A young reporter called to ask if she could pick my brains over lunch. She was doing a piece on fats and oils, my 'speciality.' Sure, I said, where'll we meet? There was a long pause. "I-uh-don't know the kind of foods you eat," she said. It's happened before. People think I eat a pristine, ascetic diet. I want to assure all potential lunch companions I am a human garbage pail. On occasion. Most of the time I eat foods that have been on people's menus for thousands of years: vegetables, fish, lamb, beans, potatoes, grains, fruits, nuts and seeds. The corrupted side of me likes root beer floats and See's chocolates. Frankly, life would lose some of its luster without them. A story in the April TRIBUNE confirms what scientists have been finding in their studies: A diet high in essential nutrients but very low in calories will enable us to live longer. If that's what it takes, to tell the truth I'd rather die younger, with a smile on my face! 🌟🌟

**OXYGEN: FRIEND & FOE**

This past winter, I attended the Antioxidants & Degenerative Diseases conference at U.C. Berkeley, sponsored by the university and the National Foundation for Cancer Research. These are great events for me. I sit entranced, while researchers from Finland, U.S.S.R., Japan, France, U.K., Australia, etc. join with scientists here to share their separate but linked findings. Dense biochemical terms float past me, made even more murky by incomprehensible accents! Luckily, we've given program guides with summaries of the speeches. Room after room of poster exhibits further clarify the talks. These people are my heroes; they do the exacting, unsung labor that, over years, sometimes adds up to knowledge with practical application. Right now, the thread that binds their work is the new understanding of the role of oxygen radicals in generating disorders as different as cancer, heart disease, and Parkinson's.

Bruce Ames of the university said, "Whatever is doing us in for aging, is also doing us in for cancer, cataracts, and other degenerative diseases. The major source of damage to metabolism are the oxygen radicals...Living is like getting irradiated!"

When we think of oxygen we think of the breath of life. But oxygen in its many forms also can corrode and destroy. Oxygen rusts metal and turns fat rancid. Something similar happens in the body. The actions of free radicals (oxygen radicals or oxy radicals) in disrupting cell and tissue functions are a fact of existence.

Thomas H. Jukes of U.C. Berkeley describes it this way:

When oxygen entered the atmosphere, living organisms had two choices: hide in the deep mud, or develop antioxidants for protection against lethal free radicals and other toxic effects of oxygen. The Clostridia retreated to the deep mud. They did nothing else to protect themselves against oxygen. When people develop gas gangrene from contamination of a wound with soil, they are placed in an oxygen chamber so as to kill the Clostridia...We would not be here if it were not for antioxidants. We would be unicellular organisms, living underground in swamps, and producing methane.

The Ways We Cope

The body's defensive and counterattack systems are a miracle of nature. With their help we fight off tens of thousands of routine oxidative 'hits' every day to each cell and are little the worse for wear! At the conference they spoke about the growing body of data on these defenses. Some plain, everyday molecules are turning out to be free-radical scavengers. Uric acid, for instance, which the body makes when it breaks down nucleic acids, has been found to be a surprisingly good one. In some circumstances, it can do a better job of quenching free radicals than vitamin C which most scientists agree is the champion. Here's a provocative thought: Researchers Blair and Farrar of Birmingham, U.K. suggested that uric acid's antioxidant action in the body may help to compensate for our inability to make our own vitamin C! (Most creatures make vitamin C, except human beings, other primates, guinea pigs, bats, various fish, and some bird species.) Up till now, uric acid was viewed mainly as a potential trouble-maker for individuals who tend to crystallize it as kidney stones or gouty deposits, but nature apparently had its own hidden (till now) agenda!

Heart Disease & Free Radicals

Low density lipoproteins (LDL) are tiny packages of cholesterol, lipids, and proteins that circulate in the blood. If LDL become oxidized, a chain reaction begins that can lead to a build-up of plaque in arteries, i.e., atherosclerosis, the 'modern' heart disease. Austrian researcher H. Esterbauer and his group have found that if the LDL themselves contain plenty of the anti-oxidant, vitamin E, they're very resistant to oxidation. In their experiments, uric acid and vitamin C also retarded oxidation.

Our body makes special enzymes just to stop free-radicals before cells can be damaged. In 25 patients with severe atherosclerosis, a U.S. medical team found unusually low activity of these antioxidant enzymes in the aorta (main trunk of the arteries). With low enzymes came high levels of lipid peroxides. Unless zapped by the enzymes, peroxides can harm body tissues, arteries included!
Oxygen’s ‘hit men’ are by no means the only factor in heart disease, but researchers at the conference are convinced free-radical mechanisms play a big role. Fred Gey, from the University of Berne in Switzerland, described population studies of middle-aged European men in whom high plasma levels of vitamin E turned out to be the best predictor of low rates of ischemic (atherosclerotic) heart disease.

**Glaucoma**

Researchers from Montpellier, France, suggested that glaucoma patients may have a deficient “free-radical scavenging capacity.” By employing a test which measures products of peroxidation in blood plasma, they determined that glaucoma patients had far higher levels than persons free of the ailment.

