



Is Keto Right for Me?

8 Benefits of the Ketogenic Lifestyle

The introduction of ketogenic lifestyle

The ketogenic lifestyle has been around for at least 100 years in scientific research and really for thousands of years dating back to the historical way our ancestors lived and ate. Some of the many benefits of the ketogenic lifestyle include:

Inflammation Reduction
Appetite Control
Mood Improvement
Keen Mind, Brain Support

Energy and Blood Sugar Support
Thinning – Weight Loss
Ovulation – Hormone support
Improved Digestion

DISCLAIMER: The information presented here has not been evaluated by the FDA, and is for informational purposes only, not the diagnosis or treatment of disease. For any diagnosis or treatment of disease, you should consult with a physician or health care professional. Where possible and appropriate, I personally prefer health care professionals that are also knowledgeable in natural health and the ketogenic diet.



MY INTEREST IN KETO

As a pre-med student I was always fascinated by health. In college I discovered life-changing information on natural health and nutrition in overwhelming amounts in medical journals that wasn't being taught in medical schools. As a result, I began what has become a life-long journey for me as a natural health journalist and educator. Through my experience in interviewing various experts, I have come to believe that given the right things, our bodies have the amazing ability to heal themselves from a myriad of health concerns that too often look inevitable. And over the past more than 26 years, I have had the opportunity to help create audio recordings, booklets, and magazine, TV, and radio interviews, and more with a wide variety of scientists, doctors from multiple disciplines, and pharmacists as well.

In 2014 when a good friend of mine started to get excited about the ketogenic lifestyle, I started doing some research and was more than impressed at all of the incredible studies that have been done. Since that time, what is even more impressive than the studies, are the real results with real people that we are seeing in greater numbers than I ever thought possible. Then I met Dr. Randy Lundell. Dr. Lundell's personal experience with keto and the use of keto in his medical practice goes back many years before most of us had even heard of keto. After meeting Dr. Lundell, I felt compelled to take my experience as a natural health journalist and work with Dr. Lundell to create this guide asking "IS KETO RIGHT FOR YOU?" that looks at the benefits of the ketogenic lifestyle.

IS KETO RIGHT FOR ME?

With all the growing interest in keto, you may be asking yourself this very question. Because people are at different levels of health, the possible benefits of ke can vary from person to person. And honestly it can be harder for some people than others. My friend who introduced me to keto back in 2014 dropped 60 lbs. at the same time I was struggling to see any

results. It wasn't easy for me. But because of all the research I had done on the benefits of the ketogenic lifestyle, instead of giving up, I wanted to find a way that it could work for me. And knowing how valuable the information was to me in my own experience with keto, I want to share some of this information with you – in the hopes that it can help inspire you and/or the people you care about to take a look at your own health, and see if keto is right for you and/or them too.

WE EDUCATE – YOU DECIDE

As a natural health journalist, this is my mantra: We Educate, You Decide. I believe that through proper education – talking about the foundational principles, talking with experts with experience in helping others, and sharing some of the actual research found in medical journals – that we can help more people make an educated decision on if keto is right for them and the people they care about. So please review this basic information and decide for yourself.

And please don't stop there. Continue your educational journey. We have the God-given ability to forget – so we need to continue to “feed our minds” with proper education. Find a well-principled keto support community, or even start reading the research in medical journals yourself.

I believe that through proper education, we can help people not only change their minds about natural health, but also change the results they get with their own health. Some of these people that need this information the most may be people you know – and they don't even know it yet. Or perhaps they know someone that could use this information. So please don't just do it by yourself. We ask for your help in sharing this education with others. I believe that together we can make a difference in the world – We Educate, They Decide.

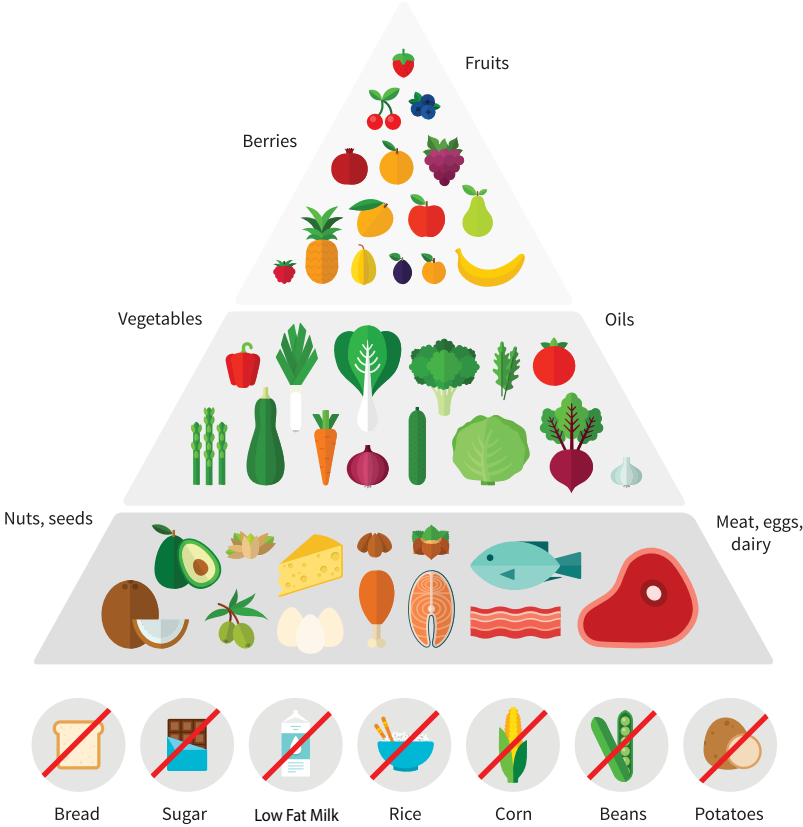
My sincerest thank you, and God bless, to everyone who is trying to help make a positive difference in the world!

Blake Graham
Natural Health Journalist, Educator



WHAT IS KETO?

"KETO" is short for "ketones" or "ketosis" or "ketogenic." "Ketones" are a natural energy molecule that our bodies make when they break down fat for energy or fuel. "Ketogenic" is the process of making (generating) these ketones from fat, and "ketosis" is the process of **BURNING** these ketones for energy. Essentially whether it's the **THING** (ketones), the **PROCESS** of making the thing (ketogenic) or the process of **BURNING** the thing (ketosis), they are all loosely referred to as **KETO**.



Keto Food Pyramid

KETO IS PART OF OUR BODIES' NATURAL BALANCE

By divine design, our bodies have multiple mechanisms to help us be healthy and stay in balance. For example, there are certain mechanisms that help our bodies create inflammation as part of our immune system in order to keep bacteria and foreign invaders confined to a specific area, and different mechanisms to help our body clean up inflammation after the threat has passed. And one of the most critical categories of mechanisms is that for the creation of ENERGY that we need to run our hearts, our brains, our muscles, and even every single cell.

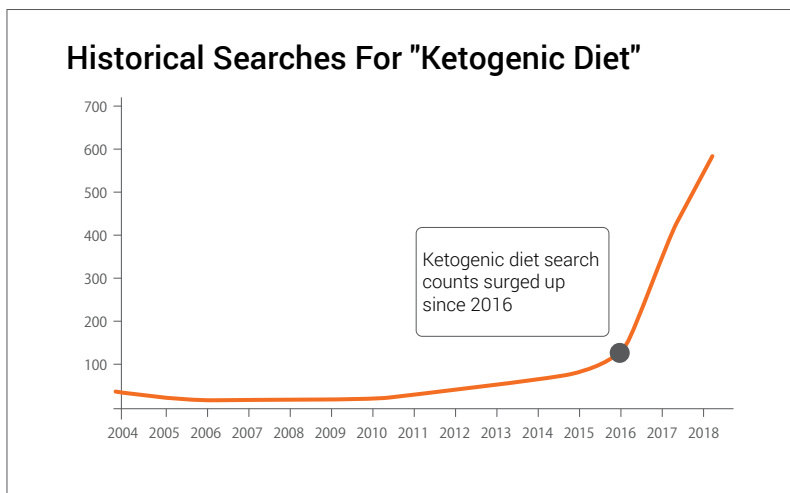
Most of us have heard about something called the **MITOCHONDRIA** or the “powerhouses” in our cells. This is where calories are burned and energy is created to fuel our bodies. And we may have heard about **BLOOD SUGAR** which a hormone in our body called **INSULIN** takes from our blood and puts it into our cells so that we can then use this sugar in our mitochondria and create energy. And if we have more sugar getting into the cells than our mitochondria can readily convert into energy, then our bodies convert and store this energy as **FAT**.

However, insulin and blood sugar are just one mechanism for creating energy. And it's the one that is easiest for the body to do. However, just as in life, the easiest path isn't always the best path. In our bodies there is a secondary mechanism, fat burning or “ketosis” that has many benefits that the sugar burning mechanism doesn't have. Ketosis or fat-burning turns on when we aren't getting enough energy from the “blood-sugar-and-insulin” pathway. In this mechanism, our bodies break down fat into smaller molecules called **TRIGLYCERIDES** and then our liver converts these triglycerides into even smaller molecules called **KETONES** that we can get into our cells to burn in our mitochondria.

This transition from burning sugar to burning fat isn't instant. We don't go from burning sugar one minute to burning fat the next. But the good news is that even if it's difficult at first, the process of being able to access stored fat for fuel can be an absolutely life-changing.

GROWING INTEREST IN KETO

If you're like the majority of America over the past couple of years, you may be hearing more and more about the **KETO** or the **KETOGENIC LIFESTYLE**. There is more and more research coming out in medical journals on the benefits of this amazing lifestyle. And with the numbers of people who are seeing amazing results with it, talk around the water cooler at work, and posts on Facebook, even searches on Google's search engine are growing at an enormous rate!



In medical and scientific journals as indexed by the US National Library of Medicine, at [PubMed.gov](https://pubmed.gov) as of July 12, 2018, there are 2,332 articles* on the ketogenic diet.

*Note: While the growing research on the ketogenic diet is extremely promising, for any diagnosis or treatment of disease, you should consult with a physician or health care professional, ideally one knowledgeable in the ketogenic diet. Articles in medical and scientific literature indexed on [PubMed.gov](https://pubmed.gov) do not constitute governmental approval or endorsement of any kind.

