

Folate and Folic Acid

We've recently received a number of inquiries regarding folic acid, an important ingredient in Juice Plus+ capsules and chewables.

These inquiries appear to have been caused by two things: 1) media attention about a genetic mutation that affects the metabolism of folic acid, and 2) an increase in the number of self-proclaimed "experts" who have taken advantage of this media attention to spread much confusion and misinformation on the subject.

This article is designed to provide you with factual information to help you answer these kinds of questions from your prospects or customers.

Our message is simple, clear, and supported by solid science: **that folic acid has many important health benefits; that folic acid is a safe ingredient; and that people with MTHFR mutation should not be concerned that taking folic acid is harmful.**

About folate and folic acid

Folate and folic acid are two forms of the same water-soluble B vitamin. Folate occurs naturally in foods including leafy vegetables (such as spinach and broccoli), okra, asparagus, tomatoes, fruits (such as oranges, bananas, melons, and lemons), beans, yeast, mushrooms, and meat (such as beef liver and kidney). Hence, there is a small base amount of folate in Juice Plus+ capsules and chewables from several of the dried fruit and vegetable juice powders contained in those products.

Folate is needed for the proper development of the human body. It is involved in producing DNA and in numerous other bodily functions. Complications from folate deficiency include anemia and the inability of the bowel to absorb nutrients properly.

Other conditions commonly associated with folate deficiency including ulcerative colitis, liver disease, alcoholism, and kidney dialysis.

Folic acid is the man-made form of this vitamin. Women who are pregnant or might become pregnant take folic acid to prevent miscarriage and neural tube defects, which are birth defects such as spina bifida that occur when the fetus's spine and back do not close during development.

Some research indicates that folic acid may help prevent colon cancer and cervical cancer.

It is also recommended to prevent heart disease and stroke, as well as to reduce blood levels of a chemical called homocysteine. (High homocysteine levels may be a risk for heart disease.)

In fact, the health benefits of folic acid are so clear and so overwhelming that since 1998, U.S. federal law has mandated that folic acid be added to cold cereals, flour, breads, pasta, bakery items, cookies, and crackers.

This is not only because folate is such an important nutrient, but also because folate has been found to be deficient in the average American diet.

About folate, folic acid, and Juice Plus+

Folate and folic acid have been part of Juice Plus+ Orchard and Garden Blend capsules and chewables for more than 20 years, from the inception of each of these products.

As mentioned above, several of the whole food ingredients in Juice Plus+ naturally contain folate. However, because so many people want (and need) folate/folic acid for its many health benefits, we decided from the outset to add a small amount of additional folic acid to Juice Plus+ in order to standardize the amount in each capsule or chewable and be able to make a declaration on the label – just as we do with vitamins A, E, and C.

As a result, folate/folic acid has been part of the Juice Plus+ product used in all of our clinical research, one of many reasons -- in addition to its many proven health benefits – that we of course continue to include it in our products.

One concern we hear is that folic acid is synthetic. While we work hard to ensure that all of our Juice Plus+ products are as “whole food based” as possible, there is unfortunately not a commercially available folate ingredient that can be squeezed out of asparagus or beans.

Every product – and there are now tens of thousands – that declares folic acid/folate content on the label is standardized with something man-made, even those that claim to be “nature-identical.” We use plant-derived folic acid to standardize the blends.

But by far the biggest issue we've heard about is in regards to health conditions related to mutations of the gene MTHFR. Many people with these mutations are under the misunderstanding that they cannot take folic acid. But published clinical research (see References below) makes it abundantly clear that **the enzyme MTHFR does not impair or prevent the body from using folic acid.**

In fact, research shows that the exact opposite is true: **people with the MTHFR mutation might have an even higher need for folate/folic acid since their folic acid recycling system is impaired.**

[Click here](#) to link to the latest document from the CDC on folic acid if this issue is of interest to you, or if you are encountering the kind of misinformation we're talking about.

Among the points made by the CDC:

- **It is nearly impossible to get the recommended daily amount of folate through food alone.**
- **CDC urges all women capable of becoming pregnant to take 400 micrograms of folic acid daily.**
- **CDC further suggests that all women, including those who have the MTHFR genotype, can benefit from getting 400 micrograms of folic acid per day.**

References:

<http://www.ncbi.nlm.nih.gov/pubmed/21723457>

“To avoid the risk of neural tube defects, pregnant women with a MTHFR mutation may require higher than normally recommended doses of folic acid supplementation for optimum health.”

<http://www.ncbi.nlm.nih.gov/pubmed/23456769>

“Serum folate concentration is responsive to modest increases in folic acid intake. RBC folate increases only with higher additional doses of folic acid supplementation, and this is true for each MTHFR C677T genotype.”

<http://www.ncbi.nlm.nih.gov/pubmed/9687553>

“2 months of daily supplementation of 0.5 mg folic acid in women with a history of unexplained recurrent miscarriages caused, in general, substantially reduced tHcy concentrations. This effect was most distinct in women with the highest tHcy concentrations at baseline and in women homozygous for the 677 C→T mutation of the MTHFR-gene.”

<http://www.ncbi.nlm.nih.gov/pubmed/16002818>

“These data support the benefit of folic acid supplementation in pregnant women, particularly in those with MTHFR deficiency.”

<http://www.ncbi.nlm.nih.gov/pubmed/16865747>

“Hyperhomocysteinemia and the vitamin deficiencies presented by type 2 diabetic individuals, included with a heterozygous genotype for the G1793A mutation in the MTHFR gene, reached normal values by daily folic acid supplementation.”

<http://www.ncbi.nlm.nih.gov/pubmed/9687553>

“The present study investigated the total homocysteine-lowering effect of folic acid in response to the MTHFR genotype in patients who have cardiovascular disease. CONCLUSIONS: The MTHFR polymorphism may be involved in the total homocysteine-lowering effect of folic acid in patients who have cardiovascular disease.”

<http://www.ncbi.nlm.nih.gov/pubmed/23819405>

“Women carriers of 677TT or 677CT MTHFR genotypes are exposed on folate metabolism disturbances and on the consequences of incorrect folate process during pregnancy. Nowadays in this group of women folic acid supplementation is widely recommended.”

<http://www.ncbi.nlm.nih.gov/pubmed/11815318>

“The response to Homocysteine-lowering therapy is influenced by MTHFR genotype. Women with the TT genotype seem to benefit the most from supplementation with either Folic Acid or MethylTetraHydroFolate. In women with the CT or CC genotype, Folic Acid is more effective than MethylTetraHydroFolate in lowering plasma Homocysteine.