



THE LOW DOWN ON
**LOW
CARB**



*Get the science-based information to know
how & when a low carb diet is right for you*

CHRIS KRESSER

eBook

Get the Low Down on Low Carb

Carbohydrates, and the role they play in a healthy diet, are one of the most [hotly contested](#) nutritional debates in the world, both in conventional and ancestral health circles.

On one side, you've got folks who say that carbohydrates are nonessential and increase your risk for diseases such as diabetes, cancer, and neurological disorders. On the other side, some say that carbohydrates are crucial for good health and should make up the majority of your calories.

It's no wonder I have so many clients who come to me completely confused about carbs and whether or not they should eat more or less of them.

My hope is that after reading this eBook, you'll be able to understand the many factors that play into how a person handles a low carbohydrate diet, and whether or not their health will improve on such a plan. Everyone is different in their ability to thrive on a low carbohydrate diet.

This eBook is a compilation of several articles written by myself and my two staff nutritionists, Registered Dietitians Laura Schoenfeld and Kelsey Marksteiner.

7 Things Everyone Should Know About Low Carb Diets

By Chris Kresser, L.Ac

For reasons I don't fully understand, some people identify so strongly with how many carbohydrates they eat that they take offense when a suggestion is made that low carb diets may not be appropriate for everyone, in all circumstances.

In these circles low carb diets have become dogma (i.e. a principle or set of principles laid down by an authority as incontrovertibly true). Followers of this strange religious sect insist that everyone should be on low carb or even ketogenic diets; that all carbohydrates, regardless of their source, are “toxic”; that most traditional hunter-gatherer (e.g. Paleolithic) societies followed a low carb diet; and, similarly, that nutritional ketosis—which is only achievable with a very high-fat, low carb, and low-protein diet—is our default and optimal physiological state.

On the other hand, I've also observed somewhat of a backlash against low carb diets occurring in the blogosphere of late. While I agree with many of the potential issues that have been raised about low carb diets, and think it's important to discuss them, I also feel it's important not to lose sight of the fact that low carb diets can be very effective therapeutic tools for certain conditions and in certain situations.

With this in mind, here are 7 things I think everyone should know about low carb diets.

#1: PALEO DOES NOT EQUAL LOW CARB, AND VERY LOW CARB/KETOGENIC DIETS ARE NOT OUR “DEFAULT” NUTRITIONAL STATE, AS SOME HAVE CLAIMED.

Some low carb advocates have claimed that most traditional hunter-gatherer societies consumed diets that were very low in carbohydrates. I've even seen some suggestions that nutritional ketosis was “the norm” for these cultures.

These claims are false. The majority of studies have shown that traditional hunter-gatherer (HG) societies typically consume between 30–40% of their total calories from carbohydrate, though the range can vary between 3–50% depending on the population studied and the latitude at which they live. (2, 3) The only HG societies observed to eat fewer than 20% of calories as carbohydrate were those living at latitudes quite distant

from the equator, often in marginalized environments where fruits, vegetables, starches, and honey were not readily available.

Yet even these cultures—such as the traditional Inuit—often made an effort to obtain carbohydrates from berries, corms, nuts, seaweed, and tubers whenever they could, as Richard Nikoley has [recently detailed on his blog](#). What’s more, contrary to popular claims, studies have shown that it’s unlikely the Inuit spent much time—if any—in nutritional ketosis. Their high protein intake would have prevented ketosis from occurring. (5)

So, while ancestral diets were certainly lower in carbohydrate than the [diet currently recommended by the USDA](#) (45–65% of calories), they were not typically “very low” in carbohydrate (<15% of calories). With virtually no historical examples of human beings following ketogenic diets for any significant length of time, and few examples of very low carb diets, it’s difficult to imagine how these diets could be considered our “default” nutritional state or the optimal approach for most people.

#2: LOW CARB DIETS ARE INCREDIBLY EFFECTIVE IN CERTAIN SITUATIONS

Lest low carb advocates think that I am anti-low carb, I’d like to reiterate that both the research and my clinical experience suggest that low carb diets can be incredibly effective therapeutic tools for certain conditions.

These conditions include (but aren’t limited to):

- Overweight and obesity
- High blood sugar, metabolic syndrome, diabetes (both type 1 & type 2)
- Traumatic brain injury
- Epilepsy
- Parkinson’s disease
- Alzheimer’s disease
- Other neurological conditions
- PCOS

I have personally witnessed some remarkable transformations using ketogenic diets therapeutically in my practice. I recall an 84 year-old woman who came to see me complaining of dementia and early-onset Alzheimer’s. She was losing her memory and cognitive abilities at an alarming rate. After just two weeks on a ketogenic diet, this

progression not only halted, it reversed: her memory returned, her mind was sharper, and she was far less confused and disoriented. Her family (and her doctor) were stunned, and could hardly believe the changes they were seeing.

Yet as impressive as very low carb (VLC) and ketogenic diets can be in certain situations, that does not mean that these diets may not have some undesirable side effects over the long term—some of which we’re only beginning to understand. For example, as I discussed with Jeff Leach from the American Gut project in a recent podcast, some preliminary research suggests that long-term ketogenic/VLC diets may cause adverse changes to the gut microbiota. (6)

In addition, a new paper soon to be published in the journal *Cell* by two Stanford microbiologists indicates that diets low in “microbiota-accessible carbohydrates (MACs)” contribute to modern, inflammatory disease. (7)

The phrase “microbiota-accessible carbohydrates” refers to the various fibers found in fruits, vegetables, starchy plants, nuts, seeds, legumes, and other foods that are poorly absorbed by us, but can be utilized as a food source by our intestinal bacteria. It’s worth noting that many of these fibers are found in foods with moderate to high carbohydrate content—foods that would typically be excluded on very low carb diets.

It’s important to note, however, that the beneficial bacteria-starving effects of ketogenic/VLC diets can be at least partially offset by consuming non-digestible, fermentable fibers like [resistant starch](#) and non-starch polysaccharides that don’t count toward daily carbohydrate intake. This is something I recommend to all of my patients following low carb diets)

#3: THE FACT THAT KETOGENIC/VLC DIETS WORK THERAPEUTICALLY FOR CERTAIN CONDITIONS DOES NOT MAKE THEM APPROPRIATE IN ALL CIRCUMSTANCES, FOR ALL PEOPLE

This assumption is a basic failure of logic, but it's remarkable to see how often it happens. A person has a life-changing experience with a VLC diet, so they assume that their friend will have a similar experience. Or a clinician that works primarily with people suffering from neurological conditions has great success with ketogenic diets, and then makes the assumption that all people (regardless of their health complaints) will benefit from them.

