4 receptor in the liver and muscle tissue. It does this by shifting GLUT-4’s location from deep within the cell to a position on the cell membrane.

This activity opens a window in the cell that allows glucose to flow down a concentration gradient into the cell where it can be metabolized for energy. This acts to stabilize blood sugar levels and reduce insulin secretions.

Vanadium is a unique trace mineral works to lower blood sugar by mimicking insulin and improving the cells’ sensitivity to insulin.
How To Use: Take 250-500 mg of chromium and 375 – 700 mcg of vanadium with a higher carbohydrate meal can improve post prandial blood sugar significantly.

If you can get these nutrients in a high quality, bioavailable multi-vitamin it is even better as you will be supplying your body with tons of easily absorbable trace minerals, anti-oxidants and B vitamins that are key for blood sugar stability.

7. Fenugreek Seed

Fenugreek is native to the Himalayan region of India and it is now grown wildly all over the southern and Mediterranean Europe, Middle-East Asia and northern African regions. Fenugreek seeds are tiny, bitter and pungent seeds. They have been used for centuries to improve digestive function as a bowel toner and carminative. They have a beneficial effect on kidney health and act to improve breast milk secretion in nursing mothers.

Fenugreek Seed and its constituent, 4-isoleucine appear to directly stimulate insulin. The combination of fenugreek with vanadium appeared to normalize altered membrane linked functions and GLUT4 distribution. Fenugreek also lowered high serum cholesterol and triglycerides.

How To Use: Take 200-300mg with meals to keep blood sugar stable

8. Bitter Gourd (Bitter Melon)

Bitter gourd is a tender, edible fruit pond that grows on climbing vines and originated in India. As the name implies, it is a bitter tasting melon. It is in the same family as squash, watermelon, cantaloupes and cucumbers.

Bitter Gourd (aka. bitter melon) contains a powerful phytonutrient called Polypeptide-P which has a insulin-like effects that have been shown to exhibit hypoglycemic effects. Polypeptide P has an onset of action between 30-60 minutes and a peak effect at about 4 hours. It is approved as an antidiabetic drug in China.

How To Use: Take 100-150mg with meals
9. Gymnema Sylvestre

Gymnema is a climbing green shrub native to the tropical forests of southern and central India, Sri Lanka. The leaves have been used for centuries to make an Ayurvedic medicine called gurmar, which means in Hindi “destroyer of sugar,” as it helps to reduce sugar cravings and balance blood sugar naturally.

Gymnema contains many powerful phytonutrients including triterpenoids which have adaptogenic qualities that enhance the body’s ability to respond to stress. Gymnema sylvestre reduced fasting blood sugars, glycosylated hemoglobin (HbA1c) and glycosylated plasma protein levels and thus insulin requirements in Type 1 diabetics.

It did this by reducing glucose absorption in the intestine, stimulating pancreatic beta cell growth and possibly increasing endogenous insulin secretion as suggested by an increase in C-peptide levels. Gymnema was shown to also reduce serum triglycerides, total cholesterol, VLDL and LDL.

**How To Use:** 100-200mg with meals

10. Herbal Adaptogens

There are a unique array of compounds used in natural medicine that are called adaptogenic herbs that help the body to better adapt to stress. Adaptogenic herbs don’t affect an individual’s mood but they help the body function at its optimal level during times of stress. They do this by modulating the production of stress hormones like cortisol and adrenaline.

Adaptogenic herbs include ginseng, ashwaghanda, rhodiola, cordyceps, astragalus, Panex ginseng, holy basil, Siberian ginseng (Eleuthero root) and maca as well as others. Start with small doses of these and gradually go up.

These herbs are best used in the morning and mid-afternoon for most individuals. Many people notice an increase in energy and mental clarity from them and if you take them at night they could possibly keep you up.

Some individuals find they respond better to certain adaptogens better than others so be sure to monitor how you feel and your level of stable ketosis. If you notice that they induce cravings or make you feel fatigued you are probably having a stress response to the herb itself.
Here is how I recommend using them.

