

LOW COST COW/CALF PROGRAM

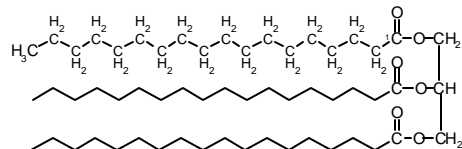
The Bulletin For Alumni Of The School

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About Fat *a continuation*

Fatty acids normally are not found as free fatty acids in the natural state. They are most commonly bound (in groups of three) to the alcohol, glycerol, shown on the right. In this form they are termed triglycerides. The following is an example of the triglyceride, tristerin. All three of the



fatty acids are stearic acid. Generally, triglycerides are comprised of a mixture of two or three different fatty acids, seldom just one. When we consume fat, it enters the small intestine where it is mixed with bile and emulsified. The fatty acids are in the form of soap and are free to be absorbed across the intestinal wall.

Essential Fatty Acids

In Vol 6, No. 4 of the Bulletin, we referred to the fact that Linoleic, 18:2 (ω -6) and Linolenic, 18:3 (ω -3) are essential fatty acids. They are essential because our tissues require them but cannot make them. They must be contained in our diet. Further, these acids are the precursors in the formation of other fatty acids that we also require. It often is said that ω -6 is the bad-for-you acid and ω -3 is the good-for-you acid. Since both are required, how can this be? It is not true! To some extent, these acids use the same metabolic pathways to reach their metabolic destiny. You might say that there is fierce competition for the necessary metabolic intermediates. If one is in extreme excess of the other, it is going to win the race. The one at the lower level is left behind. It is not the good/bad-for-you scenario that is important but rather the ratio of the two in our diets. The typical US diet has a ω -6 to ω -3 ratio of 20/22 to 1. ω -6 wins the competitive battle. For the acids to work in concert, the ratio in our diet should be 4/1 to 1, ω -6 to ω -3. Supermarket beef tallow has a ratio of 14 and milk fat of about 50, ω -6 to ω -3. Conversely, grass-fed/finished-beef tallow has a ratio

of 2.5 and milk fat from all grass dairies varies between 6 and 1.

Why Omega-3??

The health food addicts suggest ω -3 as a cure-all. This is not the place for a discussion of such claims. The area of ω -3 activity that probably is most basic to its necessity involves the neuroreceptors for the chemical neurotransmitters (dopamine, serotonin, acetylcholine, etc.) at nerve synapses in the brain. The synapse is where one nerve's ending is sending a message to another nerve's beginning. The neurotransmitters carry the message. Without ω -3, reception of the transmitter is impaired.

CLA

As analytical chemistry and technology advance, more fatty acids are identified and their structures defined. This has led to the identification of numerous isomers of Linoleic acid termed Conjugated Linoleic Acid (Vol 6, No. 5). Prior belief was that sufficient CLA is formed from ω -6 in the human to satisfy any requirements. More recently, there are indications that a dietary source of preformed CLA provides numerous health benefits. Reduced incidences of cancer, coronary heart disease and diabetes are among those indicated. Weight loss is another. While these benefits have been ascribed to CLA in general, more recent research suggests a more specific role for each of the isomers. This is an area of growing interest and consequently, scientific investigation. Milk fat from the grocery store contains about 4.5 mg of CLA per g of fat, whereas pastured dairy milk fat contains 20 mg per g of milk fat. Similarly, everyday beef fat contains 4.3 mg of CLA per g of fat. Fat from grass fed/finished beef can contain 20 times that amount.

Trans-fatty Acids

Where did we go wrong with the human diet? It may have started with the introduction of Crisco in 1911. Following WW-2, we were dumping surplus grain into the ocean. Milk and meat could be produced at a much lower cost by feeding grain rather than pasturing cattle. Ancel Keys measured the health of Japanese and their diets in '48. The Govt. followed with a

huge cholesterol study beginning in '74 and institutionalized cholesterol with the Poisoning of America Diet in '84. Whole milk and red meat took a big hit. Popularity of partially hydrogenated (*trans*-fatty acids) vegetable oils soared. Now we have one hell of a mess. LDL cholesterol is impacted slightly by diet. You can read about the cholesterol myth in books. Stearic acid, the primary saturated fatty acid in beef fat, does not increase the level of LDL nor is it deposited in fatty tissues. Dietary *trans*-fatty acids are proving to be bad for you. The Govt. is looking at the idea of requiring labels that show the quantity of *trans*-FA contained in foods. As Sally Fallon says, Ray Crock produced a health stick when he put the raw potato into hot beef tallow. Now, McDonalds, pressured to use partially hydrogenated vegetable oils, produces a death stick.

Choice

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