

EPISODE 247**[INTRODUCTION]**

[0:00:21.1] AV: Hey, everybody. Welcome to Paleo Magazine Radio. I'm your host, Ashleigh VanHouten, AKA @themusclemaven on Instagram, if you ever want to say hi and catch up. I hope you're having a fantastic January so far. Based on social media at least, it seems a lot of people are doing a Whole30 this month, which I think is a great reset after the holidays. I don't know about you, but I made a couple food mistakes. So it's nice to get a reset and get all the sugar etc., out of your system.

I'm seeing people experimenting with some new year fasting protocols, people with lots of new fitness goals. It's all very exciting, because say what you will about New Year's resolutions, but if it gets people excited to learn new things and challenge themselves and be healthier, I'm all for it. Personally, I don't really have any nutrition goals currently. I'm just going to keep working on staying healthy and I think really just finding balance with my diet, because I tend to be either super strict or strictly cookies. So I want to try to aim for that happy medium, where I can get the best of both worlds. I'm going to be working on that.

As far as fitness goals, I'm going to be doing a lot more boxing, I think. At least the first quarter of this year, because it's fantastic exercise, great conditioning, it's an awesome useful skill to learn. It's good to know how to punch someone or something and it's extremely cathartic. I mean, it's hard not to feel better in general after spending an hour beating the crap out of a heavy bag. So that's what I got going on.

In podcast news, I do feel I spend a huge amount of time talking about carbs. Are they good? Are they bad? Do you need them at all? If you do, how much and when and, which ones? Can eliminating carbs be beneficial to treat certain diseases? It goes on and on. Maybe that's just a world I'm living in, but I feel we're all obsessed with carbs. So we might as well just keep the ball rolling with today's podcast, which actually isn't an interview. It's instead going to be me reading a research article from paleomagazine.com that I thought was just really useful and interesting.

I also want this to serve as a reminder that even if you don't subscribe to Paleo Magazine, like the actual magazine, you can get tons of great recipes and resources and articles on paleomagazine.com for free. Also if you subscribe to just our newsletter, you're going to get I think an e-mail a week or something. It doesn't cost you a thing and you get access to all the exclusive content that we're going to post online that average regular people are going to get. So I think it's worth your while, especially if one of your resolutions this year is to be healthier.

Definitely head to paleomagazine.com, check it out, spend some time there. In the meantime, I'm going to give you this thoughtful article called *Is Your Low-Carb Diet Wreaking Havoc on Your Gut Microbiome?* This is a topic we love to talk about here at Paleo Magazine Radio. I'll put the link to the actual article in the show notes. You can read it yourself if you want or refer back to it. This article is written by Eirik Garnas. He's a nutritionist, science writer, personal trainer and health coach. He has several years of experience with health nutrition coaching and personal training and has written for a variety of health and fitness magazines and websites.

On his website, darwinian-medicine.com. It's darwinian-medicine.com, Eirik seeks to bridge the gap between evolutionary science and medicine and locate the true causes of various diseases and health problems. Now it's worth noting here that the articles that I am going to be reading on the podcast now and in the future, or articles that we post on paleomagazine.com are the opinions and thoughts of the writer and not necessarily our thoughts, or opinions and certainly not endorsements from the magazine.

Basically, what I'm saying is this isn't meant to be formal or medical advice. It's just information for you to take and do with what you will. With that said, without further ado, here is the article and I hope you enjoy it.

[ARTICLE]

[0:04:10.3] AV: *Is Your Low-Carb Diet Wreaking Havoc on Your Gut Microbiome?* Low-carbohydrate diets continue to be a contentious subject, but they can be useful in certain applications. A well-designed, low-carbohydrate diet can provide all the raw materials the body needs to function optimally. However, if not judiciously planned and implemented, it can wreak havoc on the endocrine and immune systems and seriously detract from athletic performance.

Over the past decade, research has revealed that an improperly designed low-carbohydrate diet can also inflict severe, long-lasting damage upon the gut microbiome. The human body houses a complex mix of microbial and human cells in a 10 to 1 ratio. Normally, the two communities exist in a mutualistic equilibrium.

On the human scale, relationships change, friends lose touch and conflicts develop. But analogous interactions can also occur between humans and their microbes. If the body endure certain insults, or absorb certain foreign substances, the relative harmony between human and microbes may develop into civil war. This perturbation of microbial equilibrium, that's quite the sentence, can arise from many different factors, including antibiotic use, excessive cleanliness and inadequate exposure to natural environments.

The most important determinant of the human micro symbiosis however, may be diet. While a prudent, fiber-rich diet can confer healthy diversity to the microbiome, a processed fiber depleted diet may sacrifice that diversity and leave the ecosystem vulnerable to invading pathogens. This occurs all over the world today. In the blink of an eye on the evolutionary scale, humans have gone from eating bulky fibrous diets comprised of wild plants and animals, to eating highly-processed, calorie dense diets comprised of industrially produced food.

This shift has been too profound and too rapid for the human genome to adjust to and has thus fueled a mismatch between the microbiome, which rapidly changes in accordance with dietary alterations, and our human genetic material. Suddenly, the human immune system is no longer receiving the microbial communication it needs to function properly and it becomes vulnerable to pathogens. Part of this effect arises, because dietary starch, sugar, and saturated fats have replaced the short chain fatty acids that our fiber-eating ancestor's guts produced in large quantities.

