

TWO FOR THE HEART

I love stories about nutrients that cause medical specialists to sit up 'n pay attention! Back in 1991 and '92 I described experiments by Drs. Matthias Rath and Linus Pauling (in *FL*'s 60 & 65) suggesting that chronically suboptimal intake of vitamin C caused the body to overproduce a cholesterol-carrying molecule known as lipoprotein-a. High levels in the blood are associated with plaque buildup in arteries. On the basis of biochemistry and logic, Pauling and Rath predicted that vitamin C *plus the essential amino acid lysine* could ease angina and reverse plaque buildup (atherosclerosis).

The *Journal of Orthomolecular Medicine*, Vol. 8, No. 3, 1993, has the "Third Case Report on Lysine-Ascorbate Amelioration of Angina Pectoris" by Linus Pauling. Three case histories, including this one, have now been published of patients who controlled their angina using 3 grams (3000 milligrams) each per day of vitamin C and L-lysine (three doses of 1 gram of each). The present subject was born in 1927, underwent a triple coronary bypass operation in 1980 and a second one in 1987 with six grafts. He was told in 1992, age 65, that "he was not a candidate for any more bypass grafts" to relieve the angina that had recurred. His physicians recommended light exercise, a low-fat diet, medicine to reduce cholesterol, nitroglycerine patches to wear, and nitroglycerine tablets to take during angina attacks.

A few weeks later, in April of '92, he began the vitamin C-lysine regimen. The angina didn't recur. He stopped wearing the nitroglycerine patches. He began riding his bicycle into town several days a week, a 9-mile round trip. In March of 1993 he suffered his only angina attack after shoveling snow for an hour to clear his walkway. After that, he increased his vitamin C and lysine to 6 grams each, and resumed wearing the nitroglycerine patches for two weeks. Except for the one angina episode he had been feeling well for 15 months when the article was written.

Pauling suggests there are "two kinds of lipoprotein-a in the plaques: the older Lp-a that has been solidly fixed in the plaques and a rather loosely bound Lp-a that can be quickly removed by action of the lysine. Removal of the loosely bound Lp-a would open up the arteries to some extent and give rapid relief to the patient. With continued treatment with vitamin C and lysine the plaques might ultimately be cleared away.

"The vitamin C (and also vitamin E and beta-carotene) also has another valuable function, that of preventing oxidation of the cholesterol in the plaques on the arterial walls."

This is not a prescription for self-care. I would, however, strongly recommend that all angina sufferers ask their physicians to read the journal article by Pauling and act accordingly -- with wisdom, I trust.

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GARY BEATS THE POST-FLU BLUES

The son of old friends of mine phoned the other day, asking about efficacy and safety of the supplements he'd started taking a few months ago. Gary's a goodlooking 34-year-old, schooled in bioscience and no babe in the woods in health matters. After all, the San Francisco Bay area where he's lived most of his life is a hotbed of healthfood emporiums, most of them stocked with How-To tomes on deliverance through ingestion, as are the area's libraries and book stores. I keep assuming nutrition savvy comes with the territory.

No such luck. Gary disdained the supplements route, taking his chances with diet alone. I know his parents, and they're split down the middle--the father earnestly dedicated to wheat germ and vitamins; the mother, a great cook, viewing it all with amiable derision.

Well, as it must to many of us, Gary was hit by a miserable flu that hung on like a tick. Days turned into weeks; at two months our lad was still dragging his fanny. One of his pals was still out of commission after a series of relapses from the flu. Gary called to compare miseries.

To his surprise the friend sounded as chirpy as a canary. It seems the traitor had consulted a new doctor -- of the alternative persuasion yet! -- and gotten well at last. She had reviewed his diet, ordered tests, and put him on a diet and supplement regimen.

"You mean, like vitamins and minerals?" Gary asked uneasily.

"Yeah, a whole bunch. I thought she was nuts. It took a while before I noticed anything and you know me, I never liked the idea of getting healthy from pills."

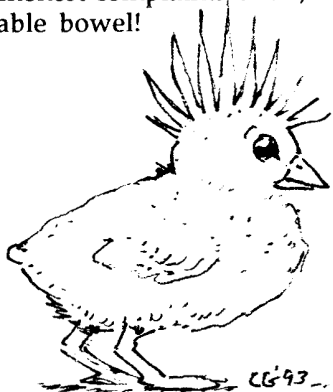
To make a long story short, a wary Gary, he of little faith, has since become a believer. At a preventive medical clinic in S.F. he was tested and told, among other recommendations, to reduce his sugar intake and faithfully take a horse trough full of supplements daily. He tells me he's never felt better, having finally found a way to shore up his immune system, minimize blood sugar irregularities, and overcome a long (pre-flu) battle with depression, fatigue, and insomnia.