**Ashwagandha:** Begin with 400mg – 1x per day and if you feel good using it you can gradually go up to 400-800 mg – 2x per day

**Astragalus:** Begin with 500mg – 1x per day and if you feel good using it you can gradually go up to 500 mg – 1000mg – 2x per day

**Cordyceps:** Begin with 400mg – 1x per day and if you feel good you can gradually go up to 400-800 mg – 2x per day

**Panex Ginseng:** Begin with 200mg – 1x per day and if you feel good you can gradually go up to 400mg – 2x per day

**Holy Basil:** Begin with 300mg – 1x per day and if you feel good you can gradually go up to 300-600mg, 1-2x per day

**Maca:** Begin with 1.5g -1x daily and if you feel good you can gradually go up to 1.5-3.0 grams – 2x daily.

**Rhodiola:** Begin with 100mg -1x per day and if you feel good than go up to 100-200 mg – 2x per day

**Siberian Ginseng:** Begin with 100mg -1x per day and if you feel good you can gradually go up to 200 mg – 2x per day
11. Acetyl L-Carnitine

Carnitine was originally identified in animal meat and got its name from the Latin word for flesh, “carnus.” This nutrient is critical for fat metabolism and energy production in the cellular mitochondria.

Carnitine helps muscle cells drive energy efficiently from fat metabolism. Up to 70% of the energy produced by muscle cells (including the heart) come from burning fats. Carnitine is the gate-keeper that allows fatty acids to pass into the mitochondrial furnace effectively.

Low levels of carnitine cause a reduced ability to use fat for energy. This will drive up blood sugar because the cells will be starving. To remain in ketosis, you need to optimize your L-carnitine levels. The best way is to consume healthy animal products and consider high quality Acetyl-L-Carnitine supplementation.

**Optimal Dosages:** 500-1000 mg – 2x daily

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**L-Carnitine Transports fat to Mitochondria**

Mitochondria

fatty acid β-oxidation
(Fat Burning)
12. Alpha Lipoic Acid

This is a unique and powerful anti-oxidant that has both water and fat soluble properties. This unique characteristic allows it to be absorbed and transported into many organs and systems such as the brain, liver and nerves.

Lipoic acid is able to regenerate vitamins C and E and other major anti-oxidants such as glutathione and CoQ10. Lipoic acid protects the mitochondria, the energy producing factories of cells, from being damaged by oxidative stress so they can produce energy more efficiently.

There is overwhelming evidence that ALA is critical for maintaining insulin sensitivity, optimal blood sugar levels and blood vessel integrity. This is important for metabolic syndrome, diabetes, healthy blood pressure and cardiovascular health.

**Optimal Dosages:** 100-200 mg with each meal

**Conclusion**

I am just scraping the surface here with how many herbs and supplements help to improve blood sugar regulation, mitochondrial function and fat burning mechanism. The most important thing is to find what works best for you.

You can use blood sugar testing, ketone blood testing or a ketonix breath meter in order to quantify your blood sugar stabilization and ketone levels. Additionally, see how you feel when you use the dosages recommended in this article. Experiment with some or all of these nutrients if you wish.

In order to help my clients, I have formulated several supplements that combine many of these nutrients. This includes Insulin manager, High Energy Support and Brain Supercharge which all improve blood sugar regulation and support mitochondrial health.
5 Ways to Measure Your Ketones

I get asked all the time how to measure the state of ketosis. There are several major ways and we will discuss those in this article.

There are three types of ketone bodies: Acetone, Acetoacetate and Beta-Hydroxybutryate (BHB). Each of these three can be tested as acetone is a ketone released through the breath, acetoacetate is a ketone released through urine and BHB is (although not technically a ketone it acts like a ketone) in the blood stream and used by the cells for energy.
5 Ways to Test Ketones

- Blood Ketone Meter
- Check How You Feel
- Breath Testing
- Testing Blood Glucose Levels
- Urine Ketone Strips
1. Blood Ketone Meter

This measures BHB and is considered to be the most accurate way to measure ketone bodies. These have the ability to determine the ketone level in your blood precisely but they are also pricey and invasive. Personally, I freak out every time I have to prick my finger!!