This is akin to saying that since people with hemochromatosis (a genetic condition that causes iron overload) need to limit their iron intake, everyone should consume foods that are low in iron.

The belief that “everyone” will benefit from one particular dietary approach—no matter what it is—ignores the important differences that determine what is optimal for each person. These include variations in genes, gene expression, the microbiome, health status, activity levels, geography (e.g. latitude and climate), and more.

When it comes to diet, there is no one-size-fits-all approach.

#4: SOME PEOPLE DO BETTER WITH LOW CARB DIETS THAN OTHERS

If you understand #3 above, then this should not come as a surprise.

Some people may thrive on a long-term, low carb diet. I have patients and even a family member in this category. And maybe you're one of them too. But that doesn't mean everyone will have this experience. If you talk to practicing clinicians who work with patients on a daily basis, or spend any amount of time in internet forums or the comments sections of nutrition blogs, you'll find numerous reports from people who either experienced no benefit from or were even harmed by following a low carb diet.

What blows my mind is that the “low carb zealots” seem completely incapable of accepting these reports at face value. Instead, they'll argue that anyone who doesn't succeed with low carb is either doing it wrong, cheating, or somehow imagining their symptoms.

What's the more likely explanation here? That everyone who gets worse with a low carb diet is either incapable of following directions, weak-willed, or delusional? Or that a low carb diet simply does not work for everyone? You be the judge.

#5: IF A LOW CARB DIET WORKS AS A THERAPY IN A GIVEN CONDITION, THAT DOESN'T MEAN TOO MANY CARBS CAUSED THAT CONDITION IN THE FIRST PLACE

This is another error of logic that is often made. Here's an example:

"A low carb diet is effective for treating type 2 diabetes. Therefore, eating too many carbohydrates led to this condition in the first place."

This is like saying:

- Restricting iron is helpful in hemochromatosis patients. Therefore, consuming too much iron is what caused hemochromatosis in the first place.
- A low-FODMAP diet helps patients with Irritable Bowel Syndrome (IBS). Therefore, eating FODMAPs caused IBS in the first place.
- A low-histamine diet alleviates the symptoms of histamine intolerance. Therefore, histamine intolerance is caused by eating too many histamine containing foods.
- Or, more ridiculously, since wearing a cast on your arm will help the broken bone heal, the reason you broke your arm in the first place is because you weren't wearing a cast.

It's true that VLC/ketogenic diets are effective for improving the metabolic markers associated with type 2 diabetes. But that doesn't mean that eating too many carbohydrates led to the condition in the first place. It is certainly possible (and indeed likely) that eating too many refined and processed carbohydrates, in the form of flour and sugar, contributes to diabetes.

But I have not seen a single study suggesting that eating whole-food carbohydrates (e.g. fruit or starchy plants) leads to diabetes or other metabolic problems. On the contrary, reviews of prospective studies looking at the relationship between fruit intake and diabetes have found that those with the highest intake of fruit had the lowest incidence of diabetes. ([8](#), [9](#))

It is also worth pointing out that virtually all studies performed so far showing benefits of the Paleo diet in conditions like type 2 diabetes and obesity have used moderate carbohydrate (not low or very-low carb) versions of the Paleo diet.

#6: IF A LOW CARB DIET IS AN EFFECTIVE THERAPY FOR A CONDITION, THAT DOESN'T MEAN IT'S THE ONLY THERAPY FOR THAT CONDITION

There's little doubt, as I said above in #2, that low carb diets can be remarkably effective in certain situations. For example, there are numerous studies showing that low carb and ketogenic diets can help with weight loss and metabolic problems. (10)

However, that doesn't mean it's not possible to lose weight and reset your metabolism through other means. Studies have also shown that calorie-restricted diets, protein-sparing modified fasts, and even low-fat diets can also be effective treatments. (11, 12, 13)

This means that it's not necessarily true, for example, that everyone with type 2 diabetes should be on a low carb diet. They may be able to reverse their condition by following a high-protein, moderate-carbohydrate, moderate-fat diet (such as the Paleo diet with [32% of calories from carbohydrate in this study](#)), or any of the methods I just mentioned.

#7: WHOLE-FOOD CARBOHYDRATES DO NOT AFFECT THE BODY IN THE SAME WAY AS PROCESSED AND REFINED CARBOHYDRATES

This should be obvious to anyone with a basic understanding of nutrition and human physiology, so I'm amazed at how often I see experts talk about all carbohydrates as if they're the same.

In #1 above, I referenced studies indicating that most hunter-gatherer societies consumed about 30–40% of calories from carbohydrate. These carbohydrates came from starchy tubers and plants, whole fruit, and in some cases, honey. We also have evidence of specific ancestral populations—such as the Kitava, traditional Okinawans, and Tukisenta—that consumed between 70–95% of calories from whole-food carbohydrate. (14)

Yet despite this liberal consumption of carbohydrates, these people were remarkably lean, fit, and free of chronic, inflammatory diseases like diabetes, cardiovascular disease, and neurological conditions. (15) If carbohydrates cause these conditions, regardless of their source, why don't we see such conditions in these groups?

What we do see is that these cultures acquire modern disease when they adopt a modern diet and lifestyle, complete with the highly processed and refined foods that characterize it.

When it comes to macronutrients, quality is much more important than quantity for most people.

Is a Low Carb Diet Ruining Your Health?

By Laura Schoenfeld, MPH, RD

While some people do incredibly well following a low carb Paleo diet, there are many people who crash and burn on this type of dietary plan. So, how can you tell if you're the type of person who shouldn't be eating a low carb diet, and how do you figure out how many carbs you should be eating? I plan to teach you just that in this section of the eBook.

PREGNANCY

I recently discussed the role of carbohydrates during pregnancy in [an episode of The Ancestral RDs Podcast](#). The most important reason why women need adequate carbohydrates during pregnancy is to ensure adequate fetal brain development and growth. Another reason is because a high protein diet can be dangerous during pregnancy, and when you cut out carbohydrate as a major macronutrient, you usually can't help but increase protein as a percentage of calories. Protein intake greater than [25% of calories](#) during pregnancy may lead to decreased mass at birth and increased perinatal morbidity and mortality for the baby.

The Institute of Medicine recommends a minimum of 175 grams of carbohydrates per day during pregnancy, which is 29% of calories on a 2400 calorie diet. [Paul Jaminet](#) advises pregnant mothers to restrict protein to about 15% of calories and to obtain 30% of calories as carbohydrates. Chris recommends a moderate carb approach for most pregnant women (except those with any type of diabetes) in his book, [The Paleo Cure](#).