His program is not too different from those I've seen offered by the kinds of doctors who prefer treating patients with nutrition as first line medicine, reserving drugs and surgery primarily for backup. If tests eliminate serious illnesses and thyroid problems, a typical next step is testing for allergies.

Some alert physicians have begun to look specifically for sensitivity to certain proteins (e.g., gliadins) in gluten, found most abundantly in wheat, rye, and barley, instead of just testing for allergies to the grains. We're learning that gluten can do a lot of quiet damage in susceptible individuals. Even in the U.K. and Italy where research is far more extensive than here, years may go by before doctors pick up on gluten intolerance (celiac disease) as the hidden trigger in a number of stubborn illnesses.* One of the reasons is that the only truly reliable test up until now has been microscopic analysis of intestinal tissue obtained, ugh, by having the patient swallow a slim flexible tube that's snaked down into the jejunum, where a tiny blade is released to retrieve a biopsy sample.

Accuracy of a new noninvasive (blood) test has been confirmed in European and UK medical studies. Its results correlate about 98% with those obtained via biopsy. (For those interested, the new test evaluates anti-endomysial antibodies. It now can be added to tests for IgG and IgA anti-gliadin antibodies, etc. One laboratory now doing them is Specialty Laboratories in Santa Monica, CA, 800-421-7110.)

When allergens have been eliminated wherever possible and dietary guidelines provided, the following is one example of a supplement regimen for patients whose main symptoms, like Gary's, are nagging blues, tiredness, insomnia and poor resistance to respiratory infections -- surely among the commonest complaints of all, next to irritable bowel!



* From Florida's *Celiac Action Line*, Jan. 1994: "Many celiacs report years of wasted visits to doctors, referrals to psychiatrists, and near death before diagnosis. *McCall's* magazine in August requested information on anyone not receiving a certain treatment or the right diagnosis from a physician....Send your story to Medical Error, *McCall's*, 110 Fifth Ave, New York NY 10011."

- **Chromium picolinate**, 200-400 micrograms a day. Improves blood sugar regulation. It's so effective that diabetics on insulin may find their insulin requirements dropping sharply, so should take it only under medical supervision.

- **Beta-carotene**, 15 mg twice a day.

- **Vitamin C**, 1000 to 5000 mg a day, more when fighting infection.
- **Vitamin E** from natural sources, 400-800 IU daily.

- **Magnesium aspartate**, 300 - 600 mg a day.

- **B-vitamins**, incl. folic acid 800 micrograms daily.

- **RDA amounts of trace elements**, incl. 50 - 100 micrograms of **selenium**, needed as part of an antioxidant enzyme, glutathione peroxidase.

- **Coenzyme Q10**, 30 mg a day. Its other name is ubiquinone. Our body makes it for the energy-producing function of each cell. Supplemental ubiquinone helps heart patients. It also has an interesting 'side effect': it helps heal gum (periodontal) disease faster.

- **Flaxseed oil**, 1 tbsp daily.
- **Echinacea**, an herb that fights infection and bolsters immunity, 300 mg a day of root extract.
- **Astragalus** root. Andrew Weil, M.D. in *Natural Health, Natural Medicine* (Houghton Mifflin, 1990) recommends for his patients with chronic fatigue "Astra-8, a mixture of *Astragalus* with seven other Chinese herbs. The dose is three tablets twice a day..."

- **Taurine**, 500 - 1000 mg at bedtime, for insomnia and to build immunity.
- **Calcium citrate**, 400 mg at bedtime.

The following are used in some clinics for (a) chronic nervous anxiety as an alternative to Valium-type drugs; and (b) for depression as an alternative to tricyclic antidepressant drugs:

- **GABA** (gamma amino butyric acid), 375 to 750 mg daily or every other day. Our body makes it from glutamic acid, an amino acid in protein foods. In the brain GABA exerts a natural calming effect. Supplemental GABA has been helpful for chronic nervous anxiety, muscle spasms caused by fear and tension, insomnia, and nervous indigestion.

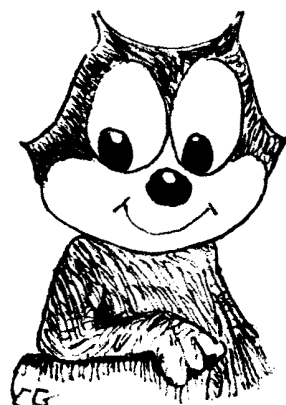
- **Tyrosine**, 100 to 500 mg in the morning on empty stomach. Some people benefit from another dose in the afternoon, others get "wired" from it. It's an amino acid from which the body makes a number of vital metabolites, one of which, norepinephrine, is our 'get up 'n go' hormone, providing natural anti-depressant action. Neither GABA nor tyrosine is habitforming or addictive. In the amounts described, they enable the body to make a little more of the neurotransmitters and hormones that allow a person to function normally.