The Precision Xtra blood glucose and ketone meter is a good buy at $28-$30. You can find that [here](#). The expensive part is the ketone test strips [here](#) which can cost $4 each. If you are looking at testing yourself every day it is going to cost you $120 a month and the $30 meter.

Most people will enter into a light nutritional ketosis (between 0.5-1.0 mmol/L on the meter) within two or three days. It typically takes two to three weeks to get into a stable and optimal ketosis of 1.5-3.0 mmol/L.

![Blood Ketone Level Chart](#)

2. Breath Testing

A non-invasive and cheaper alternative is to measure acetone levels through the breath. This measurement technique has been shown in the literature to be an accurate way to test for nutritional ketosis.

The Ketonix Acetone Breathalyzer is an easy and relatively inexpensive way to test your breath ketone levels. One thing to remember is that breath ketones are not always a pure reflection of blood ketones because they can be affected by several factors including alcohol consumption and water intake.
I like this test the best because it is a one-time expense $149 here but no additional costs. You can test yourself at any time and you don’t have to draw blood in order to get a reading! I hate needles and blood pricks!!

When you blow into the ketonix mouth piece the LED light goes off with a unique color based on the level of ketones you have produced. The device is the size of a large marker and it has the USB cord attached at the base. The cord is about 3 feet in length which allows you to stretch it for testing.

Set-up is easy. You download a small program to your computer, create a profile and plug the Ketonix into a USB port. After a few minutes of initializing, click “start,” and then blow (exhale) into the unit.

Here are the official instructions on the label affixed to the device:

1. Connect to USB port
2. Wait until LED turns blue
3. Blow gently into mouthpiece for 10-20 seconds
4. Read color after 30 seconds

This is what each different colored LED represents:

Blue = 0 – 150 nmol/L  
Green = 150 – 400 nmol/L (Small)  
Yellow = 400 – 930 nmol/L (Moderate)  
Red = > 930 nmol/L (Large)

Both the yellow and red range are considered to correlate with nutritional ketosis.
3. Urine Ketone Strips

The most common way people analyze their level of ketones is through the urine (acetoacetate) with simple ketone strips. Unfortunately, these are not as accurate and are not considered a reliable analysis of blood ketone levels.

This is the most commonly used method because it is cheap and easy. It only costs $10 for 100 strips here so that is $3.33 per month if you were to test them 1 time per day.

One of the reasons they are inaccurate is that the body will naturally excrete more ketones before they are keto or fat adapted than after they adapt. So if you begin on a ketogenic diet, it is natural to see high levels of urinary ketones. Once you are keto-adapted, this should drop to small to moderate levels as the cells are more responsive to the ketone levels. If your levels stay elevated it means your cells are not utilizing ketones effectively.

Changes in hydration will also effect the concentration of ketones. If you are super hydrating your system the way that I teach you too, you will dilute your ketone concentration in the urine. Very high ketone readings are often indicative of a dehydrated state.

Other changes can be seen during fasting states, eating periods, exercising and after waking up.
4. Testing Blood Glucose Levels

This is not commonly used but it is less expensive than testing blood ketone levels. Once again, you can use the Precision Xtra blood glucose and ketone meter here for $30 and blood glucose strips here which are basically $0.90 per strip.

When we are in primarily sugar adaption our body is very sensitive to low blood sugar levels (hypoglycemia) and will secrete stress hormones to boost blood sugar back up if it gets too low. Typically the key range for this is around 75-80 mg/dl even though hypoglycemia is technically diagnosed by a fasting blood sugar less than 70 mg/dl.

