

The FELIX Letter

No. 109

A COMMENTARY ON NUTRITION

2000



BEWARE OF KILLER VITAMIN C!

Enjoyed a stimulating letter-exchange debate in *The Lancet* (April 8, 2000) on whether vitamin C does or doesn't play a useful role in easing high blood pressure. The original article by S.J. Duffy and J.A. Vita (*Lancet* December 11, 1999) described using either 500 mg daily of ascorbic acid or placebo to about 20 hypertensive patients in each group. Conclusion: "Although confirmation of these findings in larger, longer studies is required, the present study suggests that 500 mg of ascorbic acid daily is useful for blood pressure control in patients with hypertension." This Boston U. School of Medicine study evoked letters from researchers in Italy, UK, and the US, some disputing the findings but most confirming them and describing myriad other good things vitamin C does for hearts and arteries.

Over and over again in conservative journals, I'm seeing satisfying substantiation of concepts that made sense to me 40 years ago. So why the periodic headlines about dangers from nutrient supplements?

Or, conversely, why so few media reports on breakthrough studies celebrating their *life-giving* attributes? In 'respectable' journals, these outnumber the scare stories at least 1000 to 1.

Pleasing the Stockholders?

In part, it's the old journalism game: good news is boring, bad news sells. But also we can thank cold-blooded pharmaceutical and medical industry bottom-liners who smell giant revenue losses when

people make a habit of relying on self-administered supplements. And of course newspapers and mags that play up the horror stories depend on revenue from the new style double-page ads for prescription drugs. ("Ask your doctor about this great new way to relieve acid reflux, diabetes, impotence, toe fungus...")

Despite legislative defeats, there still exists an underlying profit-motivated push to make herbal and nutrient supplements available only by doctor's prescription as in a number of countries.

Scare Tactics

The new terror-of-the-month story emerging from the annual March meeting of the American Heart Association was a report by J. Dwyer and colleagues implying that folks who took at least 500 milligrams vitamin C a day (the same dose as in Duffy's study) were setting themselves up for heart disease, no less. The study had not been subject to peer review nor published, nevertheless it made major headlines across the country.

A favorite clinician-researcher of mine, Jonathan V. Wright, MD, offered some enlightening comments in his newsletter, *Nutrition & Healing*, April 2000: The so-called adverse finding -- the only one -- was that arterial walls in those who took 500 mg of vitamin C or more daily for at least a year had twice the thickening of those who avoided supplements. He writes:

"It's been pointed out that the study relied on ultrasound, which cannot determine what the nature of the reported 'thickening' is. Perhaps it's just another manifestation of vitamin C's known ability to strengthen blood vessels through promoting collagen synthesis. Perhaps those who don't take vitamin C actually have weaker and thinner-than-optimal arterial walls. There's no way to know from this study alone."

Wright goes on to list just a few of the investigations over the years confirming the vitamin's role in improving health and longevity, but then describes the headlined one several years ago reporting that "moderate doses of vitamin C caused DNA strand breaks, suggesting that vitamin C might actually be causing genetic damage. Further examination revealed that vitamin C caused a slight increase in DNA strand breaks that are easily repaired but resulted

in a significant reduction in hard-to-repair strand breaks. This is just another example of how a blast of media attention can scare the public into thinking vitamin C might be harmful, when in fact it has again proven to be protective and health-promoting."

I well remember the scary headlines but don't recall ever seeing a single word in the same newspapers about the *protective* effects of vitamin C on DNA in the same study.

None of the alarms make much sense to me, considering how basic vitamin C is to the integrity and health of each artery, vein, capillary, and tissue in your body. (I should have croaked decades ago on my 1000 to 5000 mg a day of powdered C, buffered with calcium, magnesium, and potassium.)

The Missing Tests

More stuff, this from the internet: Only one imaging test was reported on by Dwyer at the AHA meeting, the one showing thicker artery walls (which a number of scientists besides Dr. Wright say more likely indicates *strengthening* of those tissues). Two other imaging tests exist, one denoting degree of plaque, the other determining interference with blood flow. These two, which actually *can* indicate presence or absence of a definable degree of atherosclerosis, were either *not* done, or not reported on by Dwyer et al. Why not???