Gary's regimen was somewhat like the above. He told me he never thought he'd be able to follow it without feeling like a pill freak, but he's worked out a comfortable routine, keeping duplicates in his office desk drawer, and preparing packets for each day when he has to travel on the job. "I can swallow a handful now; they're just concentrated food pellets to me. It's no big deal," he grinned.

Being of a scholarly bent, he's been looking up the references, going to journal sources in Univ. of California libraries. "I can't believe it!" he told me. "There's all this great medical research on vitamins, herbs and amino acids that's been going on for years....and the 'straight' doctors won't use it to treat their patients. What a farce! What a waste!"

"You're telling me?" I said. "Why do you suppose I started the newsletter?" I told him how as an overage undergrad in UCB's nutrition science department I was exposed to journals full of magnificent medical studies in which nutrition held the key to a wealth of puzzles. But in the real world of clinical practice, nobody seemed to acknowledge, let alone implement them.

"They still don't," Gary said sourly.



Is there a nutrition light at the end of the medical tunnel?

I think things have gotten better, lately. Doctors are hurrying to jump on the bandwagon for antioxidants such as vitamins C, E, beta-carotene, and the mineral selenium. Fish oil and flax oil are being recommended as newly valued Omega-3 fatty acids. In 1992 the National Institutes of Health's recently established Office of Unconventional Medical Practices began discussions with leading practitioners to review their alternative therapies, presumably as a prelude to investigating potential benefits. Last year *The New England J. of Medicine* (Jan. 28) ran a survey that shivered the timbers of the U.S. medical hierarchy. "We found unconventional medicine has an enormous presence in the U.S. health care system," the doctors said, clearly struggling to contain their pique. "An estimated one in three persons in the U.S. adult population used unconventional therapy in 1990. The estimated number of visits made in 1990 to

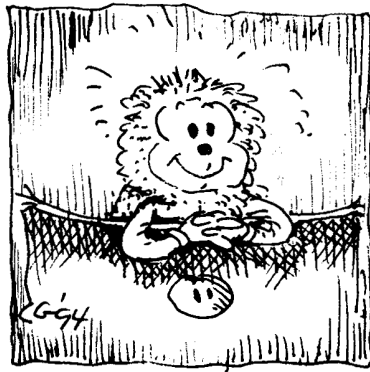
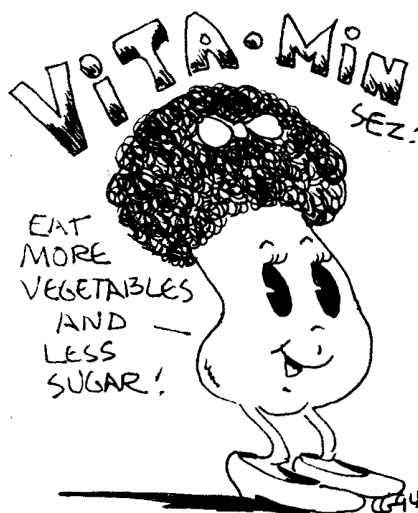
providers of unconventional therapy was greater than the number of visits to all primary care medical doctors nationwide..." [Emphasis mine. I could visualize the writers gritting their teeth.]

Just recently, a miracle took place in the FDA: it granted approval for a "Phase II pilot clinical investigation" to evaluate safety and effectiveness of *shark cartilage* for patients with advanced cancer of the prostate or breast. In the Dec. 1993 *Price-Pottenger Nutrition Journal*, the biochemist I. William Lane, Ph.D., writes that all patients in the study are considered to be terminal "in that their cancer has metastasized and they have not responded to conventional therapy of radiation, chemotherapy, surgery and hormonal treatments. This is one of the first cases of the FDA granting Investigational New Drug status to a natural product."

Preliminary results in the 20-week trial should be available by early summer. Dr. Lane spent a dozen years developing specially processed shark cartilage for clinical use. Recent trials in Cuba with terminal cancer patients using his product, Cartilade, were featured on CBS-TV's *60 Minutes* early last year. Results were mixed but very promising. Shark cartilage stops the growth of new blood vessels in tumors, causing cancerous tissue to shrivel.

