

The Facts on Magnesium Stearate

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A few companies and some alternative health “professionals” have whipped up pointless concern over the inert flowing agent used in dietary supplements known as magnesium stearate. In each case the motivation appears to be one of promoting their own products – typically products lacking in actual quality of ingredients for the price being charged. As a leading expert on the subject of dietary supplement quality I have written this brief review to set the record straight and point out the flagrant misrepresentation behind such assertions.

Magnesium stearate is a magnesium salt containing stearic acid. Stearic acid is an 18 carbon long saturated fat, common in our food supply. It is readily metabolized to oleic acid (the monounsaturated fat found in olive oil). Stearic acid is unique among all saturated fatty acids because it does not raise [LDL cholesterol](#) levels.

10% - 12% of cocoa is fatty acids of stearic acid, one of the richest sources of stearic acid in the food supply. It is easy to get 5 grams of stearic acid (5,000 mg) by eating a bar of chocolate. By comparison, a dietary supplement capsule product typically contains between 1% - 2% stearic acid or 10 mg - 20 mg of stearic acid per capsule, or 1000 mg to 2000 mg per bottle (20% - 40% of a chocolate bar for the entire bottle).

Stearic acid is also a common fatty acid found in meat, poultry, fish, grains, eggs, butter, and milk products. In meat, it is 1/3 of the saturated fat. The average intake of dietary stearic acid in American women is 5700 milligrams a day and in men 8400 milligrams a day. (Click here for general information on stearic acid.¹)

My point is that the amount of stearic acid ingested in a vitamin product is a small percent of a fatty acid that you consume every day as part of your diet, a type of fatty acid that is not problematic in the first place.

Magnesium Stearate in Vitamins

Magnesium stearate has natural lubricant properties, something very important to the quality in how vitamins are produced. This is especially true for complex formulas with multiple ingredients which have inherently different chemistry properties (meaning that ingredients could stick together or clump in different ways based on their properties).

Once the raw materials of a vitamin product formulation have been mixed up it is very important to maintain the mix consistency, otherwise the nutrients going into the capsule will not be able to meet the label claims of what is in the capsule. By adding a small amount of magnesium stearate the nutrients don't stick together, thereby allowing a consistently maintained mixture.

Magnesium stearate also prevents ingredients from sticking to the encapsulation machine. This is also important, as certain active ingredients may otherwise adhere to machine parts and not get into your capsules in the desired amounts or at the stated dosage.

Making dietary supplements in a high quality way is far more complex than most people realize. There are numerous variables involved with nutrients that affect flowing and

sticking. These include particle size of the ingredient, moisture content, chemical nature, solubility, and cohesive nature. These factors vary based on the ingredients in any product and become more complex as the number of different ingredients in the product increases.

Companies that don't care about product quality could use excessive amounts of magnesium stearate simply to keep machines running at the fastest speed possible, but these companies wouldn't be putting anything of a quality nature in their products in the first place. This practice mostly applies to the makers of tablets, and is one of the problems why tablets tend not to dissolve very well for many people.

Capsule products are much easier to digest and absorb. I always spend the extra money on Vcaps (vegetable cellulose caps) and do not use bovine-derived gelatin capsules. I stay away from making products in tablet form, as it is common knowledge that they often come through the digestive system whole – especially products containing large amounts of minerals.

I use as little magnesium stearate as possible when formulating products, usually 1%. We use USP grade stearates derived mostly from palm oil or other natural vegetable sources, suitable for vegetarian diets. These raw materials are tested to US Pharmacopeia standards (known as pharmaceutical grade - very pure).

Companies not using the industry standard magnesium stearate may be hard pressed to prove that their vitamin capsules or tablets have a consistent dose. The FDA will be looking into this issue as part of their new GMP guidelines – as the quality and consistency of fill and legality of label claims will come front and center for companies that are not making products in ways that are understood to be good manufacturing practice. Right now, these companies can say whatever they want and don't have to prove anything – times are changing.

There is simply no known risk or technical reason not to use magnesium stearate in small and appropriate amounts during the production of dietary supplements. To the contrary, when used properly magnesium stearate assists in making a uniform and better quality product.

What is All the Fuss About?

Bad mouthing magnesium stearate is nothing more than a sales pitch. It is extremely irresponsible. A review of the product quality of the companies making such claims often leaves much to be desired. If you were to compare the products of these companies using the articles on product quality that I have written, you will quickly see that there is not much under the hoods of their products – yet the prices are hyped up nice and high to go along with the sales pitch.

