

# CHOOSE YOUR MEAT WITH CARE

by Ed Baker

Food for thought

*If you want to ingest high-quality protein, nutritious fats and a multitude of vitamins and minerals, then beef and milk are great choices for the active person. However, your best intentions could be foiled if you choose poor-quality sources.*

**D**espite the picture of a cow in a field that you may find on the side of your milk carton or the front of your steak packet, commercially reared cattle spend precious little time, if any, in the fresh air. Forty years ago, the average dairy cow yielded 3500 litres of milk per year. Now, many farms have broken the 10,000-litre barrier. Breed selection and intensive farming now means that these animals are likely to be worn out after 3 years, infertile and lame from thrice-daily milking sessions [1].

Animals bred for beef fare little better: both these and their milk-producing counterparts are fed a diet designed to fatten them as fast as possible ... the

same diet that will rapidly make humans fat! A grain-fed cow can expect a concentrated slurry of corn and corn byproducts (husks, cobs), soy and soy hulls, spent brewery grain, spent distiller's grain and other cereals.

The result of this diet is a significant change in the nutrient profile of the flesh, with potentially important consequences for human health, depending on your choice of grain- or grass-fed produce.

## Grass-fed versus grain-fed

Table 1 compares the nutrient profile of cattle reared or finished on cereal grains and those who have had



**Table 1:** Comparison of nutrient profiles of grain-fed and grass-fed beef [data source: 2].

Grain-fed	Grass-fed	Comments
Higher total fat	Lower total fat	
Higher myristic and palmitic SFAs	Higher stearic acid	Myristic and palmitic acids are more detrimental to serum cholesterol levels than stearic acid (the only SFA with a net neutral impact on serum cholesterol).
Higher IMF	Lower IMF	Grass-fed beef is lower in overall cholesterol; cholesterol is highly correlated to IMF.
Omega 6 to Omega 3 ratio (average) = 7.65:1	Omega 6 to Omega 3 ratio (average) = 1.53:1	Desirable total dietary ratio of Omega 6 to Omega 3 is between 1:1 and 4:1. Grass-fed beef produces significantly higher Omega 3: as grain is introduced, Omega 3 content declines.
Lipid profile indicates negative impact on LDL cholesterol, associated with CVD	2–3 times more CLA	CLA has numerous proven health benefits, including as a potent anti-carcinogenic and reducer of adipose tissue.
80% carotenoids destroyed in silage/hay processing	High levels of carotenoids, particularly beta-carotene	Sevenfold higher levels of beta-carotene in grass-fed beef – (significant for vitamin A absorption – look for yellow fat!)
Low AO profile	Three times more alphotocopherol	Alphotocopherol is a potent anti-AO isoform of Vitamin E. Not only does this fight cancer and strengthen the immune system, it also extends the shelf life of grass-fed meat significantly by acting post mortem to delay oxidative damage and discolouration.
Low glutathione content	Higher glutathione concentrations	Higher AO properties in grass-fed beef. Enzymes involved in AO production also protect favourable lipids in the muscles.

access to natural pasture, with respect to specific nutrients identified as important for a healthy, lean, active person.

### You are what you eat

Grass-fed beef is significantly higher in beneficial fats, antioxidants and beneficial vitamins than grain-fed beef. The nutrient profile of grass-fed beef makes it a smart choice for the health-conscious individual.

A typical objection in this context would be: *“Grass-fed beef is more expensive and harder to get!”*

The response to this would be to try spending less on wasteful meal replacements and invest in your health with high-quality pasture-fed meat. Search online for local farms that offer home delivery and make the commitment to achieve a leaner, healthier physique through consuming a healthier, more naturally reared animal.

So far in this column we have questioned the practice of excessive protein supplementation, suggested meat as a good choice for breakfast and looked at why the quality of meat can make a difference to your health. Future articles will expand on some of the nutrients included here and why they can be so beneficial.

### References

1. Lawrence F. *Eat your heart out*, Penguin, London, 2008.
2. Daley C, Abbott A, Doyle P *et al.* A review of fatty acid profiles and antioxidant content in grass-fed and grain-fed beef. *Nutr J*, 2010, **9**, 10 (doi 10.1186/1475-2891-9-10, accessed August 2012).
3. Natural Medicines Comprehensive Database, 2012. Available via: <http://naturaldatabase.therapeuticresearch.com> (accessed August 2012).
4. McCrorie TA, Keaveney EM, Wallace JM *et al.* Human health effects of conjugated linoleic acid from milk and supplements. *Nutr Res Rev*, 2011, **24**, 206–227.

### Abbreviations key and glossary for Table 1

- **SFA:** saturated fatty acid/s – they have often been demonised for their impact on serum cholesterol and heart disease, but research has now confirmed that not **all** SFAs are bad. Leaner cuts of beef (and other meats) with higher concentrations of certain SFAs have been shown to reduce total cholesterol in humans.
- **IMF:** intramuscular fat. One reason grain diets have become so popular is that they increase the amount of fat within the muscle, or marbling, which alters the taste and cooking methods. However, IMF has the highest correlation to total cholesterol, and grass-fed beef is typically leaner through the muscle – the part you actually eat.
- **Omega 6 and 3 EFAs:** EFA stands for essential fatty acid/s, or fats the body must obtain directly from food. These are a topic in themselves (to be covered in later issues), and the benefits of an optimal intake of Omega 3 fatty acids cannot be overstated. A range of chronic medical conditions are effectively treated or improved with increased Omega 3 consumption [3], including the following: • coronary disease • hypertension • rheumatoid arthritis • cancer • Crohn’s disease • obesity • inflammation-associated conditions such as atherosclerosis, diabetes, angina and inflammation from physical exertion • depression and anxiety (reduced by a rise in serotonin production).
- **CVD:** cardiovascular disease
- **LDL:** low-density lipoprotein, the so-called ‘bad’ cholesterol
- **CLA:** conjugated linoleic acid, proven to fight cancer and burn body fat [4]
- **Carotenoids:** pigments that contribute colour to plants and act as precursors for antioxidant vitamins, such as Vitamin A
- **AO:** antioxidant/s, the much-touted compounds that fight oxidative damage within the body
- **Glutathione:** a protein recently discovered to have antioxidant properties

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