Its mode of action in cancer and arthritis is described in a book he and Linda Comac wrote a few years ago, *Sharks Don't Get Cancer*, Avery Publishing Group, available through Price-Pottenger Nutrition Fndtn, P.O. Box 2614, La Mesa CA 91943. \$15.95 includes shipping (CA residents add 92 cents sales tax).

Shark fin soup, by the way, is a treasured Asian delicacy. □



DON'T EAT BUTTERFLIES!

May R. Berenbaum, Ph.D. in *The Food Insects Newsletter*, Nov. 1993, chronicles the impressive ability of herbivorous insects to survive unscathed after consuming foliage rife with cardiac glycosides and other natural plant toxins. Some insects detoxify and excrete the offending poisons. Others, however, develop systemic immunity, allowing them to incorporate toxins that then present a serious danger to any critter stupid enough to eat them, including other insects and humans. The praying mantis quickly regurgitates after ingesting "even a few bites of cardiac glycoside-containing prey..." (Cardiac glycosides induce visual disturbances, heartbeat irregularities, vomiting, and other scary symptoms in people. No one's been able to decide exactly what they do to a praying mantis besides making it throw up.) So, you folks out there who are intent on sampling, stay away from at least 65 species of insects including the monarch butterfly! It sequesters cardiac glycosides from its host plants as a caterpillar "and is toxic and emetic...as an adult as a result."

But wait, there's another side to this. Berenbaum tells us a certain species of caterpillar, "restricted to feeding on the foliage of...the coca plant, contains detectable quantities of cocaine in its body....While possession of cocaine is illegal in most countries, possession of caterpillars is not..."

Food Insects Newsletter used to be free, but subscribers now have to make a minimum contribution of \$5 to defray costs, payable to Board of Regents, U. of Wisconsin, designated *Newsletter*. Send to *Newsletter*, Dept. of Entomology, U. of Wisconsin, 1630 Linden Dr, Madison, WI 53706. □

SICKLE CELL ODYSSEY, CONTINUED

At the Atlanta Clinic of Preventive Medicine, general family practitioner William E. Richardson, M.D. regularly treats sickle cell patients who suffer from severe anemia. Usually they are homozygous for the sickling genes, i.e., they've inherited one from each parent. (In "sickle trait" which is far more common, individuals inherit one gene from one parent only and seldom have blood problems.) In the homozygous sickler, hemoglobin in red blood cells (RBCs) can form rigid crystal polymers, distorting the normally pliant, spherically shaped RBCs into brittle sickle shapes. Not only does sickling make the RBCs unnaturally rigid and liable to get stuck in small blood vessels, it also makes them fragile; they tend to survive only a few weeks instead of the normal 120 days.

Hemoglobin supplies oxygen to every organ and tissue. Painful 'crisis' occurs when so many RBCs are destroyed that hemoglobin level falls to a dangerous low, cutting off oxygen to the body. Homozygous children tend to be thin and frail and susceptible to anemia, crises, and frequent infections. At an early age many become resigned to hospital stays for antibiotic treatment and transfusion. Dr. Richardson has seen a lot of suffering in spite of the best medical treatment.

As described in *FL's* 71 & 72, sickle cell serves as natural malaria protection in every race of people who live where malaria is endemic, e.g., India, Egypt, Africa, Greece, Sicily, Arab countries, Asia, Philippines, West Indies, Central and South America, etc.. When Oji Agbai Chima, Ph.D. was growing up among his Igbo people in rural West Africa, he said anemia and crises were uncommon in homozygous sicklers. While pursuing his career as a biochemist in Tulsa where he and his wife are raising their young family, he saw a far more somber sickle cell picture in this country. Observations by anthropologists and doctors doing field work in Africa, Jamaica, etc. on the typically mild symptoms in many homozygous sicklers strengthened his own hunch that diet was responsible for the difference. Among the Igbo, daily reliance on such staples as African yam and cassava (manioc) that yielded thiocyanate allowed them to maintain high thiocyanate levels in their blood.

Thiocyanate is a normal constituent of plasma and saliva, its level depending on intake of foods containing it or its precursors. Most diets in the U.S. are singularly low in such foods. In his laboratory at the Biomedical Research Institute, Dr. Agbai found thiocyanate to be an ideal anti-sickler of RBCs in test tubes. It bound to deoxygenated hemoglobin, making it as soluble as normal hemoglobin, correcting the sickling, prolonging the life of each RBC!