Amazing how quickly the media picked up on the undigested dangers!

Let's Get Real, Folks

Katherine Milton PhD is an evolutionary biologist and UC Berkeley professor who studied diets of small monkeys living wild in a tropical forest of a 6-sq-mile island preserve in Panama. She and her team followed howler, spider, cebus, and tamarin monkeys through the forest, using plastic bags to pick up food the critters dropped or threw down, which was later analyzed. Some surprises: these wild primates who weigh only about 15 pounds may take in 600-700 mg vitamin C a day! (Unlike almost all other creatures, we humans and other primates, also guinea pigs, lack just one enzyme needed to make vitamin C out of

glucose.) *To mimic the monkeys we'd be taking in 6000-7000 mg a day.* (The soon-to-be released RDAs for vitamin C have gone up a smidgeon to 60-90 mg for men, 60-75 mg for women. Paltry!)

On their wild-plant diet the monkeys get lots of omega-3 alpha linolenic acid, also much more calcium, potassium and magnesium than we do. Their foods (leaves, fruits, seeds etc.) weren't analyzed for provitamin A, K, E, and folic acid content, which is known to be exceptionally high in similar raw foods. (*Nutrition* Vol 15, June 1999.)

Dear readers, keep on taking your cues from nature. □

MORE ON HOMOCYSTEINE THAN YOU EVER WANTED TO KNOW

Everything's coming together nutritionwise on the *homocysteine* front. It seems high blood levels of this molecule may finally be overtaking cholesterol as the new heart disease villain -- this time, though, with infinitely more biochemical logic. Two studies and accompanying editorials in the April *Am. J. of Clinical Nutrition* cover cradle-to-grave aspects, so to speak -- noting more birth defects in babies of mothers whose homocysteine levels stay too high; while the same high levels in the elderly may play a role in brain diseases like Alzheimer's.

All this in addition to confirmation of homocysteine overload as a big factor in heart disease.

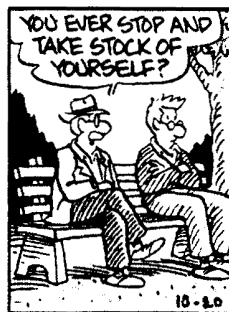
Moving towards Methionine

This overload currently is being traced to both genetic and nutritional causes. The homocysteine molecule isn't supposed to be a villain. It's really just a way station in the amino acid routes your body takes. When everything chugs along smartly, homocysteine gets reconverted to the amino acids you really need: *methionine* and *cysteine*.

Methionine and cysteine are *essential* sulfur-containing amino acids required for zillions of your body's products and functions. Besides being used for making tissue protein, methionine is transformed into SAM (S-adenosylmethionine), the major donator of methyl groups (carbon plus 3 hydrogens) for making DNA, RNA, choline and other vital parts of your 'machinery.'

Then SAM gets converted to homocysteine -- which serves as a temporary depot prior to becoming cysteine or reconverting to methionine.

Pickles/Brian Crane



That's where 'engine trouble' starts. For instance, one fairly common genetic defect of an enzyme acting on folic acid metabolites (estimated to affect 5 to 15% of the general population) can badly slow down homocysteine's reconversion to methionine.

Then we have 'fuel' factors. *Without enough B6, folic acid, B12, choline, and betaine, the enzymes that do all the converting slow down to a snail's pace.*

Folate to the Rescue!

The good news is that people with the gene-produced slowdown do much better at getting rid of homocysteine buildup *when they up their folic acid intake.*

As a matter of fact, it makes good sense to increase not just folate intake, but B6, B12, choline, and betaine as well. (More on this later.)

A Big Expensive Study

In an ambitious trial involving 10 research centers in the US and Canada, about 500 adults were randomly assigned to follow either a self-selected standard diet, or a Prepared Meal Plan (PMP) for ten weeks. (Alan Chait et al. *Am J Clinical Nutrition*, Nov. 1999, pp881-7.) All participants were considered to be *at high risk of cardiovascular disease* because they had high blood pressure, type 2 diabetes, "dyslipidemia," or a combination thereof. (Dyslipidemia referred to too-high serum cholesterol, too-high triglycerides, or both.)