Like these other experts, I generally recommend 30% of calories from carbohydrates for my pregnant clients, and also for those who are [struggling with fertility](#). Unless you have diabetes or a serious neurological condition that requires carbohydrate restriction, it's not worth the risk playing around with a low carb diet when you're pregnant, and these diets aren't conducive to fertility for many women either. (If you're interested in more reasons why carbohydrates can affect fertility, [read this great post](#) by Stefani Ruper.)

ATHLETES

If you're a professional or recreational athlete who trains hard 4, 5, or even 6 days per week (I hope you're [not doing 7 days per week!](#)) and trying to maintain this level of activity on a low carb diet, you may be doing more harm than good to your health and fitness.

While there are [athletes who thrive](#) on a well-planned low carb approach ([LeBron James](#) most recently!), there are many others who do not. Each athlete is completely unique in their ability to perform well on a low carb diet, and there's nothing wrong with testing out the diet to see how it affects your athletic ability.

But if you've been trying a low carb diet for months now and your workouts are suffering, your weight isn't budging (or maybe you've even gained weight!), and your recovery time is increasing, you're probably not the type of person who can handle a low carb diet combined with regular intense physical activity.

I've had many clients come to me on a low carb diet who, after switching to a more moderate carb approach, found that their energy and endurance significantly increased, and they were able to make quicker strength gains than before. Many also were able to shed some of the stubborn body fat that they'd been retaining despite eating a low carb diet and training hard, which was a result they didn't expect!

For my athletic clients, I usually recommend a *minimum* of 20% of calories from carbohydrate, and depending on the person's health goals, training schedule, and current issues, I may actually recommend more like 40-50% of calories from carbs.

Again, each athlete is an individual and what works for one person, or even a thousand people, may not work for you. So don't be afraid to experiment and pay attention to how your diet makes you look, feel, and perform! And don't hesitate to [get help](#) if you need it!

HYPOTHYROIDISM AND HPA AXIS DYSREGULATION (ADRENAL FATIGUE)

Hypothyroidism is one of the most commonly cited medical reasons for needing to eat a moderate carb diet. The main reason why carbs affect thyroid function so directly is because insulin is needed for the conversion of the inactive T4 hormone into the active T3 hormone, and insulin is generally quite low on very low carbohydrate diets.

So if you've suddenly started developing [hypothyroid symptoms](#) on your low carb diet, it's a pretty good sign that you'd be better off upping the carbs (and getting your thyroid tested if you haven't already!) For more about how low carb dieting affects your thyroid, listen to this [great interview with Chris](#) by Jimmy Moore.

HPA axis dysregulation, also known as adrenal fatigue, is another condition where a moderate carb intake is important for general health. Kelsey and I talked about adrenal fatigue on our first [Ask the RD podcast](#), so listen to it if you're unfamiliar with this condition. The main hormone that gets dysregulated in adrenal fatigue is cortisol, and cortisol has been shown to [increase on a low carb diet](#). This means that a low carb diet is a potential adrenal stressor in susceptible individuals. Combine that with a stressful job, inadequate sleep, and overexercise, and you've got yourself a recipe for adrenal burnout.

So if you have adrenal fatigue, or if your current lifestyle is already high stress in a few different areas, you may want to increase your carb intake until you can get those additional stressors under control, as you may drive yourself into adrenal fatigue by having a chronically elevated cortisol output. [Lara Briden](#) has written a great article on the benefits of whole food carbohydrates in lowering cortisol and raising GABA, a calming hormone that is often low in adrenal fatigue patients.

If you're experiencing symptoms of hypothyroidism or adrenal fatigue, you may be worsening them with a well-intentioned low carb Paleo diet. I recommend [working with someone](#) to help you figure out if your diet is indeed making these symptoms worse, and how to change what you eat to better support your thyroid and adrenal health.

GUT HEALTH

One of the less discussed downsides of a very low carbohydrate diet over the long run is the potential for alteration of the gut flora. Chris recently covered this issue in a [podcast with Jeff Leach](#), where they discussed evidence that a very low carb diet can lead to gut dysbiosis and a reduction in the diversity of the gut flora. A lot of the information on this topic is new and not fully understood, but it's reasonable to believe that when you avoid carbs, you're also avoiding important prebiotics (i.e. food for your gut flora) like soluble fiber and resistant starch.

These prebiotics are essential for promoting the growth of beneficial gut flora. Without them, your beneficial flora can't produce as much gut-healing substances like butyrate

and other short chain fatty acids, and your microbiome composition may even shift in an undesirable direction. And as Chris would say, [you're only as healthy as your gut is](#): an unhealthy gut contributes to everything from obesity and diabetes, to digestive illness, to autoimmune disease, to skin disorders.

Those who are doing very low carbohydrate diets, and who simply can't increase their starch intake for whatever reason, should use prebiotic supplements such as resistant starch-rich [unmodified potato starch](#) or [FOS powder](#). However, these products must be incorporated slowly into your supplement regimen, as you can experience severe gas and bloating if too many prebiotics are taken all at once, or if there is existing gut dysbiosis or bacterial overgrowth. In this case, it would be wise to [work with someone](#) who can help you get the prebiotics you need while on a very low carbohydrate or ketogenic diet to protect the health of your gut microbiota.

If you've found yourself identifying with any of the issues I've written about in this section, you may be in need of a macronutrient adjustment in your diet.

When Should You Try A Low Carb Diet?

By Laura Schoenfeld, MPH, RD

Now I'll describe seven different classes of people who could experience improved health and wellbeing by following a ketogenic diet, as well as briefly explain the precautions you'll need to take if choosing to experiment with this therapeutic diet strategy.

OVERWEIGHT AND OBESITY

One of the biggest draws of a low carbohydrate diet is that it can be a highly effective tool for rapid weight loss, especially in those who are significantly overweight and/or obese. When [compared to low fat diets](#), dozens of studies show that a very low carb approach can help those who are overweight lose weight, maintain lean muscle mass, and improve many of the metabolic risk factors for diabetes and heart disease, including elevated triglycerides, low HDL, and chronically elevated blood sugar. There's no denying that a low carb diet can be a highly effective obesity treatment.

Most people believe low carb diets cause weight loss so rapidly by lowering circulating insulin, but another reason why low carb dieting may promote weight loss is because these diets frequently lead to a [spontaneous reduction](#) in overall food intake. Combining that with low insulin and high glucagon levels is generally a recipe for immediate weight loss, though this is not always sustainable for a variety of reasons.