KETOGENIC LIFESTYLE VS. KETOGENIC DIET

In so many ways, keto is more of a “lifestyle” – something that many experts including Dr. Lundell explain combines the following things:

1. Eating ketogenic friendly food – high in good fats, medium protein, and low carb
2. Proper exercise
3. Getting enough rest/sleep
4. Appropriate supplementation to both provide nutrients missing in the diet and to increase results

Dr. Lundell always advises his patients to use the full ketogenic lifestyle as explained above. However, much of the research in the medical journals is often listed as the “ketogenic diet.” The research on the ketogenic diet and diseases is so incredible that I have chosen to include several references for informational purposes only. For diagnosis and treatment of any disease, please refer to a qualified health practitioner. Who you work with is a personal choice, but I personally prefer those health practitioners that apply natural healing and nutritional science, as well as the ketogenic diet. Sometimes you may have to search for a good health practitioner who focuses on getting to the core root of the problem instead of just treating the symptoms, but it can be well worth the effort.



Dr. Randy Lundell

Doctor of Osteopathic Medicine

"The sign of a good doctor should be how many patients he can get OFF medications, not how many people he puts on medication."

Blake Graham

Natural Health Journalist

"Through my experience in interviewing various experts, I have come to believe that given the right things, our bodies have the amazing ability to heal themselves from a myriad of health concerns that too often look inevitable."



Dr. Randy Lundell: Focused on Helping People Get OFF of Medications

Blake Graham: Dr. Lundell, thank you for being with us here today. Tell us a little bit about your experience. Why did you get into medicine?

Dr. Lundell: I was actually an athlete. I played on a professional golf mini tour when I was much younger. It just made sense to me to be in the

best possible shape or the best possible health ever in order to perform at my highest game of golf on the professional mini tour. When I saw athletes that needed additional assistance to help them get better, that was a big part of the reason that I got into medicine.

Blake: Dr. Lundell, you have a unique perspective that combines both western medicine and natural medicine. Instead of becoming an M.D. you're actually a D.O. What is a D.O. and how does that differ from an M.D.?

Dr. Lundell: I actually only applied to osteopathic medical schools because it is more of a holistic approach, a more whole-body approach that is more focused on improving people's health instead of just prescribing medications for people's symptoms. An osteopath goes to medical school just like an M.D.

I'm board certified in family medicine. Family medicine is still mostly about just identifying symptoms and prescribing medications for those symptoms. I just saw that as more treating disease instead of promoting health.

But as a D.O., there is additional training in holistic medicine as well as osteopathic manipulation like if you were going to be a chiropractor. And I also sought out other places where I could educate myself. I ended up doing a fellowship through the American Academy of Anti-Aging in Functional Medicine and another certification program through the Institute for Functional Medicine.

During that time, I learned the importance of food as medicine and medicine as food. I learned that how we eat can actually improve and treat different medical conditions.

Blake: I fell in love with natural health because I think the good Lord designed our bodies to heal. We don't want to have the disease for the life of the patient. We want to eliminate disease and go back to being healthy. One quote that you're famous for that illustrates the difference between just using medication to treat symptoms versus getting at the roots or causes of health problems is, **"The sign of a good doctor should be how many patients he can get OFF of medications, not how many people he puts ON medications."**

Dr. Lundell: Absolutely. In fact, when patients come and see me, I'll often joke with them and I'll say, "I'm more like a "WHOLE-istic (instead of just "holistic") doctor because I usually deal with patients with a WHOLE list of medications." So, I look at their medication and explain, "You're taking this drug for that symptom. Let's identify what's going wrong inside your body to get rid of that symptom and then that medication can go away."

Blake: So, has that become your specialty? Working on helping people get off of medications?

Dr. Lundell: Absolutely! The body I think knows how to be healthy if we give it what it needs. But unfortunately, doctors don't learn that in medical school. It's more about identifying a disease and then identifying what is the prescription medication to take. There's never an emphasis on if we just could give the body back what it needs it would be healthy.

Blake: It's almost like we need a new mindset because so much of Western medicine I found was heavily influenced by pharmaceutical companies. And pharmaceutical companies don't make money when we are healthy.

Dr. Lundell: NO. The pharmaceutical companies want us to be just well enough that you'll keep taking the medication but not well enough that you can get off of it.

Blake: I know when my own mother became sick, her list of medications kept increasing and increasing. She was on 15 different prescriptions.

It was just crazy. That's one of the reasons I looked at medicine because I said, "I want to do something to be able to help my mother." But at the same time if all we're doing is adding more prescriptions, are we really helping them be healthy?

Dr. Lundell: I tell my patients all the time when I sit with them, "Listen, you know if you will do the things I'm going to ask you to do as far as supplementation or exercise or dietary changes we can get you off these medications." But some people are somewhat unwilling to make those changes. So it's only then that I would say, "Well maybe you should

"Pharmaceutical drugs are...roadblocks. Nutrition is the raw nutrients our body's construction crew uses to rebuild. If a bridge goes out, a roadblock keeps you from going over the non-existent bridge, but a roadblock doesn't ever rebuild the bridge."

try taking this prescription to treat the symptom because you're not ready to do what it takes to help reverse your problem." And to me, unfortunately, just using prescriptions to treat symptoms, is ultimately just taking away responsibility from the patient to do what they are supposed to do.

Blake: I had a pharmacist that was a good friend of mine who fell in love with pharmacy. He actually explained it this way, "Pharmaceutical drugs are like selective poisons. They turn things off in the body. They are roadblocks."

Dr. Lundell: Very true.

Blake: However, nutrition is essentially the raw nutrients our body's construction crew would use to rebuild the body. If a bridge goes out, a roadblock could keep you from going over the now-non-existent bridge, but a roadblock would never rebuild the bridge. Similarly, taking a painkiller never rebuilds the bone. If you have arthritis, you take a

painkiller, and you go dancing, you're not doing your joint any service. On the other hand, using nutrition to help rebuild our body can make a world of difference.

Dr. Lundell: A perfect example of that is ibuprofen. People take it all the time because they have joint pain and stiffness. They take it to try and decrease inflammation. But what do they always tell you to do when you take ibuprofen? You have to take it with food. Why do you need to take it with food? Because it affects your stomach. It will damage your gut. And the majority of inflammation that's going to get into your body comes through an unhealthy gut. So by taking the ibuprofen you're kind of helping the knee feel better for a minute but ultimately increasing the flow of inflammation that comes into the body.

Blake: So, you're helping the symptoms but making the cause worse.

Dr. Lundell: Exactly.

Can Our Bodies Actually Heal?

Blake: When people have been sick or had a health challenge for an extended period of time, unfortunately in some cases they may not believe that they can get better. There is a seed of doubt where they think, “Maybe this is just the way I’m supposed to be.” In your experience working with your patients is there really hope for healing for people that have had serious conditions?

Dr. Lundell: Absolutely! In fact, I saw a gentleman today who has a very serious condition and was really struggling with his energy, his brain function, balance, and all sorts of things like that. It’s been six months

since we started him on a different nutrition plan and supplementation. And after six months, he was significantly different today.

Blake: How long had he been suffering before that?

Dr. Lundell: Oh years! Absolutely for years. But he heard about me and how we try to go to the root of the problem. He heard about how we try to figure out why people get sick and then we worked on those things. That’s exactly what we worked on for him.

Blake: Fantastic!



Dr. Lundell Discovers the Power of the Ketogenic Lifestyle

Blake: Dr. Lundell, I know in life there can be some things you do a lot of that make a small difference and other times there are a few things you can do just a little bit of and it makes a huge difference. I call them foundational principles. When we look at foundational principles, one of the things you've talked about repeatedly now is not just supplements but diet, or the food we eat.

Dr. Lundell: Yes.

Blake: There's a specific dietary lifestyle – the ketogenic lifestyle that you're a champion of, one that you began using even long before I ever heard about it. When did you get started researching and practicing in your own personal life plus implementing the keto lifestyle in your medical practice?

Dr. Lundell: I started about 12 years ago. At that time, I was a military doctor, but I was overweight. I also was pre-diabetic and had high cholesterol.

Blake: Can even doctors have health problems?

Dr. Lundell: Yes, they can and especially in the military that's a problem because you have to pass a physical training test. I needed to run, do push-ups, sit-ups, and more. And yet I was 30 or 40 pounds overweight. In the military if you're overweight and can't do all the required exercise in the required time, they will put you on an intensive program so you can get the weight back off. I didn't want to have to go on this program. I was so lucky to discover a researcher, Jeff Volek. He has been a big advocate for the ketogenic lifestyle for a long time. So when I read his writings, I decided to implement it and see what happened. Literally within six months I lost 30 or 40 pounds, my cholesterol went from being high to within normal ranges, and my high blood sugars came back to normal. I went from where I could barely pass the physical test to where I would max the PT Test. For example, in two minutes I would do 80 pushups and 80 sit-ups. I could run two miles in roughly 13 minutes. It was crazy how it transformed my life! So, I said to myself, **"I have to tell people about this!"**

Blake: Why hadn't you learned about the ketogenic lifestyle in medical school? Are they teaching the ketogenic lifestyle in medical school?

Dr. Lundell: They might teach it a little bit in regard to a treatment for cancer and for seizures. But in terms of long-term health benefits, such as keeping your blood sugar under control, controlling diabetes, and helping with obesity, no, they don't teach it.



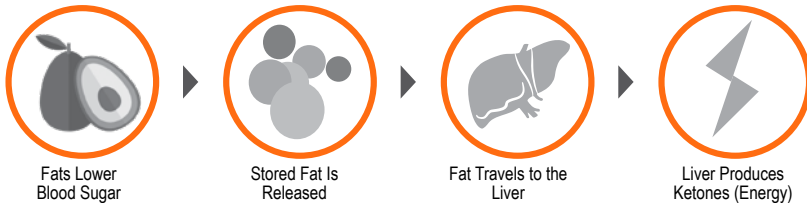
Dr. Lundell:
Before and After Keto

What is Ketosis?

Traditional High Carb Diet: Energy Comes From Blood Sugar



Keto Lifestyle: Higher Fat : Energy Comes from Ketones (Stored Fat)



What Is the Ketogenic Lifestyle?

Blake: Let's talk a little bit about what is the ketogenic lifestyle. I know a lot of people have heard of the ketogenic lifestyle, or keto for short, but they just aren't exactly sure what it is. Tell us, please, what are we talking about when we say the ketogenic lifestyle?

Dr. Lundell: The ketogenic lifestyle is where you limit, or you keep the number of grams of carbohydrates that you consume in a day very low,

so that there is not enough blood sugar to fuel the body. When there is not enough blood sugar for fuel, the body changes mechanisms. The liver and pancreas start to use fat that's been stored in your body as the primary energy source. Keto is turning fat into an energy source called ketones. Instead of using carbs or sugars, those ketones can then go to the brain and muscles and supply the body with energy to function normally.

The Fat and Cholesterol Myth

Blake: A lot of people mistakenly think that keto is new. But it actually goes back through our history. In the Bible there are references to the "fat of the land". That was never a negative comment. Fat meant looking at the bounty of the land. We always look to that as a good thing.

