How to Produce the Healthiest Foods Imaginable

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December 30, 2023

Story-at-a-Glance

- Low-carb/high-fat diets ultimately backfire because they inhibit glucose metabolism, which is the most efficient form of energy production in the mitochondria; they also impair thyroid function
- One of the reasons why ketogenic and carnivore diets are usually helpful for a time is because, if implemented properly, you're radically reducing your intake of omega-6 fats, linoleic acid (LA) in particular, which is one of the primary drivers of ill health
- LA is a primary driver of disease, in large part due to its detrimental effect on mitochondrial function and, hence, energy production
- Your body has a certain amount of energy and a number of biological processes that it can turn on or turn off with that energy pool. The more energy you have available, the more functions your body can turn on. When your energy production is lower than required to maintain all functions, your body must downregulate certain functions, which ultimately results in problems
- One of the easiest ways to assess how much energy your body is producing is to take your body temperature. Take your temperature 30 to 40 minutes after breakfast and midday. You want to see a rise in temperature

The interview above features Ashley Armstrong, who's an expert in two areas. One is producing some of the healthiest food in the United States, and the second is understanding how your body uses it and how to select the right types of food to optimize your biology, based on the late biologist and thyroid expert, Ray Peat's, principles of bioenergetic medicine. She also is a certified personal trainer with a Ph.D., MS and BS in engineering.

Like many others who are trying to improve their health, Armstrong tried low-carb diets, fasting, keto and even carnivore diets in the past. But while these all led to improvements initially, they didn't eliminate them, which ultimately led her to investigate Peat's principles.

> ***"Ray Peat, he honestly saved my life and I owe so much to that man,"*** **she says.** ***"I'm forever grateful for him. The biggest wake-up for me was measuring my body temperature. I was on a carnivore diet and measured my body temperature — it was 96.5 degrees Fahrenheit.***
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> ***I was like, wow, no wonder my hair is thinning. No wonder my complexion is so pale. No wonder I'm not sleeping through the night. There was just a number of red flags. That body temperature measurement just woke me up. It's what I needed to [realize] I'm not thriving, I'm just surviving.***
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> ***I've been implementing Dr. Peat's principles for over three years now. I have more energy in life than I think I've ever had, even as a teenager. And it's just amazing to see how being not restricted with your food, just being strategic with macros, types of food, how powerful that can be for your energy production."***

The Problem With Low-Carb and Keto

As I've detailed in previous articles over the past year, low-carb/high-fat diets ultimately backfire because they inhibit glucose metabolism, which is the most efficient form of energy production in your mitochondria; they also impair thyroid

function. Your thyroid is crucial for energy production, and if your thyroid doesn't work, you're down the creek without a paddle.

One of the reasons for this is because ketogenic diets increase the stress hormones – cortisol, glucagon and adrenaline. On the other hand, one of the reasons why ketogenic and carnivore diets are usually helpful for a time is because, if implemented properly, you're radically reducing your intake of omega-6 fats, linoleic acid (LA) in particular, which is one of the primary drivers of ill health.

Energy Production Is Key for Overall Health

As explained by Armstrong, the best way to understand the bioenergetic principle is to think of your body as a system. It has a certain amount of energy, and a number of biological processes that it can turn on or turn off with that energy source.

The greater your energy pool, the more functions your body can turn on. When your energy production is lower than required to maintain all functions, your body must downregulate certain functions, which ultimately results in problems. The human body is designed to promote survival, so it's going to prioritize things like your heart rate.

Functions that aren't necessarily vital for survival in the immediate moment, like sex hormone production, reproductive function, digestion, sleep and high cognitive thinking, get downregulated first. When you increase energy production, however, your body can then expend energy on those functions and bring them "back online."

Using Body and Pulse Measurements as Guides

As explained by Armstrong, one of the easiest ways to assess how much energy your body is producing is to take your body temperature.

