

THE BIG IDEAS

Ketogenic

Metabolic Therapy.

The Basic Plan

Protein + Fat + Carbs.

“Diet Doesn’t Matter” - Dr.

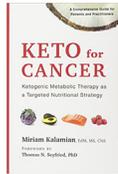
“Yes, it does.” - Cancer

Boost + Ensure

Eliminate to boost/ensure goodness.

Measure

Glucose + ketones.



Keto for Cancer

Ketogenic Metabolic Therapy as a Targeted Nutritional Strategy

BY MIRIAM KALAMIAN · CHELSEA GREEN PUBLISHING © 2017 · 400 PAGES

“But you now hold in your hands a playbook that lays out the moves and strategies that will help you through the challenges ahead. As you’ll soon see, ketogenic metabolic therapy is one of the most powerful strategies you can launch in your quest to manage your cancer. (Note that I say ‘manage,’ not ‘cure’: Most cancers—even those with decent survival rates—reemerge at some point in the future driven by a small population of cells that evade treatment and capitalize on mutations that allow them to survive, thrive, and spread. Or you may find yourself with an entirely new but closely related cancer, often a side effect of treatments such as chemo and radiation that damage normal cells along with diseases ones. That’s why you need a game plan that works for a lifetime!) Finding the ketogenic diet is the easy part. Acquiring the tools and knowledge to implement these changes, and others, requires commitment and effort. This book is a good first step. ...

Impassioned researchers and clinicians have begun the process of running the ketogenic diet through the gauntlet of clinical trials that are needed to eventually move this therapy into evidence-based practice in cancer. Why, then, am I not content with waiting patiently for this to unfold?

Because people with cancer don’t have the luxury of time!”

~ Miriam Kalamian from *Keto for Cancer*

This is the fifth Note I’ve created specifically on cancer after my brother’s diagnosis.

We started with [Anticancer](#) by [David Servan-Schreiber](#) then covered [Tripping over the Truth](#) by [Travis Christofferson](#) then [The Metabolic Approach to Cancer](#) by [Nasha Winters](#) then [Cancer as a Metabolic Disease](#) by [Thomas Seyfried](#).

Find the Notes plus Conquering Cancer 101 and Conquering Cancer 102 at [Optimize.me/cancer](https://optimize.me/cancer).

Miriam Kalamian is one of the leading nutrition consultants focused on cancer. She helps people approach cancer with a therapeutic ketogenic diet. In fact, she’s my brother’s day-to-day nutritional consultant. She has been AMAZING. (And, given the fact that food is, ultimately, our most powerful medicine, in many ways I consider her our brother’s primary care physician. :)

People have asked what nutritional approach we’re following. THIS is it.

Thomas Seyfried (the leading research scientist advocating for the theory that cancer is primarily a metabolic disease—with genetic mutations as a downstream effect rather than primary cause) wrote the foreword to the book. He puts it this way: “A masterpiece. ... This book comes at a critical time in our quest to manage cancer. ... An essential resource for any cancer patient, caregiver, or oncologist.”

The book is PACKED with wisdom on, as the sub-title suggests “Ketogenic Metabolic Therapy as a Targeted Nutritional Strategy.”

“ Please understand that while this nutritional strategy is an extremely powerful tool, changing your diet is not going to cure your cancer. In fact, let’s not talk cure; let’s focus on long-term management with the added benefit of other improvements in health.”

~ Miriam Kalamian

It's a great complement to *Nasha Winters' Metabolic Approach to Cancer*. (Get a copy [here](#).)

I'm excited to share some of my favorite Ideas as we unpack how to most powerfully approach an integrative therapeutic approach to cancer so let's jump straight in!

KETOGENIC METABOLIC THEORY

"Cancer thrives on fermentable foods. Study after study has confirmed this. A well-planned ketogenic diet restricts cancer's access to its preferred fuel sources, glucose and to a lesser degree glutamine, while providing abundant energy to healthy cells."

