

## Folic Acid Does Not Cause Cancer - So Who Made the Mistake?

By Andrew W. Saul, Editor-In-Chief, Orthomolecular Medicine News Service (OMNS), [www.orthomolecular.org](http://www.orthomolecular.org). Reprinted with permission from OMNS, May 6, 2010. To subscribe at no charge to OMNS: [www.orthomolecular.org/subscribe.html](http://www.orthomolecular.org/subscribe.html). To visit OMNS archives: [www.orthomolecular.org/resources/omns/index.shtml](http://www.orthomolecular.org/resources/omns/index.shtml).

Science is a great servant but a poor master. Not infrequently, it can exemplify what Harvard math professor Tom Lehrer satirized as where "the important thing is to understand what you're doing, rather than to get the right answer." Just because a published study suggests something does not make it true.

I never liked math very much, and I still don't. But I am indebted to dedicated math teachers who taught me in spite of myself. Decades ago, one such teacher gave me wise advice that spans all disciplines: "Look at your answer. Does your answer make sense?"

So when research suggests that the vitamin folic acid somehow causes lung or colon cancer, it is time to hit the books. It may even occasionally be necessary to hit them right out of the way, and use common sense instead.

Folate, once known as vitamin B-9, is named after the dark green leafy vegetables it was first extracted from. "Folium" is Latin for leaf. Leaves and greens are high in folate. Herbivorous animals get plenty of folate because they eat plenty of foliage. Carnivorous animals also get plenty of folate, because they consume herbivorous animals. In the wild, this means the entire animal, including its abdominal organs full of the prey's last meal of partially digested vegetation. Indeed, the viscera are typically the first thing a predator eats.

If folate caused cancer, the whole animal kingdom would have a lot of it. And while wild animals have their own problems, cancer is rarely one of them.

If you look at the research suggesting a human cancer connection (1,2), it does not say that folate in food causes cancer. The research only points to folic acid, as specifically as found in supplements, as the bogey man.

But there is virtually no difference whatsoever between the two forms of this nutrient. Folate and folic acid are different only in whether the carboxylic acid groups have dissociated or not. Folic acid's molecular formula is C<sub>19</sub>, H<sub>19</sub>, N<sub>7</sub>, O<sub>6</sub>. Folate is C<sub>19</sub>, H<sub>18</sub>, N<sub>7</sub>, O<sub>6</sub>. The difference? Folate has one less hydrogen cation (H<sup>+</sup>). A hydrogen cation is a proton. A single proton. I have never seen evidence that protons cause cancer.

If folate/folic acid somehow caused cancer, it would have to be the rest of the molecule that is the problem. But most research shows that folic acid/folate prevents cancer. It is well-known that persons eating plant-based diets have a significantly lower risk of cancer. In addition to providing nutrients, eating more

vegetation means more fiber and less constipation, valuable for preventing colon cancer. Herbivorous animals are definitely not constipated. Ask any dairy farmer, and you can start with me: many years ago, I used to milk 120 cows twice daily. When you walk behind Bossy, look out.

As for lung cancer, the research accusing folic acid also happens to show that 94% of the study subjects who developed lung cancer were either current or former smokers. Smoking causes cancer. Animals do not smoke. But they do eat a lot of foliage, either by grazing on greens or gorging on guts.

Both studies claiming that folic acid causes cancer were published in the *Journal of the American Medical Association*, which also contains a large amount of pharmaceutical advertising. JAMA is among the journals that peer-reviewed research has shown to be biased against vitamins due to vested interests. (3)

What is more likely: that a small group of scientists made an error or two, or that all of Nature did? On this one, I am backing the animals. 1.8 million species can't be all wrong.

About the Author: Andrew W. Saul taught biology, nutrition, and health science at the college level. He is the author of *Doctor Yourself* and *Fire Your Doctor!* and, with Dr. Abram Hoffer, co-author of *Orthomolecular Medicine for Everyone* and *The Vitamin Cure for Alcoholism*. Saul is featured in the documentary film *Food Matters*. He is on the Editorial Board of the *Journal of Orthomolecular Medicine*.

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(2) High doses of folic acid may increase colon cancer risk.

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