

**What are the True Nutritional Benefits of Grass Fed Beef?**

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For the past decade or more there has been much discussion about the potential health benefits of grassfed beef. Arguments have been made that the benefits are similar to those of wild-caught salmon. Others have argued that the differences in fatty acid composition between grassfed and grain-fed beef are minimal in terms of any effects on human health.

If we look at the total fatty acid profile, we find that only slight differences between the two in terms of the ratios of saturated, monounsaturated and polyunsaturated fats. Both products will provide about 40-50% saturated fat, 40-50% monounsaturated fat, and 8-10% polyunsaturated fat.

But what is important and unique are the differences in types of fat. To explore the nutritional benefits, let’s look at the effects of replacing grain-fed beef with grassfed for a fairly moderate consumer of beef. This person is consuming an average of four ounces of grassfed beef (equal to a quarter-pound hamburger patty) three times a week, or 156 times a year. What would be the fatty acid dietary impacts over a year’s time?

Saturated Fats

Let’s first look at the level of saturated fats in grassfed beef compared to grain-fed. All beef, regardless of how it is finished, has three primary types of saturated fat: myristic fatty acid, palmitic fatty acid and stearic fatty acid. Of the three, myristic and palmitic are much more likely to raise blood cholesterol levels, while stearic acid has been found to be cholesterol neutral and to raise levels of HDL, the "good" form of cholesterol.

Grain-fed has significantly worse profile here. Compared to grassfed, a single, four-ounce serving of grain-fed beef contains 1.68 additional grams of myristic fatty acid and 2.31 grams more of palmitic fatty acid, but 0.34 fewer grams of stearic fatty acid.

Over the course of a year at the above rate of grain-fed consumption, a person would consume 262 fewer grams of myristic fatty acid and 360 fewer grams of palmitic, while consuming 53 grams more stearic fatty acid. This would concern the American Medical Association (AMA) due to the potential negative effects on heart and artery health.

Polyunsaturated Fats

One of the most important polyunsaturated fatty acids (PUFA) is omega-3, which has been touted for many years as being important to heart and overall body health and function. Just as oil is vital to the life of an engine, good animal fats are vital to the life of our bodies, and especially our brains.

A number of studies have shown that grassfed beef can contain three to five times more omega-3 fatty acids per gram of beef compared to grain-fed. At 4.48 grams, this does not amount to a significant difference in a single serving. But in a year’s time, our sample beef eater would have consumed 700 additional grams of omega-3 by eating grassfed beef.

And then there are the omega-6 fatty acids. All beef, regardless of the finishing diet, contains about the same amount of omega-6, so you are getting similar amounts in your diet whether you eat grassfed or grain-fed beef.

However, what is important in our diet is the ratio of omega-3 to omega-6 fatty acids.  The AMA and the American Heart Association (AHA) recommend an overall diet with an omega-3:omega-6 ratio of no more than 1:4. The average American diet provides a ratio in the 1:20 to 1:25 range, which is way out of proportion.

Fatty acid analysis data of grassfed beef shows omega-3 to omega-6 ratios ranging from 1:1.2 to 1:3.3, which is below the recommended 1:4 ratio. Similar analysis shows grain-fed beef with omega-3:omega-6 ratios of 1:11 to 1:22.

These differences produce effects. A study published in 2011 in the British Journal of Nutrition found that after only four weeks of eating grassfed beef, study participants showed significantly higher circulating blood levels of omega-3 fatty acids and lower levels of circulating omega-6 fatty acids compared to participants eating grain-fed beef. This was a randomized, double-blind study, which means that neither the participants nor the researchers knew which group was eating grassfed and which was eating grain-fed until after the study's conclusion.

One PUFA you may not be aware of is Omega-7 fatty acid, which has been found to lower LDL cholesterol and tryglycerides. As with the omega-3s, omega-7 fatty acid is three to five times more prevalent in grassfed beef. At 5.12 grams per four-ounce serving, this would equal about 800 grams of additional omega-7 in the diet in a year’s time for our moderate beef consumer.

Conjugated linoleic acid (CLA) is a PUFA with a number of positive benefits in our diet. CLA has been found to help protect against heart disease and diabetes. It has anti-cancer and anti-obesity properties, and is a very powerful antioxidant.

Grassfed beef and milk from grassfed dairy cows are rich sources of CLA and can contain three to six times more CLA than grain-fed beef or milk. Most grain-fed meats and milks are very low in CLA, as the grain-based diet reduces gut pH to an acidic state.  This directly inhibits the growth of bacteria that produce CLA. It is interesting to note that the average American diet contains far less CLA than the diets of people in many other countries.

While we frequently hear about CLA, we don’t often hear that grassfed beef also provides greater amounts of Vaccenic Acid. VA is a CLA precursor, and a percentage of the VA we consume is converted to CLA by our bodies. Eating grassfed beef thus provides us more of both "direct" and "indirect" CLA. At an extra 3.75 grams per four-ounce serving, in a year’s time our sample consumer will gain an additional 585 grams of CLA by eating grassfed beef.

So by eating four ounces of grassfed beef three times per week, the person in this example will consume 1,514 additional grams of unsaturated fatty acids in a year’s time compared to eating the same amount of grain-fed beef. At the same time, we will have consumed 1,333 grams less saturated fatty acid compared to eating grain-fed beef. Whether eating more or less saturated fatty acids is "good" or "bad" can be debated, but this sort of result is closer to simulating the dietary fat profile in game meats.

Vitamins, Antioxidants

Compared to grain-fed, grassfed beef can contain three to six times more Vitamin E, an antioxidant important to body function. While Vitamin E levels in grain-fed beef can be raised by supplementing their finishing rations, grassfed cattle get Vitamin E from their natural diet.

Another antioxidant that works in concert with Vitamin E is beta-carotene, a precursor to Vitamin A. Beta-carotene and other carotenoids are found in the pigment of plants, but are absent in grains. Carotenoids are the reason the fat of grassfed beef has a slight to deep yellow tint. Grassfed beef can have six to 10 times more beta-carotene than grain-fed beef.

Grassfed beef is also rich in the antioxidants catalase, glutathione and superoxide dismutase (SOD). Antioxidants protect body cells from the damaging and aging effects of cellular oxidation. This includes protecting polyunsaturated fats such as omega-3, omega-6 and omega-7.

Minerals

Grassfed beef is a rich source of vital minerals such as iron, phosphorus, potassium, sodium and zinc. Grain-fed beef contains significant amounts of these minerals, but grassfed meats have more. Minerals are essential for basic human body functions. They regulate fluids, control bone growth, help conduct nerve impulses, regulate our metabolism, are important in muscle function and provide many more benefits.

Summary

There is little published lifetime-scale research concerning diets and human health. More research needs to be done in this area, although it is difficult and expensive to do.

However, we know that eating junk food has cumulative effects, while healthier diets carry long-term positive benefits. It is reasonable to state that a diet including even a moderate amount of grassfed beef can have significant cumulative benefits over a lifetime of eating, and even over just one year.

These cumulative increases in favorable fatty acids, antioxidants and minerals may have a profound positive impact on our overall health and longevity. And these grassfed beef benefits can be compounded further by the inclusion of grassfed dairy products and other grassfed meats in our daily diets.