

# The FELIX Letter

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A COMMENTARY ON NUTRITION

1991

## STOP THE WORLD, I WANT TO GET OFF!

Months ago, author-scientist Beatrice Trum Hunter sent me an absorbing piece of information, which I stashed in my Future Issues file. A war I never thought U.S. and the West would contemplate is raging in the Persian Gulf as I write, giving the story on which the item was based a haunting spin. It seems a study by British epidemiologist Martin J. Gardner has raised hackles in the medical and nuclear communities. There is an unexpectedly high incidence of childhood leukemia in a village in northwestern England, where the Sellafield nuclear reprocessing plant sits. Similar leukemia clusters exist near a weapons lab and another nuclear facility in the U.K.

When Gardner, an experienced medical statistician, examined possible relevant factors, the "only one that stood out strongly was the father's employment at the plant, and especially his radiation dose before his child's conception. The father's dose was ascertained from film badges worn at the plant. Children whose fathers were exposed to the highest levels of external radiation....were six to eight times more likely to develop leukemia than were the controls." [From a review in the April 6, 1990 *Science*, pp 24-25. Gardner's research appeared earlier in the February 17 *British Medical Journal*.]

What's throwing everyone for a curve is that the fathers' exposures were well within the current occupational limit. Gardner, however, suspects that in some of the men chronic low levels of radiation could cause a heritable mutation in sperm cells that creates susceptibility to leukemia in their children.

Atomic experts who say it isn't possible base their disavowal on the results of an immense 40-year investigation. The 75,000 Japanese children studied were born to parents who conceived some time after being irradiated during the Truman-decreed nuclear destruction of Hiroshima or Nagasaki. No genetic diseases, cancer, or congenital

abnormalities showed up in these children, according to the Japanese and Western scientists who conducted the investigation. An increase in leukemia in the parents, yes, but none in their offspring.

Thus the researchers question why genetic effects would show up in the children of Sellafield nuclear plant workers whose highest doses were 20 times lower than the average radiation dose received by the Japanese parents.

"Gardner speculates that perhaps DNA can repair itself after an instantaneous exposure, like that in Japan, but not in the face of continuous, low-level exposure," the review says. Scientists who support his study say that X-rays and ionizing radiation are well-known mutagens. "It does not require a stretch of the imagination to suppose a mutation inherited by a child would predispose him to leukemia." But heavy controversy swirls around Gardner's report.



## A Unique Protective Factor?

The article Beatrice Trum Hunter sent me was a letter in the June 29, 1990 *Science* by Dr. Stephen Phinney of U.C. Davis's clinical nutrition division in the department of internal medicine. He says one answer to the controversy may lie in the dietary habits, particularly fat intake, of the two populations:

*There is a dramatic difference in the incidence of certain cancers in the Japanese compared with that in Western populations, and a possible explanation involves both the lower intake of total fat and the higher percentage of omega-3 fatty acids in the Japanese diet. Animal studies have demonstrated a marked effect of oil seed omega-6 fatty acids as tumor promoters when provided in the range similar to that in the current Western diet, and a countervailing effect of the long-chain omega-3 fatty acids obtained from cold water fish.*

*At the time of exposure to the radiation from nuclear weapons used at Hiroshima and Nagasaki, the population of those cities were consuming only 10 to 15% of calories as fat, with ratios of omega-6 to omega-3 of about 1 to 1.*

*In recent decades the Western diet has consisted of 30 to 40% fat calories with an omega-6 to omega-3 ratio of more than 10 to 1. These dramatic differences....could be a factor in the differences in the post-exposure incidence of leukemia in the two populations.*

*The diet of the father or the child may thus amplify or suppress the oncogenic [tumor-forming] initiating effect of the ionizing radiation.*

With Pandora's box now flung open in the Middle East, these may be words to remember.     ● ● ●

## SEDUCTION OF THE INNOCENTS

From the Associated Press, September 24, 1990:

"**U**rbanda, Illinois. Raccoons who snack on Twinkies, Oreos and Big Macs suffer the same consequences as humans--rotten teeth and high cholesterol.

"**S**cientists said they were shocked by results from a small sampling of the masked mischief-makers that roam Illinois parks and campgrounds, scavenging human food.

"**T**heir mouths look like those pictures in the dentist's office that show what will happen if you don't brush,' said Laura Hungerford, a University of Illinois veterinarian. 'I think they have a lot of sugar in their diet.'

"**W**ild raccoons usually have healthy teeth, but Hungerford found broken teeth, gum disease and cavities in the campground animals.

"**I**n the wild, raccoons eat berries, grass, small fish and rodents...."