When the blood sugar levels drop below 80 mg/dl the body responds by kicking out some cortisol which tells the body to break the glycogen (stored sugar) in the muscle and liver in order to get more sugar into the bloodstream. This is a natural survival response as the body is concerned that sugar (its primary fuel) is scarce and the individual is in a famine period.

When the body kicks up these stress hormones there is typically a natural high at first, but if this becomes repetitive the individual can go into a state of adrenal fatigue where they are unable to get cortisol and blood sugar levels up high enough.

The end result of this pattern is blood sugar imbalances where the individual is craving sugars and sweets, they deal with fatigue and mental lethargy and often have sleep and mood disturbances. These are all classic signs of adrenal fatigue and hypoglycemia.

When one is in a ketogenic or fat adapted state, they can be at a hypoglycemic level (under 70mg/dl) and feel very good. They will have lots of energy, mental clarity and stamina, healthy mood and behavior and be able to sleep well.

This is a sign there body has adapted to using ketones and is not reliant on sugar as its primary fuel source so the body is no longer concerned with keeping blood sugar levels up in order to survive.

I instruct my clients, that if there blood sugar is between 50-75 mg/dl and they feel very good, mentally sharp, energetic and relaxed on a continual basis, than they are keto-adapted.

A HgA1C test looks at the level of glycation (indicative of blood sugar levels) in the red blood cell over a 90-120 day period. The typical HgA1C on a ketogenic diet is 4.5-5.2%. If you get your HgA1C tested and it is above this range it is an indication that you have not been in ketosis for a good period of time through the 90-120 day period.
5) **Check How You Feel**

The last way is subjective but important none the less. When you are in ketosis, you should feel relaxed and mentally sharp. You have energy throughout the entire day, don’t have cravings and hardly think about food.

A common sign you are in sugar burning mode, is that you feel fatigued throughout the day. You have cravings and want to snack throughout the day. If you notice this going on, you are not in ketosis.
Another thing you may notice in ketosis is the smell of acetone. It is a “fruity” kind of smell. You may sense this in your breath, in your sweat or urine. This is natural when you are in ketosis but it should be faint.

If you are smelling really bad and having dry mouth, it is a sign you are electrolyte deficient. Drink more water and pick up your sodium and potassium levels. Most of the time having an avocado or fresh lemon each day with extra pink salt or sea vegetable on your foods will help to relieve this. Drinking peppermint tea and brushing your teeth often can help reduce the fruity smell as well.

See the Big Picture

I have been in and out of nutritional ketosis for almost 4 years now and I know what I need to do in order to get and stay in ketosis or cycle out of it. It is a good idea to test yourself with one of the above methods (I personally like the ketonix the best) to see how your body responds to different things you are consuming.

These days, my net carb intake (total carbohydrates – fiber) is typically around 30-60 grams depending upon how much exercise and activity I have. I am typically in ketosis for 2-3 days and then cycle out and go back in through intermittent fasting with MCT oil the next day.

Extra Keto Adaptation Tips

Typically you will notice daily fluctuations in ketone formation based on hormone levels. This is more common in women, but both sexes will experience this.

Ketones are typically lower in the morning and higher in the evening depending upon what you ate that day. This is because your basal metabolic rate is lower upon arising than it is after you have been up and active for a period of time.

The deeper into a ketogenic fast with MCT oil the more ketones can be produced. If you do intermittent fasting and eat one to two meals per day in a 4-6 hour eating window and use MCT oil in coffee and teas during the fasting period you can peak your ketones around 16-20 hours into the fast.

Regular exercise can help you get into ketosis faster as you deplete your glycogen reserves. But be careful not to overtrain. Too much training can cause adrenal fatigue and a blood sugar instability can occur as a result.
Where Ketosis Can Be Extremely Beneficial

There are certain cases, where I typically recommend a ketogenic diet as the research appears to support that ketosis significantly improves the functionality of these individuals.