~ Miriam Kalamian

"A new term—'ketogenic metabolic therapy'—has recently been proposed by a group of researchers and clinicians who want to emphasize the use of a ketogenic nutritional intervention as an antineoplastic (anticancer) strategy. This new paradigm exploits cancer's metabolic cravings for glucose and other fermentable fuels. In direct contradiction to this stands the conventional dietary advice from the American Cancer Society, which recommends that individuals with cancer eat whatever tastes good: 'Use ice cream as a topping on cake.' *Really?* If that advice makes sense to you, then you might as well stop reading this and go out for some Ben & Jerry's. But if you're still with me, read on for more guidance on how to adopt the ketogenic diet alongside your other treatments."

That's from a chapter called "Show Me the Science" in which (you guessed it) we look at the SCIENCE behind the efficacy of a ketogenic diet.

Also known as: "Ketogenic metabolic therapy."

(Also known as: What my brother is rigorously following with Miriam's guidance.)

Let's look at each of those terms: Ketogenic + Metabolic + Therapy.

We'll start with "Metabolic." Recall that, as per our most recent Note on *Cancer as a Metabolic Disease* (and *Tripping Over the Truth* and *The Metabolic Approach to Cancer*), there are two conflicting theories regarding the ultimate cause of cancer.

There's the "Somatic Mutation Theory" (or "SMT") that says that genetic mutations are the cause of cancer.

Then there's the "Metabolic Theory" that says that dysfunctional energy metabolism is the cause of cancer and that the genetic mutations are a downstream effect of that primary cause.

I, obviously, believe that the metabolic theory makes the most sense for all the reasons we discuss in the Notes and in *Conquering Cancer 102*.

Now, one of the key aspects of the metabolic theory is the Warburg effect and the fact (!) that cancer cells generate energy in a dysfunctional way. Specifically, simply stated: Cancer cells preferentially feast on sugar.

Which leads us to "Ketogenic."

A ketogenic diet is an extremely low carb (high good fat, adequate protein, nutrient-dense) diet named after the "ketones" that are produced when you drop your carbs to a very low level—effectively switching from burning glucose as your primary source of fuel to burning ketones.

This is an ancient energy-generation pathway that helped our ancestors operate at a peak level during times of food scarcity.

Now we arrive at "Therapy."

The ketogenic diet is therapeutic because it helps Optimize our metabolism by nourishing healthy cells and simultaneously weakening cancer cells.

How's it do that?

Well, despite what we've been told, cancer cells aren't actually heroically powerful, immortal cells. They're damaged cells that are running out of control.

"Simply put, healthy, well-functioning mitochondria are essential to maintaining a person's health throughout the lifespan."

~ Miriam Kalamian

The good news is that cancer cells have an Achilles heel. They are "metabolically inflexible." Not only do they preferentially feast on sugar, but they pretty much ONLY feast on sugar. When you switch to a ketogenic diet, you eliminate their source of fuel.

Put it all back together and we have a ketogenic metabolic therapy.

That's Part I of this Idea.

Part II? Can you believe that the American Cancer Society thinks eating ice cream as a topping to cake is a good idea?

I don't even know what to say about that. Except that my brother's doctor must not have gotten that Warburg effect memo when he told us not to worry about nutrition and offered candy to his patients when they're checking in for their anticancer treatments.

P.S. As it so happens, I took a break while writing this section. During that time, I got an email from Nasha Winters sharing [this brilliant blog post](#) by a cancer patient reflecting on the absurdity of the food in hospitals and chemo treatment centers, etc. It's worth a read and share.

P.P.S. Couple of notes: Check out the book for more on situations that might preclude the use of a ketogenic diet. And, check with your team (ideally one that includes a keto-savvy nutritionist like Miriam!) before embarking on a keto approach as you will quickly and radically change your metabolism which might impact medications/etc. And... Note that cancer cells can also feast on glutamine in addition to glucose. See the book for more on that as well.)

THE BASIC PLAN

"The good news is that most people *can* adopt a ketogenic diet! At first it may seem quite overwhelming, and you may have no idea what you can eat. Let me simplify it for you:

1. Cook up some meat, chicken, fish or eggs.
2. Make a salad and/or prepare some delicious non-starchy vegetables.
3. Include condiments, grated cheese, and flavorful seasonings and spices.
4. Do you have some favorite nuts or nut butters? We can certainly work with that!
5. Add fat. Lots of it. Choose healthy fats, and ditch the inflammatory oils.
6. Repeat three times a day.