**I**t's ludicrous, isn't it, what pushovers for junk food some animals, and most of us humans, are! At least the raccoons who, years ago, would panhandle at the glass patio door of our onetime canyon house got eggs and raw vegetables from us! They stayed healthy and brought their babies every few years, to our immense joy. \* \* \*

"THIS LITTLE PROSTAGLANDIN WENT TO MARKET. THIS LITTLE PROSTAGLANDIN STAYED HOME..."



## ALLERGIES 'R US!

**A**n experimental new treatment for hay fever and asthma has proven not only more successful than other medications, but is blasting open unexplored research channels. The three studies in *The New England Journal of Medicine*, December 20, 1990, were impressive enough to warrant a *Journal* editorial as well as news headlines.

**T**he drugs being tested diminish the body's production of *leukotrienes*. Remember *prostaglandins* (PGs), those hormonelike activators our body makes from essential fatty acids? Our system also can transform these fatty acids into close relatives of PGs, the leukotrienes [LTs]. In the scant 15 years or so since their discovery LTs have picked up a bad reputation. For one thing, they were one of the agents squeezing down bronchial airways in an asthma attack. For another, a profusion of LTs was seen as a factor in the miserable stuffy/drippy noses and sneezing paroxysms suffered by allergic individuals, who have grown to 35-40 million in the U.S. alone.

**U**ntil now, scientists couldn't *prove* LTs were the culprits. One of the drugs under study is among the first specifically designed to keep the body from producing a key enzyme that transforms essential fatty acids into LTs. The other experimental drug makes specific LTs inoperative. *In either case, the studies confirmed that the drugs caused LT levels in patients to drop sharply.*

**M**ore to the point, the patients felt better as their LT levels went down. One group of subjects who usually got asthma attacks from physical exertion were able

to exercise longer and recover faster. In another study, asthmatics were able to fend off the bronchial spasms they habitually suffered from breathing rapidly in cold, dry air.

**T**he third experiment dealt with the all too familiar complaint of stuffy noses, in this case in persons allergic to ragweed, grasses, or cat dander. Here, too, a pre-exposure dose of LT-blocking drug relieved nasal symptoms after the subjects were exposed to test allergens.

**L**eukotrienes are not the sole cause of asthma and other allergic symptoms, but now that there's proof of their complicity, the big push is on for bigger and better drugs to knock them out. Despite the *Journal's* enthusiasm about the new reports, its editorial ends on a cautionary note. Before we go in for wholesale inhibition of LTs, it warns, let's be aware they perform necessary functions, not just pathologic and inflammatory ones.

**I**t seems the medical community made that mistake with aspirin and other NSAIDs (nonsteroidal anti-inflammatory drugs) such as Advil, Motrin, and Midol. The reason why NSAIDs relieved pain and inflammation wasn't clear until a decade or two ago. In exploring the biomedical mysteries of prostaglandins, scientists found that NSAIDs mainly work by *inhibiting the enzyme that sets off the synthesis of PGs in our bodies from essential fatty acids.* Like the leukotrienes, some PGs create inflammation, spasm, and pain in tissues. Suppress the enzyme--presto change-o!--pain and inflammation subside.

## Let's Be Careful Out There!

**T**hat's the good part. Researchers have since discovered that the same enzyme (cyclooxygenase) also produces *anti-inflammatory, healing-promoting PGs.* NSAIDs knock those out as well!

**T**he long-term use of aspirin, Advil, etc., especially in daily amounts large enough to counter pain and inflammation in chronic arthritis, is associated with stomach ulcers, gastrointestinal bleeding, reduced kidney function, high blood pressure, and even kidney failure, more so in older people.

**T**he usually conservative *Harvard Health Letter* of November 1990 warns: "The antiinflammatory drugs, unfortunately, limit the body's ability to produce not only the inflammatory

## The Far Side! ©Gary Larson, 1991



In sudden disgust, the three lionesses realized they had killed a tofudebeest -- one of the Serengeti's obnoxious health antelopes.

prostaglandins but also the beneficial ones. In the kidney prostaglandins play a crucial role in maintaining the flow of blood; in the stomach they help protect the lining from being attacked by the acid of digestive fluid."

**S**ays *The New Eng. J. Medicine* leukotrienes may be mischief makers, but we should be wary of long-term suppression of the enzyme [lipoxigenase] the body uses for LT synthesis. Otherwise, there could be side effects like the "gastric ulceration and hypertension observed with the use of potent cyclooxygenase inhibitors."



### Nature and Good Science

**T**here is another approach, a very safe one. Fortunately for the rest of us, more and more medical researchers, among them John Kinsella, W.E.M. Lands, Melvin Konner, Michael Crawford and Alexander Leaf, are sending up trial balloons on the use of *nutritional* means to control both runaway leukotrienes and 'bad' PGs. They suggest *omega-3 fatty acids* normally were plentiful in the food supply of early man. These essential (i.e., vitaminlike) fats have the comforting ability to curb LTs and PGs *naturally*.