Overweight or Obese

Neurodegenerative Conditions such as dementia, Alzheimer’s and Parkinson’s

Most Cancers but especially those of the brain, nervous system and blood (leukemia)
Chronic Pain

Seizure Disorders

Non-Elite athletes or individuals looking for higher mental & physical performance

The final one is the area that I and many others who have pursued a state of ketosis fall into. At this point in my life, I have no chronic diseases, I feel great 99% of the time, but I am always looking to improve my productivity and performance. I have found being in mild-ketosis to be one of the best ways to improve my energy, mental acuity, creativity, physical strength and overall life performance.
When Not To Be on a Ketogenic Diet

There is no one diet that works perfectly for everyone. Ketosis has the potential to benefit everyone, but under unique circumstances it would not be warranted.

Here are a list of special cases where long-term stable ketosis is not appropriate. In some of these cases, short term mild-ketosis can be very beneficial but it is a case by case basis.

- Pregnancy and Breast Feeding
- Children and Teenagers
- Irregular Menstrual Cycles
- Adrenal Fatigue
- Poor Thyroid Function
- High Level Athletes
Insulin, Leptin and Female Hormones

Carbohydrates play a role in stimulating the release of insulin and insulin works with a hormone called leptin to help govern energy metabolism. Leptin is released from fat cells as they enlarge during a meal and its main function is to signal to a part of our brain called the hypothalamus that we are satisfied and no longer need food.
Insulin is known to stimulate leptin synthesis. A ketogenic diet significantly lowers insulin, which also lowers leptin levels. Leptin receptors are found in the human ovaries and pre-ovulatory follicles. Lower levels of circulating leptin can negatively affect the reproductive tissue and cause imbalances in key sex hormones in the female body.

Low leptin levels send a message to the body that it is in a time of famine, which can cause a stress response. In these cases, reproductive functions are not prioritized (because the body doesn’t believe the environment is conducive to bringing about life).

This is especially true for women who are already lean and are sticking with a strict ketogenic diet. Women, who naturally have higher body fat levels, will have slightly higher leptin levels while women who are very lean will naturally have lower leptin levels.

Science and research tells us that leptin is needed to maintain female hormone levels in their proper range. These hormones are critical for menstruation, fertility, lactation and reproduction. If we lose leptin sensitivity from a higher carb, inflammatory diet or if our leptin levels drop too low from prolonged ketosis, it can spell hormonal problems for women.

**Pregnancy and Breast Feeding**

As babies are developing the mother’s womb it is critical that the body doesn’t experience any sort of threat of food scarcity. During this stage, it is not appropriate to practice lengthy periods of intermittent fasting or attempt to be on a ketogenic diet.

My wife is currently pregnant with twin boys as I am writing this and she consumes roughly 60-80 grams of carbohydrates on a typical basis. So it is still a lower carb diet but not the 50 grams or less that is necessary to be in mild-ketosis.

The best sources of carbohydrates are those that are packed full of anti-oxidants. I suggest extra berries, yams, sweet potatoes, pumpkin, carrots and beets.

**Children and Teenagers**

Children are growing and developing so rapidly and major bodily stressors can negatively affect this. Being in a long-term state of ketosis was shown to help reduce seizures in teenagers with epilepsy but 45% of the girls reported menstrual irregularities such as amenorrhea (no menstrual cycle) and delayed puberty.
The only time I recommend a full-ketogenic diet is when children have either epilepsy or another seizure based disorder or if they have cancer. Other than that, I encourage parents to give their kids some low-glycemic fruit in the form of berries, granny smith apples, kiwi, grapefruit, etc. as well as root vegetables such as sweet potatoes, pumpkin, carrots and beets.

**Irregular Menstrual Cycles**

If you are noticing irregular menstrual cycles on a ketogenic diet, than I would consider bumping up your carbs into that 60-80 range and see what happens.

This is especially important if you are doing a lot of high intensity exercise. The combination of low-carb and high intensity exercise in a lean woman can be a set-up for disaster. Doing this can put the body into a chronically stressed mode and wear out the adrenal glands causing poor exercise recovery and fatigue as well as premenstrual symptoms.