"What should I eat?' I can't begin to tell you how often I've been asked this question! The answer is really much simpler than you might think: Eat low-carbohydrate whole foods, just enough protein to fill your needs, and lots of healthy fats and oils."

~ Miriam Kalamian

That's it. Don't overthink this. If you enjoy salmon and asparagus, or beef and broccoli, then you're all set. Here's the catch (you *knew* there would be a one!): To reach ketosis, you will be eliminating a lot of the foods that are probably staples in your current diet. Out goes sugar in any of its forms, both obvious (in cookies) and sneaky (in canned tomato sauce). You'll also give up those inflammatory grains—in fact, I encourage everyone, keto or not, to rid their diets of wheat, corn, and oats. Eliminate starchy vegetables. This means potatoes, of course, but also sweet potatoes and cooked carrots. Keto diets do not include legumes or much in the way of fruits. Dairy fats (butter, ghee, heavy cream) can be part of the plan, but some dairy products, such as milk, are out; others, such as hard cheeses, can be enjoyed in small amounts. And of course you'll be eating plenty of good, healthy fats. That's the basic plan."

Miriam is astonishingly (!) thorough in her one-on-one work with my brother and in her book.

And...

That's the simple plan.

Our target is ketosis. We get there by dramatically (!) reducing carbs, making sure we have "adequate" protein and filling in the rest with a ton (!) of healthy fats.

"Keto diets include a large proportion of fat, so quality, composition, and balance are extremely important. The best practice is to use a combination of the following: animal fats; coconut oil; MCT oil or caprylic acid (C8); monounsaturated oils (olive, avocado); omega-3 oils (from ground flaxseed, chia, hemp hearts, fatty fish, fish oil); and omega-6s (limited amounts, preferably from nuts and seeds, not oils)."

~ Miriam Kalamian

"Unfortunately, mTOR is overactive in most cancers, where instead of stimulating the synthesis of muscle it stimulates the rapid growth and proliferation of cancer cells. Reining in protein intake slows activity in this pathway. Downregulating mTOR by restricting protein has been identified as a nutritional strategy in managing cancer."

~ Miriam Kalamian

Regarding the carbs: We want to set a target max number of net carbs—remembering the fact that (as all dieticians know but nearly all keep secret) we can function just fine with ZERO carbs. We NEED fats and proteins. We do NOT NEED carbs.

As Miriam says: *"Your next step is to set your carb intake. This is much simpler than determining protein, since there is no requirement for carbs. Go as low as you can, especially in the first few weeks or months of the diet, but keep an eye on your overall nutrition intake. In other words, don't squander your carbs on non-foods like coffee creamers. Instead, use your carb allowance for nutrient-dense, non-starchy vegetables and fat-rich nuts and seeds."*

Carb limit parameters range from 12 to 16 grams of net carbs (total carbs minus fiber) if you're "healthy enough to jump right in" to 20 to 25 grams if you have some thyroid or hormone issues or are recovering from surgery or currently undergoing radiation or chemo.

Regarding the protein: Remember the word "adequate" that we talked about in [Dr. Mercola's Fat for Fuel](#). We want to keep our mTOR responses in check.

So... Not too much. Not too little. Adequate Goldilocks style.

As Miriam says: *"Putting exceptions aside, let's return to your individual calculations. It is my observation that people have better outcomes if they limit protein intake to 0.8 grams per kilogram of ideal body weight (or 1.0 gram of protein per kilogram of LBM [lean body mass])."*

Regarding the healthy fats: First, eliminate the *unhealthy* fats. Namely, VEGETABLE oils. Look at your pantry and throw away everything with soybean oil, corn oil, safflower, sunflower oil, and a bunch of others including canola oil.

