

Unscientific Claims, Abandoned Food Groups, and the Deeper Cultural Issues with a Restrictive Dieting Approach

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COMMENTARY

A Critical View of the Current State of the Keto Diet

Cardiologist Dr. Paolo Raggi discusses the Unscientific Claims, Abandoned Food Groups, and the Deeper Cultural Issues with a Restrictive Dieting Approach offering a critical view of the current state of the Ketogenic Diet.

In a society where quick results are highly valued, the popularity of low-carb diets shouldn't come as a surprise. The Keto diet has been shown to lead to rapid and sensible weight loss. The fact that it allows people to eat as much meat, dairy, and other fats as possible is certainly another draw. However, the ability to drop pounds quickly isn't the only effect of the Keto diet. Studies have shown that low carb and high-fat diets like Keto can lead to a substantial rise in low-density lipoprotein cholesterol levels. For this reason, most mainstream physicians and nutritionists are hesitant to endorse the Keto diet for the long term.

We recently sat down to talk with Dr. Paolo Raggi to hear a critical view of the Keto diet. Dr. Raggi was named Academic Director of the Mazankowski Alberta Heart Institute and Section Chief, Cardiology, at Alberta Health Services in 2012. He also serves as Chair of Cardiac Research. Dr. Raggi's research interests are preventive cardiology, surrogate markers, and imaging of atherosclerosis and cardiovascular disease in patients affected by end-stage renal disease. His clinical practice focused on the interpretation and coordination of cardiac imaging to diagnose coronary artery disease, congenital cardiac anomalies, and evaluation of left ventricular function and viability.

He is also a nationally and internationally recognized clinical investigator and a contributor to major peer-reviewed journals and books. In November of 2019, Dr. Raggi co-authored a paper titled "The ketogenic diet: Pros and cons," together with Dr. Blair O'Neill, who we interviewed in a previous article. The paper presented a debate between two leading cardiologists with largely differing views on the effectiveness, sustainability, and safety of the ketogenic diet compared to alternative options. While Dr. O'Neill is mainly supportive of the Keto diet—though recognizing the need for further scientific research—Dr. Raggi is significantly more skeptical about the long-term effects of restrictive diets like the Keto Diet.

This short article summarizes three of his main concerns regarding long-term adherence to the Keto diet.

THE ISSUE OF LDL ON A KETO DIET

In the paper Dr. Raggi co-authored with Dr. Blair O'Neill titled "[The Ketogenic Diet: Pros and Cons](#)," he says that the Keto Diet "also causes a substantial rise in low-density lipoprotein cholesterol levels, and many physicians are therefore hesitant to endorse it. In view of the popular uptake of the keto diet even among subjects

not in need of weight loss, there is some preoccupation with the potential long-term consequences of a wide embrace of this diet by large segments of the population."



DR. PAOLO RAGGI

In our interview, Dr. Raggi goes even further by asserting that "the keto diet is actually known to cause a spike in LDL levels. Proponents of the keto diet would lead you to believe that the higher LDL counts are harmless because they are the large, buoyant, and supposedly not dangerous LDL. However, we know that any LDL cholesterol is dangerous because it's the number of LDL particles, not the size of the LDL particles that matters."

In the paper co-authored with Dr. O'Neill, Dr. Raggi goes on to say:

It is worrisome that virtually every study involving Keto, several metanalyses of Keto as a weight losing diet, and a

controlled experiment in healthy subjects demonstrated a significant increase in LDL-c... Importantly, the number of particles and the serum level of apoB containing lipoproteins have been clearly shown to increase cardiovascular risk, not the size of the LDL particles.

Other potentially relevant effects of the keto diet are the improvement in glycemic control and reduction in triglycerides and small, dense LDL lipoprotein particles concentration attainable with this nutritional approach. However, the total number of apoB containing lipoproteins is substantially increased in patients adopting the ketogenic diet. In view of the risk of cardiovascular disease associated with an elevation in apoB containing lipoproteins, subjects without diabetes and the metabolic syndrome should think carefully whether this lifestyle is advisable for any protracted period of time.

The claim that LDL protein is not dangerous for one's health is misleading in the sense that there is not enough available scientific information to make that claim, according to Dr. Raggi. There are no peer-reviewed and scientific studies on cardiovascular patients or the general public that show that there are "good" types of LDL protein. Though there may be a few studies in animals that show that smaller, more tightly packed LDL might have an easier time getting into arteries, the human evidence has not yet been scientifically determined. Promoting the supposed "harmlessness" of large-particle LDL cholesterol, in the view of Dr. Raggi, is misrepresentative and potentially dangerous.