The longer a person stays on a low carb diet, the more they may start to find ways to make their diet more palatable, and thus increase their overall calorie intake. Also, as weight loss occurs, a person's overall calorie expenditure will drop, meaning that the same amount of food that made them lose weight in the first place will eventually cause them to maintain their weight – the dreaded “plateau”.

If you're eating more calories than you're expending, even on a low carb diet, you won't lose weight. If you're using low carb as a weight loss diet, this doesn't give you license to eat high fat foods in unlimited quantities. Eat good quality protein, plenty of non-starchy vegetables, and enough fat to meet your daily needs without going overboard and you may find that a nutrient-dense low carb diet is the perfect strategy for sustainable weight loss and reversal of metabolic syndrome.

And remember – obesity is a far different health situation than trying to “lose the last 10 pounds”, so many of the same weight loss principles that work well for people who are significantly overweight may not work so well for those trying to reach their ideal “look good naked” weight. Keep that in mind when considering how much weight you want to lose and whether or not it’s truly necessary for health purposes. Those who don’t really have much excess weight to lose may be more prone to the [potential problems with a long term low carb diet](#).

BLOOD SUGAR IMBALANCES

Blood sugar control plays an important part in weight management as well as the prevention of chronic disease, including diabetes, [heart disease](#), [cancer](#), and possibly even [Alzheimer’s](#) disease, among others. If your blood sugar is always elevated, you’re at an exponentially higher risk for dozens of diseases, and you’re more likely to die earlier from these diseases as well. So if you have consistently high blood sugar, you’ll likely find that reducing your carbohydrate intake significantly can bring that number down quickly, particularly if you’re relatively sedentary.

Low carb diets can also be helpful in reactive hypoglycemia, a condition where blood sugar drops too low following a meal, causing symptoms such as dizziness, anxiety, shakiness, hunger, and confusion. This issue can be made worse by caffeine and stress, and I find it more commonly in my clients with adrenal issues.

A common cause of this reaction is when a meal too high in easily absorbed carbohydrates is consumed, and blood sugar rises rapidly, leading to a release of insulin. The insulin causes a subsequent drop in blood sugar, and this drop can sometimes go too low or happen too quickly, leading to the hypoglycemic symptoms.

If you’re someone who eats a lot of sugar-laden foods, or generally is eating a high carb, low fat diet, you may be more prone to these blood sugar swings that can lead to hypoglycemia symptoms. In this case, a reduction in carbs and an increase in fat at meals will help keep your blood sugar levels steady, and get you off the blood sugar roller coaster. But if you’re already eating a very low carbohydrate diet, a bit of healthy carbs at each meal may actually help normalize your blood sugar too, so it’s important to consider your current dietary habits before dropping your carbs any lower.

And if you’re completely unsure where you stand on this issue, it might be worthwhile [getting some help with your diet!](#)

NEUROLOGICAL DISORDERS

One of the oldest uses of a ketogenic diet has been the treatment of seizure disorders – even the Bible refers to fasting as a treatment for “fits”, and the ketogenic diet has been used by doctors as a treatment for epilepsy since the early 1900s. Though the creation of anti-seizure medication significantly reduced the reliance on this treatment, there has been a surge in the demand for this therapeutic diet over the past 20 years. These days, there are even dietitians who specialize in the ketogenic diet who work with patients, mostly children, suffering from frequent seizures.

Other neurological conditions that have been shown to respond well to a ketogenic diet are Parkinson’s disease, Alzheimer’s disease, ALS, stroke, and dementia. ([1](#), [2](#), [3](#), [4](#), [5](#), [6](#)) In fact, Alzheimer’s disease is now being referred to as [Type 3 Diabetes](#), highlighting the importance of blood sugar control in managing this often devastating condition. Ketogenic diets may also be therapeutic in the treatment of traumatic brain injury, a major cause of mortality and morbidity in young adults. ([6a](#))

One of the most comprehensive books covering the role of a low carb and/or ketogenic diet in the treatment of neurological conditions is [Grain Brain](#) by Dr. David Perlmutter, a well known neurologist. Dr. Perlmutter has had a great deal of success using low carb, grain-free, and ketogenic diets in the treatment of thousands of patients with neurological disorders.

However, it’s important to remember that while these very low carb diets are helpful in treating these conditions, it’s unknown whether or not these restrictive diets would be necessary to [prevent these conditions](#). Ultimately, I’d personally reserve the use of a ketogenic diet as a treatment for neurological disorders rather than a long term preventative diet.

MOOD DISTURBANCES

Similar to the neurological conditions already discussed, low carb and/or ketogenic diets may be helpful in reducing or eliminating symptoms of mood disorders like anxiety or depression. Some preliminary evidence suggests that these diets can have similar effects as antidepressant drugs. (7) Most of the research has been conducted in animals, but there have been studies showing benefits in improving aggression, fear behavior, and overall mood and quality of life. (8, 9, 10, 11)

On the contrary, one study demonstrated a decline in overall mood in subjects on a low carb diet, energy-restricted diet compared to a low fat diet, while another showed a decline in mood in female cyclists following a low carb compared to moderate and high carb diets. (12, 13) There hasn't been a ton of research on this issue, so ultimately you'll have to determine for yourself what the appropriate level of carb intake will be for your particular mood issues. I've seen plenty of clients (myself included) who find that their [levels of anxiety skyrocket](#) on an excessively low carb diet, so what works for one person (or a rat!) may not work for you.

Whether or not carbs are at play in your anxiety or depression, there's a major role for a healthy diet and ancestrally appropriate lifestyle. I do believe food is medicine when it comes to mood issues, and I've seen multiple clients get off their antidepressants after making [targeted, individualized changes to their diets](#), even if they were already eating "Paleo". And none of these improvements required strict carbohydrate restriction, so a moderate intake on a nutrient-dense diet may be enough to see positive changes.

POLYCYSTIC OVARIAN SYNDROME (PCOS)

PCOS is an incredibly common endocrine issue in young women, with a prevalence as high as 15%-20% of women. Typically, PCOS affects ovulation and menstrual function in women, and can also cause an androgen excess. These changes are the root cause of many of the most frustrating symptoms, including amenorrhea, acne, hirsutism (male-pattern body hair), weight gain, dandruff, thinning hair, and mood issues.