Dr. Lundell: And another quote from the Bible is "Let your soul delight itself in fatness."

Blake: One of the first stories about keto is possibly the story of Joseph

in ancient Egypt, and the seven years of famine. If you are familiar with that story in the Bible, you'll remember that Joseph interpreted Pharaoh's dream about 7 years of plenty and 7 years of famine. Because of that prophetic dream, the Egyptians saved 20% of their food during the seven years of plenty. And during the following seven years of famine, it fed not only themselves, but all of the surrounding countries that came to buy food from them. They did this with only 20% of the food they normally ate.

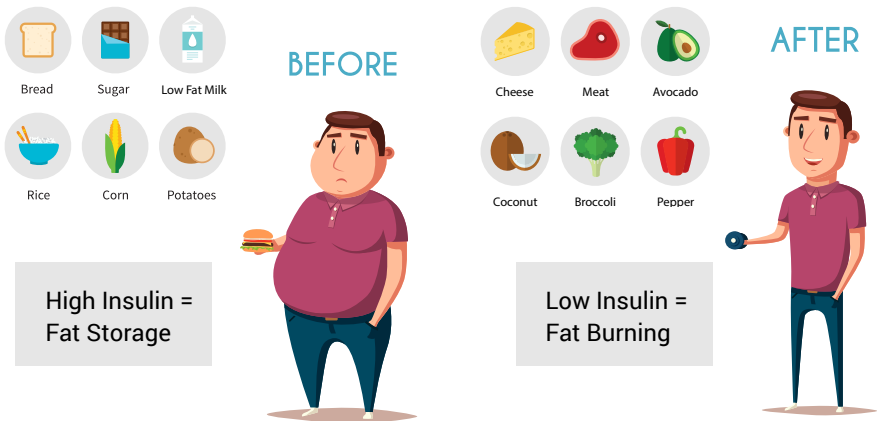
How could that happen? It is because of the incredible divine design of the human body in which there is always a backup mechanism. We have a mechanism for when food is plentiful to build fat and store energy. Then there are times of famine and you don't have enough to eat whether it's a drought, winter, or you're waiting for the harvest or something – and it's then that our bodies would go into ketosis.

Dr. Lundell, it's probably important to note when your insulin is high, the body stores calories and we're not really accessing fat. In fact, we are storing fat. To get into keto, we have to shift gears. This is not a shift that takes

place in just a few seconds or even a few minutes. Breaking fat into ketones is actually a very different mechanism that doesn't require insulin.

Dr. Lundell: Exactly. Fat burning doesn't take place when insulin is too high. You actually have to bring your carbs low enough so that you're not impacting insulin and that's when we make the shift to burning fat. Initially there were a lot of people that didn't understand this when they were doing the research.

Blake: A lot of people have been convinced for decades that we wanted to avoid fat, eat a low-fat diet, and also avoid cholesterol because cholesterol



was supposedly bad. **Over the last few decades while we've increased "low fat" and fat-free foods and lowered the fat and cholesterol in our diets, America has gotten more obese and we've had more health challenges than ever before.** And there's more evidence that this thinking was tragic misinformation started from people who wanted to sell cholesterol lowering drugs. **Today there is more and more medical literature that proves fat is good and that cholesterol is good too.**

Dr. Lundell: They've taken the fat out which would make the food taste good and reinfused it with sugar. So now we have this constant inflow of carbohydrates all year long. There's never a famine in our cyclical year anymore and so we're just eating carbohydrates all the time. Insulin stays high. We constantly stay in fat storage mode. It was definitely wrong to teach people to avoid fat because then people just started consuming more carbohydrates. You can only consume carbs, fats, and proteins. So if fats are going down they have to put something else in there so the carbs went up.

Blake: I have a friend who's a veterinarian. And they say in veterinary science that if you want the animals to gain weight you feed them carbs.

Dr. Lundell: Yes. Corn specifically.

Blake: And if you want them to lose weight then they would actually increase the fat and increase the minerals they fed the animals, so they weren't as hungry.

Dr. Lundell: Yeah, and instead of feeding livestock grains, if they were more grass-fed then they wouldn't be as overweight. It's fascinating how much powerful science there is on why it works. Historically the majority of people were on this ketogenic



lifestyle most of the time. They would probably eat fruits and vegetables in the fall when foods were plentiful, and they would gain a little bit of weight. They would get a little fluffy as I always talk about. That was a good thing back then.

Blake: That's such a nice way to say that. Fluffy. "I'm not heavy. I'm just fluffy."

Dr. Lundell: Exactly. "My parents aren't overweight; they are just fluffy." So that was by design so that you could gain a little bit of extra fat and store it on your body. Then as you went through the winter and spring when those things weren't as plentiful you could use that stored energy in the form of fat.

Blake: Even historically when you say we were in times of plenty and gaining weight, it's almost never that people were on a high carb diet.

Dr. Lundell: No, not like we do now.

Blake: And they were getting more nutrients from the soil. You can look back through history and you don't see pictures of the extremely fluffy people.

"The argument against fat was totally and completely flawed."*

Dr. Robert Lustig,
Pediatrician, President of the Institute of Responsible Nutrition, Univ. of California, San Francisco

"Americans were told to cut back on fat to lose weight and prevent heart disease. There's an overwhelmingly strong case to be made for the opposite."*

Dr. David Ludwig,
Director of Obesity Prevention Center, Boston Children's Hospital

**"New research suggests that it's the over-consumption of carbohydrates, sugar and sweeteners that is chiefly responsible for the epidemics of obesity and [blood sugar imbalances] ...
...Refined carbohydrates – like those in 'wheat' bread, hidden sugar, low-fat crackers and pasta – cause changes in our blood chemistry that encourage the body to store the calories as fat and intensify hunger."***

Source: *Eat Butter

Cover Story of *Time* Magazine, June 23, 2014

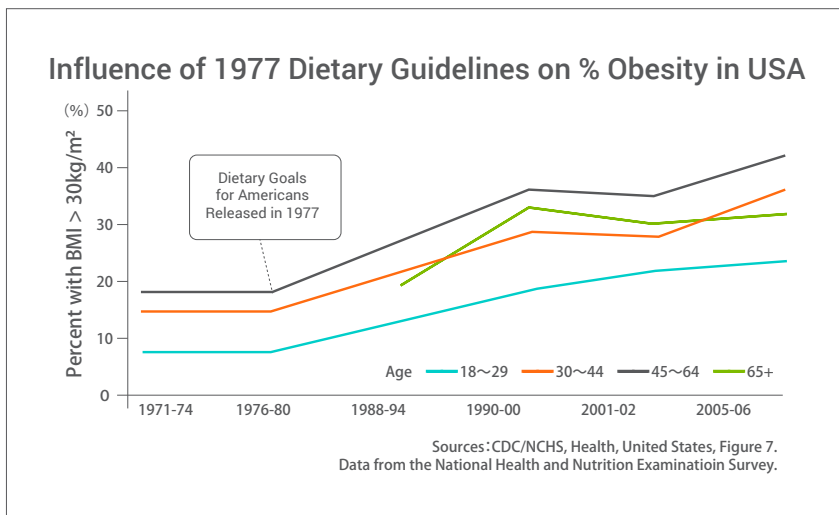


Dr. Lundell: Right. Because it was apples not apple pie. It was apples and not apple fritters. We've taken these fruits and vegetables which have been historically very good for us and we turn them into apple pies. We turn them into all sorts of things that then really increase the amount of carbohydrates that people consume.

Blake: One of the reasons we may crave food is that our body is searching for nutrients. If we've taken away fat – which our bodies need and which is one reason why we like the taste of fat – the body has to look for something else. In agriculture when we put high quality minerals in the fields the crops taste

sweeter. There's actually an increase in what's called the "brix rating" or the sugar content. That is why when we crave sugar we are actually often craving minerals. But in many food recipes we don't add minerals; we just add sugar. And if you've taken the fat away we add even more sugar. Is this why too many people are eating high carbohydrate diets?

Dr. Lundell: Absolutely! All year long, all through Christmas people tell me this all the time, "I started my "re-tox" (toxifying our bodies again through sugar) during Halloween and continued it all the way through January. They are doing a retox instead of detox.



Total Cholesterol Not Linked to Heart Disease

"The hypothetical link between high levels of total cholesterol and heart disease has NEVER been proven. It's a diagnosis conjured up to serve drug companies who want to sell cholesterol-lowering statin drugs...

...Traditional cholesterol tests are outdated! Research shows that [it's the] "small dense" LDL cholesterol that is inflammatory and toxic to blood vessels."*

* Source: Dr. Stephen Sinatra, Chief of Cardiology Manchester Memorial Hospital
Founder, New England Heart Center
Author, *The Great Cholesterol Myth*

The Theory That Cholesterol Is Bad Was Based on False Data.

"Dr. Keys cherry-picked his data, leaving out countries like France and West Germany that had high-fat diets but low rates of heart disease. Greeks on the island of Corfu ate far less saturated fat... yet had much higher rates of heart disease." *

* Source: (June, 2014). Eat Butter.
Time Magazine, p 31.

Your Brain Needs Cholesterol

"Researchers suggest that because cholesterol is involved in making hormones and vitamin D, low levels may affect the health of your brain."*

* Sources
Duke Health, May 24, 1999

Protein & Cell Journal, Feb 15, 2015, "Cholesterol metabolism and homeostasis in the brain," PubMed.gov
PMC4383754

Journal of Alzheimer's Disease, 2013, "Brain Cholesterol Metabolism," PubMed.gov article PMC4355887

Eating CARBOHYDRATES signals your body to STORE fat. Eating FAT signals your body to BURN fat.

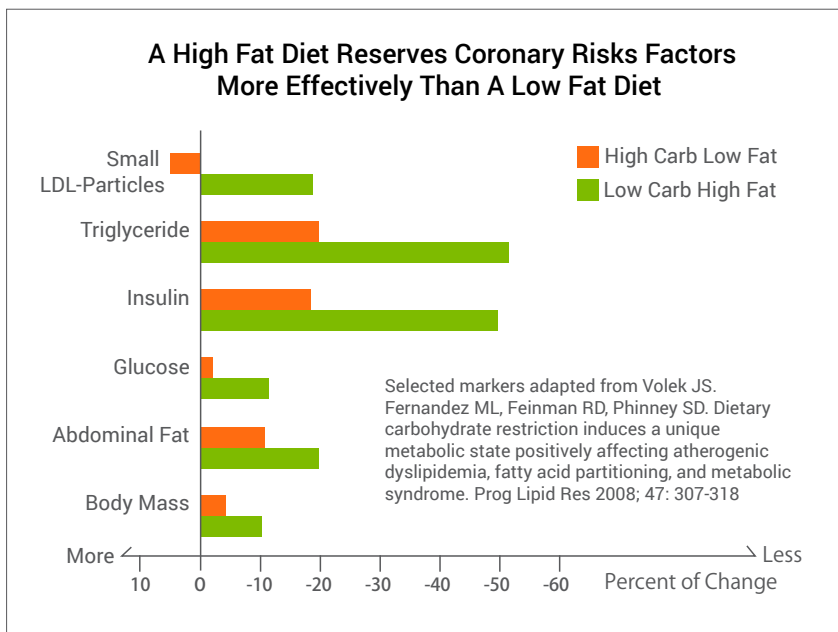
Blake: So people are actually toxifying themselves over and over again with sugar?