THE MYTH OF RAPID WEIGHT LOSS

In the article mentioned above, co-authored with Dr. O'Neill, Dr. Raggi also says that *"it is hard to image a debate more animated and scientifically weaker than any debate centered around diets. The ketogenic diet may happen to have some merits, but the excessive fervor with which it is often defended by its proponents makes it appear as another of the fads we have lived through, all too often unsupported by good evidence."*

The Keto Diet is consistently the "most Googled diet" on a year-by-year basis. The popularity of this diet is perhaps centered on the ability of Keto to offer a quick pathway towards initial weight loss goals that an individual may have. In a culture obsessed with quick fixes and easy solutions, it's perhaps easy to thus understand the attraction and popularity of the Keto diet.

Dr. Raggi believes that "the Keto diet tends to lead to initial weight loss that is much superior to anything else going people are going to try. It seems that the keto diet is favored in the first months because when you put your body into ketosis, you are essentially dehydrating the body, thus causing rapid weight loss."

Like many fad diets, however, this is essentially transient weight loss. If reliable studies did a long-term follow-up on Keto dieters two years down the road, the percentage of people who sustainably kept the weight off would most likely be very similar to other diets. From the point of view of sustainable weight control, Dr. Raggi believes that it is not the *type of diet* that matters so much as the number of calories that you put into your body and how many you get eventually burn.

Unfortunately, regaining the weight initially lost is not the only negative effect or consequence associated with the Keto diet. Discomfort to the human body is another, less-

discussed outcome that many people deal with while trying Keto.

"I haven't followed the keto diet...but I have heard that it is common for people to deal with constipation and brain fog," Dr. Raggi says. "It is interesting that people put themselves through these tortures to lose an extra half kilo over two years. Alternatively, you could walk 30 minutes a day and eat fewer calories, but it seems that nobody wants to do the easy thing."

THE RISKS ASSOCIATED WITH TOTAL ABSTINENCE FROM COMPLETE FOOD GROUPS

With its strict focus on limiting carbohydrates to somewhere between 20 and 50 grams per day, the Keto diet makes it extremely difficult for people to eat certain types of food groups such as grains and legumes. A small plate of pasta or a bowl of bean soup will most likely put people over the "carb threshold" rigorously followed by Keto advocates. However, strict abstinence from certain food groups such as grains or legumes also leads to potential health issues.

According to Dr. Raggi, transitioning to a diet that only contains animal proteins without any sugars, grains, or legumes can induce a switch in the gut microbiome. This radical nutritional change could potentially lead to other serious health problems, including cardiovascular problems, blood vessel disorders, and certain types of cancer. "It's not that I simply want to protect my bread. I am Italian, and I like my bread and pasta," Dr. Raggi says. "But there is a downside with restrictive diets. We are not born to be lions nor elephants. An imbalanced diet is always going to be a mistake," he believes.

Of the potential health problems associated with restricting food groups on an unbalanced diet, Dr. Raggi is especially worried about the adverse effects on the gut

microbiome. He believes that recent research into the gut microbiome tends to condemn the use of excessive amounts of animal protein, especially in the absence of anything else.

The lack of soluble fiber intake in a strict keto diet may lead to short-term benefits such as quick weight loss, as mentioned above. However, long-term adherence to a diet with very limited soluble fiber intake may only exacerbate the trends of increased cholesterol, LDL, VLDL, triglycerides, and total Apolipoprotein B-100 (apoB) while also degrading regulatory colonic bacteria that could result in more long-term issues.

Though Dr. Raggi recognizes that he is not an oncologist, he does affirm that sufficient sources of fiber in the diet play a fundamental role in protecting the body from oncological disorders of the GI tract and other parts of the digestive system.

"There are associated proteins and enzymes that are protective of some of the disorders like GI cancer found in grains, legumes, and other fibrous foods. I am very concerned that the lack of fiber in the (Keto) diet may lead to some of these imbalances. In this sense, the risk is much more than just cardiovascular," he states.

The American Institute for Cancer Research (AICR) confirms his position [by recommending](#) that people get "at least 30 grams of dietary fiber each day as part of a healthy eating pattern to lower cancer risk. The latest AICR report shows that each 10-gram increase in dietary fiber is linked with a 7 percent lower risk of colorectal cancer. It's possible that fiber also plays a role in lowering the risk of other cancers. However, that evidence is still limited.

Fiber is essential in favoring transit in the intestine and the excretion of toxins from the body. As any general practitioner will tell you, regular bowel movements are beneficial. A diet that restricts fiber could very well cause problems in this area.

Dr. Raggi also believes that the belief that an all-meat diet was the diet of our ancestors is flawed. Besides enjoying meat from the hunt, our hunter and gatherer ancestors certainly ate a lot of rough material as they foraged for food sources. Anthropological [evidence shows](#) that the Efe foragers of the Ituri Forest have historically relied on honey and all parts of the beehive as their primary source of food. This evidence suggests that some of our ancestors may have subsisted on extremely high-calorie diets.

Lastly, on the subject of the risks that come with restricting certain food groups, Dr. Raggi also mentions the specific threat of high choline levels in the diet.