One of the primary dietary recommendations for women with PCOS is to limit refined carbohydrates and sugars, and to generally follow a lower carb diet. (14, 15) Reduced carbohydrate diets can help improve body composition, increase fat loss, repair insulin sensitivity, and promote menstrual regularity in these women (16, 17, 18)

One pilot study found that overweight women following a low carbohydrate ketogenic diet lost weight, reduced their testosterone levels, and decreased their fasting insulin. (19) These women also experienced non-significant decreases in insulin, glucose, testosterone, HgbA1c, triglyceride, and perceived body hair. Two women even became pregnant during the study, when they had previously been experiencing infertility.

But before those of you with PCOS jump straight on a ketogenic diet, it's crucial to note that there was no control group in this study. So it's hard to know if the ketogenic diet was really necessary to get these results, or if a significant reduction in sugar, processed carbs, and grains might have been adequate, while still allowing these women to get a substantial amount of carbs from Paleo-friendly fruit and starchy vegetables.

You may find that [the right diet for you](#) allows for plenty of healthy variety, and that a reduced carbohydrate, whole foods diet is enough to get you on the right path towards healing from your PCOS.

SMALL INTESTINE BACTERIAL OVERGROWTH (SIBO) AND REFLUX (GERD)

SIBO and GERD seem to be increasingly common these days, likely stemming from our overuse of antibiotics, inadequate exposure to healthy bacteria, poor dietary choices, and high levels of stress. In my work with clients, I've also noticed an uncanny connection between SIBO or reflux and a history of binge eating or bulimia disorder, so I'd guess that overeating in general can put someone at higher risk for low stomach acid and an overgrowth of bacteria in their small intestine.

You can get great information about reflux from [Chris's free eBook](#) on the topic. And if you've never heard of SIBO and you don't know what the primary treatment for this condition is, I'd suggest [listening to this podcast](#) that Kelsey Marksteiner and I recorded for a great primer on the subject. But I'm sure some of you reading this either know what SIBO is, or actually have SIBO yourself. SIBO and reflux are often found simultaneously, so that's why I'm lumping these two conditions together.

One of the primary dietary treatments for SIBO and reflux is the restriction of fermentable carbohydrates, often referred to as FODMAPs. But some practitioners even recommend using a completely low carbohydrate or ketogenic diet, as some bacteria can feed off of low FODMAP carbs and starches. It may depend on the severity of your SIBO case, and some SIBO patients do just fine restricting FODMAPs and simple sugars. And if you're

eating too many high FODMAP veggies on a low carb diet, you may actually make the problem worse!

Generally for reflux and/or SIBO, I tend to recommend a lower carbohydrate diet which restricts fermentable carbohydrates and sugar, but allows for a moderate amount of starches such as white rice or potatoes, which are often well tolerated. So while a strict low carb or ketogenic diet may be useful in dealing with these digestive disorders, I don't think that it's necessary to stay on these diets indefinitely to get the results you're looking for.

CANCER...?

At the risk of opening a giant can of worms, I'll briefly mention that there are many scientists, doctors and clinicians who promote the use of a [low carb ketogenic diet for cancer](#). The major argument is that unlike the majority of our body cells, cancer cells lack the ability to metabolize ketones, and require a significant amount of glucose to survive and replicate. Since a ketogenic diet can keep blood sugar low, the theory (in a nutshell) is that cancer cells won't be able to survive and thus the cancer will not grow and metastasize. Some doctors have reported [amazing results](#) in the use of these diets in helping their patients go into remission.

There are a few studies that show potential benefits for some (but not all) cancer patients, especially brain cancer. ([20](#), [21](#), [22](#), [23](#), [24](#)) But another study showed that in 16 patients with advanced metastatic cancer, only 5 of the 16 patients recruited could even stick to the diet, and none showed any remission of the cancer, so it likely depends on the type and severity of the cancer whether or not a ketogenic diet will make any difference to the outcome. ([25](#)) And none of these studies show any data that suggests a ketogenic diet would be necessary or helpful to prevent cancer.

When it comes to dietary recommendations and carbohydrate restriction for cancer patients, I don't know if there's enough data on the subject to make a strong recommendation either way. Ultimately, we'll always have some level of sugar circulating in our bloodstream, and while I agree that good blood sugar control is likely helpful in preventing cancer in the first place, I'm not entirely convinced that a ketogenic diet is the best diet in all cancer patients, especially for those who are in more advanced stages. And having had relatives die from advanced stage cancer, I can also understand the fear that would come from feeding a cachexic cancer patient a hypocaloric ketogenic diet if they're already wasting away.

For now, I'll "plead the fifth" on this topic, and wait and see if more studies come out in the future supporting this particular therapeutic use of the ketogenic diet.

IMPORTANT CONSIDERATIONS WHEN STARTING A LOW CARB DIET

As you can see, a low carb diet can be a good choice for certain people, as long as they pay attention to several important factors that can ensure their nutritional status isn't negatively impacted by this somewhat restrictive diet.

The biggest issue I see with many people who first switch to a low carb diet is that they're unintentionally undereating, largely due to their discomfort with eating enough fat to make up for the carbs they're not consuming. While this can be okay in the short term, especially for weight loss, over time this can lead to malnutrition and unhealthy stress on various organs, and may even cause weight gain as the body tries to conserve energy. If you're on a low carb diet, make sure you're eating enough to support your daily activity and to get a wide range of nutrients.

Also, even though some of your favorite foods might be low carb – like bacon, cheese, steak, and butter – make sure you're still eating plenty of non-starchy vegetables. These will help keep your gut bacteria healthy, as well as providing a variety of important minerals that can get deficient on a low carb diet. Potassium is a particular mineral that is prone to deficiency on a low carb diet, so eating a wide variety of vegetables and low carb plant foods at every meal (in addition to nutrient-dense animal foods) will help keep you nourished.

Avoid low carb products sold in the grocery store. These products often have artificial sweeteners and other additives that make them taste similar to their high carb counterparts, and sometimes can cause digestive distress in larger quantities. If you're going to do a low carb diet, make sure you're still eating real food and not buying a ton of low carb packaged food to replace the junk food you used to eat.

It's important to keep an eye on your blood work as well, since not everyone experiences positive results on a low carb diet. [Franziska Spritzler](#) is a low carb dietitian who explained the adverse effects she experienced on a low carb ketogenic diet, with her LDL cholesterol and particle number shooting up to a potentially dangerous level. While this won't happen to everyone, if it does happen to you it may be a sign that the diet isn't a great choice for your long term health.

Finally, pay close attention to how you look, feel, and perform while on a low carb diet. While you'll need to give it some time to truly determine if the diet can support your activity, energy, and daily lifestyle, it's hard to know who will thrive and who will crash and burn on a long term low carb diet. If you're experiencing [negative health effects](#) like excess weight gain, sluggishness, mood issues, or poor athletic performance after trying the diet for several weeks, it may be a sign that you'd do better on a more moderate carb approach.