Dr. Lundell: Unfortunately, it's true. They think to themselves, "I'm going to eat all of this sugar from the end of October to the 1st of January and then I'm going to start over." Historically higher carbohydrate consumption really should only take place in the fall, after harvest. Then during the winter people consumed much less, and our bodies would be in ketosis as a result.

Blake: One of the tragedies of our modern diet is that we use sugar to trick our taste buds into thinking, "Oh, this is great!" And not only sugar.

Instead of using lard, we too often use a lot of bad fats that are actually not healthy for us. If these are unnatural fats like margarine, they are called trans-fatty acids. But even good fats can go rancid or oxidize. For example, everyone has heard of fish oil. Fish oil is good for you, but rotten fish is definitely not as good.

Dr. Lundell: Not so good. You have to focus on eating the good fats. **I always tell people don't fear the fat as long as it's good fat.** Avocados, coconut oil, fish, and fish oil are all amazing sources of good fats. As long as it's not oxidized. We want to make sure we stay away from oxidation.



The Eight Benefits of Keto

Blake: If somebody's looking and asking, "Is keto right for me?" how would they decide? If I was looking at this for the very first time what are some of the reasons that I might be interested for myself or a family member or even a friend? What are some of the benefits of this amazing ketogenic lifestyle?

Dr. Lundell: I use the acronym I. A.M. K.E.T.O. to summarize some of the benefits of the ketogenic lifestyle in a way that patients can easily remember.

- I INFLAMMATION**
 - A APPETITE**
 - M MOOD**
 - K KEEN MIND**
 - E ENERGY**
 - T THINNING**
 - O OVULATION / HORMONE**
- + IMPROVED DIGESTION & IMMUNE SUPPORT**

Benefit #1: INFLAMMATION

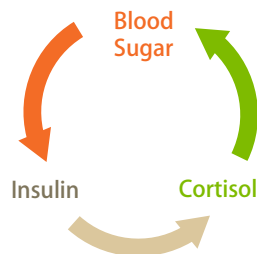
Dr. Lundell: To begin with, the “I” stands for inflammation, and the ketogenic lifestyle is incredible at decreasing inflammation. This is very important because we know that many health problems involve inflammation; whether its arthritis, skin issues, acne, joint pain and stiffness, and many more. There is a myriad of problems due inflammation. And that’s one of the reasons that I am so excited about the ketogenic lifestyle for my patients, because **the ketogenic lifestyle decreases inflammation better than any other food plan.**

Blake: You often talk about inflammation as being impacted by a hormone called cortisol. What is cortisol and what happens?

Dr. Lundell: Cortisol is a hormone in the body that helps to regulate inflammation and can also increase blood sugar. In many ways cortisol is like the Goldilocks story. You don't want too much cortisol – you want the right amount. We're after balanced cortisol levels. Cortisol usually goes up when people have lots of stress. It helps you adapt to the stress by mobilizing (raising) blood sugars so that you can run faster from the saber tooth tiger.

But when cortisol is too high it will kick you out of ketosis because it drives your blood sugar back up. Too often when people are experiencing stress, cortisol goes up, and then its response is to push blood sugars up to try and give us more energy. Then we get into a dangerous cycle. As blood sugars go back up, the body responds by sending out more insulin in to lower blood sugar. The insulin comes in and once again you get into more fat storage.

And unfortunately, if you stay in constant stress mode for a long time, cortisol will start to diminish because the body's cortisol production becomes fatigued, and cortisol levels drop. And because cortisol is an anti-inflammation mechanism for the body, too little cortisol means too much inflammation. This is why as cortisol goes down, people then struggle with inflammatory conditions in many areas, often including more joint pain and stiffness.



Blake: So, is less inflammation and joint pain and stiffness one of the possible benefits of keto?

Dr. Lundell: Absolutely!

Blake: Medical science shows that chronic inflammation can lead to many problems, including joint pain, damaged skin, poor digestion, and even problems with our brains, lungs, nerves, and muscles. Can inflammation also impact physical and mental fatigue?

Dr. Lundell: Absolutely. Inflammation from the cortisol and the insulin response is exactly what can wear out our adrenal levels. People talk about that all the time. “Doc, I’m so tired. I’m tired. I’m tired. I’m tired.” And yet they don’t sleep, they stress out a lot, and eat the wrong way. We then get them back on track with food specifically starting there first. But I also tell people you have to sleep. You have to sleep. So, you get them sleeping and you get them eating better. They start eating more fat and less sugar and then that gets people back on track.

Blake: The good news is that the ketogenic lifestyle can help. According to Dr. Frank Hu, **chronic inflammation is associated BOTH with certain foods AND with chronic diseases.**

Dr. Lundell: Exactly! And almost every other health problem because, in fact, it’s all connected. The pathway for carrying nutrients and oxygen everywhere in your body is your blood vessels. When people have inflamed blood vessels they’re also extremely prone to blood pressure issues. This then can escalate into issues with your lungs, your immune system, and even your skin. And unfortunately, a lot of the inflammation can flow into the gut and from there pollute the rest of the body, as digestion is literally connected to everything.

Blake: Even kidney issues as well?

Dr. Lundell: Totally. If somebody is dealing with chronic health problems, they should really look at inflammation.



“Eating a ketogenic diet decreases your inflammation more than any other food plan out there.” Dr. Randy Lundell

11 WAYS CHRONIC INFLAMMATION Can Damage Your Body

- 1 Cardiovascular Problems
- 2 Bloating & Digestive Problems
- 3 Weight gain
- 4 Joint Pain and Loss of Mobility
- 5 Fatigue
- 6 Headaches
- 7 Memory Problems
- 8 Immune Problems
- 9 Cough, Sore Throat
- 10 Itchy Ears & Eyes
- 11 Water Retention & More

*Source: Christian Nordqvist,
Justin Choi, M.D., Medical News Today,
Nov 24, 2017

Inflammation & Chronic Disease

"Some of the foods that have been associated with an increased risk for chronic diseases... are also associated with excess inflammation."

Dr. Frank Hu, Professor in the Department of Nutrition, Harvard School of Public Health, Harvard Women's Health Watch, Updated Aug 30, 2017

Ketogenic Diet is Anti-inflammatory

"There is now abundant evidence that the KD possesses anti-inflammatory properties, and specifically, this diet has been shown to decrease proinflammatory cytokine levels after an immune challenge."

*Sources:

Journal of Epilepsia, July 2017, "Clinical studies and anti-inflammatory mechanisms of treatment," PubMed.gov article PMC5679081

Journal of Epilepsia, July 2015, "Ketogenic diet exhibits anti-inflammatory properties," PubMed.gov article 26011473

Benefit #2: APPETITE (Less)

Blake: Let's talk about the 2nd benefit of keto which is having less appetite. Too often people have cravings. Sometimes we call it the munchies. If you're physically full and going to the refrigerator to see what's in there, that's kind of a clue.

And you know the problem is bad when you open it up and nothing looks good. Then you close it and you wait for about five seconds, then you open it up to see if anything has changed!

With animals, horses will chew on the fence if they are craving nutrients missing in their diets. Dogs will eat shoes. Babies try to put everything in their mouths. And it's the same thing with us. **We have cravings because we're missing certain nutrients, including either minerals or energy.**

Dr. Lundell: Yes. All the time people say, "I just feel hungry all the time!" But like you mentioned earlier, when you eat fat, you're not hungry all the time



"I didn't mean to gain weight. It happened by snaccident."

because you become satiated. The ketogenic lifestyle is amazing for that.

Blake: What happens in the ketogenic lifestyle that changes those cravings and changes the appetite?

Dr. Lundell: I always want my patients to understand that **when you start consuming more fat you simply become more satiated.** You can't look at a stick of butter and think, "I'm going to eat that whole thing," because as you start to eat it you say, "That's enough. I feel good. I feel satiated." Getting these fats back in our diet not only gives us more stable blood sugars, but this ketogenic lifestyle also gives us a sustained source of energy. You get much more energy out of a gram of fat than you do out of a gram of carbohydrate or protein, which is fantastic for sustained energy. From personal experience myself and with my patients, when someone gets into ketosis, also known as becoming "keto adapted", he/she just doesn't get hungry. It is an amazing thing! Even today, I have hardly eaten anything because I just don't feel hungry.

I AM KETO = Appetite

On the ketogenic diet, getting more ketones to the brain results in people having less appetite and fewer food cravings.*

* Sources:

Journal of Obesity, Jan 2007, PubMed.gov article 17228046

Journal of Obesity Reviews, Nov 2017, PubMed.gov 25406237

American Journal of Clinical Nutrition, Jan 2008, PubMed.gov article 18175736

Benefit #3: MOOD – FEELING HAPPIER

Blake: The science on the ketogenic lifestyle is fascinating! With reduced cravings, people usually feel more SATISFIED than actually feeling full. I've experienced this too. But reduced cravings isn't the only mechanism – there are actually two more. One mechanism we mentioned previously is dopamine, a hormone that makes you feel content. **The ketogenic lifestyle can trigger dopamine, and help us feel more content.**

Dr. Lundell: And the other important mechanism for better moods is something called GABA.

Dr. Lundell: GABA is a neurotransmitter that helps people feel peaceful, relaxed, not anxious, and happy. **When you're on a ketogenic lifestyle, the body produces more GABA** for that same reason too. People feel happier and overall have an improved mood. This is so important because feeling depressed or unhappy is one of the major complaints I hear in my clinic throughout the day. People just feel depressed and anxious.

Blake: Life's supposed to be happy. We're not supposed to be stressed all the time. We are supposed to have good experiences.

Dr. Lundell: Absolutely, yes. And that's why the 3rd keto benefit is M for Mood.

When people eat keto-friendly, they just feel so much better. Too often people talk about feeling "HANGRY" – when they are both hungry and a little irritated or angry from the hunger. "Hangry" people tend to be addicted to carbs. They may have to keep eating every two to three hours. If they skip a meal, then they get cranky. Fortunately with the ketogenic lifestyle, when your body has become fat adapted, you don't get the sorts of ups and downs in your blood sugars that leads to feeling irritated. And this really impacts people's mood as well.

