

November 1997 Issue | Elaine Gottschall, B.A., M.Sc.

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Welcome to *Functional Medicine Update*[™] for November 1997. Our focus this month will be on gastrointestinal health and gastrointestinal physiology and their relationship to the immune system, the neurological system, and the gut inflammatory mediators.

First, I would like to review some of the Hot Breaking News topics of this month, beginning with the efficacy and safety of vitamins and minerals. The *American Journal of Clinical Nutrition* (1997;66:427) contains a review article titled "Vitamins and Minerals: Efficacy and Safety," by Dr. John Hathcock. Dr. Hathcock is a former member of the Food Nutrition Board, was later a director of the program on nutrient supplement safety with the Food and Drug Administration, and is currently on the Council for Responsible Nutrition in Washington, D.C. Dr. Hathcock reviews the safety and efficacy of nutritional supplements in both the vitamin and mineral families.

The term "efficacy" assumes a supplement has the ability to provide a health benefit, related either to prevention of a deficiency or reduction in the risk of chronic disease. There has been a long-standing debate as to whether nutritional supplements do have efficacy, or whether they just create "expensive urine."

In response to those who would use the words "expensive urine" to describe the relationship between nutrient intake and physiological function, I could compare it to the "wasteful practice" of drinking fluids. If we believe that taking nutritional supplements has no value because we urinate them all away, we should quit drinking fluids because we just urinate those fluids away anyway. We can all recognize the fallacy of that argument, because we know that fluid has value in hydrating the body and producing beneficial function. Therefore, it would be ridiculous to stop drinking water. We would die of dehydration.

Similarly, it is reasonable to assume that something of benefit happens from the time vitamins are consumed until they leave the body in the urine. That something of benefit is improved physiological function. In fact, if instead of urinating them away we stored all the vitamins we consume throughout our lives, we would, by the time we died, be a 70 kg mass of vitamins. Clearly, we have to take them in, use them, and excrete them. So I find the concept of expensive urine fallacious and naive.

In his *Clinical Nutrition* article, Dr. Hathcock discusses the efficacy of a nutritional supplement and its relationship to safety. If it is efficacious, by definition, it also has the ability to provide benefit and, potentially at some excessive level, to be a liability. What is the risk/benefit relationship? According to Dr. Hathcock, the efficacy of supplementary doses of several categories of nutrients has been clearly

identified. First are the bone-building nutrients -- calcium, magnesium, zinc, copper, manganese, vitamin K, and vitamin D -- and the prevention of osteoporosis. This family of nutrients helps prevent osteoporosis, maintains bone mass, and even leads to the accrual of bone mass in younger-age individuals.

We may not be getting adequate levels of this extraordinarily important family of nutrients - particularly calcium and magnesium -- in our diets, but supplemental doses have been shown to improve bone density and total bone mass. Therefore, supplementation is efficacious in building bone reserve.

A second area of nutritional supplementation in which efficacy has been established is folic acid and the risk of neural tube defects (NTDs) and heart disease. In the 1970s Smithells in England was the first person to talk about folic acid in the prevention of neural tube defects. It took the better part of 25 years for his observations to work their way into research and public health recommendations. Now, women who have had one NTD baby may be able to prevent a similar outcome in a second pregnancy by supplementing with folic acid prior to conception.

By the same token, nearly 25 years ago Dr. Kilmer McCully talked about homocysteine and the prevention of atherosclerosis by supplementation with vitamin B6, folate, and vitamin B12. Only recently has this information worked its way into public health recommendations. We now recognize the cholesterol-independent heart disease risk factor called hyperhomocystinemia. We know it can be modified by the consumption of supplemental doses of these nutrients, above and beyond what is provided by the standard American diet. The folate donor nutrients in the tetrahydrofolate cycle - B12, folate, B6, and betaine - can all contribute to proper metabolism of the amino acid homocysteine and reduction of risk to neural tube defects.

The third area Dr. Hathcock talks about is antioxidant nutrients -- vitamin C, vitamin E, the flavonoids, and carotenoids -- and the prevention of heart disease and some forms of cancer. We have talked at length about these various studies as they have been published over the last several years. The emerging information clearly supports supplementation of the diet with these nutrients to help reduce risk to heart disease and cancer.

INTERVIEW TRANSCRIPT

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As the *Functional Medicine Update*TM Clinician of the Month this month we are pleased to have someone who will bring us information we really can use. I have been impressed both intellectually and clinically by Elaine Gottschall's work. We will discuss her book, *Breaking the Vicious Cycle -- Intestinal Health Through Diet*. She has contributed to our understanding of how to deal with complex gut inflammatory disorders and their relationship to immunological system activation and neurological function.

Ms. Gottschall received her master's degree in cell biology, looking at the effect of sugars on liver cell function. She has done research work toward her Ph.D. in inflammatory bowel disease and has made a very significant contribution through her work and writing to doctors and patients alike, in implementing dietary programs that improve GI function.

JB: Elaine, welcome to *Functional Medicine Update*[™]. What got you into this area of interest that led to the contributions you have made?

EG: It started quite differently from most of your authors, I am sure. I was a *Leave It to Beaver* mother in the 1960s and doing my best when our younger daughter became seriously ill, first with schizophrenia, and then with what was diagnosed as ulcerative colitis.

We lived in the New York area and had access to the finest hospitals, to which we took her, and the diagnosis was definite. Prednisone, as we all know, works for a little while, but it stops working. They were scheduling her, at the age of four-and-a-half, to have her colon removed. Now, I realize this is a life-saving operation, but no mother or father wants this to happen to a four-and-a-half-year-old child.

So we started looking all over the place. We went to the Leahy Clinic and the Mayo Clinic. Everybody said the same thing. First of all, they said food has nothing to do with it. (As a mother, that was the first thing I had thought of. What am I doing with her diet that's wrong?) Well, no, they said, food had nothing to do with it. (Now, 40 years later, they say the same thing: food has nothing to do with it, which, of course, is not true.)

After three years of hunting for an alternative to surgery we were fortunate to find, right in New York City, a 92-year-old, internationally known pediatrician. He had been the first doctor to cure celiac. Within three weeks after going on his original celiac diet -- which had very little to do with gluten, by the way--the schizophrenic symptoms went away, never to return. My daughter is now the mother of two lovely children. She is over 45 and has never had a return of that neurological problem.

It took longer for the ulcerative colitis symptoms to abate, but by the end of the year, with a few ups and downs, and with the doctor still hanging in there (he died at 94, two years later), this child was well. She had grown, had made up for all the lost time when she had been on medication and hadn't been absorbing food right, and we were on our way. I became very curious. We had taken her to 15 specialists -- the best in the world -- and then we found that something as simple as diet turned this whole thing around.

So, with great trepidation, I entered the university at the age of 47 as a freshman. I began with nutrition and realized what I was after had a lot more to do with other things, such as endocrinology, immunology, and pathology. Although I was frightened, I jumped in. For the next 12 years, I kept reading the literature and doing the research. Then, after seven years of consulting, I decided to write my first book, which I followed with the second book, *Breaking the Vicious Cycle*.

The letters I get have been extremely interesting, I recently received a letter from a Philadelphia mother whose child is getting over Tourette's syndrome, that horrendous behavioral problem in which you never know what the person is going to say. It is erratic and embarrassing. Many disorders, neurological and some of the dermatology problems, in fact, start in the gut.

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