The former are primarily absorbed in the upper part of the gastrointestinal tract. Short-chain fatty-acids, in contrast, are produced via fermentation of fiber and absorbed in the colon. SCFAs are critical in that they mediate immune-regulatory signals by binding to certain proteins in the GI tract. When they are replaced by starch and sugar, it precludes this communication and

allows undesirable bacteria to proliferate. These phenomena are intricately linked to quantity and quality of dietary carbohydrate.

Highly processed, western-style diets wreak havoc on the gut microbiome, but they aren't alone. Even a diet built exclusively from whole, minimally processed foods may leave the microbiome in a compromised state if quantities of carbohydrate, including fiber, fat and protein are imbalanced.

I have personal experience with these pitfalls. For years, I ate a whole foods diet that didn't agree with me nor my microbes. At the time, I ate a diet deemed healthy by the low-carb community; rich in protein and fats with little carbohydrate. I did eat some vegetables, but they were mostly non-starchy varieties. Despite my adherence to this "healthy diet", I experienced declining health and athletic performance.

Frustrated, I made a slew of further dietary changes over the following years. I had so deeply bought into the theory that a low-carbohydrate diet was optimal, however that reversing my downward spiral took quite some time. In retrospect, I realized that the crux of the problem wasn't low-carb eating per se, but rather my insufficient intake of fermentable carbohydrates. i.e. the substrates that would feed the microorganisms in my gut.

Today, I also consume more non-fermentable carbohydrates than in the past, but still less than the average standard American dieter. My experience is not uncommon. Similar physiological processes likely affect most people who eat very low fiber diets. A large body of evidence now shows that low-fiber diets can wreak havoc on the gut microbiome. Also, a high intake of evolutionarily novel, high-fat foods, such as cream, bacon, butter and ghee, a common practice in low-carb diets can alter the microbiota and release bacterial endotoxins into systemic circulation.

Another worrisome consequence of decreased microbial biodiversity is its epigenetic effect. A very low-fiber diet will reduce the genetic diversity of your microbiome, such that certain microbes may completely disappear from your gut for lack of consumable substrate. This will confer a much less diverse population gut bacteria upon your offspring as well.

What's the solution? Is it sufficient to add a couple tomatoes to your standard bacon and eggs breakfast? Eat an apple with your lunch and include some lettuce, cucumber and cooked onions with your high-protein, high-fat dinner? Not so fast. The fiber content of these popular types of plant foods is quite low, because humans have long been selecting for size and sugar content in their edible plants, rather than fiber or micronutrients.

Indeed, many domesticated plant foods are lower in fiber than wild varieties. The potatoes and other starchy roots and tubers at your health store are markedly different from the underground storage organs — wow — eaten by hunter-gatherers such as the Hadza. Underground storage organs! Right. Hence, nourishing the gut on a low-carb diet requires more than just adding a little fruit and a small daily portion of non-starchy veggies. Rather, we must deliberately seek out and eat a plethora of fiber-rich foods. Be aware that it's neither necessary nor wise to rely on pasta, breads and other cereal-based products for fiber. Good paleo, friendly-fiber sources include onions, leeks, green bananas, roots, tubers, artichokes and fennel; all are low sugar and relatively rich in fermentable fiber.

Before we conclude, I'll reiterate that there's nothing inherently wrong with low-carbohydrate diets. Our definition of low-carb intake however, is generous when viewed through the lens of evolution. A diet of 20% to 40% carbohydrate by calories is certainly low-carb, compared to the typical green-based western diet. However, compared to a typical hunter-gatherer diet, its carbohydrate content falls well within the ancestral norm. The difference is that our primal forbearers generally ate a higher proportion of fermentable carbohydrates than most contemporary low-carb dieters do. We don't have access to many of the foods hunter-gatherers do, so we can't replicate their diets. However, it is still instructive to study our distant ancestors' dietary habits to learn from their broader nutritional patterns.

In conclusion, we now know that the critical importance of tending our microbial gardens via our dietary choices. Your intestinal microorganisms, just like your cells, need energy to survive. Eating plenty of fiber and avoiding evolutionarily novel fluids that disrupt the microbiome allows your beneficial gut bacteria to flourish. A highly processed low-fiber diet however, encourages gut dysbiosis, inviting pathogens in and starving the beneficial bacteria you need in your corner. Eat those weeds.

[END OF ARTICLE]

[0:11:01.1] AV: All right, everybody. Thanks for listening. Tune in next week when we nerd out on mushrooms with mushroom expert, Jeff Chilton. He is the founder of Nammex Mushrooms and we're going to talk about adaptogens, what they are, which ones are best for supporting specific needs or challenges. So if you have things you're working on and you want to know which adaptogens, or mushrooms best help that, that would be really illuminating for you and also, how to make sure you're buying the best-quality and most bioavailable products. Because it turns out that there is a pretty wide range and discrepancy in the quality and freshness and just what you're actually getting when you're buying mushroom products.

Also, we talked about “regular, normal” mushrooms, like how you’re going to see in your salad. We talk about the best and tastiest ones to add to your diet and how that will help you get healthier. After this interview, you're going to know enough about mushrooms to really wow anybody at a super nerdy dinner party. So make sure you're subscribed to Paleo Magazine Radio on iTunes, so you don't miss the episode.

Of course, if you're enjoying the podcast, please share the love. Leave a rating and review on iTunes, or even just share the podcast that you're listening to on social media and tell people that it's great and they should listen to it too. You can tag us social media across any platform. We're everywhere online @PaleoMagazine and you can tag me on Instagram @themusclemaven, so that we can help share it too.

That's it for today. Thanks and have a great week.

[OUTRO]

[0:12:28.0] AV: The intro music for Paleo Magazine Radio is a song called Stronger performed by Alter Ego and I hope you love it.

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