Blake: I have a friend, that if he hadn't eaten, would say, "I'm feeling a little HANGRY now." Some people may say, "If I don't eat something soon, I'm going to bite somebody's head

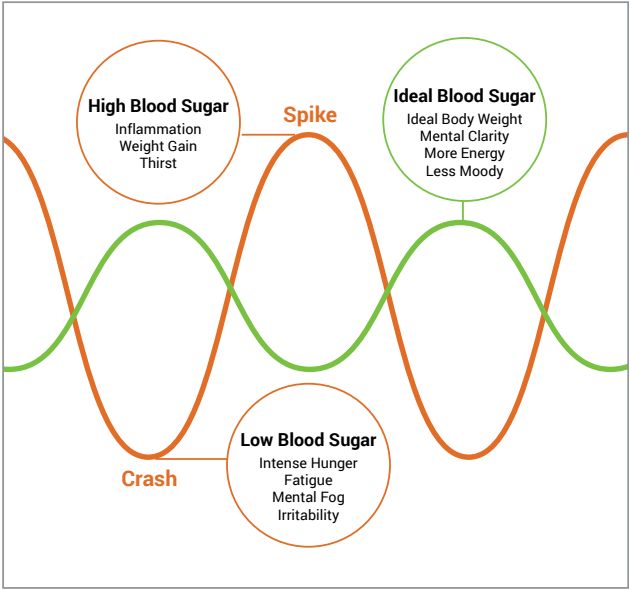
off.” There are even commercials that use the slogan, “You’re not yourself when you’re hungry!” And whether it’s road rage, domestic violence, or even arguments, in today’s society, too many times people seem to overreact about little things. Can blood sugar imbalances lead to that?

Dr. Lundell: Yes, without question.

When our bodies are in the sugar-burning mode, we can too often experience the highs and the lows in our mood. This extreme shift (the rapid ups and downs of our blood sugar levels) is often referred to as the “glycemic roller coaster.”*

* Also see Benefit #5: Energy (supports balanced blood sugar)

Rapid rises and declines in blood sugar can result in:



Dr. Lundell: Absolutely! When our blood sugar spikes, it can cause inflammation. And every time your blood sugar goes up, what goes up with it? Insulin. What does insulin do? Insulin stores fat. And if it's working so hard to store fat, then your energy can crash – this is the low energy. So, then people get on this rollercoaster and not only are they chasing their blood sugars, but they're also storing fat every time they do it. **Every time they eat carbs they store fat.** Our blood sugars go up and the insulin has to bring it down. Where does insulin put the sugar? It stores it as fat.

Blake: Could this glycemic rollercoaster and a high carb diet be one of the reasons in society we see more children with Autism and ADD and ADHD?

Dr. Lundell: Yes, I do think that. I wish that we could get all of them on the ketogenic lifestyle for not only the benefits for energy and mood and blood sugar support, but I also believe that they could benefit from the incredible brain support benefits. This is the next benefit on our list.



“Being on a ketogenic diet increases the production of GABA [important also for thyroid support], resulting in decreased anxiety and improved sleep.”*

Dr. Lundell

** Sources:*

Journal of Epilepsia, November 2008, “Ketosis and brain handling of glutamate, glutamine, and GABA,” PubMed.gov article PMC2722878

Journal of Neurochemistry International, Aug-Sept 2002, “Glutamine synthetase in brain: effect of ammonia,” PubMed.gov article 12020613

It's Easy to Feel Good on Keto

“Ketogenic diets appear to affect the brain in a number of positive ways, such as:

- Providing a ‘feel good’ effect
- Bolstering brain power
- Having antioxidant effects”*

** Source:* The Global Diabetes Community

“Ketogenic diet and mental health,” The Global Diabetes Community, www.diabetes.co.uk

Benefit #4: KEEN MIND – (a.k.a. Brain and Memory Support)

Dr. Lundell: The “K” in the acronym I AM KETO stands for KEEN mind. There's a condition that we call type 3 diabetes – diabetes of the brain. We are learning that in type 3 diabetes especially in the elderly the brain is becoming less sensitive to glucose. It just doesn't respond to it as well. And yet you go to a nursing facility and they are feeding our elderly high carbs all the time. White flour, bread, pasta, rice, and lots of sugar. And it's very difficult if not impossible for people, young or old, with brain issues to recover if they are on a high carb diet.

This is tragic because it doesn't have to be this way. In science, we're learning that even in the elderly we can feed the brain more healthy fat, and their bodies can produce more ketones. This is great for them on several levels. For one, the brain and mitochondria like you mentioned does not become insensitive to ketones. So, **ketones help with mental energy and with cognition. This is why I believe that the ketogenic lifestyle**

for our youth would really help with concentration, mood, social behavior, and even dealing with stress because you're fueling the mitochondria and the brain.

Blake: I love some of the latest science in the medical journals on the ketogenic diet. In August 2017, on a study using the ketogenic diet with children who needed help with social skills, they compared keto to a gluten free and casein/dairy free diet. In all measurements the children on the ketogenic diet did so much better, especially with social skills and interacting with other people.

In fact, there was a recent documentary that you may have seen called The Magic Pill. One family in the film had a 5 year old girl named Abigail. When they put her on a ketogenic diet, Abigail's communication started to improve in just 5 weeks! And at 5 months, both communication and her social interaction were so much better that her parents were amazed!

Dr. Lundell: These ketones that are produced when people are on the ketogenic diet are very powerful. Like you said it's a cleaner form of fuel that goes straight into the mitochondria, the powerhouse of our cells. Comparing it to glucose burning is similar to comparing a gas fireplace to a wood-burning fireplace. Like the smoke in wood-burning, there's a lot of toxins called "free-radicals" released in glucose burning. These free radicals cause oxidation and can damage the mitochondria. And since these mitochondria are in highest concentration in the brain, **if we want to help the brain heal, it's critical that we provide a very clean fuel source like ketones.**

Blake: Another group of fascinating research is on the ability of the ketogenic lifestyle to actually help rebuild the insulation around our nerve and brain cells known as "myelin." In these studies, it was shown that when ketones get into the brain, the brain can use them as "building blocks" to restore myelin. And by rebuilding myelin people can experience incredible support for both the brain and the nervous system! We can have

multiple mechanisms or pathways, supporting our body's ability to heal. **With the ketogenic lifestyle, we can both provide a cleaner energy with less oxidation, as well as provide building blocks to help rebuild myelin so that the connections in our brain and our nerves will work better.** This can make a huge difference on many levels.

Dr. Lundell: Absolutely. You are so right. And decreasing the inflammation is so critically important – another mechanism of support as well.

Blake: And it's important to remember with the K in I AM KETO – Keen minds, it's not just for people with serious diseases, it can actually benefit all of us. The ketogenic lifestyle can also help with improved memory, better concentration and even cognition.

SIGNS THAT KETO MAY BENEFIT YOUR BRAIN

- Do you ever call your kids by the wrong name? (This is especially bad if you only have one child!)
- Do you sometimes have trouble recalling specific words? (In conversations you say, "that thing," "what's-his-name," or "that place")
- Do you go into a room to get something and forget what you were going to get?
- Do you forget what you were going to say in a conversation?
- Do you pick up the phone to call someone and say to yourself, "Who was I going to call?"
- Do you say to yourself, "I was supposed to do something today. What was it?"
- Do you want better memory, or better concentration, or better mental focus?

Dr. Lundell: Those are the early signs of when people are having mental cognition issues. And yet we just say, "Yeah, I'm getting old." Although everyone gets older, not everyone needs to have this kind of mental decline. These can be signs that you aren't giving your brain what it needs to be healthy. All of those are signs that you could be one of those that can benefit greatly from the ketogenic diet.

The ketogenic lifestyle greatly benefits so many hardcore medical conditions that people deal with, but it also helps with so much more. The ketogenic lifestyle can help with everyday mental support, including helping children to do better in school and in helping both children and adults not feel so discouraged or anxious. It helps children and adults remember more and perform better on tests or examinations.

Blake: Fantastic! In so many ways, the ketogenic lifestyle could not only benefit people individually, it could also benefit society as a whole! If we can help everybody have clearer thought, better recall, better cognition, and better thought processes, not to mention less road rage or irritability or feeling extremely sad or discouraged, our productivity as a society would increase!

How a High-Fat Diet Can Help the Brain Work Better

"The modern ...high carbohydrate, low fat diets and eating snacks between meals has coincided with an increase in obesity, diabetes, and an increase in the incidence of many mental health disorders, including depression, anxiety, and eating disorders. ...many of these disorders are striking the population at younger ages. The opposite of a low fat, snacking lifestyle would be the lifestyle our ancestors lived... the life style for which our brains are primarily [adapted.]"

* Source: Psychology Today, Emily Deans M.D., "Your Brain on Ketones," April 18, 2011

Ketones Support Your Body's Ability to Rebuild Damaged Cholesterol

"Besides being a source of energy, ketone bodies can provide substrates [building blocks] for... the synthesis of lipids [building of fats] such as cholesterol in myelin." *

* Sources:

BioMed Central Cancer Journal, "Differential utilization of ketone bodies by neurons and glioma cell lines; a rationale for the ketogenic diet," July 2011, PubMed.gov article PMC3199865

European Journal of Clinical Nutrition, Aug 2013, "Beyond weight loss; a review of the therapeutic uses of very low carbohydrate (ketogenic) diets," PubMed.gov article PMC3826507



Benefit #5: ENERGY (supports balanced blood sugar)

Dr. Lundell: On the ketogenic lifestyle, we can experience a huge increase in ENERGY. It's hard to overestimate how important this is. In society today, we often consume many more calories than our body needs, especially if we are in sugar burning mode. Yet the number one complaint in my clinic is, "Dr. Lundell, I'm tired." In my clinic, I listen to people all day long complain, "I'm tired, fat, and depressed." When people are tired, they don't want to do things. They don't want to go and exercise. Sometimes they don't want to even do things with their family because they don't feel good. They don't feel good at all.

Blake: For example, it's when the kids want to go play but you say, "Oh, I'm too tired. You go on without me." This lack of energy is why more people are turning to coffee or energy drinks that have a lot of sugar and caffeine – things that may take you out of ketosis.

Dr. Lundell: Yes, that's right because it's sustained energy. Compare this with caffeine which gives you energy and then you crash later in the afternoon. Then people have to drink it again and you can overtax your adrenal glands and even create cortisol imbalances which can lead to other problems. On the other hand, **what if you could get your body to tap into a resource that will provide twice as much energy by sending twice as much energy to the mitochondria, the powerhouses in our cells?** You CAN with the ketogenic lifestyle – when you give your body fat to use for fuel and then you consume more fat and lower your carbohydrates. It's amazing!

