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# Do High-Protein Diets Cause Kidney Disease and Cancer?



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It seems like every other week there is a media uproar about the dangers of any number of foods. Lately, the target has been meat – specifically high-protein diets – and its supposed connection to a range of chronic diseases and early death.

I’ve discussed high-protein diets on my podcast [here](#), but with the recent press surrounding a new study on high-protein diets and cancer risk, there’s been yet another upsurge in concern over their safety.

In this article, we’ll take a look at the research behind three of the most common concerns about high-protein diets: kidney health, cancer, and longevity. By the end of this article, you’ll know what the real danger underlying high meat consumption may be, and how you can easily avoid it by eating a Paleo diet.

[Will a high protein diet give you kidney disease and cancer? Find out here!](#)

## High-Protein Diets Don’t Cause Kidney Disease in Healthy People

Before getting into this, I want to make something clear.

Research does show that high-protein diets can be harmful for people who already have chronic kidney disease, and low-to-moderate protein diets are generally advisable for these patients.

However, just because a low-protein diet can be therapeutic for those with kidney disease, doesn’t mean a high-protein diet causes kidney disease in the first place. (This is the same distinction I made when [critiquing](#) Dr. Perlmutter’s broad recommendation for a low-carb diet to prevent neurological disorders.) What I’m addressing here is the notion that high-protein diets *cause* kidney disease in healthy people—which is not, as you’ll find out, supported by research.

Since one of the main biological roles of the kidney is to metabolize and excrete nitrogen byproducts from protein digestion, many people believe that eating more





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difficult to overcome through whey powder alone. (1)

It's clear from controlled trials that high-protein diets do induce measurable changes in kidney function. (2, 3, 4) These changes include increases in glomerular filtration rate (GFR) (often referred to as "hyperfiltration"), and an increase in the size and volume of glomeruli, which are the functional filtration units of the kidney. (5) The sticking point seems to be in how these changes are interpreted, because while some researchers view hyperfiltration as a sign of kidney stress and even damage, others view it as the kidneys simply getting better at doing their job.

The best paper I've found to explain this issue shows that hyperfiltration is a normal adaptive response to additional protein in the diet, as opposed to a pathological condition that will eventually lead to kidney disease. (6) Pregnancy is discussed as one case where GFR increases significantly, but does not increase the risk for kidney disease.

A more compelling example is that of someone who has donated one of their kidneys, because in these cases, GFR in the remaining kidney increases as an adaptive response and remains elevated. One would expect that if hyperfiltration leads to or indicates kidney disease, increased kidney disease would be found in these patients down the road. However, studies have not found a higher risk for kidney disease in patients with one kidney, even 20 years after donation.

After reviewing all of the published research on high-protein diets and kidney disease, the authors of this paper concluded that while high-protein diets can be harmful for those with kidney disease, they do not harm the kidneys in healthy individuals. Since that paper was published, new studies have tested the effects of high-protein diets on renal function in healthy individuals, and generally, their conclusions are the same. (7, 8, 9)

## The Newest "Meat Will Give You Cancer" Study

Now to the primary motivation for this article: the study behind headlines such as [\*\*"Diets high in meat, eggs and dairy could be as harmful to health as smoking"\*\*](#). In this study, researchers reported a positive association between high protein intake and cancer incidence based on observational evidence from people between the ages of 50 and 65. (10)





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high consumption of plant protein and cancer or mortality.

For a thorough critique of this study, I recommend reading [Denise Minger's analysis](#). As she points out, the oft cited "healthy user bias" is less relevant to this study because protein hasn't been demonized such that people who eat more protein would be expected to have unhealthy lifestyle habits. In fact, the high-protein participants in the study actually had slightly lower rates of smoking.

The major downside of most observational studies is that they don't shed light on the mechanisms behind the associations they uncover. On this point, this study is designed better than most. Researchers hypothesized that increased IGF-1 activity due to high protein consumption may lead to a higher instance of cancer and an earlier death, so after observing a positive relationship between these variables, they designed a mouse study to test the mechanism of their hypothesis.

They found that mice eating a higher protein diet (18% of calories) grew larger tumors at a higher rate than mice on a low protein diet (4-7% of calories), and that the high-protein mice had higher levels of circulating IGF-1. (IGF-1 is a hormone that prompts cell growth in almost every tissue of the body.)

This is unsurprising, as earlier animal studies have shown that increasing protein intake (especially from isolated casein, which tends to promote cancer growth more than other sources of protein anyways) increases IGF-1 levels, and it's well-known that IGF-1 encourages the growth of cancer cells as well as healthy cells. However, as Denise brings up in her analysis, total protein restriction is only *one* way that researchers have been able to decrease circulating levels of IGF-1 in rodent studies.

## Is Protein to Blame—or Is Methionine?

This is also where the issue of longevity comes into play, because increased levels of IGF-1 are thought to contribute to accelerated aging and shorter lifespans. Many early studies found that calorie restriction reduced IGF-1 and increased lifespan in many animal models, in addition to protecting against cancer. [\(11\)](#) Researchers then discovered that restricting total protein—but not total calories—accomplished the same goal, often more effectively than calorie restriction. [\(12, 13\)](#)

Recently, the amino acid methionine was targeted as the primary operator in the protein/IGF relationship, and new animal studies demonstrated that methionine







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This evolution of research from calorie restriction to methionine restriction is already fascinating, but here's the kicker —a study done in 2011 found that supplementing with glycine had the same life-extending, IGF-reducing, health-promoting effects as restricting methionine intake (and restricting protein intake or overall calories)! [\(17\)](#)

## Eat the “Odd Bits”!

Granted, this is one study, and it was done in mice. But from an evolutionary perspective, this connection makes perfect sense! Until recently, humans were not getting a majority of their protein from high-methionine foods such as muscle meat and eggs. We just didn't have the luxury of heading to the nearest grocery store and picking out steak, chicken breasts, and pork tenderloin.

It can be easy to forget when these cuts are all packaged up nicely in the store, but those “prime cuts” used to be attached to bones, cartilage, skin, organs, and all the other odd bits that now usually end up in pet food (so at least Fido is getting his glycine!).

[These odd bits \(especially liver\)](#) also have other nutrients, in addition to glycine, that help the body metabolize methionine, including vitamins B6, B12, folate, betaine, and choline. As is often the case, traditional foods have a range of nutrients that work together synergistically, and whole foods tend to be much healthier when they're left whole.

So, will a high-protein diet give you kidney disease and cancer? As far as kidney disease goes, the research suggests that the answer is no. But when it comes to cancer and longevity, it depends on the overall context of your diet.

If you're getting a high percentage of calories from protein, and you eat muscle meats and eggs without glycine-rich foods and organ meats, there is reason to believe you may be at higher risk for cancer. Fortunately, if you're following the advice I outlined in [Your Personal Paleo Code](#) (published as *The Paleo Cure* in paperback in December 2014) and “eating nose-to-tail”, you need not be concerned about eating a high-protein diet.



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