Don't let someone else's experience with the diet dictate how you should expect to feel. You'll be your own judge when it comes to figuring out the most appropriate diet for you.

Did you know that nutrient deficiencies are one of the primary drivers of high blood sugar, hypertension, and other metabolic problems—and that most people today are deficient in not just one but several micronutrients?

Our ancestors were able to meet all of their nutrient needs from food alone. Sadly, that's no longer possible today, thanks to declining soil quality, a growing toxic burden, and other challenges in the modern world.

The [Core Plus bundle](#) from [Adapt Naturals](#) is a daily stack of 5 supplements designed to close the modern nutrient gap and help you feel and perform your best. It's a rich source of essential vitamins and minerals like vitamin D, B12, folate, chromium, magnesium, and CoQ10, as well as phytonutrients that support overall health and metabolic function, like flavonoids, beta-glucans, and tocotrienols.

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The 3-Step Process to Determining Your Ideal Carbohydrate Intake

By Kelsey Marksteiner, MS, RD

Now let's discuss the practical aspect of adjusting your diet: how do you determine the amount of carbohydrates that's right for you?

To do this, I'll walk you through the step-by-step process that I take with clients so you can start to think about it for yourself. While many people find it easier to work with a professional on this, I think it can also be done on your own. The important thing to remember is that *there's no one-size-fits-all approach*.

When most people start a Paleo diet, they typically start a low- (and sometimes very low) carbohydrate diet. They get in the habit of not including starchy tubers and fruits. Some people will thrive on a diet like this, which is fantastic. Others might feel great for a while, but then slowly start to feel more fatigued, have more difficulty during workouts (and even more problems recovering), and overall just don't feel so great. Guess which clients I'm going to be seeing?

I see the clients who *don't* thrive on low carbohydrate diets. They come to me wondering what they've done wrong and why they're feeling sick when all they've done is followed the Paleo diet to a T – and that's why this conversation is so important to have. We need to make sure that folks starting the Paleo diet understand that there's a range of carbohydrate levels that can be consumed, and that everyone will feel best at a different level. I can't tell you how many of my clients have come to me legitimately *scared* to eat carbohydrates of any kind. I don't think any diet should cause people to be afraid of an entire macronutrient.

Let's go through the 3-step process I use to help clients determine their ideal carbohydrate intake.

STEP 1: CONSIDER UNDERLYING DISEASES/CONDITIONS

This is critical. If you have diabetes, you're likely going to do better on a lower carbohydrate diet. If you have small intestinal bacterial overgrowth, you'll probably want to limit your carbohydrate consumption while you treat the SIBO. Note the emphasis

there: for someone with a gut dysbiosis issue, a low carbohydrate diet is used as a therapeutic intervention and isn't meant to be continued for life. I see so many clients who started a low carb diet because they wanted to use it therapeutically, only to never try reintroducing those foods again.

If you have adrenal fatigue, you'll likely feel better on a more moderate carbohydrate diet along with eating snacks to keep your blood sugar stable. Breastfeeding? You'll definitely want some carbs, too. The point here is that there are many conditions that affect how your body deals with carbohydrates, so you need to take these into consideration when thinking about how much carbohydrate you might do well with.

Chris discusses the different levels of carbohydrates that work best for a variety of conditions in his book, [The Paleo Cure](#). The table below illustrates the ranges for "very low carb", "low carb", "moderate carb", and "high carb" using percentage of calories for carbohydrate. Chris also included examples for how many grams of carbohydrate an average, moderately active male and female might consume per day given those ranges, as well as a list of health conditions/goals that might do well for each range.

It's far more useful to think in terms of percentage of calories for carbohydrate than it is to think in terms of grams per day. I often hear people make recommendations for the number of grams of carbohydrate someone should eat. But this is meaningless when you don't take weight and activity level into account. 75 grams a day may be a moderate-carb diet for a sedentary woman eating 1,600 calories a day, but it would be a very low carb diet for a highly active male eating 3,000 calories a day.

	% CARBS	CARB (GRAMS) FOR MEN (2600 kcal diet)	CARB (GRAMS) FOR WOMEN (2000 kcal diet)	GOAL/POPULATION
VERY LOW CARB	< 10%	< 65 g	< 50 g	<ul style="list-style-type: none"> • Neurological issues (Epilepsy, Alzheimer's, etc.) • Severe blood sugar problems
LOW CARB	10 - 15%	65 - 100 g	50 - 75 g	<ul style="list-style-type: none"> • Weight Loss • Blood sugar regulation • Mood disturbances • Digestive problems
MODERATE CARB	15 - 30%	100 - 200 g	75 - 150 g	<ul style="list-style-type: none"> • Generally healthy • Maintain weight • Adrenal fatigue • Hypothyroidism • Familial Hypercholesterolemia
HIGH CARB	> 30%	> 200 g	> 150 g	<ul style="list-style-type: none"> • Athletes and highly active people • Trying to gain weight/muscle • Fast metabolism • Pregnant/breastfeeding

STEP 2: GET STARTED!

If you are an overall healthy person (and you either don't exercise or exercise moderately), I suggest starting on a moderate carbohydrate diet and experimenting from there. When I first start working with a client who has no underlying health issues and wants to find their ideal carbohydrate intake, I often have them begin by implementing what I like to call "[The Rule of Thirds](#)". That is, their plate should be 1/3 protein, 1/3 starchy tubers, and 1/3 non-starchy vegetables.

It ends up being a moderate carbohydrate diet (though it depends on their calorie intake of course) – not astronomically high like the Standard American Diet, and nowhere near a ketogenic diet. Eating three meals a day like this also means they're less likely to skimp on calories (and I'll work with them to make sure this is the case).

If you do have a condition that would affect your carbohydrate intake (diabetes, hypoglycemia, thyroid disease, adrenal fatigue, etc) and/or you exercise a lot, refer to the chart in Step 1 to know what carbohydrate level you should begin with.

If you have multiple conditions that place you in seemingly opposite carbohydrate levels, I suggest [working with a practitioner](#) to help you craft a diet that will suit you best.

STEP 3: EXPERIMENT! (AND TAKE NOTES)

From there, we experiment. Sometimes the carbohydrate intake will feel too high. It might trigger cravings for sweets, or perhaps increase their blood sugar too much.