Blake: The medical research on the ketogenic lifestyle explains that one of the reasons that keto can help so much with energy is because of its impact on balancing blood sugar. Too often people say to themselves, "I've eaten. I've taken in calories and I should have energy, but I don't!"

Here are some of the signs:

1. Do you get sleepy after meals?
2. Do you have brain fog after a meal?
3. Do you find yourself feeling tired throughout the day?

Can these be signs that a person's biological energy mechanism is messed up and he/she needs to reset it?

Dr. Lundell: Totally. People don't realize that our bodies have 2 different energy mechanisms, much like a hybrid car can run on gasoline in the fuel tank or runs on electricity from the battery. These kinds of low energy symptoms are signs that the person is running solely on one mechanism. When the energy from that fuel source goes down, their physical and mental energy plummets.

Blake: Most people would never imagine taking their car to the gas station and fill it up with gas only to find that afterwards the car runs slower as if they cannot get out of second gear. If that happened, we would complain about it all the time. But we just take it for granted, "Oh, I had a meal. I need to take a nap." That's not the way it's supposed to be.

Keto Helps Support Blood Sugar Balance

"By reducing the amount of carbs you eat and replacing them with healthy sources of fat, you can stabilize blood sugar and enjoy steady energy and greater mental focus all day."*

* Source: Onnit Academy, Oct. 19, 2017
"The Ketogenic Diet for Weight-loss, Energy and Better Health"

"On a 24-week double blind study, 95.2% of Low Carbohydrate Ketogenic Diet participants saw results with [blood sugar support]."*

* Source: "The effect of a low-carbohydrate, ketogenic diet versus a low-glycemic index diet on glycemic control in type 2 diabetes mellitus," *Journal of Nutrition Metabolism*, Dec 2008, PubMed.gov article 19099589



This lack of energy after eating can be from something called the “glycemic rollercoaster.” When we eat, our insulin goes up. But if a person’s insulin goes up too much or too quickly, instead of using that energy in the food to fuel his/her body, the body actually will store the energy as fat. And getting sleepy after a meal is a sign that the body has shifted to storing fat.

Dr. Lundell: Exactly. That is exactly what’s happening.

Blake: And this makes it harder to lose weight. I know for me it was so frustrating to spend time and money trying to lose weight, only to realize that after every meal my body was fighting against me and storing fat. Resetting this mechanism is one of the amazing benefits of the ketogenic lifestyle.

Dr. Lundell: That’s exactly what I talk to patients about all the time. It’s not simply calories in, calories out. It’s not! It’s the influence of the food on your hormones. Are your hormones telling your body to **STORE FAT** or are they telling your body to **BURN FAT**? If you eat lots of carbs, your blood sugar goes up and then your insulin

goes up to bring the blood sugar levels down. And then when your insulin is high and your blood sugar drops, now your energy will plummet. When people consume too many carbohydrates, their insulin always stays high and their body always stays in fat storage mode.

Blake: Before the ketogenic lifestyle, I not only struggled with weight loss, I also struggled with energy. I would get very sleepy after meals. All too often I just felt so tired. But now with the ketogenic lifestyle, I have so much more energy! It feels like I almost added 2 more productive hours a day.

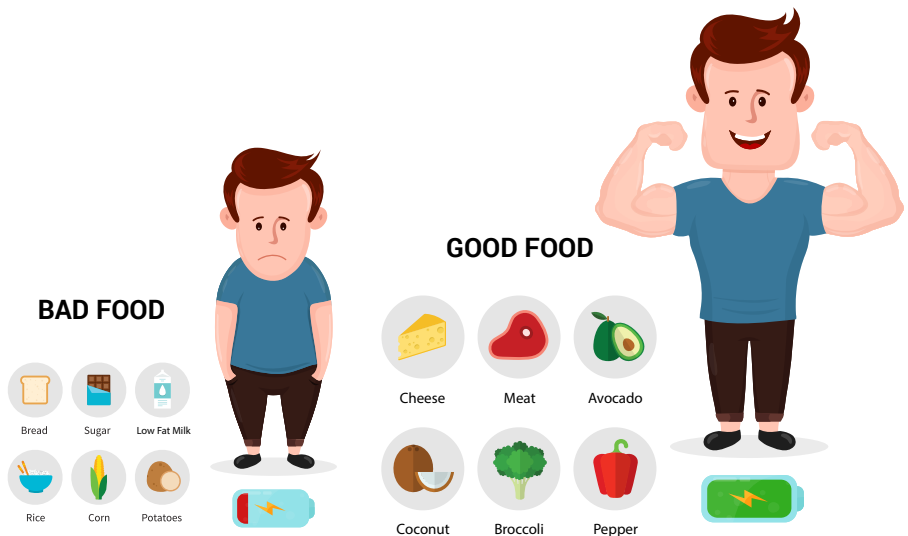
Dr. Lundell: Yes! The ketogenic lifestyle can be great for dads that are coming home after a long day at work and they want to have energy to play with their kids and do all those things like coach their baseball teams. Your body learns to tap into this amazing resource which is fat and we all have plenty of it on our body. Your body learns how to use fat and how to adapt to that and provide us energy. There’s a lot of times I’ll just go home at night and I don’t even eat at nighttime because I’m not hungry and I have perfect energy.

Blake: If you're not hungry, is it OK to skip your evening meal?

Dr. Lundell: Totally. People come back to my clinic all the time and report the same thing when I ask them how they feel on the ketogenic lifestyle. They tell me, "One of the biggest things I noticed on the ketogenic lifestyle was that after I got through my first 6 weeks – it can take about six weeks for many to get into ketosis – after 6 weeks it's like my energy levels just went up! I was sustained. I could think.

I could go through my whole day and have energy and didn't feel like I needed to take a nap." Sometimes they tell me, "Before I got on keto, I needed to have a snack all the time to keep myself going. Now I don't!" It's amazing the energy source that keto provides for people.

Blake: We've already spoken about inflammation and our adrenaline feeling worn down. Have you also had patients that just felt tired all the time?



Dr. Lundell: Yes. What I explain to them is that inside every cell you have a nucleus and a little mitochondria. The mitochondria produce energy. They are the batteries for the cell.

So if they are tired all the time, I say, “Your batteries are bad. You cannot go to the grocery store across the street and get new batteries. You’ve got to learn how to help your batteries work better. And one of the ways that you can help get better resources and energy to the mitochondria is to go on a ketogenic diet. This is because those exogenous ketones can go into the mitochondria directly and help you produce more energy.”



Ketones Can Produce More Energy

“Burning fat for fuel produces more energy than using carbs for energy.”

Dr. Lundell



KETO vs. HIGH PROTEIN DIETS

Blake: We should also mention although carbs impact insulin the most, it's not just carbs that can affect insulin. This is the difference between the ketogenic diet and the Atkins diet. Some people think the ketogenic lifestyle is like the Atkins Diet. It has some similarities but there are definitely a few distinct differences.

Keto is not high protein. In fact, if you eat too much protein, it can also affect your blood sugar. In the body, there is a process called gluconeogenesis meaning the creation of glucose from things besides carbohydrates. This is where the body will take protein and convert it into blood sugar. I notice that when I try to do the ketogenic diet that if I have too much protein there is an insulin reaction. It will get me out of ketosis.

Dr. Lundell: Yes. If you consume a lot of protein at each of your meals, then that protein may get converted to glucose. There is still some discussion about how much protein it takes to trigger this reaction, but it may be around 30 grams per meal. That's why in the ketogenic lifestyle we like protein, but **we like high fat,**

MEDIUM protein (not high protein), and low carbohydrates. This is the biggest difference between a ketogenic lifestyle and the high protein Atkins diet.

Blake: Also, it seems like Atkins didn't really differentiate between good fats and bad fats. Unfortunately, people too often were eating lots of margarine, oxidized fats, or trans-fatty acids and thinking they were being healthy. That's wrong.

Dr. Lundell: That's another very important difference between just the ketogenic diet and the Atkins diet.



KETO & ATHLETES

Blake: Dr. Muneta in Japan explains that the energy you feel with the ketogenic lifestyle is much longer lasting than energy from burning carbohydrates. When athletes are already in ketosis at the beginning of the event, they have more sustained energy, and many athletes are doing much better in their sports.

In fact, a lot of the long-distance athletes and the endurance athletes that are following the ketogenic lifestyle find that they don't hit the period of extreme fatigue that marathon runners would refer to as "the wall." This "wall" or period of low energy is the gap between when your body stops burning carbohydrates and makes the shift to fat burning (ketosis).

Dr. Lundell: The two big researchers on this benefit of the ketogenic lifestyle are Jeff Volek and Stephen Phinney. They are the ones that wrote the book I read 10-12 years ago that introduced me to the ketogenic lifestyle. They not only explain about the science behind how the ketogenic lifestyle works, they also explained that if long distance athletes can get their body to use fat as a fuel source, they will never hit the wall. This is because the body has learned to tap into its own fat resources to provide the energy to go for a long-distance run, bike, or swim.



Benefit #6: THINNING – Weight Loss (Fat Loss)

Blake: A lot of people have been brainwashed by misinformation for decades that a low-fat diet is good. They think, “If I eat fat, I gain fat.” But, the opposite is true. If we eat fat, our bodies burn fat.

Dr. Lundell: Yes. Scientists used to think that you shouldn’t consume fat because a gram of fat has twice as many calories as a gram of carbohydrate does. But we now know that weight loss is more about hormones than just calories. It’s not calories in, calories out. The key is whether your hormones – especially when your insulin is high – are telling your body to store fat, or are they telling your body to burn fat. The great thing about eating fat, is that your insulin doesn’t increase, and your body can stay in fat burning mode.

In fact, the ketogenic lifestyle definitely helps with shrinking your waistline because it uses fat for the very reason it was put there – to release more energy. Fat is stored because you already consumed carbs for such a long time that your insulin said, “Man, this guy must be

storing up for the wintertime.” And unfortunately, your body stored fat in all the places you don’t want to see it. The number one complaint in my office is being tired, but the number two complaint is, “I can’t lose weight.” I explain to my patients, “Instead of storing energy and gaining weight, if you do the ketogenic lifestyle your body reverses its system and you can burn fat to release energy.”

I also joke that with keto your liver says, “Hey, I’m going to grab some of that fat off your butt and we’re going to turn it into energy!” And my patients usually respond with, “Let’s take some fat off my waist and hips too!”

Blake: So, if you eat fat, you burn fat. Can it be that simple?

Dr. Lundell: Correct. It’s that simple.