He then observed responses in anemic homozygous sicklers who began eating foods three times a day that yielded thiocyanate, mimicking the traditional Igbo diet. As he had predicted and hoped, he saw their hemoglobin rise, sickling crises end, wellbeing increase. Dr. Agbai wrote papers, spoke to doctors and to sickle cell societies, and wrote *Sickle Cell Anemia: A Solution At Last*. The book's premise is that sickle cell anemia is a *dietary thiocyanate deficiency anemia*. (It's available from Biomedical Research Institute, P.O. Box 8355, Tulsa, OK 74101. Tel: 918/583-3842.)

But being habit-loving creatures as most human beings are, many sicklers couldn't or wouldn't follow the diet. Dr. Agbai came up with a thiocyanate nutritional product that could be taken separately. Dr. Richardson in Atlanta had been following Agbai's work, attempting to implement the dietary concepts with his patients. In those he convinced to switch to anti-sickling foods, he saw encouraging results, but other patients, or parents of young patients, were unwilling to change. He decided to set up a small clinical study using the thiocyanate product alone.

Even the best of modern medicine doesn't work well for raising and maintaining hemoglobin levels of sicklers. In addition, rapid destruction of sickled RBCs keeps their hematocrit [RBC volume in relation to total blood volume] terribly low. After just 5 to 9 days on the thiocyanate product, four of five subjects had significantly higher hemoglobin and hematocrit levels, compared with one patient on placebo for three days. The fifth patient had only a small improvement in hemoglobin but a marked hematocrit rise.

The implication is that a patient's blood picture will continue to improve as plasma thiocyanate gradually increases to optimal levels. Dr. Richardson is continuing to treat sicklers with the nutritional product, but told me by telephone that he's seeing the best longterm results when patients, in addition, eat the thiocyanate foods.



Dr. Agbai's wife, a medical technologist, told me of a 29-year-old woman who had been hospitalized for a severe sickling crisis. Sadly, the antibodies she had developed from her many transfusions in the past would cause any future transfusion to be fatal, thus removing the only medical option the doctors had left! Essentially, they had given up on her. Her hemoglobin was an unbelievable 3 gram % (normal is 11 to 15) when the Agbais took her in. Mrs. Agbai had to feed her as she was too weak to feed herself. She stayed in their home five days while Mrs. Agbai prepared foods to nourish her and increase her blood levels of thiocyanate. In addition she was given the nutritional thiocyanate product. In five days her hemoglobin rose to 6.8 gram%, her energy began to return, and she left to visit a relative!

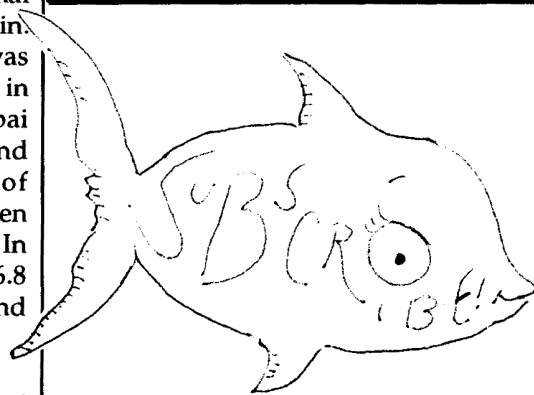
These are a few of the foods that contribute to such 'miracles': cassava, true yam (*Dioscorea*), millet, buckwheat, lima beans, cabbage, broccoli, collard greens, turnip greens, cauliflower, flaxseed (another plus besides Omega-3s!), bamboo sprouts, alfalfa sprouts, mung bean sprouts, lentils, chickpeas, fava beans, squash seeds, macadamia nuts, wild blackberries, crabapples, lingonberries, elderberries, huckleberries, we're talking *tasty* here!

Cassava (*Manihot esculenta*) is easier to find than I thought in the Bay area. Seems it's a staple food in South America, Central America, Mexico, West Indies, the Philippines, etc. Slave traders brought it to Africa about 400 years ago and it quickly became a major carbohydrate source, along with the truly native African yam. Latinos call it "yuca"; other names are manioc, gari, etc. I've found it sold in vegetable markets as a very large brown root. Latino markets commonly sell it packaged in the frozen foods section in peeled chunks or peeled and grated. A nutritionist friend who grew up in Puerto Rico said it's as commonly eaten there, if not more so, than potatoes which it resembles in flavor.

This triple-duty recipe provides Omega-3s, thiocyanate, and is *nongluten*, folks!

1 cup grated yuca (cassava), raw
1 cup canned salmon
(OR 1 cup tofu, well mashed)
1 egg (optional)
Lots of dried parsley
Lots of minced garlic

Mix together. Shape into patties and saute on low heat in 3 or 4 tablespoons of virgin olive oil or Canola oil about 5 minutes each side. Makes about 8 small *delicious* patties! □



Illustrations by Clay Geerdes and other artists as noted.

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