Then we have the good fats: olive oil, coconut oil (and butter), avocados, olives, almonds, and our go-to oils these days: algae oil and perilla oil.

btw: Did you know "canola oil" is a made up name for "rapeseed" oil? Yep. Apparently, marketers didn't think an oil with "rape" in it would sell well. Keep this in mind the next time you refuse to buy/consume canola oil:

As per Wikipedia: *"By the 1950s and 1960s, soybean oil had become the most popular vegetable oil in the US. In the mid-1970s, Canadian researchers developed a low-erucic-acid rapeseed cultivar. Because the word 'rape' was not considered optimal for marketing, they coined the name 'canola' (from 'Canada Oil low acid')."*

P.S. Miriam is also a big fan of fasting. She has a whole chapter on "Fasting for Health."

She particularly loves intermittent fasting. My brother has been rocking (and loving) this. It's surprisingly easy once you've switched from burning so much sugar for fuel to fat for fuel.

Short story: *"Hands down, I prefer to keep it simple, at least early on, with a time-restricted daily intermittent fasting plan. Simply limit your eating window to 8 to 10 hours by allowing at least 3 hours between your last meal and bedtime, then delaying your first meal of the day by an hour or more. If that sounds too challenging, start with a 12-hour window of eating and gradually reduce it as you adapt to your new plan. Over time, this will result in a daily 14- to 16-hour fast. In contrast to water-only or extended fasts, this pattern has the added benefit of helping nutrition-compromised people retain their current weight."*

Know this: We didn't evolve to eat all day, every day.

When we give our bodies a break from *constantly* digesting food (and/or edible foodlike substances!), our bodies can take that energy and put it into cleaning up—which is SUPER important in general and even more important when fighting cancer.

Check out the book for a TON more detail on all of the above.

“DIET DOESN'T MATTER.” -ONCOLOGIST | “YES, IT DOES” -CANCER

“It is increasingly clear, that diets high in carbohydrates drive up blood glucose and insulin levels. Cancer cells thrive on this bounty and in turn reprogram built-in mechanisms that would normally filter out and destroy defective, damaged, or cancerous cells. The research is compelling, and I am convinced that those among us who are sounding the alarm are on the right side of history.”

~ Miriam Kalamian

“I wish I had a dollar for every time an oncologist has told one of my clients that ‘diet doesn’t matter; eat what you want.’ Understandably, this dismissive statement has a huge impact on resolve and morale. ‘After all,’ you might ask, ‘don’t these experts know best what will help me beat my disease?’ The answer is yes, and no. Yes, within the scope of their practice, they have knowledge of and experience with which drugs and therapies are approved for your cancer. But a resounding No! when the topic turns to diet. Believe me: You don’t have to be an expert in nutrition to know more about it than most oncologists! Most medical schools and residency programs devote a scant 20 to 25 hours total to any discussion of nutrition, and this usually never includes in-depth analysis of the effect dietary therapy can have on disease. Instead, suggested lifestyle changes such as ‘eat less’ and ‘exercise more,’ are given lip service. Of course, this approach is reinforced continuously by flawed national nutritional guidelines and, unfortunately, heavily reinforced by bias and the status quo.”

Raise your hand if you’ve ever heard an oncologist say, “Diet doesn’t matter. Eat whatever you want.” Or, perhaps you (like me) have heard the variation *Nasha Winters* shares in *The Metabolic Approach to Cancer*: “Eat whatever you want, just don’t lose weight!” is the most common, and sometimes only, nutrition advice a cancer patient will get.”

I’m so befuddled by the lack of insight into the effects of nutrition that, frankly, I don’t know what to say here. So, I’m going to quote that [awesome blog post](#) I referenced above as she so PERFECTLY captures the energy here. If it’s in a hospital it HAS to be good for you, right?!

→ “In the Oskaloosa waiting room and treatment area where I accompanied my dad, weekly, for many months, they do not provide boxed and bagged treats but an elaborate spread of cookies and sweets along with lemonade. Do you know how hard it was to keep my dad, and also my mom, from eating that stuff? “Sarah, they wouldn’t put it out if it wasn’t good for you. They’re a hospital.” ~Mom.”