Blake: There’s a lot of research in the medical journals that repeatedly shows that the ketogenic lifestyle is the most effective eating plan for losing weight. Some studies do direct comparisons between the ketogenic lifestyle versus head-on the low-fat

diet. In one of the studies the results were losing 4.2 pounds on a low-fat diet versus losing 12.8 pounds on the ketogenic diet. Same amount of time but over three times the weight loss. And even with overweight adolescent children, they only lost 9 pounds with a low-fat diet versus 21.8 pounds with keto. That's more than twice the results!

And another benefit is the myriad of great food choices with keto – for example, you can eat bacon! Hopefully nitrate, nitrite free bacon



The Ketogenic Diet Is More Effective for Fat-Loss

In one study, participants on the ketogenic diet lost an average of 12.8 lbs. vs 4.2 lbs. for those on a low-fat diet.*

* Source: *New England Journal of Medicine*, May 2003, "A Low-Carbohydrate as Compared with a Low-Fat Diet"

More Effective with Children Too

In a study on overweight adolescents, children lost an average of 21.8 lbs. on the ketogenic diet compared to 9 lbs. on a low-fat diet.*

* Source: *Journal of Pediatrics*, 2003, "Effects of a low-carbo- hydrate diet on weight loss and cardio-vascular risk factor in overweight adolescents," PubMed.gov article PMC2892194

that doesn't have all the chemicals in it. But being able to eat bacon and lose weight is great for all those who love bacon! Of course, eating bacon isn't an absolute requirement. I have a vegetarian friend who has lost over 50 lbs. on the ketogenic lifestyle.

Dr. Lundell: Exactly. You can lose weight on a low-fat diet. But you can lose MORE weight with the low-carb, ketogenic lifestyle.

And we should note that throughout history, our ancestors actually followed more of the ketogenic lifestyle. There were actually very few times that they went on a low-fat diet and could consume just fruits and vegetables all year long. It didn't happen. Not only is the ketogenic lifestyle more effective, it actually is more in line with our physiology chemistry, or in other words, the way our bodies are built.



Benefit #7: OVULATION or MALE & FEMALE HORMONES

Dr. Lundell: Another fantastic benefit of the ketogenic lifestyle is its hormone support. In the acronym I. A.M. K.E.T.O. the “O” stands for ovulation, but keto actually supports both male and female hormones, including testosterone, estrogen, and progesterone. ALL of these hormones are made from cholesterol – including LDL cholesterol. Scientists used to think that LDL cholesterol was “bad cholesterol” but we know better today.

Blake: We now know that we’ve actually been misled for decades to avoid cholesterol and instead take statin drugs. The effects of this deception are still being felt.

Dr. Lundell: Exactly! In fact, all of these hormones come from LDL cholesterol. In the medical profession we were taught that LDL was bad cholesterol, and you need to take statin drugs which actually poison your liver in order to bring your LDL cholesterol down.

Now we know that this is absolutely wrong. Your liver doesn’t make “bad” cholesterol. LDL cholesterol is NOT bad. So it’s critical that you don’t

let a doctor who is ignorant of the science tell you that you need to be on a statin drug! If you take a statin drug, then among all the other side effects – including causing diabetes and Parkinson’s and dementia – statin drugs also impact all of these hormones.

This happens because it is actually LDL cholesterol that becomes a master hormone called “pregnenolone.” Pregnenolone is the master hormone that becomes testosterone, progesterone, estrogen, androgens, DHEA, and cortisol.

Blake: I have some friends that are bodybuilders, one of which at the age of 53, as a grandfather, actually became a national champion in the natural bodybuilding world with no use of steroids.

He explained that bodybuilders used to focus on a low-fat diet because they thought, “I want to make sure I slim down so you can see all of this muscle.” But currently, bodybuilders have shifted to the ketogenic lifestyle. They’re not only getting better results with how they look

in their competitions, but they also are getting better memory, clearer thinking, and all of the other benefits that come with getting more good cholesterol in our body, including better hormone levels.

Dr. Lundell: This is because you need the fat & cholesterol to make testosterone. Testosterone is ultimately what is going to help build muscle.

Blake: You called pregnenolone a master hormone. If somebody is trying to fight infertility this is a big deal.

Dr. Lundell: Yes. Absolutely. I've had experience with this personally in my family and also with my patients. One of the more common complaints I deal with in my clinic is people who can't get pregnant. This is often due to a problem with having too much insulin.

When insulin goes up it stimulates the pathways to make more testosterone and DHEA and to stop ovulation. When you don't ovulate, you don't get pregnant and you don't make progesterone, the other hormone that helps with pregnancy.

Blake: One of the studies on the ketogenic diet and hormonal support in women showed incredible results with everybody that was in the clinical trial.

The research in medical journals on this absolutely blew me away. This study not only showed results with the ketogenic lifestyle and hormonal support for all 5 women in the study, but 2 of them became pregnant during the study. If someone is trying to have kids, balancing the hormones can be a big help for both men and women.



Effects of a Low-Carbohydrate, Ketogenic Diet on Polycystic Ovarian Syndrome

BACKGROUND

"Polycystic ovary syndrome (PCOS) is the most common endocrine disorder affecting women of reproductive age and is associated with obesity, hyperinsulinemia, and insulin resistance. Because low carbohydrate diets have been shown to reduce insulin resistance, this study investigated the six-month metabolic and endocrine effects of a low-carbohydrate, ketogenic diet on overweight and obese women with PCOS...

RESULTS

...Eleven women with a BMI <27 and diagnosed with PCOS limited their carbohydrate intake to 20 grams or less per day for 24 weeks. In the 5 women who completed the study, there were significant reductions in body weight (-12%), percent free testosterone (-22%), LH/FSH ratio (-36%), and fasting insulin (-54%)...

...TWO WOMEN BECAME PREGNANT DESPITE PREVIOUS INFERTILITY PROBLEMS."

* Source: *Nutr Metab* (Lond). 2005; 2: 35. Published online 2005 Dec 16. doi: 10.1186/1743-7075-2-35
PMCID: PMC1334192

Ketogenic Diet Supports Healthy Hormones

The ketogenic diet is amazing in its wide-range support of healthy hormone levels including:

- Male & Female hormones
- Adrenaline, cortisol & more.*

* Sources:

Journal of Physiology and Pharmacology, June 1996, "Effects of low-carbohydrate-ketogenic diet on metabolic and hormonal responses" Pubmed.gov article 8807663

Journal of Strength & Conditioning Research, April 2017, "Effects of Ketogenic Diet on Body Composition, Strength, Power and Hormonal Profiles," PubMed.gov article 28399015

Journal of Nutrition & Metabolism, Dec 2005, PubMed.gov article 16359551

Benefit #8: IMPROVED DIGESTION & IMMUNE SUPPORT

Blake: Although it's not in the acronym I. A.M. K.E.T.O., we should talk about how the ketogenic lifestyle can improve digestion and help the immune system. And improving digestion is a huge help for supporting healthy hormones.

Dr. Lundell: Absolutely! We have heard of autoimmune conditions, where the immune system attacks the body. And where is the majority of the immune system located? In your gut. How do you get the gut better? You change the way you eat. How do you decrease inflammation the very most? You get on the ketogenic lifestyle! Keto also improves gut health.

I do stool testing on patients and we check something called butyrate. That's something that feeds good bacteria and keeps them healthy and keeps the gut super healthy. When you go on a ketogenic diet you start to produce something called beta hydroxy butyrate, which is actually a ketone. It can take the place of butyrate in the gut to help the gut repair and be healthy.

Those are all very powerful for controlling blood sugars, and for hormonal support – keeping menstrual cycles regular, and giving women the opportunity to get pregnant.

Blake: In the *Frontiers in Microbiology Journal* there is research about the ketogenic lifestyle helping to reduce bad bacteria in the digestive tract. In fact, the ketogenic diet actually helps the body to reset the good flora or the good bacteria in the digestive track.

Dr. Lundell: Yes, digestion really is a critical piece. And it's related to our first benefit – inflammation. If your gut health is not good you're going to have more inflammation. The gut is going to be the primary source of inflammation flowing into the body. What's the number one inflammatory food you put in your mouth? **SUGAR and CARBS!**

The simple sugars and carbohydrates are the ones that definitely create the most inflammation. So the benefits of the ketogenic lifestyle are very inter-related. It can help us with better

digestion, and less inflammation. Keto works better because your appetite is controlled. You don't feel hungry all the time.

Blake: And there's so much more! Do you want a keener mind? Do you want to be able to think clearer? If you are unable to recall words and instead say, "that thing," or if you say, "I was going to do something today, but I can't remember what it was," these are all signs you could benefit from some help with mental clarity.

If you want to have more energy in the morning, more energy after lunch, more energy at night, then keto could be right for you. Keto is fantastic if you want to lose weight or fat. I think it's probably one of the best ways because it seems like when you've lost weight with the ketogenic lifestyle, it doesn't come back as readily.

A lot of times with calorie restriction or a low-fat diet, too many people yo-yo, losing 20 pounds only to gain back 30. And fortunately, this doesn't happen as much with keto.

If you're looking for any of those benefits or you know somebody that's looking for those benefits find out more about the ketogenic diet by all means. Find out more about the ketogenic lifestyle and see if it can help you and the people you care about and even society as a whole get healthier.

When I think about some of the problems in society – and not just medical costs – but road rage, domestic violence, or even tragic shootings, many of these happen when people are in bad moods. When people feel bad, it's easier to be in a bad mood. Health isn't a just a personal problem, it's a societal problem. For the sake of our society, it's important for us to try and make a difference.

Dr. Lundell: Literally. Today I had a full-day clinic and I listened to people tell me all day long, "I'm tired. I can't lose weight and I'm depressed." Those are the three most common complaints I've heard in my clinic for years now.

We just talked about a food plan that could fix all three of those if you actually do it and you stick with it. If you could just change the way you eat and really improve all of those things, isn't that worth it? That's the ketogenic lifestyle.

WE EDUCATE, THEY DECIDE.

Blake: I like to think of it as keto hope. We are here to try to offer hope and use the ketogenic lifestyle to make a difference in the world. To all those reading this interview, please help us share the message with others. Don't worry about convincing them. Let the research, the doctors, the experts, and the tools help educate them. True education helps create a mind shift. The information on the benefits of good fats in our diet, of the ketogenic lifestyle, are too amazing to go unshared. Please help us share this information, and together we can make an impact on the health of the people we care about and the health of society as a whole.

Digestive Health

"The ketogenic diet is low in carbohydrates which helps reduce bad bacteria in the digestive tract."*

* Source: *Frontiers in Microbiology Journal*, Jun 2017, "reduced Mass and Diversity of the Colonic Microbiome ... and their improvement with Ketogenic Diet"



Making Keto Easier and More Effective

Blake: Dr. Lundell, you mentioned that it can take even as long as six weeks for people to get into ketosis. With all the advances in keto research, are there ways that people can get into ketosis even faster? And with these “keto hacks” can people get better results, like more of a “keto made easy” system?