"High stress hormones can keep your waking body temperature elevated," she says, *"so you've got to do your waking temperature 30 to 40 minutes after breakfast, and then I like to do midday. You want to see that temperature rise.*

For many who are on low-carb or who are living on stress hormones, they're going to have potentially high waking body temperature, but after breakfast, that temperature may drop. That's because the food you're consuming is lowering your stress hormones and your actual body temperature is then better exposed.

So we want to see that body temperature rise. And I love how both of us are so passionate about linoleic acid. As human linoleic acid consumption has gone up, human body temperature has gone down. So, the types of fats that we are consuming in our diet is impacting energy production in a negative way.

It's shown with obesity rates out the roof. It's shown with the decline in our body temperature. It's shown with the decline in our healthy life expectancy, which is bizarre as a First-World country. There are just so many profound effects.

But when we just think of it as energy production — the more energy we can give our body to be able to perform functions, the better it's going to function. I asked this question to someone who is really adamant about fasting. I said, 'If you've got two bodies, one body that's fasted and the other body that is fed nourishing food, which body is going to thrive and function better?'

It's obvious. If you add a third person fed more of a standard American diet, of course maybe fasting is going to make you feel better, but you can elevate yourself a step above. You don't have to rely on fasting to increase energy production. Your body is not going to increase energy when you're not [putting] energy in."

Indeed, when it comes to fasting, one of the primary benefits is that it lowers the fuel for gram-negative bacteria that produce endotoxin in your gut. Low-carb does this as well.

Endotoxin, estrogen, LA and stress hormones will all decrease your mitochondrial function, mediated in big part by your thyroid function. Those are the big things that need to be reduced to enhance your mitochondrial function and energy production within the mitochondria.

How LA Harms Your Energy Production

As mentioned, LA is a primary driver of disease, in large part due to its detrimental effect on mitochondrial function and, hence, energy production. Your body can use both fat and glucose for energy. Muscle, in particular, will use fat for fuel, as will your heart. So, fat is not bad, but it's important to realize that different fats affect your body in different ways, so it's crucial to get the right fats. Armstrong explains:

> ***"The different types of fatty acid molecules have drastically different structures and those impact the internal environment inside of us. They impact how your body is producing energy. The more saturated we can become, the better our internal environment is going to be.***
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> ***When someone goes low-carb, maybe they reduce the amount of packaged food that they're eating that contains a ton of vegetable oil and linoleic acid, and so potentially they're resaturating some of their tissues.***
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> ***But when you learn about what livestock are being fed these days, then you realize that a high animal fat diet can still contain quite a bit of PUFAs [polyunsaturated fats] and linoleic acid, depending on what those animals ate. So, think it's important to consider the amount of each macronutrient that you're intaking because that can have profound impacts on your energy production.***
>
> ***Saturating your tissues is going to take you to the next level, but adding in appropriate levels of carbohydrates is going to allow you to take your consciousness and energy production level to the next level [beyond that]."***

The types of carbs you eat matter, however. I'm convinced the

ideal carbohydrate is fresh, ripe fruit. Ripe is the key here. Of course, some fruits are better than others. Watermelon, for example, is among the best. Watermelon with feta cheese and a little mint on top makes for a delicious snack.

Aside from containing a lot of water, watermelon also contains a substance called citrulline, which converts into arginine, a precursor for nitric oxide (NO). NO is important to your body, but the caveat is that it needs to come from real food. Drugs like Cialis or Viagra, which act by increasing NO, will accelerate your path toward premature death. Artificial citrulline and other synthetic amino acids that raise NO are also best avoided.

> ***"In Michigan, I rely a lot on frozen fruit,"*** **Armstrong says.** ***"In the summertime I'll go to strawberry fields and pick strawberries when fresh and then freeze a ton of them. Same thing with blueberries and peaches. And then I rely on a lot of apples in the winter because apples are abundant around here and can be stored."***

Juices also have their place. Cold-pressed, pulp-free orange juice, for example, is a good choice. The reason you want pulp-free is because if you're like most people, you have gram-negative, endotoxin bacteria in your gut that will thrive on the pulp, hence increasing endotoxin production.

