



INNATE  
wellness & medical center

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## **Butyrate (Conjugated Butyric Acid)**

Butyrate is an amazing molecule. From cancer and neurodegenerative diseases, to irritable bowel, it is proving to be a powerhouse.

Butyrate is a four carbon chain fatty acid that the intestinal tract uses as food. It is generated from the colon bacteria in conjunction with fiber products. If you don't have enough healthy bacteria and fiber in your intestinal tract, then the chances are good that you won't make enough butyrate.

Butyrate has also been shown to slow the beginning of cancer, in fact inducing what we call differentiation (making cells that were previously behaving like cancer cells – rapidly dividing, become normal again). In one study some 20 years ago animals with chemically induced tumors in the colon had reduction in the size and number of their tumors when they were treated with butyric acid enemas twice daily for eight weeks.

More recent research suggests that Butyrate quells the storm of cytokines that causes inflammation in the brain leading to scarring and cell death. By doing so, it is thought that chronic degenerative diseases like Alzheimers, ALS, and others may be slowed or even reversed. In fact, preliminary evidence suggests this is so when this nutrient is given in conjunction with others.

There are different kinds of butyrate. Some butyrates are attached to sodium, others to calcium and magnesium. Most people need calcium and magnesium so calmag butyrate is a reasonably safe option.

Butyrate also helps clean the liver, the gall bladder, and biliary tree in the liver. It also helps clean the bowel, helps control ammonia, and removes unwanted “renegade fats”.

In the case of cancer, Butyrate is what is known as a Histone Deacetylase Inhibitor. Fancy term, but the bottom line is it regulates cell division indirectly by regulating histones. Histones are the main proteins of chromatin which in turn regulate how DNA is copied. There are at least five of them and they change the shape of the DNA and make it either accessible or not. This in turn depends in part on butyrate as butyrate inhibits one of the enzymes responsible for modifying the Histones. That enzyme causes the histones to change shape and in turn allows the DNA to open up to be read by other proteins which in turn convert those instructions from the DNA to new proteins and other things. Regulating this process is what you want if you are trying to stop cancer.

In general 500 to 2000mg of butyrate is a reasonable amount for an adult, but some people take more. One should always take butyrate in conjunction with essential fatty acids and/or phosphatidylcholine and phosphatidylserine. These oils have a mixture of Omega 3, 6, and 9 fatty acids the body needs to replenish the cell's membranes and make them work properly.

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