

Methionine

What to eat? What to avoid? These are just some of the questions those of us trying to heal cancer naturally are faced with on a daily basis. As I addressed in our <u>HEAL</u> program, one of the keystones in a cancer-healing diet is avoiding methionine, but just what is it, where do we find it, why do we need to restrict it and how can we minimize it in our diet?

Methionine is a sulfur-containing amino acid that is a constituent of most proteins. It is an essential nutrient found most often in animal proteins. We need to restrict our methionine intake because, just like estrogen can "feed" an estrogen positive cancerous tumor, methionine also helps feed cancerous tumors.

Cancer needs methionine to survive and to form its protective protein barrier, the one which helps "hide" it from our immune system. Additionally methionine aids cancerous tumors in the production of new blood vessels (angiogenesis), which allows tumors to grow and metastasize. It also helps protect cancer cells from death (apoptosis). Methionine also contributes to the formation of new cancerous tumors (tumorigenesis).

What is the primary source of methionine? Animal proteins. So, yes, it's very important to avoid animal proteins as much as possible to quit feeding your cancer.

"Methionine occurs in all proteins in nature, to some extent. Overall, methionine is generally highest in fish, beef, dairy, eggs, nuts, seeds, and grains, respectively, when looked at on a mg per serving basis.58 Vegetables and fruits have the lowest content of methionine due to lower protein amounts. As a percentage of protein content, nuts tend to have the highest percent concentration (mg methionine/gram protein); however, since animal sources have more protein per serving, the content of methionine is higher for practical purposes. Thus, a vegan diet is fairly low in methionine."

https://www.naturalmedicinejournal.com/journal/20 15-12/role-methionine-cancer-growth-and-control

Unfortunately, some people immediately take it to the extreme ... sort of like the doctor who recommends removal of ovaries to try and do away with estrogen ... trying to remove all methionine from their diets, only to get frustrated when they learn that proteins from other food sources also contain methionine. But, that's okay as methionine, like so many other amino acids, does play a vital role in the proper functioning of our bodies.

"It is responsible for a number of important body functions and plays a critical role in your body's metabolism. It's also a powerful antioxidant and as such helps fight free radicals in the body as well as slow the aging process. Methionine is a sulfurcontaining amino acid that is responsible for the production of collagen, which is known to help enhance the condition of skin, hair, and nails.

L-Methionine may also help boost your immune system, as high methionine levels in the body can also increase the levels of other amino acids such as glutathione, homocysteine, and taurine, which all play important roles in immune function. In addition, selenium and zinc cannot be absorbed by the body without the aid of L-Methionine. Since L-Methionine acts as a chelator, it is also used in



helping treat acetaminophen and copper poisoning. This is because your body makes cysteine from methionine, which is in turn converted into glutathione, the main detoxification agent in the body."

<u>https://jonbarron.org/herbal-library/nutraceuticals/l-</u> methionine

The neat thing? It ends up that healthy cells have a way of basically recycling methionine, producing enough to maintain their proper functions. The other neat thing? Cancerous cells cannot do that! You have to provide the cancerous cells with methionine through the foods and supplements you ingest. "While dubbed essential, methionine is unique among the essential amino acids in that it is the only 1 whose long-term dietary deprivation is still compatible with life.1 Unlike the other essential amino acids, which must be ingested, methionine can be recycled by remethylation of homocysteine in normal cells.

Most cancer cells do not have methionine cycle enzymes intact, though.2 As a result, they need to have methionine available for growth processes. This metabolic difference in methionine usage may allow for a targetable vulnerability in cancer cells.

Noncancerous cells should be capable of surviving without methionine, while cancer cells would not. This has been demonstrated in animal models of various cancers.3.4 Methionine is needed for the production of polyamines (putrescine, spermidine, spermine), which are involved in cellular division and are found in higher concentration in tumors.11 Polyamines decrease apoptosis, increase proliferation, and are involved in tumorigenesis.12 Their inhibition has been proposed as a means of reducing cancer risk.13 Preliminary trials limiting polyamines (through diet and gut ecology manipulation) in men with metastatic prostate cancer suggest such deprivation may significantly delay cancer-related mortality.14,15

A recent study of breast cancer cells found that methionine deprivation reduced growth of tumorinitiating cells (TICs) (ie, the stem cell niche).16 The authors propose that since methionine is required for protein synthesis, its deprivation serves as a block to necessary anabolic processes. The authors conclude, "Our results may also explain the anticancer health benefits of caloric restriction, intermittent fasting and the vegetarian diet, by systemically reducing protein synthesis in TICs.

Ample animal evidence suggests that methionine restriction may affect the growth and/or metastasis

of cancers. Methionine restriction in rodents has led to tumor regression in xenografts of prostate cancer.28,29 Sarcoma-bearing nude mice deprived of methionine showed longer survival and regression of tumors.28 Rodents with implanted brain tumor xenografts achieved stability or regression with methionine restriction. Methionine restriction has also lessened metastatic spread of sarcoma tumors in mice.30"

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Accordingly, methionine presents us with a doubleedged sword, providing both benefit and harm to those of us working on healing our cancers. Fortunately, the healthy cells in our bodies can recycle their own methionine, keeping it available for maintaining our health. Eating a plant-based diet helps deprive cancer cells of their ability to grow, hide and survive. It helps prevent both metastasis and the formation of new tumor cells. Eating a plant-based diet also increases our chances of healing cancer naturally and living a full and productive life.

much methionine do How we need? Myfooddata.com states the recommended daily intake for methionine is approximately 728mg for a 154 lb person. (About 567mg for a 120lb person.) According to the Methionine Project a 100 gram serving of walnuts has 467mg of methionine. Doing the math, that 100 gram serving would equal approximately 64% of the daily recommended methionine for a 154 lb person and a whopping 82% for a person weighing 120 pounds, severely limiting the remaining allowance of methionine for the rest of the day. Fortunately, the density of walnuts is rather low and according to howmany.wiki, 100 grams of walnuts equals about 1 U.S. Measuring cup, so if one was to eat a small handful of walnuts, you're probably talking about 1/4 to 1/3 of a cup. Like anything else, moderation is often key.