# New study highlights differences in New Zealand beef

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Pasture-raised beef is the cornerstone of the New Zealand meat industry. But do we really understand the benefits we get from the meat when it is raised this way?

New research from the Riddet Institute indicates there are differences in meat quality relating to health and digestion, depending on how the animal is raised. A research team led by Dr. Lovedeep Kaur and Dr. Mike Boland from Massey University's Manawatū campus, has compared pasture-raised New Zealand beef to grain finished beef, and a plant-based alternative. They found differences in the fat content of the beef, potentially leading to better health outcomes.

The team examined how the human digestive system responds to the differing food compositions and how the nutritious proteins and lipids (fats) are released for the body to use. This was completed using lab-based or "in vitro" digestion simulators. This experiment imitates how a human digests food in the stomach and beyond.

The researchers found the protein from both the pasture-raised and grain-finished cuts of beef digested in a similar way, whereas significant differences were observed for fat or lipid digestion. Digestion of meat from pasture-raised animals released greater levels of good fats, relative to the generally considered "bad" fats.

Meat digested from pasture-raised New Zealand beef, showed higher total amounts of free long-chain omega-3 polyunsaturated fatty acids (PUFAs) and lower amounts of free, long chain saturated fatty acids (SFAs), than meat from grain-finished cattle. The role of long chain SFAs in increasing the risk of cardiovascular disease and conversely that of omega-3 PUFAs in providing health benefits is well established in food science research.

Dietary intake of long-chain omega-3 PUFAs has been recommended in dietary guidelines worldwide (UN-Food & Agriculture Organization, United States Department of Health, as well as dietary guidelines from the Ministry of Health, Health Navigator and the Nutrition Foundation), as these fatty acids have been reported to promote lowering of total

cholesterol and fats in the blood stream of people with high blood cholesterol. This suggests potential health benefits of consuming pasture-raised beef. The plant-based alternative tested in this study had no long chain omega-3 PUFAs.

Dr. Kaur says the research highlighted that meat protein is generally highly digestible and meat with higher digestibility is better for your body. As plant proteins are generally known to be less digestible than meat proteins, the plant-based meat substitute showed relatively lower protein digestibility. Differences in processing and other non-protein ingredients could also be responsible for the observed differences in protein digestibility, she says.

"Scientists generally agree that higher rates of release of amino acids [protein building blocks] during the digestion of meat leads to beneficial effects in muscle, such as maintenance or gain in muscle mass. This is particularly important for the elderly in managing sarcopenia [muscle wasting] and for athletes who want to increase muscle mass, for example. What was interesting to see in our research was that whilst an animal's protein composition is largely determined by its genetics, and the samples we tested contained highly digestible proteins, the composition of the fat in an animal, particularly the long-chain PUFAs, is largely affected by what it has been eating," Dr. Kaur says.

Provided by Massey University

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