

EAT BEEF: The Importance of Carnosine

onedaymd.com/2021/11/how-linoleic-acid-wrecks-your-health-dr.html

Beef, even conventional grain-finished beef, has low Linoleic Acid. Grass fed beef has higher DHA and CLA, which makes it a healthier option. Beef is also the primary source of carnosine, which has been shown to be anti-atherogenic (fights buildup of plaque in the arteries).

Carnosine is also a mitochondrial stimulant, a sacrificial scavenger of advanced lipoxidation end products (ALEs), which is very similar to advanced glycation end products (AGEs). AGEs is another name for HNE and all the other reactive oxygen species generated from oxidizing Linoleic Acid.

Carnosine is the most effective scavenger for HNE. Carbonylation of proteins is basically the process through which proteins in your body get damaged and become ineffective. HNE damages 24% of the proteins in your cells, so carnosine can go a long way toward warding off this cellular damage. As explained by Goodrich:

"In heart failure, Alzheimer's and in AMD, one of the things they see is an inability of the cell to produce enough energy. The mitochondria are getting damaged. HNE does that damage. It damages 24% of the proteins in the cell, primarily around energy production.

One of the worst cancers is glioblastoma, a brain cancer. A researcher up in Boston, [Thomas Seyfried], decided to try and figure out why the mitochondria are getting damaged in glioblastoma, and found they all have oxidized cardiolipin. Every single cancer cell he looked at had damaged cardiolipin in it.

One of the ways your cells produce energy is they basically ferment glucose into pyruvate outside of the mitochondria. This is a perfectly normal part of metabolism and they produce something called pyruvate. A molecule called pyruvate dehydrogenase takes pyruvate into the mitochondria and converts it to acetyl-CoA so the mitochondria can burn it very efficiently for fuel.

Well, one of the things HNE does is it breaks pyruvate dehydrogenase, and they see this in Alzheimer's where their cells are no longer able to produce enough energy. This is why your cells are dying in Alzheimer's. The beta amyloid plaques in Alzheimer's disease are induced by HNE. There's a great model that came out of Harvard a couple of years ago showing that.

And in cancer, if you can't get pyruvate out of the cell, out of the cytosol, the part of the cell surrounding the mitochondria, it has to ferment there and turn it into energy, which is what we call the Warburg effect, where you start shifting over to this damaged primitive fuel system. The evidence seems to be that that's because you've broken your mitochondria.

Even the critical, the most important part of the mitochondria, complex 5ADP synthase — which is what takes all the energy coming from your mitochondria and turns it into ATP, which is what fuels the rest of your body — is damaged by HNE. This is a huge issue. There's no more fundamental problem in aging and health than protein damage."