**Adrenal Fatigue**

The adrenal glands are designed to help the body adapt to stressors. They allow us to think sharply, run and jump and make quick decisions. To do this, they play an important role in regulating blood sugar levels in order to make sure we have the sugar in our system for quick and immediate energy. Adrenal fatigue takes place when the body is under chronic stressors the adrenal glands can no longer keep up with the demands.
The common symptoms of adrenal fatigue include the following:

- Low Energy
- Lethargy & Fatigue
- Rapid or Extra Slow Heart Rate
- Increased Irritability
- Sleep Disturbances
- Irregular Menstruation
- Increased Muscle Soreness
- Poor Exercise Recovery
- Digestive Disturbances
- Depression
- Inability to Gain or Lose Weight
- Anxiety

Lean women who are under stress, do high intensity training and are on a ketogenic diet may be creating a state of chronic stress that their system is unable to adapt to. Cycling out of ketosis, reducing your training load and improving rest along with using things like adaptogenic herbs and B vitamins can help you to recover effectively.

Most men can recover from adrenal fatigue much faster than women, because they have a different hormonal system that is easier to get under control. However, if you are a man dealing with adrenal fatigue, it would be a good idea to cycle out of ketosis, get some good rest and using adaptogenic herbs to speed up recovery would be advised before going back into ketosis.

**Poor Thyroid Function**

The thyroid helps to regulate metabolism and energy levels throughout the body. If you are in adrenal fatigue, it is a natural mechanism for the body to downregulate thyroid function. One way the body does this is by increasing reverse T3 (rT3) which is an inactive form that competes with active T3 for cell receptor activity.

The body does this as an intelligent response because it is trying to conserve resources and put us in a state of hibernation so we can rest and recover effectively. If the body allowed the thyroid to continue to function at a high level while we were already experiencing adrenal fatigue, it would drive us into a deeper stage of adrenal fatigue that could be life threatening.

It is important to note that many people with hypothyroidism do very well with a cyclic ketogenic diet, but if adrenal fatigue is the major mechanism than it can be harmful. Take time to support the adrenal glands and then try going back into ketosis.
High Level Athletes

If you are a high level athlete that is competing in Cross-Fit, triathlons, iron-man, long-distance runs, soccer, basketball and football than the ketogenic diet may be challenging. When you are working your body at an extremely high level of activity, you need more calories and quick fuel that is immediately available in your muscle and liver.

A ketogenic diet for a high level athlete can be incredible but it is much tougher to follow and the risk of adrenal insult is higher than someone who is doing a smaller load of exercise.

Cyclic Ketosis and Carb-Back Loading

The best way to add back carbs is to boost them up in the evening. The reason for this is that keeping your carbs low throughout the day is the best way to keep your blood sugar stable and prevent cravings. Once you begin eating carbs during the day, you will notice a much greater degree of hunger throughout the day.
Additionally, we naturally have higher cortisol in the morning and cortisol helps to increase blood sugar. At night, cortisol should naturally drop while melatonin rises so we can sleep well. If our blood sugar is too low and we don’t have enough stored sugar (glycogen) in our muscles and liver than our body may perceive a time of famine and drive up stress hormones and blood sugar.

Taking in carbs in the evening helps to keep stress hormones down and also provides sugar to refuel the muscle and liver glycogen stores. When the body has full glycogen stores, it is much less likely to perceive a time of famine.

Once your adrenals are reset, you only want to add back carbs on evenings where you did some sort of exercise. The exercise will pull glycogen out of the muscles and liver and we want to replace that so the body doesn’t get worries about the lack of glycogen. On rest days, go low-carb as your stored carbohydrate in your muscle and liver are still full, so your body won’t perceive this as a period of famine.

**Dr Jockers Favorite Carbohydrate Sources**

I personally will do 2-3 higher carb days (60-100 carbs max) each week on my higher training days. What is really cool is that after fasting for 14-16 hours the next day, I am typically back into mild-ketosis. This process allows me to do very high intensity training while keeping my adrenals and thyroid healthy.