I'll have my client track their meals and take notes along the way with how they're feeling so we can really see what's going on. This is a crucial (and often overlooked) part of the process. If you're not taking notes and keeping track of your meals, the experimentation phase can feel downright overwhelming. Being able to look back and track how your symptoms change with a concurrent change in carbohydrate intake is vital to figuring out the right level for you.

If there's a disease we're dealing with (i.e. diabetes or adrenal fatigue), we focus on tracking those symptoms (blood sugar and fatigue, respectively) to see how they change. I have my clients use an app called [Meal Logger](#) for this task, where they can take pictures of their meals and keep notes on their symptoms.

If the carbohydrate level seems to be a bit high for the client, we bring it down. If it feels too low (perhaps they're still feeling sluggish and are having trouble with their workouts), we'll try bringing it up and monitoring their reaction. Eventually, we settle on the sweet spot.

That's my step-by-step process for determining your ideal carbohydrate intake. I hope seeing this helps you start this experiment for yourself and find what's right for you. Don't feel like you need to put yourself in a low carb or high-carb camp – you just need to do what works for *you*! There's a huge spectrum of carbohydrate intake; it's just a matter of finding where you should lie on it.

Are You Lower-Carb Than You Think?

By Chris Kresser, L.Ac

Now I want to address an issue that I see relatively frequently in my private practice. I've begun to think of it as the "accidental low carb diet" phenomenon. The best way to explain this is to share a case study.

THE ACCIDENTAL LOW CARB DIET: FRANK'S STORY

A few months ago I spoke to a patient—we'll call him Frank. Frank is a 32-year old male who is on the SWAT team in a major metropolitan city. He came to see me complaining of extreme fatigue, insomnia, and exercise intolerance. These issues were obviously of paramount importance given his job.

About a year prior to our first visit Frank had started a low carb Paleo diet. Some of his colleagues on the SWAT team were doing it with great results, so he figured he'd give it a try. He wanted to lean out and lose about 5 pounds of belly fat that he was having trouble getting rid of. After a few months on the low carb Paleo diet, Frank did reach his target weight and body composition.

But then the fatigue and insomnia started. A few months after that, he noticed he was having trouble keeping up with his training routine (which is, as you might imagine given his profession, quite rigorous).

Frank reads my blog and listens to my podcast, and he had heard me say that some people can experience problems on a very low carb diets. So he started to add some carbs back into his diet. This helped a little bit, but when he finally set up an appointment with me he was still struggling.

When I talked to Frank, I asked him how he would characterize his diet. He said he used to do low carb, but now he was on a moderate carb. I've learned over time not to accept this at face value, so I probed further. I asked him specifically how much carbohydrate he eats in the form of starchy plants and fruit (more on this below) on a daily basis. His answer: a sweet potato and about a half a cup of blueberries 3-4 times a week.

Although Frank thought he was on a moderate carbohydrate diet, when we did the math, it became clear he was on a very low carb diet with fewer than 10% of calories from carbohydrate. Here's how it breaks down:

Frank is 6'3 and 215 pounds (with a lot of muscle). He is extremely active. In order to simply maintain his weight, he would need to eat about 3,000 calories a day.

If we define a moderate carbohydrate diet as 25% of calories from carbohydrate, that means Frank would need to eat 750 calories a day as carbohydrate. At 4 calories per gram of carbohydrate, that comes out to about 188 grams of carb each day, or 1,316 per week.

A large sweet potato contains 37 grams of carbohydrate. 1/2 cup of blueberries contains about 10.5 grams of carbohydrate. In addition to these amounts of starch and fruit, Frank ate about 3-4 servings of non-starchy vegetables each day (about 25 grams of carbohydrate on average). Given these numbers, Frank was eating about 365 grams of carbohydrate *a week*.

At 3,000 calories a day, this works out to about 7% of total calories from carbohydrate. That is most certainly **not** a moderate carbohydrate diet.

Do carbs cause weight gain? Frank's experience.

When I explained all of this to Frank at our appointment, he was pretty shocked. He was under the impression that eating a few sweet potatoes and some berries throughout the week put him in the "moderate carb" category. Obviously, this was not the case given his weight and activity level.

He was even more shocked when we calculated how much carbohydrate (again, from starchy plants and fruit) he'd have to eat to get to the "moderate" carbohydrate level of 25% of total calories. For Frank, to reach this target of 188 grams per day, he could eat the following:

- Four servings of non-starchy vegetables (25 grams)
- One large Russet potato (64 grams)
- One cup sliced cooked plantain (48 grams)
- One medium banana (27 grams)

- One cup of strawberries, halved (12 grams)
- One half-cup of blueberries (11 grams)

This meant having a full serving of a starchy plant with two meals, and some fruit either with each meal or between meals—far more carbohydrate than Frank was eating previously.

Frank was initially reluctant to eat this much carbohydrate. He told me that he had noticed that carbs caused him to gain weight. But again, when we dug a little deeper it became less clear that it was carbohydrate in general that caused weight gain, but a certain kind of carbohydrate (namely, processed and refined carbs).

Turns out that Frank had very strong cravings for carbohydrate after a while on the VLC diet. Instead of increasing his intake of starchy plants and fruit, he's stay extremely low carb and then fall off the wagon by eating bread, pizza, or something like that. Not surprisingly, he would gain weight after these "indiscretions". (Interestingly enough, he would also feel more energetic and sleep better afterwards.)

I asked Frank whether he gains weight when he eats carbs from whole-food, Paleo-friendly sources like starchy plants and fruit. He said he didn't know, because he had never tried eating the quantities of these foods that I was recommending. So of course that became our next experiment.

When I spoke to Frank about ten weeks later, he was ecstatic. His insomnia was completely resolved. His energy levels were not only restored, but higher than they'd been in recent memory. But what he was happiest about was his increased performance at work; Frank had recently placed highly in a national SWAT competition that his team competed in.

What's more, he accomplished all of this without gaining a single pound. On the contrary, he had lost a further 3 pounds of fat and was more "lean and ripped" than he had been on the VLC diet.

If this had been an isolated experience with a single patient, I wouldn't even bother writing this article. But in fact it's a fairly common occurrence in my practice. I have every patient I see fill out a diet diary which shows me exactly what they eat on an average day. Then I ask them what their carbohydrate intake is like. **I'd say about 50% of the time—if**

not more—my patients are consuming significantly less carbohydrate than they think they are.

If you think you might fall into this category, use Kelsey’s guidelines to calculate your optimal carbohydrate intake.

With this number in mind, you can then consult the charts below, or use online tools like [NutritionData.com](https://www.nutritiondata.com), to figure out which foods you can eat to meet your goals.

