Research demonstrating the health benefits of Pasture for Life meat

The Pasture-Fed Livestock Association (PFLA) promotes the unique quality of produce raised exclusively on pasture, namely its human health, animal welfare and environmental benefits.

This paper focuses on the health benefits. Although by no means a complete list of all research, this summary gives an idea of the range of different benefits and the published studies that support them.

Summary

There is increasing evidence of the benefits to humans of eating pasture-raised and grass-fed meat and dairy products. Grass-fed meat tends to be lower in total fat and also has higher levels of 'good fats' such as omega-3. Milk and meat from grass-fed animals also has higher vitamin levels, particularly vitamins A (β-carotene) and E(α-tocopherol). Some studies also show higher mineral levels. Higher levels of Conjugated Linoleic Acid (CLA) in pasture-fed meat and dairy products may offer a potent defence against heart disease, diabetes and cancer.

Grass-fed and Pasture for Life certification

In the UK the term 'grass-fed' has no legal definition and can be used to describe produce from cattle and sheep that are 'predominantly reared on grass' ie, for just 51% of their lives. There is no specification for what they are fed for the other 49%. The Pasture for Life mark certifies produce that is guaranteed to be 100% grass-fed or pasture-raised. This is very important when considering the human health benefits, because when animals are fed grains, these benefits are lost. Throughout this document use of the terms grass-fed or pasture-raised or fed, means 100% grass-fed.

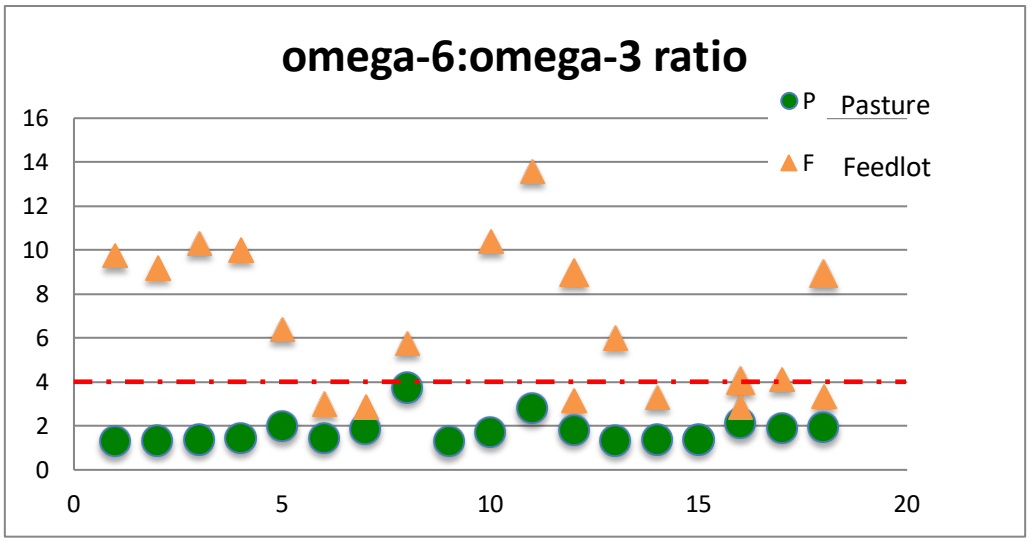
Omega-3 and omega-6 polyunsaturated fatty acids (PUFAs)

Omega-3 and omega-6 PUFAs are often cited as being beneficial to human health. However, it is the ratio between these two that is the most important factor. Omega-3 and omega-6 PUFAs have differing and often conflicting physiological functions and the ratio of these two classes is important for human health and development[1].

Two of these essential fatty acids are critical to human health, as they cannot be synthesized by humans: alpha-linolenic acid (ALA) which is an omega-3 fatty acid, and linoleic acid (LA), an omega-6 fatty acid. Additional, longer chain PUFAs are also critical to health and are synthesized from ALA or LA. Furthermore, as humans cannot convert between the two types, the dietary intake ratio of the PUFAs potentially has influence on overall health. People who have ample amounts of omega-3 PUFAs in their diet are less likely to have high blood pressure or an irregular heartbeat.

Humans probably developed with a diet that represents a ratio of omega-6 to omega-3 close to 1:1. At the onset of the industrial revolution, 140 years ago, there was a marked shift in the ratio of omega-6 to omega-3 fatty acids in human diets. Consumption of omega-6 fats increased at the expense of omega-3 fats. Modern Western diets typically have an omega-6 to omega-3 ratio closer to 15:1. It has been suggested that the change in this ratio may be linked to a number of poor health outcomes. Evidence suggests a healthy diet should aim for a ratio no higher than 4:1[2].

The following table brings together the results from a wide range of studies showing that pasture-fed beef has a lower, and therefore healthier ratio of omega-6 to omega-3 than grain-finished beef. In all cases the ratio is below the recommended ratio of 4:1.