Other groups in this category are network marketing companies selling drastically overpriced fruit juice – a true consumer scam. Then there are the liquid vitamin makers who would be quite fortunate to be able to demonstrate that the liquid in their product hasn't neutralized the active nutrients with a few weeks of mixing, long before you would ever get a chance to drink it – another consumer rip off.

The main “study” quoted by this collection of anti-magnesium stearate con artists is a 1990 cell study titled “Molecular basis for the immunosuppressive action of stearic acid on T cells.” Sure, the study title sounds incriminating. The study has nothing whatsoever to do with magnesium stearate or dietary supplements – and is totally irrelevant. If you like, you can read the entire study by following the above link.

The study is a preliminary cell study done by researchers who are trying to make new immunosuppressive drugs for people with organ transplants. In the experiment they expose T

cells and B cells to a lab concoction they brewed up which is a mixture of stearic acid, diatomaceous earth, and bovine serum albumin (a far different compound than magnesium stearate). The T cells and B cells were prepared in an antibiotic-rich medium and exposed to inflammatory toxic challenge prior to exposure to the lab-concocted test brew. The whole intent of the study was to injure T cells in some way, meaning that direct exposure of the T cells to the amount of the concoction had to be adequate to damage the T cells or the researchers weren't going to bother with the experiment.

You can readily see that such an experiment has absolutely nothing to do with dietary supplements. It is falsely represented as "proof" that dietary stearic acid is immune toxic – which the study does not prove at all. Remember, stearic acid is widely consumed since the beginning of human evolution every day by almost everyone and this study does not begin to approximate how stearic acid behaves in your body nor was it intended to demonstrate that issue.

Under experimental conditions, it would be just as easy to expose T cells to water and produce the same result. The reason the researchers didn't do that is because they were trying to figure out some type of concoction they could use as a new immuno-suppressive drug for organ transplant patients. The study was obviously preliminary, and never even meant anything to the field it was intended to impress (as no drug in this line has been produced in the 19 years following the study).

The ludicrous notion that this study has anything to do with human health is simply absurd. Those using and quoting this study as "proof" that magnesium stearate is a problem to your health are so deficient in integrity that anything they are trying to push off on you is of questionable value.

The most recent anti-magnesium stearate propaganda comes from several smooth-talking alternative health "professionals" (product sales-hype specialists) who state that magnesium stearate forms biofilms in your digestive tract and thereby interferes with absorption of nutrients and even food. No proof is offered, just their opinions.

Almost comically, the actual science says just the opposite. Stearic acid actually helps prevent the formation of biofilms ([click here for study](#)³).

These individuals are hoping you don't know what a biofilm is or how one is formed or maintained. From the sounds of it, they don't understand the subject either or they are intentionally conning people – either way they aren't very bright.

Biofilms are germ gangs. They assemble based on a quorum-sensing signal, like a bell tolling in the field telling farmers to come to town and pick up weapons and go to war. Biofilms in your digestive tract, such as *Candida albicans* biofilms or other bacterial biofilms are extremely problematic to human health.

These biofilm gangs need a fuel source to keep reproducing and growing. That fuel source is never a saturated fat because there is no point of biochemistry interaction in a saturated fat.

For example, a *Candida albicans* biofilm fuels its reproduction based on your intake of highly polyunsaturated fatty acids. This means that if you eat a bag of potato chips, corn chips, or French fries and you have a *Candida* biofilm, you just poured gas on the fire. *Candida* inserts oxygen molecules into the unsaturated bonds of the fatty acids (the more unsaturated bonds the better from *Candida's* point of view) forming a highly toxic inflammatory signal called an oxylipin. Oxylipins are reproductive growth factors for the biofilm. It is technically impossible to insert an oxygen molecule into a saturated fat, which is why it is not possible for stearic acid to promote biofilm growth.

The claim that stearic acid causes biofilms is a blatant lie. Promoting such a false concept casts considerable doubt on the integrity and intelligence of those making and forwarding these statements.

The bottom line is that magnesium stearate in dietary supplements is very safe and is an effective way to help produce quality dietary supplements. This has been proven by decades of use in the dietary supplement industry and health benefit by millions of consumers. There is no human evidence or study that shows magnesium stearate is in any way harmful. To the contrary, its safety is well recognized throughout the industry.