**Cataracts**

There’s a lot of evidence for a free-radical connection to this common eye ailment. Lawrence J. Machlin said the cataractous lens has higher than normal amounts of hydrogen peroxide and other oxidation products, while it has decreased levels of protective antioxidants such as ascorbic acid (vitamin C), glutathione, SOD, catalase, and glutathione peroxidase. The last three are the chief antioxidant enzymes. Glutathione peroxidase (GPx), a selenium-containing enzyme, enables glutathione to convert harmful peroxides to useful water!

The logical question becomes, can supplements of antioxidant nutrients influence the course of cataract formation? Machlin thinks so. Since vitamin C normally is present in very large amounts in the lens where it prevents light-induced peroxidation, supplementing with vitamin C may help to maintain levels that stave off trouble. Vitamin E given to animals which are prone to cataracts will prevent peroxidation of lipids in the lens of their eyes and inhibit cataract formation. “Human subjects consuming higher levels of vitamin E or vitamin C or beta carotene had reduced risk of cataracts.”

In general, he thinks we can delay the onset of cataracts by judicious use of diet and supplements.

**Antioxidants, Old and New**

A1 Tappel and his group at U.C. Davis suggest that combined supplementation may safeguard us against the oxidation reactions associated with many diseases. In animal studies they found good protection against lipid peroxidation with a combination of these supplements: vitamin E, selenium, beta-carotene, and coenzyme Q10.

Coenzyme Q10 (ubiquinone) is not a vitamin. Even though every cell in the body makes it (for energy production), studies have shown benefits from supplements in circulatory ailments and periodontal disease. Besides its role in energy production, it acts as an antioxidant.

The trace mineral, selenium, is part of glutathione peroxidase enzymes (GPx and newly discovered PH-GPx). Glutathione can regenerate vitamins C and E into a working mode after they’ve been worn out by too many oxidizers!

Balz Frei and Bruce Ames of U.C. Berkeley said vitamin C was the first line of antioxidant defense in human blood plasma. By the way, vitamin C helps to regenerate vitamin E in our tissues so it can keep on zapping oxyradicals.

A cancer research group from the University of Hawai‘i said not just beta-carotene, but a number of other carotenoids (deeply colored pigments found in fruits and vegetables) inhibit cancerous transformations in cell cultures. These are lycopene, canthaxanthin, alpha-carotene, and phytene. The studies support their view that carotenoids inhibit cancer by preventing oxidative damage to cells.

**A Personal Agenda**

To keep the Big C and other health disasters at bay, I routinely take between 3000-5000 mg of vitamin C powder in water daily, lots more if I’m fighting off a bug. Not daily but often, I take 15 mg beta-carotene, 50 micrograms of selenium, and 300-600 IU natural vitamin E. These are the prime antioxidants.
I also take B vitamins, supplemental minerals, fish oil capsules (when I don’t eat fish), capsules of black currant seed oil or evening primrose oil (both as sources of GLA), and lecithin.

Fruits and veggies with bright carotenoid pigments I enjoy daily—some from our garden. Fish often, meat not so often, yogurt, a little cheese, brown rice, rice crackers, yams, potatoes, beans, tofu, corn tortillas—these are the backbone of my diet.

A tablespoon of flaxmeal daily, stirred into juice or yogurt, gives potentially cancer-fighting fiber plus Omega-3 dividends. A spoon of chia seeds or Spirulina powder in juice a few times a week. Canola oil or extra virgin olive oil for salads and sauteeing. A little junk food (usually sweet), with no regrets!

**ENZYMES ARE US!**

The enzymes our body makes to keep peroxides and free radicals in check are the same ones plants make, for the same reason. (How about those ties that bind us living things?) A couple of years ago, I began using enteric-coated tablets made from wheat grass sprouts containing four antioxidant enzymes: superoxide dismutase (SOD), glutathione peroxidase (GPx), catalase, and methionine reductase. The enzyme tablets had first been used to good effect for years in veterinarian medicine, mainly for arthritis, bursitis, and disc problems in dogs. While the Biotec Foods firm kept getting enthusiastic reports from vets (and, presumably, patients who wagged their tails gratefully), the experts said it was all a placebo effect. Live enzymes are long protein chains which, in the gut, would be broken down into amino acids—useless as enzymes. Makes sense. But how did that explain the good results seen for years in animals and, later, in people?

Some nice studies have come along, showing that human and animals given the wheat sprout tablets get a very marked rise of enzyme levels in blood serum, beginning about an hour after ingesting the tablet (before or without meals). Tests show the enzymes do, in fact, pass intact through the mucous membranes of the intestine, but instead of entering the bloodstream, go directly into lymph vessels, in much the same way digested, emulsified fat does. The lymph vessels enter the thoracic duct which eventually empties into the blood circulation. Thus, the enzymes can reach all the tissues of the body—still whole and operative!