The PMP meals were fortified with vitamins and minerals to provide 100% of the RDA for 22 nutrients, *plus 400 micrograms folate.* (At the time that was more than twice the adult folate RDA. I've heard the new RDAs will be increasing it to 400 micrograms, plus an additional 400 mcg for women aged 19 to 50.)

The standard diet was designed "to meet typical nutritional recommendations for individuals at high cardiovascular disease risk."

Outcomes

With their specially fortified food, PMP people not only got more folic acid, B12,

and B6 than the standard group, but also ate more fruits and veggies. Result? Higher serum folate and B12 *and a modest drop in average serum homocysteine.* The higher the original levels, the greater the drop by the end of ten weeks, especially for those whose original levels were higher than the danger cutoff.

The Losers

The standard-diet folks who were choosing from foods typically recommended for persons "at high cardiovascular risk" didn't fare as well. Without the modest nutrient fortification the PMP group got, they ended up with significantly lower serum folate and vitamin B12 than when they started.

Average serum homocysteine didn't drop in the standard-diet group. By the end of the study, 14% still had homocysteine levels above the danger point, compared with 9% in the PMP group.

Here's A Better Idea

Benefits for the PMP group were promising, but by no means spectacular. Mind you, even PMP participants were getting only skimpy amounts of key nutrients since the RDAs barely skimmed the surface. (I hear the new RDA for vitamin E has risen to -- gasp!--15 mg.)

Folate fortification certainly helped, but I can't help wondering what might happen if the same at-risk groups took *heart-supporting supplements* recommended by many alternative clinicians: 1000-4000mg L-carnitine; 100-300mg coenzyme Q10; 100mg alpha-lipoic acid; 1000-4000mg taurine; 1000-2000mg EPA/DHA; 100-800 IU natural vitamin E; 5000 IU vitamin A; 1000-5000 vitamin C; 1000-3000 IU vitamin D (the higher dose when not getting lots of sun.)

RDAs of all essential trace minerals plus 200micrograms chromium picolinate & 200mcrgm selenium; 800-1500mg calcium; 500-1000mg magnesium; decent amounts of all B vitamins; lecithin for phosphatidylcholine-inositol-ethanolamine.

Plus a formula with extra B6, B12, folic acid, and trimethylglycine (a form of betaine) to clear homocysteine out.

Way to Go!

Okay, okay, I know it sounds daunting, but actually much of the above stuff comes in multi's or in powdered formulas. Myself, I've been playing the supplement game so many years it's as routine as brushing my pearly whites. Yes, I take most of the above as my *basics*. This valiant sacrifice is no less than my stern professional duty, if I'm going to continue to be a beacon light to y'all! □

Close to Home/John McPherson



LONG AGO IN CALIFORNIA...

Last year the Phoebe Hearst Museum of Anthropology at UC Berkeley had a stunningly beautiful exhibit of California Native American life, focusing on plant and animal foods that nourished the First People, along with their tools and implements for gathering, hunting, preparing, and storing. I'm still awed by the intricate decorative patterns on century-old storage baskets made of coiled or woven reeds, some of the baskets nearly 4 feet high, a yard wide. Food meant life, so everything connected to it -- each basket, dish, shell-spoon, hunting knife, fishing implement -- was honored by fine craftsmanship and design.

Originally there were hundreds of different California tribes, each with its separate language. The wilderness was full of game animals and birds when the Europeans 'discovered' it, while the ocean, bays, rivers, lakes, and marshes made aquatic food easy to obtain year round. Existing archeological sites that go back 3000 to 4000 years are piled full of empty shells. One of the largest shell mounds is 30 feet high, 300 feet across, a testament to this sustaining bounty.