Dr. Lundell: Absolutely! And some of these methods and even products are things I use regularly in my clinics.

Blake: It can be well worth the time and effort to learn more about how

to make the ketogenic lifestyle easier and more effective for you. These may include:

- Easy to make keto foods/shakes
- Exogenous ketones
- Low carb natural energy products
- Ketogenic recipes
- Keto support groups/networks
- Digestion and nutritional support products

Dr. Lundell, thank you so much for taking the time to help educate us on the many benefits of the ketogenic lifestyle!



References

1. CDC/NCHS, Health, United States, Figure 7. Data from the National Health and Nutrition Examination Survey.
2. Deans, E. (Published April 18,2011) Your Brain on Ketones Retrieved from <https://www.psychologytoday.com/us/blog/evolutionary-psychiatry/201104/your-brain-ketones>
3. Dupuis, N., Curatolo, N., Benoist, J.-F., & Auvin, S. (2015). Ketogenic diet exhibits anti-inflammatory properties. *Epilepsia*, 56(7), e95-8. <https://doi.org/10.1111/epi.13038>
4. French, J. A., Koepff, M., Naegelin, Y., Vigeveno, F., Auvin, S., Rho, J. M., ... Dichter, M. A. (2017). Clinical studies and anti-inflammatory mechanisms of treatments. *Epilepsia*, 58(Suppl 3), 69–82. <http://doi.org/10.1111/epi.13779>
5. Gibson, A. A., Seimon, R. V., Lee, C. M., Ayre, J., Franklin, J., Markovic, T. P., Caterson, I. D. and Sainsbury, A. (2015). Do ketogenic diets really suppress appetite?. *Obes Rev*, 16: 64-76. <doi:10.1111/obr.12230>
6. Hu, F. (Published: June 2014, Updated: August 13, 2017) Foods that fight inflammation. Retrieved from: <https://www.health.harvard.edu/staying-healthy/foods-that-fight-inflammation>
7. Hughes, T. M., Rosano, C., Evans, R. W., & Kuller, L. H. (2013). Brain Cholesterol Metabolism, Oxysterols, and Dementia. *Journal of Alzheimer's Disease : JAD*, 33(4), 891–911. <http://doi.org/10.3233/JAD-2012-121585>
8. Johnstone, A. M., Horgan, G. W., Murison, S. D., Bremner, D. M., & Lobley, G. E. (2008). Effects of a high-protein ketogenic diet on hunger, appetite, and weight loss in obese men feeding ad libitum. *The American Journal of Clinical Nutrition*, 87(1), 44–55. <http://doi.org/10.1093/ajcn/87.1.44>
9. Ketogenic diet and mental health (n.d.) Retrieved from <https://www.diabetes.co.uk/keto/ketogenic-diet-and-mental-health.html>
10. Krebs, N. F., Gao, D., Gralla, J., Collins, J. S., & Johnson, S. L. (2010). Efficacy and Safety of a High Protein, Low Carbohydrate Diet for Weight Loss in Severely Obese Adolescents. *The Journal of Pediatrics*, 157(2), 252–258. <http://doi.org/10.1016/j.jpeds.2010.02.010>
11. Langfort, J., Piliś, W., Zarzeczny, R., Nazar, K., & Kaciuba-Uściłko, H. (1996). Effect of low-carbohydrate-ketogenic diet on metabolic and hormonal responses to graded exercise in men. *Journal of Physiology and Pharmacology: An Official Journal of the Polish Physiological Society*, 47(2), 361–371.
12. Maurer, G. D., Brucker, D. P., Bähr, O., Harter, P. N., Hattingen, E., Walenta, S., ... Rieger, J. (2011). Differential utilization of ketone bodies by neurons and glioma cell lines: a rationale for ketogenic diet as experimental glioma therapy. *BMC Cancer*, 11, 315. <http://doi.org/10.1186/1471-2407-11-315>
13. Mavropoulos, J. C., Yancy, W. S., Hepburn, J., & Westman, E. C. (2005). The effects of a low-carbohydrate, ketogenic diet on the polycystic ovary syndrome: a pilot study. *Nutrition & Metabolism*, 2, 35. <https://doi.org/10.1186/1743-7075-2-35>
14. McClernon, F. J., Yancy, W. S. J., Eberstein, J. A., Atkins, R. C., & Westman, E. C. (2007). The effects of a low-carbohydrate ketogenic diet and a low-fat diet on mood, hunger, and other self-reported symptoms. *Obesity (Silver Spring, Md.)*, 15(1), 182–187. <http://doi.org/10.1038/oby.2007.516>
15. Nordqvist, C. (Published November 24, 2017) Everything you need to know about inflammation. Retrieved from: <https://www.medicalnewstoday.com/articles/248423.php>
16. Onnit Academy (Published Oct. 19, 2017) The Ketogenic Diet for Weight-loss, Energy and Better Health Retrieved from <https://www.onnit.com/academy/the-ketogenic-diet-for-weight-loss-energy-and-better-health/>
17. Paoli, A., Rubini, A., Volek, J. S., & Grimaldi, K. A. (2013). Beyond weight loss: a review of the therapeutic uses of very-low-carbohydrate (ketogenic) diets. *European Journal of Clinical Nutrition*, 67(8), 789–796. <http://doi.org/10.1038/ejcn.2013.116>
18. Samaha, F. F., Iqbal, N., Seshadri, P., Chicano, K. L., Daily, D. A., McGrory, J., ... Stern, L. (2003). A low-carbohydrate as compared with a low-fat diet in severe obesity. *The New England Journal of Medicine*, 348(21), 2074–2081. <https://doi.org/10.1056/NEJMoa022637>
19. Sinatra, S., & Bowden, J. (2012). *The Great Cholesterol Myth*. First Edition. Vancouver: Fair Winds Press
20. Stubbs, B. J., Cox, P. J., Evans, R. D., Cyranka, M., Clarke, K., & de Wet, H. (2018). A Ketone Ester Drink Lowers Human Ghrelin and Appetite. *Obesity (Silver Spring, Md.)*, 26(2), 269–273. <http://doi.org/10.1002/oby.22051>
21. Suarez, E. (Published May 24, 1999, Updated January 20, 2016) Women with Low Cholesterol may be at Risk for Depression and Anxiety. Retrieved from: <https://corporate.dukehealth.org/news-listing/women-low-cholesterol-may-be-risk-depression-and-anxiety>
22. Suarez, I., Bodega, G., & Fernandez, B. (2002). Glutamine synthetase in brain: effect of ammonia. *Neurochemistry International*, 41(2–3), 123–142. <https://www.ncbi.nlm.nih.gov/pubmed/?term=12020613>
23. Swidsinski, A., Dörffel, Y., Loening-Baucke, V., Gille, C., Göktas, Ö., Reißhauer, A., ... Bock, M. (2017). Reduced Mass and Diversity of the Colonic Microbiome in Patients with Multiple Sclerosis and Their Improvement with Ketogenic Diet. *Frontiers in Microbiology*, 8, 1141. <http://doi.org/10.3389/fmicb.2017.01141>
24. Volek, J., & Phinney, S. (2011). *The Art and Science of Low Carbohydrate Living: An Expert Guide to Making the Life-Saving Benefits of Carbohydrate Restriction Sustainable and Enjoyable*. Beyond Obesity LLC; 1st edition
25. Volek, J. S., Fernandez, M. L., Feinman, R. D., & Phinney, S. D. (2008). Dietary carbohydrate restriction induces a unique metabolic state positively affecting atherogenic dyslipidemia, fatty acid partitioning, and metabolic syndrome. *Progress in Lipid Research*, 47(5), 307–318. <https://doi.org/10.1016/j.plipres.2008.02.003>
26. Walsh, B. (June 23, 2014). *Eat Butter*. Time, 183, p. 31.
27. Westman, E. C., Yancy, W. S. J., Mavropoulos, J. C., Marquart, M., & McDuffie, J. R. (2008). The effect of a low-carbohydrate, ketogenic diet versus a low-glycemic index diet on glycemic control in type 2 diabetes mellitus. *Nutrition & Metabolism*, 5, 36. <https://doi.org/10.1186/1743-7075-5-36>
28. Wilson, J. M., Lowery, R. P., Roberts, M. D., Sharp, M. H., Joy, J. M., Shields, K. A., ... D'Agostino, D. (2017). The Effects of Ketogenic Dieting on Body Composition, Strength, Power, and Hormonal Profiles in Resistance Training Males. *Journal of Strength and Conditioning Research*. <https://doi.org/10.1519/JSC.0000000000001935>
29. Yudkoff, M., Daikhin, Y., Horyn, O., Nissim, I., & Nissim, I. (2008). Ketosis and Brain Handling of Glutamate, Glutamine and GABA. *Epilepsia*, 49(Suppl 8), 73–75. <http://doi.org/10.1111/j.1528-1167.2008.01841.x>
30. Zhang, J., & Liu, Q. (2015). Cholesterol metabolism and homeostasis in the brain. *Protein & Cell*, 6(4), 254–264. <http://doi.org/10.1007/s13238-014-0131-3>



Dr. Randy Lundell

“The three most common complaints I’ve heard in my clinic for years are, “I’m tired. I can’t lose weight and I’m depressed.” What if you could just change the way you eat and really improve all of those things? Wouldn’t that be worth it? That’s what we call the ketogenic lifestyle.”



Best known for his focus on WHOLE-istic medicine, Dr. Lundell seeks to identify what’s going wrong inside the body to get rid of both the symptoms and the medications. He believes in addressing diet, lifestyle, and nutrition to transform health. Dr. Lundell specializes in teaching people about the many benefits of the ketogenic lifestyle.

- Military Doctor Who Served in Iraq
- Board Certified in Family Medicine
- Doctor of Osteopathic Medicine (D.O.)
- Fellowship in Functional and Anti-Aging Medicine
- Functional Medicine Certification Program from the Institute of Functional Medicine
- 12 years of following the Ketogenic Lifestyle personally and recommending it to his patients
- Paid endorser for the BulaFIT ketogenic program



Blake Graham

Natural Health Journalist

"My goal with this interview is to educate you on what the ketogenic lifestyle is. Only then can you make a decision on the question, "Is keto right for me or someone I love?"

Blake began his life long journey as a natural health journalist and educator in 1992 as a pre-med student in college. It was there that he discovered life-changing information on natural health and nutrition in overwhelming amounts in medical journals that wasn't being taught in medical schools.

Over the past more than 26 years, Blake has had the opportunity to help create audio recordings, booklets, and magazine, TV, and radio interviews, and more with a wide variety of scientists, doctors from multiple disciplines, and pharmacists. As a health journalist, he is also an advocate and distributor for companies with nutritional products that help make a difference.