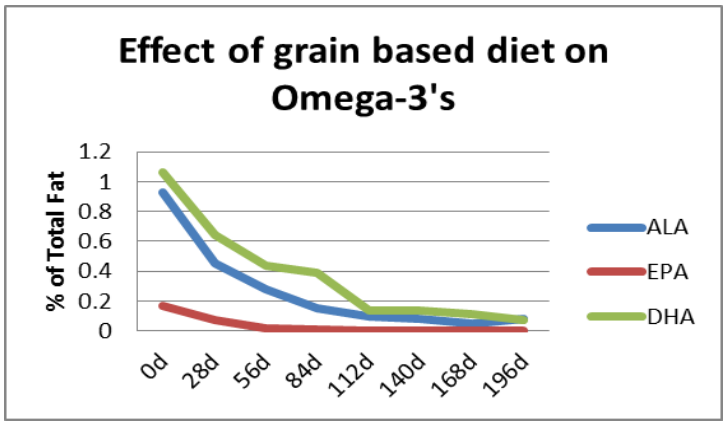
Omega-3

Omega-3 fatty acids are most abundant in seafood and certain nuts and seeds such as flaxseeds and walnuts, but they are also found in animals raised on pasture. The reason is simple. Omega-3 PUFAs are formed in the chloroplasts of green leaves and algae and 60% of the fatty acids found in grass are the omega-3 fatty acid ALA.

When cattle are taken off grass and given a grain-rich diet, which is the way most beef is finished today, they lose their valuable store of ALA, as well as two other omega-3 fatty acids, EPA and DHA.

Each day that an animal spends eating grain, its supply of omega-3 PUFAs is diminished, resulting in a significant decrease in omega-3s in retail beef cuts.

The graph below illustrates this rapid decline:



(Duckett, S. K., Wagner, D. G., Yates, L. D., Dolezal, H. G., & May, S. G. (1993). Effects of Time on Feed on Beef Nutrient Composition. *Journal of Animal Science* , 71, 2079-2088.)

Studies have shown that meat from grass fed animals has two to four times more omega-3 fatty acids than meat from grain-fed animals.

In 2011 the British Journal of Nutrition published a study that concluded that eating moderate amounts of grass-fed meat for only four weeks gives consumers healthier levels of essential fats.

The research showed that healthy volunteers who ate grass-fed meat increased their blood levels of omega-3 fatty acids and decreased their level of pro-inflammatory omega-6 fatty acids.

Conjugated linoleic acid (CLA)

Conjugated Linoleic Acid exhibits potent antioxidant activity. Research indicates that CLA may provide defence against heart disease, diabetes, and cancer. This was exemplified in 1996 when The National Academy of Sciences publication *Carcinogens and Anti-carcinogens in the Human Diet* stated:

"Conjugated Linoleic Acid (CLA) is the only fatty acid shown unequivocally to inhibit carcinogenesis in experimental animals"

Since this time there has been significant research reported showing the anti-cancer properties of CLA and many other potential health benefits[3]. For example, laboratory studies have shown a very small percentage of CLA, a mere 0.1 per cent of total calories, greatly reduced tumour growth. Another study found that adults with rheumatoid arthritis showed a significant decrease in blood pressure after CLA additions to their diet.

Beef is one of the best dietary sources of CLA.

Grass-fed beef contains significantly more CLA than grain-fed beef.

This is because grain-based diets reduce the pH of the digestive system in ruminant animals, which in turn inhibits the growth of the bacteria that produce CLA. When ruminants are raised on fresh pasture alone, their meat and milk contain three to five times more CLA than similar products from animals fed conventional grain based diet.

Antioxidants, vitamins and minerals

Grass-fed meat contains considerably more antioxidants, vitamins, and minerals than grain-fed counterparts.

Carotenoids, such as beta-carotene, are precursors to vitamin A and are found as pigments in plants. Grain-fed beef does not contain appreciable levels of carotenoids, for the simple reason that grains do not contain them. However, cows that eat carotenoid-rich grass and forage incorporate significant amounts of these compounds into their tissues. These carotenoids make the fat from grass-fed beef more yellow than the fat from grain-fed beef so fat colour can be a good indicator of how nutrient-rich the meat is.

Grass-fed beef also contains significantly more of the antioxidants vitamin E, glutathione, superoxide dismutase (SOD), and catalase than grain-fed beef. These antioxidants play an important role in protecting human cells from oxidation, especially delicate fats in the cell membrane including the omega-3 and omega-6 types.

Antioxidants such as vitamin E and beta-carotene also work together synergistically to protect the meat itself from damage during the journey from butcher to plate. These antioxidants are especially important when the meat is fried or grilled, because high-heat cooking methods can be more damaging to meat than wet or low-heat methods, such as stewing or braising.

Grass-fed beef also contains higher levels of beneficial minerals including zinc, iron, phosphorus, sodium, and potassium.

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