**I**t works something like this: The source of troublesome LTs and PGs is *arachidonate*, an omega-6 fatty acid. The body can synthesize arachidonate from *linoleic acid* derived mainly from seeds, grains and oils. We can also consume arachidonate ready-made, mostly from meat and eggs. Without adequate omega-6 fatty acids we wouldn't have sturdy cells, resilient blood vessels, or a healthy brain and nervous system. As a matter of fact, we'd be dead! (That's why these are *essential* fatty acids.)

**N**ature's means of control are logical and tidy. The other required fatty acids, the omega-3 family, *compete for and use the identical enzymes the omega-6s use*. From all indications, foods that traditionally nurtured us *provided plenty of both fatty acid groups*. By *having to compete for the same enzymes to make LTs and PGs, neither group was able to chronically overproduce them*.

**T**he scene shifts to the Industrial Age. Enter modern man and his talent for outsmarting nature! Using state-of-the-art presumptuousness, he's managed to upset the age-old balance. Here's the hi-tech blueprint to guarantee a nation's lousy health:

- We purposely hydrogenate vegetable oils to eliminate omega-3 fatty acids. Medical/nutrition hierarchies consistently downplayed human needs for them until very, very recently; and even now, show a reluctance to admit any unmet needs exist.

- Beef, containing hardly any omega-3s, is worshipped at the new protein shrine. We switched from fish, poultry, wild game, and whole grains--all better omega-3 sources.

- Modern processing, packing, and shipping of foods make possible a deluge of high omega-6, low omega-3 staples, replacing more balanced ones. E.g., hydrogenated oils and margarines from safflower, corn, or cottonseed replace unhydrogenated olive oil, flaxseed oil, poultry fats, and homemade lard. E.g., peanuts replace walnuts and chestnuts.

- We get lots of *trans-fatty acids*, from margarine, shortening, and thousands of processed foods made with hydrogenated products. Our lucky ancestors never had to cope with them! By disrupting normal metabolism, trans-fatty acids actually increase our omega-3 requirements.

- A significant number of people are barely meeting these requirements, but getting so much oil and margarine that omega-6 fats are oozing out of their pores. (Who knows, maybe literally.)

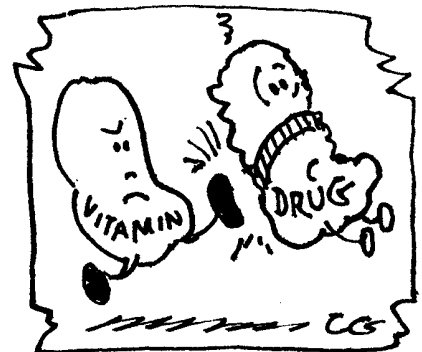
**A**ll of these factors eliminate the healthy competition from omega-3s that keeps PGs and LTs from running amuck. The result? More men, women and children wheezing and sneezing!

### Recipe to reverse the status quo:

- Fill one's personal depleted omega-3 reservoirs and keep them filled, i.e, switch to good food sources.
- Reduce omega-6 oils to a whisper; cut out margarine, shortening, partially hydrogenated oils, and the packaged foods made from these trans-fatty acid sources.

**E**ven if no other dietary reforms were to take place it still could be the start of a healing process. This is especially important to do for infants and children!

**I**n the short view, drugs may do the job. Certainly, we're all entitled to the best that modern medicine can come up with to deal with pain, inflammation, and sometimes life-threatening allergic reactions. For an everyday approach, though, it makes more sense to leap on this remarkable bandwagon of information based on *good* science. From it, we can learn how to use traditional nutrients to subdue the 'demons' in our bodies, unleashed in this century by the union of shaky science with relentless technology! \* \*



### BETTER 'n BUTTER

**S**everal readers have asked me to clarify the recipe for Omega-3 Butter. In my previous recipes I was using the local colloquial term for a fourth of a pound of butter when I wrote 'cube.' Melt one-half pound of butter (two 'cubes') in a pan. Add 3/4 cup canola, soybean, flaxseed, or walnut oil, or a mixture of any of these oils, stir well, pour into a covered container and refrigerate. In a few hours or less you'll have a spread that tastes entirely buttery but is as pliant as margarine. It will have some nice omega-3s and omega-6s in it and a much lower content of nasty trans-fatty acids than present-day margarines. If you forget to put it back in the fridge and it liquefies, just refrigerate to harden it again. \*

## YOU MEAN, MD'S WILL BE TAKING VITAMIN E, TOO?

Science is zeroing in on the dietary factors that promote a healthy life. Wonder of wonders, even organized medicine is paying attention! It used to be like pulling teeth to get their interest, but nowadays nutritional investigations are gaining in prestige and acceptance. In Berne, Switzerland, a study sponsored by the World Health Organization measured blood levels of 'antioxidant' nutrients (including vitamins, C, E, A, and beta-carotene), as well as cholesterol and blood pressure, in middle-aged men from 16 European cities.