So, if you have an unhealthy microbiome, pulp-free orange juice is a great carb that will gently and safely allow you to enter the higher carb world. As your microbiome improves, then you can transition to whole fruits and berries, which is, I believe, far superior to juices.

How to Produce the Best Eggs

Segueing into the topic of food production, Armstrong's farm produces some of the highest quality eggs I've ever come across, and the feed recipe I use for my own chickens came from her. But I recently discovered something that could make them even better, and that is to allow the chickens to scratch

for their own food.

Their ideal food is insects fresh from the ground, and while I previously thought chickens couldn't get enough food this way, meaning you had to give them something, that may actually not be true.

Unfortunately, in places where the ground freezes, chickens will not be able to sustain themselves on insects, and you definitely do NOT want to feed your chickens dehydrated bugs. Why? Because the bugs are raised on corn and soy, making them very high in LA.

But in places like South Florida, for example, you can easily produce top-notch eggs, quality-wise, by allowing your chickens to peck for insects, without giving them any supplemental feed. Armstrong is also making plans to let her chickens forage for bugs year-round:

> ***"I think that would be the ideal condition, and I have an image in my head of what I want to bring our farm to in the future – a greenhouse where we've got fodder growing on the ground and a worm farm … so [the chickens] will get abundant bugs in the winter. That's what I want to move towards, but that requires a lot of financial investment. So we'll get there one day."***

The Feed Has Dramatic Impacts on Animal Foods

The feed Armstrong developed, which I've been using as well, results in eggs that have about 75% less LA than conventional eggs. When it comes to conventional eggs, the LA is really the only problem. When the chickens are fed an ideal diet, the yolk in the egg is one of the best, most nutritious foods imaginable. The only thing that comes close is organ meat.

Egg yolks are the ultimate food; the problem is 99.99% of the eggs produced in this country are not that good. I don't care if they say free range, grass fed, organic, it doesn't matter. They're terrible because they have four times more LA than

they should. As noted by Armstrong:

> ***"It's important to consider organic soybeans have the same amount of linoleic acid as non-organic soybeans. Whether it's grown conventionally, organically does not change the fatty acid composition of soybeans. You don't want to be eating eggs from chickens fed a bunch of soy vegetable oil and other high omega-6 PUFA foods."***

According to Armstrong, the feed of the chickens may even determine the eggs' allergenicity. In other words, if you're allergic to eggs, you could potentially be able to eat the eggs from correctly-fed chickens.

> ***"What is soy high in? Phytoestrogens that can be very problematic for some people. If a chicken is eating phytoestrogens that can be problematic for humans, those get passed through into the eggs. We have a number of customers that cannot eat any other eggs, but they're totally fine with our eggs. And it's because of the diet of the chicken.***
>
> ***So if you have allergic reactions or problems with eggs, try a different source where they're not fed soy. Some people can be allergic to corn as well, and that allergenicity can pass through the egg as well. But it seems like soy is the biggest culprit.***
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> ***But be careful of many corn and soy-free feeds, because those are high-PUFA ingredients like sunflower, flax, fish oil, vegetable oil and safflower oil. And so, just be really careful of your source, and ask what the chickens are eating. But yes, allergenicity of eggs I think really depends on what the chicken eats."***

LA-Rich Animal Feed Is Now Impacting Human Energy Production and Health

All of that said, it's still crucial to ensure your chickens have enough food, be it fresh insects or a carefully planned feed that is low in LA and high in healthy saturated fats and other nutrients.

"Your chicken is not going to thrive if it's underfed," Armstrong says. *"Your chicken is not going to thrive if it doesn't have food. I am trying to boost the metabolic rate of our chickens as high as possible. Just like us, chickens are monogastric single stomach animals, the types of fat that they are fed, the types of fat that we are fed impacts the types of fat inside of us.*

This is a little bit different for ruminant animals — cows, goats — but for monogastric chickens, pigs, their diet is very important. And this is why I am so passionate about it, because we have been lied to and convinced that saturated fat is bad for us.