Choline was only acknowledged as a required nutrient by the Institute of Medicine in 1998. This less-studied but important essential nutrient is naturally produced by the body. It plays a vital role in regulating liver function, healthy brain development, muscle movement, your nervous system, and metabolism. Choline is most often found in meat, cheeses, and eggs, all of which are mainstays in the Keto diet.

However, high amounts of choline in the body have been associated with low blood pressure, liver damage. They may increase the risk of heart disease and atherosclerosis or the hardening of the arteries. A 2011 study titled [Gut flora metabolism of phosphatidylcholine promotes cardiovascular disease](#) finds that "three metabolites of the

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dietary lipid phosphatidylcholine—choline, trimethylamine N-oxide (TMAO) and betaine—were identified and then shown to predict risk for cardiovascular disease in an independent large clinical cohort. Dietary supplementation of mice with choline, TMAO or betaine promoted up-regulation of multiple macrophage scavenger receptors linked to atherosclerosis, and supplementation with choline or TMAO promoted atherosclerosis."

The study essentially uncovered a relationship between gut-flora-dependent metabolism of dietary phosphatidylcholine and cardiovascular pathogenesis. As a by-product of gut flora, Choline levels might significantly increase under specific diets such as the Keto diet, where fiber is reduced, and meat, cheeses, and eggs are a prominent part of the diet.

THE CULTURAL PROBLEM WITH RESTRICTIVE APPROACHES TO DIETING

A recent CDC poll found that [almost half of Americans](#) are actively trying to lose weight. Indeed, obesity and unwanted weight gain are major health concerns affecting millions of people across North America. However, restrictive approaches to dieting may be one of the main culprits in sustaining weight loss goals.

At the end of the article mentioned above, Dr. Raggi states: *"Adopting the keto diet beyond the scope of weight loss begs the question of its sustainability and long-term safety, but also enjoyment in life. One can't help but wonder if the attentiveness to labelling certain foods' bad' and to be avoided, or 'good' and to be consumed induces an unhealthy preoccupation with food and enhances latent behavioral eating disorders. Developing a healthy relationship with food is a necessary part of life. Personally, I am not in favor of any restrictive approach and will always support moderation, enjoyable diets, and the promotion of healthy lifestyle habits."*

Developing a healthy relationship with the food we eat is not often a favored nutritional approach. In North America, diet "gurus" that capture large amounts of public attention tend to focus more on identifying "culprit foods" and developing a dietary pattern focused on reducing or eliminating all together these types of foods.

"There is a huge difference between Mediterranean people and North Americans when it comes to eating," Dr. Raggi believes. "We (Mediterranean people) tend to eat around the table. We choose fresh products. We go for natural foods as much as possible. We don't like highly elaborated and processed foods and fabricated flavors. We choose the simplest of flavors and combine them in the simplest of ways. We enjoy our leisurely meals around a table and together with family and friends."

For most people from Mediterranean cultures, Dr. Raggi believes that the best "diet" is determined simply by purchasing the best food you can afford. "Not everyone can afford lobsters every day, but even for people who cannot afford expensive food, they still choose original flavors, simple flavors, and food that is as unaltered as possible," he states.

Developing a healthy relationship with food as the foundation for any "diet" also goes beyond the actual food we decide to put in our bodies. Dr. Raggi also mentions that meals are generally a time of leisure where food preparation takes time and is done together with family. Once the meal is finished, people typically go for a walk or bike ride to the park. "People (from Mediterranean countries) generally aren't worried about the calories or carbs in the pizza they just ate because they also went out to play sports or go for a swim after the meal," Dr. Raggi states.

This scenario probably doesn't sound like the reality for most North Americans living fast-paced lifestyles where time for eating is at a premium. For Dr. Raggi, the lack of a cultural relationship with food and meals is one of the

underlying causes that leads to people wholeheartedly embracing restrictive diets like Keto without fully appreciating some of the potential, long-term consequences.

"This type of lifestyle where you are constantly preoccupying yourself with what you can and cannot eat is ridiculous," Dr. Raggi believes. Trying to constantly count calories or carbs and scrupulously adhere to certain restrictive thresholds is the starting point for failure, Dr. Raggi believes. "The point is not the calories or carbs," he says. "The point is how do I use choose real foods and use the calories to have a healthy lifestyle."

Dr. Raggi certainly has several science-based objections to the potential long-term consequences of the Keto Diet. The issues of high LDL counts and a lack of soluble fiber affecting the gut microbiome are just a few of the issues people on the Keto diet should be aware of. However, he also believes that the popularity of "quick-fix diets" like Keto is the result of an underlying and deeper cultural problem: the lack of any relationship with the food we eat.

"Until we stop forcing people to have a quick lunch at their desk, there is not going to be any type of quick fix," he says. ■

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