**Surprise finding:** the most important factor in predicting death from blockage of coronary arteries, or ischemic heart disease (IHD), was low levels of vitamin E in blood plasma.

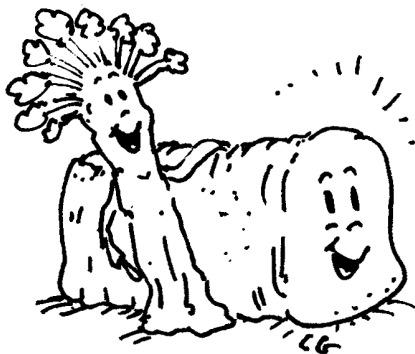
Vitamin E defends us against potentially harmful forms of oxygen. Peroxide and oxygen radicals, produced routinely by our metabolism, are known to attack LDLs, which transport cholesterol in the bloodstream. When the oxidized cholesterol particles glom onto artery linings, they may be responsible for launching Act One of the IHD drama that, years later, may end with the heart desperate for nourishment.

The comforting news is that ample plasma levels of vitamin E may halt this scenario. (*Am. J. Clinical Nutrition*, Jan. 1991 supplement, pp 326S-334S.)

Low levels of E were even more predictive of heart attacks than high cholesterol, high blood pressure, and smoking! Of course, by the time all of these crummy factors were combined, plus low vitamin A, the heart attack prediction rate soared.

By the way, the writers suggest the current RDA for vitamin E [15 IU for men, 12 IU for women] is too low. Personally, I've thrived on 400 IU almost daily for close to 35 years. Bendich and Machlin have done a reassuring review on the safety of vitamin E, based on clinical and anecdotal reports since 1975 of long-term human use of dosages ranging from 400 to more than 2000 IU (*Am. J. Clin. Nutr.* Sept. 1988, pp 612-619). Myself, I don't care to fool around with amounts like 2000 IU per day, far higher than one could conceivably find from the richest food sources, but it's comforting to know they didn't cause significant side effects.

Even my 400 IU, while it's the most popular-size supplement for millions of vitamin E users in the U.S., is looked upon with horror by prim dietitians as a 30-fold megadose. I prefer the view of scientists who say amounts far above the RDA are needed to shield our tissues from the aging- and disease-producing effects of oxygen radicals. \* \*



Biochemist Paul A. Stitt has a jewel of a book and the best nutrition title of the year: *WHY GEORGE SHOULD EAT BROCCOLI*. He writes: *When George Bush was growing up, his mother did not know, scientists did not know, in fact no one knew broccoli contained 33 compounds that help prevent cancer.* Stitt goes on to list these compounds in broccoli, carrots, peppers, citrus fruit, cherries, garlic and dozens of other superb cancer-fighting foods. His research on one of them, flaxseed, helped set the stage for its acceptance recently by the National Cancer Institutes as one of the eatables to be investigated for anti-tumor qualities. For his studies on humans and farm animals, Stitt developed a product called Fortified Flax, made of ground flaxseed with added zinc and vitamin B6, that's sold in healthfood stores as a fine source of vegetarian omega-3, Alena (alpha-linolenic acid). His giant bakery employing 150 persons, Natural Ovens, in Manitowoc, Wisconsin, uses flaxmeal in its fragrant loaves--just as ancient Romans did. Bread labels contain newsletters, many on nutrition, that have become as popular in the midwest as the breads themselves. The last 90 pages of the book with reprints of these endearing documents is a treat! Stitt uses a comfortable mix of anecdotes and science to create the kind of book you can push equally on your junk-food friends or a science prof.

To purchase by mail, send \$12.95, plus \$1 for shipping etc., to Natural Press, P.O. Box 730, Manitowoc, WI 54221. \*

## WHAT IS A GRANDMA?

*Perhaps better than any other words adults can think of or write about being a grandparent is this composition written by a nine-year-old. It was reprinted in a parent-teacher publication.*

A grandmother is a lady who has no children of her own, so she likes other people's little girls. A grandfather is a man grandmother. He goes for walks with boys, and they talk about fishing and tractors and things like that.

Grandmothers don't have to do anything except to be there. They're old so they shouldn't play hard or run.

It is enough if they drive us to the market where the pretend-horse is, and have lots of dimes ready.

Usually, they're fat. But not too fat to tie kids shoes. They wear glasses, and they can take their teeth and gums off. They don't have to be smart--only answer questions like why dogs chase cats or how come God isn't married.

Everybody should try to have one, especially if you don't have television, because grandmothers are the only grown-ups who have any time for children.



*Illustrations by Clay Geerdes and other artists as noted.*

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