So, you've seen a huge push for PUFAs in our diet. This is going beyond just human dietary choices. This is impacting our livestock food. And this is having profound impacts on not only livestock health, but also the food that we're consuming …

Even in the dairy industry, they're creating things called rumen-protected fats. They are PUFAs that in a typical rumen digestion system can go through the process called hydrogenation, which turns the PUFA into saturated fat.

They are designing rumen-protected fats so that the PUFA is passed through the rumen. The PUFA content of milk is increasing. That means any dairy fat — butter, cream, whole milk. The PUFA content of beef fat is increasing. And this is by design … Lard and chicken fat from conventional animals has the same amount of PUFA as canola oil.

This is profound. We have changed the types of fat inside of us. I think the linoleic acid content of humans has increased 136%. That is changing how our body is making energy inside of us. The types of fat we consume day-to-day have a long life inside of us — 600 days. So, the types of fat we're consuming day to day impacts our energy production for years to come.

It's unfortunate because this is just the reality for a lot of people, and that's why I'm so passionate about it. Our

> ***food system is designed in a way that is not setting us up for success. That's why I want to try to change it by going back to how our food was produced 100 years ago, where there was appropriate amounts of PUFAs in foods, small amounts, and saturated fat was the predominant fat source for both livestock and humans."***

High PUFA Diets Shut Down Your Metabolism

As explained by Armstrong, in nature, animals increase their PUFA consumption up to a certain amount to initiate torpor, which means their metabolism is so downregulated that they can survive the winter without eating. Think about that. Can you function optimally if your diet is one meant for hibernation? In that state, you have to eat fewer and fewer calories to avoid weight gain, which results in undernourishment and poor energy production.

> ***"I try to keep my PUFA consumption as low as possible,"* Armstrong says. *"You can easily track that in Cronometer and see what your total PUFA, total linoleic acid content is per day. If you have four conventional eggs, you're already at about 5 grams of linoleic acid in a day. And I would want people to be lower than that. All foods contain some amount of linoleic acid, so even milk is going to have a little bit."***

There's no question that LA is NOT an essential fat, even though it's categorized as such. It's not essential because nearly all foods contain it. It's virtually impossible to become deficient in LA if you eat food, regardless of what that food is.

Another fat that likely IS essential, but isn't widely recognized as such, is the odd-chain saturated fats (OCFAs) found primarily in dairy. You can learn more about this in "The Amazing Benefits of Dairy Fat." There's also evidence suggesting that if you don't get enough OCFAs in your diet, then high saturated fat intake might become problematic.

So, you need these odd-chain saturated fats. That's why you

need butter. You need milk. These are essential. Your optimized biology and health is dependent on these foods, because, again, the OCFAs help increase your body's energy pool. They boost energy production, which will improve how your entire body functions.

In the interview we also discuss how dairy improves the health benefits of eggs, as the calcium in the dairy reduces the conversion of tryptophan in the egg white into serotonin. Serotonin is another compound you simply do not want too much of.

You also want to make sure you're having enough carbohydrates with that meal. Carbohydrate oxidation produces 50% more carbon dioxide (CO_2), so simply having carbs with your eggs will raise your CO_2 level, which is very important for health.

> ***"So, for breakfast, have eggs, milk, some honey or maple syrup and fruit. Boom, there you go. You're drastically reducing the conversion of tryptophan to serotonin and it's a simple meal,"*** **Armstrong says.**

More Information

We discuss a lot more in this interview than what I've covered here, so for more fascinating details, be sure to listen to the whole interview. For example, we discuss the pros and cons of egg whites, and why most cheese sold in the U.S. is less than healthy, as many cheese producers are using a microbial rennet made by Pfizer that is derived from mold that eats genetically modified corn and soy.

We also discuss various ideas for improving the feed of chickens, and how to maintain maximum egg production in the winter with incandescent lights and red light therapy.

If you want to purchase eggs from Armstrong's farm, Angel Acres Egg Co., visit angel-acresfarm.com. She's also started a new private member food system that offers milk, cheese, low-

PUFA pork and low-PUFA chicken, called Nourish Cooperative. Both will ship farm-fresh food right to your door.

Connect with Dr. Joseph Mercola

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