Pickles/Brian Crane



Acorns

From ancient times people had worked out careful ways to leach out toxins, tannins, etc. from the astonishing variety of plant stuff they ate. Acorns from 16 species of California oak trees supplied the main starchy staple for all the tribes. Women usually gathered them in large baskets carried on their backs; then the acorns were left to dry for several months or longer. Cracking the shells and peeling the nutmeat was a painstaking process; it became a social occasion for the tribe's females, from toddlers to grandmas, chatting and singing while they worked. They banged peeled nuts with rocks against a pounding stone to make acorn flour. Later, a water-based leaching process flushed the bitter tannins out. The flour was used to make acorn soup, mush, and bread. Early Spanish explorers actually wrote letters describing how rich and tasty the bread was.

A corn flour is high in potassium, magnesium, phosphorus, and calcium. Depending on oak species, it's roughly 50% carbohydrate, 7% protein, 10-30% fat. Fats are mostly monounsaturated oleic acid plus a goodly amount of w6 linoleic, and a tiny bit of w3 alpha-linolenic.

Gourmet Heaven!

First People also gathered and prepared mesquite beans, screwbeans, pine nuts, peppernuts, chia seeds, wild onion bulbs, lily bulbs, mushrooms, blackberries, huckleberries, gooseberries, strawberries, Manzanita berries, clover, wild lettuce. (Of course, *all* the plants were wild--First People were gatherer-hunters, not farmers.) They ate seaweed, made seaweed cakes, and toasted seeds of many grasses including wild oats, which they ground into meal and cooked as porridge or baked into cakes.

Animal foods might be venison, elk, pheasant, jackrabbits, porcupine, salmon and smaller fish, eels, every variety of mollusk (clams, oysters, squid, mussels, abalone) and crustacean (crab, lobster, shrimp, crayfish). Men in boats made of ingeniously bound tule rushes stole seabird eggs from island rookeries. I saw full-size replicas of tule boats in a wonderful little

museum at Coyote Hills Regional Park, Fremont, close to San Francisco Bay. (Local readers can call 510-795-9385 for dates and details on visits to the museum, shell mounds, and park workshops in traditional Indian skills.)

A Special Celebration

At this park last autumn my family gathered for my birthday. I had first visited it a month before and couldn't wait to share its little-known treasures with my kids, kids-in-law, and 12-year-old grandson who brought his best friend. It was Annual Ohlone Festival Day, and at colorful booths set up near the museum at the Visitors' Center, demonstrations went on all day on how to make cordage from Indian hemp (dogbane) fiber, traditionally used for fish nets, belts, bowstrings, etc.; how to make brushes from bulbs of the soap-root plant; how to shape arrowheads and knives by flintknapping, etc. Native dancers, some very young, in traditional costumes chanted and performed circle dances to drum beats, all of us joining in at the end.

Park naturalist Beverly R. Ortiz is an ethnographic consultant and author of *It Will Live Forever. Traditional Yosemite Indian Acorn Preparation* (Heyday Books, Berkeley, 1991). I met this comely young woman at the park, where she conducts regular workshops on historic Ohlone Indian culture for school children, visitors, and whoever wants to learn traditional skills. She writes regularly for *News from Native California*. *An Inside View of the California Indian World*, published quarterly by scholarly Malcolm Margolin and his crew. (Subscription \$19/yr, single copies \$4.95. Heyday Books, Box 9145, Berkeley CA 94709.)

Stories of California Indian Life

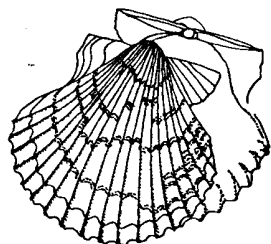
Ortiz and others contributed to the Spring 2000 edition's special report: "Acorn power: Food and fitness in native California." The traditional staples and vigorous sports described kept ancestors of California's Native Americans free of diabetes, the modern-day scourge. In this report older people who themselves had hunted or gathered, as well as younger

descendants, share memories of exciting foot races and field games (girls and women too), of seeing men climbing sugar pines to shake down cones for the delicious pine nuts, of whole families trudging to the desert to gather mesquite pods, cactus, yucca.

It's been estimated hunter-gatherers averaged about 2 to 3 hours a day for everything that went into keeping themselves nourished. The report says this left plenty of time for story-telling, dancing, and a variety of wildly exuberant games. One sport described by William Joseph, an older Nisenan Indian, was similar to lacrosse: "They did this all day long. They sweated so they could not see. At night they fell into a deathlike sleep, they were so tired. That was their game, that is what the women and girls did...in the early days."