If you’ve never done this before, I’d encourage you to give it a try. If you’re like many of my patients, you might be surprised to learn that you’re eating a lot less carbohydrate than you thought.

CARBOHYDRATE CONTENT OF SELECTED STARCHY PLANTS		
STARCHY PLANT	MEASURE	CARBOHYDRATE, G
Potato, russet	1 large	64
Tapioca	1/2 cup	63
Plantain	1 cup, slices	48
Taro	1 cup, sliced	46
Yuca* (aka manioc, cassava)	1/2 cup	39
Sweet potato	1 large	37
Yam	1 cup, cubes	37
Breadfruit	1/2 cup	30
Acorn squash	1 cup, cubes	30
Butternut squash	1 cup, cubes	22
Lotus root	10 slices	14

** Yuca should never be consumed raw because it contains toxins. To make it safe, place it in cold water, bring to a boil, and boil it for thirty minutes (make sure you discard the water).*

CARBOHYDRATE CONTENT OF SELECTED FRUITS

FRUIT	MEASURE	CARBOHYDRATE, G
Banana	1 medium	27
Pear	1 fruit, medium	27
Pomegranate	1/2 fruit (4-inch piece)	27
Mango	1 cup, pieces	25
Apple	1 fruit (3-inch piece)	25
Pineapple	1 cup, chunks	22
Orange	1 fruit (3-inch piece)	18
Grapes	1 cup	16
Papaya	1 cup, 1-inch pieces	16
Peach	1 medium (2 2/3 inch)	14
Cantaloupe	1 cup, cubes	13
Strawberries	1 cup, halves	12
Watermelon	1 cup, diced	12
Blueberries	1/2 cup	11
Raspberries	1/2 cup	8
Plum	1 fruit (2 1/8 inch)	8
Tomato	1 cup, chopped	7

CARBOHYDRATE CONTENT OF SELECTED NONSTARCHY VEGETABLES*

VEGETABLE	MEASURE	CARBOHYDRATE, G
Artichokes	1 medium	14
Parsnip	1/2 cup, slices	13
Rutabaga	1 cup, cubes	12
Collard Greens	1 cup, chopped	11
Romaine lettuce (raw)	1/2 head	10
Green beans, snap	1 cup	10
Red pepper	1 cup, strips	9
Onion	1 medium	9
Mushrooms, white	1 cup, pieces	8
Turnip	1 cup, cubes	8
Beets	1/2 cup, slices	8
Kale	1 cup, chopped	7
Peas	1/4 cup	7
Broccoli	1 cup, chopped	6
Carrots (raw)	1 medium	6
Zucchini	1 cup, sliced	5
Cauliflower	1 cup (1-inch pieces)	5
Asparagus	4 spears	2

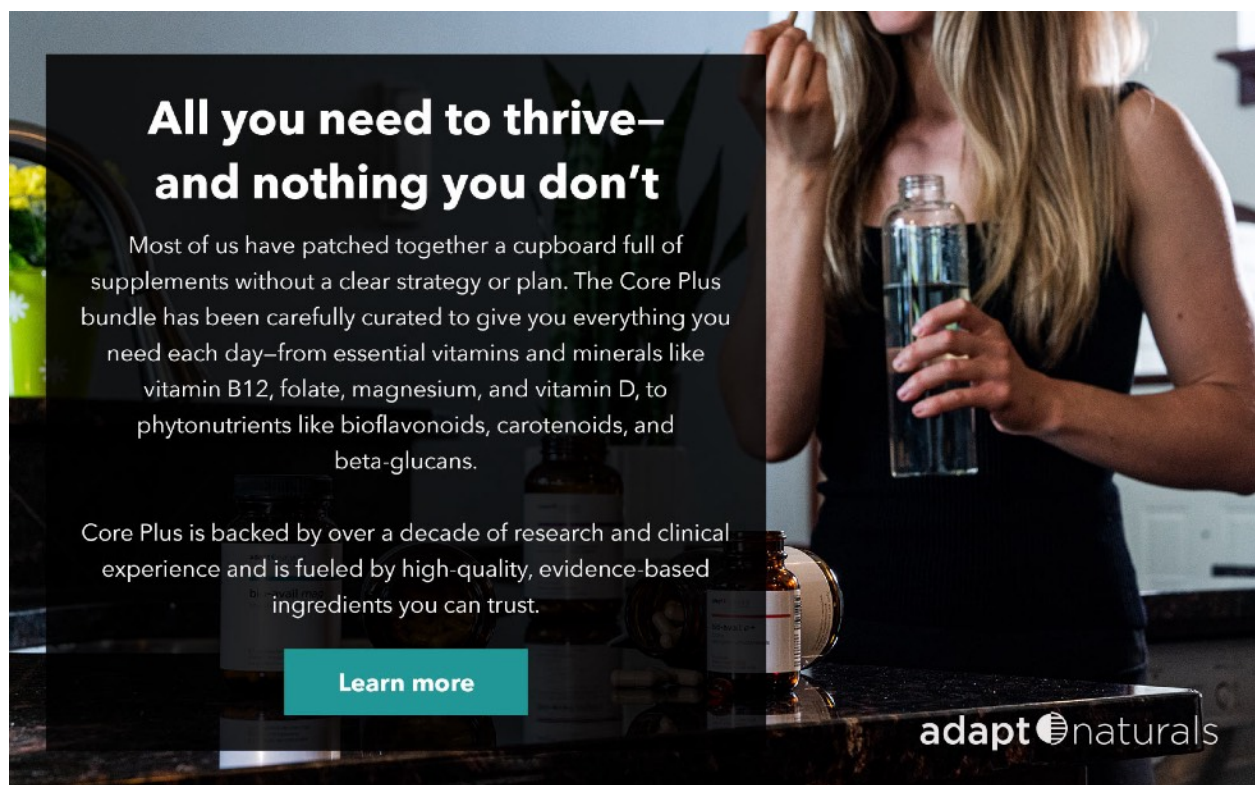
* Cooked, unless otherwise indicated

Final Thoughts

I hope this eBook helps to clarify some of the confusion that has surrounded this issue. Low Carb diets are an effective therapeutic tool in certain situations, and one that I (and many other clinicians) use in my clinical practice.

That said, it's equally true that low carb—and especially VLC and ketogenic—diets are not appropriate in all circumstances, and they are certainly not our “default” or optimal nutritional state.

Sadly, it doesn't seem to matter how much scientific evidence, clinical experience, and common sense is brought to bear on this question: those who preach and follow low carb dogma will not be swayed. Ah, well. As they say: “You can't fight faith with facts.”



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