Gah. Yep. If they’re wearing a white coat and have a *medical* degree (ooh lah lah!), they must know what they’re doing. Except when they don’t. This is another reason why you need to be the CEO of your own health care. Doctors work for YOU. Be their confident, questioning, engaged client. Not their passive patient.

ENSURING/BOOSTING CACHEXIA

“The switch to burning fat as your main fuel is associated with lower levels of inflammation, less insulin resistance, and other benefits, such as improved mitochondrial health.”

~ Miriam Kalamian

“Many people are shocked and dismayed when their conventional medical oncology team (doctor, nurse, dietician) recommends that they, or their loved one with advanced cancer, consume carb-laden liquid shakes and meal replacement drinks, such as Ensure and Boost, to provide the extra calories they are told will help stem weight loss. They ask me, ‘But doesn’t this feed the cancer?’ The unfortunate and simple answer is, ‘Yes, of course it does!’ What the team is offering is either a short-term fix for the impact of the cancer therapy on the gastrointestinal tract or misguided advice with regard to treating cachexia, the muscle-wasting syndrome that is often the actual cause of death in someone with advanced disease. How ironic—and sad—that these individuals don’t yet acknowledge that there are other options that will actually improve *nutrition*, not just calorie intake.”

Understandably, cachexia is one of the biggest concerns of a conventional oncologist.

Unfortunately, by offering Boost and Ensure they are, unknowingly, ironically, and sadly, “boosting” and “ensuring” the continued strength of cancer.

Check out our Notes on *The Metabolic Approach to Cancer* where we chat about *Nasha’s* brilliant, complementary distinctions on pathological vs. therapeutic weight loss.

And know that when you SKIP the Ensure you Boost your chances of conquering cancer.

*“Keep your eye on the prize:
low and steady glucose
combined with high ketone
levels and a much improved
quality of life.”*

~ Miriam Kalamian

MEASURING KETONES + GLUCOSE

“Again, let me emphasize how important it is to test blood glucose and ketones. The feedback is invaluable in helping you determine if you’re on the right track. And don’t underestimate how empowering it is to see your numbers trending in the right direction! I also highly recommend that you track your food intake in Cronometer.”

When I asked my brother to let me know what tips were most helpful in his first 6 weeks, he created [this little page of notes](#).

You’ll notice at the very top he has “Cronometer. Master.” And bookended at the bottom we have “Testing glucose and ketones daily.” He got those two tips from Miriam and says they’ve both been HUGE!

As we discussed, [Cronometer](#) is a nutrition-tracking tool that Miriam loves. As with anything, it requires some time and effort to master but once you invest the few hours getting it, you can approach your nutrition with PRECISION. And, of course, when we’re using “ketogenic metabolic therapy as a targeted nutritional strategy” precision is super important.

So, we measure every gram of what goes into our bodies then we measure what’s going on INSIDE our bodies by measuring our glucose (we want it nice and low—Rick’s target is low 80s, high 70s) and our ketones (we want these guys nice and high—signaling that we’re using ketones for fuel and officially in therapeutic ketosis).

You know what happens when we aggregate and compound all those small wins [Progress Principle](#) style? Magic.

Here’s to pulling the levers, improving the quality of our lives and conquering cancer.

B

Brian Johnson,
Chief Philosopher

If you liked this Note,
you’ll probably like...

[The Metabolic Approach
to Cancer](#)

[Cancer as a Metabolic
Disease](#)

[Tripping over the Truth](#)

[The Case Against Sugar](#)

[Fat for Fuel](#)

[Grain Brain](#)

[Anticancer](#)

[The Keto Reset Diet](#)

About the Author of “Keto for Cancer”

AUTHOR



Miriam Kalamian is a nutrition consultant, educator, and author specializing in the implementation of ketogenic therapies. She earned her master of education (EdM) from Smith College and her master of human nutrition (MS) from Eastern Michigan University. She is board certified in nutrition (CNS) by the Board for Certification of Nutrition Specialists.

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Brian Johnson loves helping people optimize their lives so they can actualize their potential as he studies, embodies and teaches the fundamentals of optimal living—integrating ancient wisdom + modern science + practical tools. Learn more and optimize your life at [optimize.me](#).