In his description of a Nisenan version of "Indian football," the games started early in the morning and went on all day, except for meals. "We danced at night. When it was dawn we played football again. We did that for two or three days."

I'm sure the missions put an end to all that frivolous nonsense. □



The Spring 2000 edition of **NOHA® NEWS** published quarterly by Nutrition for Optimal Health Assoc. and edited by friend Marjorie Fisher and son Andrew, has a priceless report on free glutamic acid and its unannounced presence in a multitude of everyday foods and flavorings. Most of us know enough about MSG (monosodium glutamate, which is free glutamic acid) to avoid it when we see it on labels. What we *don't* know *can* hurt us, however, and it's MSG's unmarked, hidden presence that's doing its neurotoxic number on all of us. The report describes sinister 'cooperation' between the glutamate industry and the FDA in squelching evidence of truly scary neurological damage. This is something consumers can do something about, if you know the facts. Send \$3 for a copy of this Spring issue to NOHA, P.O. Box 380, Winnetka, IL 60093. (A year's subscription is \$8.) You'll blanch when you see the dozens of familiar foods you never dreamed could contain MSG. □

Pickles/Brian Crane



AS PLAIN AS THE NOSE ON YOUR FACE

For some obscure reasons, a number of researchers of Paleolithic nutrition have tended to overlook the perfect, easiest-to-obtain animal food on the planet for early humans: *mollusks and crustaceans*. Those long-ago ancestors wouldn't even have had to know how to fish -- let alone to sharpen hunting spears or shape bows 'n arrows -- and they *still* would have come up with armloads of tasty, mineral-rich, easy-to-digest clams, oysters, crabs, scallops, crayfish, mussels, shrimp, etc. Many species existed in fresh water, not just in the seas. All were good omega-3 sources, to nourish a bigger brain.

Maybe it was easy to overlook the very early shell-seekers because fossil records would only show empty, broken shells that could mean anything...or nothing. Much more fun for paleontologists to fuss over prehistoric sites where tools and cracked animal bones showed what those early hunters were *really* up to.

Well, now scientists have discovered "the earliest well-dated example of an oyster bar -- a fossil reef on Africa's Red Sea coast where ancestral humans must have waded out to collect oysters, clams, scallops and crabs some 125,000 years ago."

So writes David Perlman, science editor of the *S.F. Chronicle*, on May 5, reporting on a current article in *Nature* that "describes the scientists' discovery of two-sided stone hand axes and flaked obsidian blades in the same fossil reef terrace as the fossil remains of shelled bivalves and crabs."

The expedition led by geologist Robert C. Walter also found fossil bones of large land animals close to the "oyster bar," suggesting the humans may have driven them toward the sea and killed them there-- "the world's first opportunity for 'surf and turf dining.'"

I can't understand this excitement over Paleolithic clam-diggers. Of *course*, the people would have grabbed these easy-to-get foods! And they wouldn't have had to wait to migrate to the sea, since it was just

as easy to gather *freshwater* bivalves and crustaceans. Our early African ancestors with virgin-green wide open spaces to choose from surely would have elected to be near sources of fresh water from lakes, rivers, or streams, even if they lived by the sea.

In a TV documentary a few months ago of wild baboons in an African reserve, the camera followed the animals foraging all sorts of green stuff and chomping away merrily. One baboon went to the nearby body of water (salt? fresh?), dug around in the shallows, came up with a goodsized mollusk, cracked open the shell with a rock, ate the insides, went back for more. Other baboons did the same.

Just routine, folks. □



Illustrations are by the late Clay Geerdes and other artists as noted.

THE FELIX LETTER, P.O. Box 7094, Berkeley CA 94707, has been published independently (and irregularly) by Clara Felix since 1981, supported by subscription. Descriptive list of back issues plus sample, \$1. Subscriptions U.S. & Canada: \$12 for six issues (approximately one year; \$22 for 12 issues (approx. 2 years). U.S. funds only.

©2000 **FL No.109**
All rights reserved.