My favorite carb sources include the following:

1. **Berries:** By far the best because they are loaded with anti-oxidants and powerful DNA protecting nutrients such as anthocyanins (blueberries and blackberries) and ellagic acid (strawberries and raspberries).

2. **Beets:** Great prebiotic fiber and loaded with B vitamins. The best food source of trimethylglycine (also called betaine) which is key for protecting our DNA. If beets didn’t have sugar in them, I would suggest we all eat them everyday!

3. **Carrots:** Great prebiotic fiber and beta carotene. Carrots and beets are two of the very best foods for stimulating healthy peristaltic activity in the gut for good bowel movements.

4. **Sweet Potatoes:** Great prebiotic fiber and loaded with beta carotene and tastes great.
5. **Pumpkin:** Just like sweet potato, loaded with prebiotic fibers and beta carotene for a healthy body.

6. **Raw Honey:** Raw honey has bee pollen and propolis within it that have profound immune system benefits. It also has over 100 active enzymes, bioavailable amino acids and B vitamins. If it didn’t have so much sugar, it would be one of my top health foods.

7. **Grade B Maple Syrup or Coconut Nectar:** These are minimally processed sugars from the maple tree and the coconut tree. These natural sugars also have lots of B vitamins and enzymes to support the bodies energy levels.

8. **Quinoa:** This is not technically a grain, but instead it is a starchy seed. Most people tolerate it well and it is loaded with complete protein, minerals and B vitamins.

9. **Unripe Bananas and Plantains:** Green bananas and green plantains are unripe and there fibrous starch has yet to ripen into sugar. This form of starch is called “resistant starch” because the human digestive system cannot form calories from it.

   Meanwhile, our microbiome can break it down and use it as fuel. These do still contain some level of sugar and digestible carbs so they will increase your blood sugar but not as much as fully ripened bananas and plantains.

10. **Brown or White Rice:** I am not a big fan of rice, but for an occasional carb feeding it can be a good source. While brown rice has significantly more nutrients than white rice, some people have problems with the lectins in the brown rice. White rice is known to be a great prebiotic fiber and doesn’t have the lectin load that brown rice has.

These are all sources that are most often well-tolerated. Grains and legumes are common food sensitivities that cause further adrenal stress on the body. If you feel as though you tolerate beans well, than by all means use those. If you have gas, bloating and inflammation when you consume them (or anything on this list) than I would recommend avoiding it.

**Conclusion:**

The ketogenic diet is a fantastic nutrition plan with well researched results. I personally enjoy following a cyclic ketogenic diet with carb backloading.

I recommend that unless you fall into the categories we just discussed that you experiment with ketosis and cyclic ketosis and find out what works best for you. Use this booklet as a guide.
You can always visit DrJockers.com in order to access articles, podcasts and other helpful tools to help you have success following these strategies.

About Dr David Jockers DC, MS, CSCS

Dr. David Jockers is a functional nutritionist, corrective care chiropractor, exercise physiologist and certified strength & conditioning specialist. He currently owns and operates Exodus Health Center in Kennesaw, Georgia and runs one of the hottest natural health websites in DrJockers.com.

His experience working with thousands of individuals has given him a level of expertise in the field. He has had the privilege of traveling to London with the Maximized Living wellness advisory council to help the USA athletes win the gold in 2012.


He has developed 6 revolutionary online programs with thousands of participants. These programs include E-guides, recipe guides, meal plans and video instructions including “The Sugar Detox,” “The Cancer Cleanse,” “Navigating the Ketogenic Diet,” and “The Digestive Health Restoration Program” and “The AutoImmune Elimination Program” and the “Super Brain program.”

He is a sought-after speaker around the country on such topics as weight loss, brain health, functional medicine, natural detoxification and disease prevention. Dr Jockers does local and long-distance consultations to help customize specific lifestyle plans to improve performance and beat chronic disease.