In my own experience, I felt livelier and had more endurance when I took them (on an empty stomach in the morning, an hour before breakfast), so decided I was getting my money’s worth. Besides, it’s important to my work that I have firsthand knowledge of some of the hot products in my field! I quit taking them after a year (my supplement budget ranneth over). After a lapse of half a year, I began again. Within two weeks, I noticed—quite unexpectedly—that my lower back, which had gotten noticeably stiff and achy each morning when I got out of bed—hinting to me I’d better resign myself, albeit grumpily, to Golden Girlhood—was now purring like an oiled machine! If I were a dog, I’d wag my tail.

**BUBBLES FROM BICARBONATE**

I issue No. 52 brought a slew of letters from readers. First off, I had better clarify my recipe for the alkaline salts mix. I described a mixture of two parts sodium bicarbonate and one part potassium bicarbonate, 1/4 to 1/2 teaspoon in a glass of water, which I have been taking about 45 minutes after meals, along with pancreatic digestive enzymes. I based it on the writings of environmental allergists, and psychiatrist William H. Philpott whose superb book, BRAIN ALLERGIES, stirred me into action. To review a bit, a point he makes which had escaped me entirely heretofore is that many of us stop producing adequate amounts of natural bicarbonate (made by the pancreas), for a variety of common reasons, including allergies, chronic overeating, and stress. Digestion can proceed optimally in the small intestine only in an alkaline environment. The lack of bicarbonate badly hinders digestion and absorption of nutrients. Incompletely digested protein fragments get into the bloodstream, provoking allergic and inflammatory reactions. Deficiencies develop of vitamins, minerals, and amino acids. Ailments and allergies appear, seemingly with no connection to each other. Emotional and sleep disturbances grow, as the central nervous system reacts to an undersupply of neurotransmitters and other brain chemicals.

Back to alkaline salts. I have been making a dry mixture of 1/3 cup potassium bicarbonate and 2/3 cup sodium bicarbonate, stirring it dry in my blender, and keeping it stored in a glass jar with a tight lid. From this, I take 1/4 teaspoon, stir it into a glass of water and drink it down. A reader thought I stored the whole cup of bicarbonates in water! Ye gads, no!

A “59-year old exercise addict who is trying to increase her running distance” wrote to ask if taking a few TUMS, which contain calcium carbonate, would help “the soreness and stiffness after a run,” since she’s concerned with getting too much sodium from sodium bicarbonate. (The alkaline salts help to speed up removal of lactic acid in tired muscles.) Calcium carbonate can be useful in its own way as a supplemental source of calcium which, along with magnesium and potassium, helps to neutralize acidic products of metabolism. However “carbonate” is quite different from “bicarbonate.” The digestive tract needs copious bicarbonate anions to give it an alkaline pH. I suspect they’re needed to get rid of lactic acid, too.

A reader-friend from St. Louis writes that she’s brushed her teeth with baking soda for years and gets “compliments from my dentist about no plaque.” A young farmer-artist from Pennsylvania writes that the comment “about clinicians using alkaline salts in conjunction with massive amounts of non-acidic vitamin C to relieve symptoms of various addictive substances struck home. At this point, I am still addicted to nicotine (snuff) and have repeatedly tried to quit...I’ll give it a try.” We all wish him well!
Looking for Mr. Goodbread

About a year ago, I went on a no-wheat, low-gluten regimen. Besides suspecting I might be allergic to these substances, I needed to find out, as a nutrition writer, how easy or hard it would be to tolerate the stuff that’s on the forbidden list for many allergic souls. I can only tell you it was rough! Not so much the cookies and cakes, because I could console myself with nonwheat baked goods from my friendly neighborhood healthfood store. I also got to be pretty clever at concocting similar goodies out of the non- or low-gluten flours that are available from such starchy substances as rice, corn, potatoes, tapioca, oats, millet, amaranth, quinoa, etc.

No, the real feeling of deprivation came from the loss of bread. I missed the mouth-feel, the special chewable quality that bread alone provides. Rice bread didn’t even come close; while tasty, it crumbled like cake. I missed being able to make sandwiches! Sally Rockford, who helps allergic people by providing counseling and information, writes in her newsletters and cook books about xanthan gum. She says it works nicely as a substitute for gluten, giving stretchability to bread dough without causing allergic problems. Also, for individuals with celiac disease, xanthan gum doesn’t trigger the destruction of intestinal villi. Sally’s address is P.O. Box 31065, Seattle, WA 98103.

Ener-G Foods, the source she suggested, took a long time to respond but their product list, when it finally arrived, was so intriguing I ordered not just xanthan gum powder but a variety of breads. Exactly one month later the package came. The loaves, being vacuum packed, are supposed to maintain freshness for months at room temperature. Once opened, they should be refrigerated. So far, I’ve tried breads made from potato, brown rice, or tapioca flours, or mixtures of all three flours.

None contains gluten. Some are made with yeast and eggs, others aren’t. By consulting Ener-G’s description of ingredients, allergic customers can choose breads that are safe for them.

The good news is the breads have the chewiness and mouth-feel of regular bread. I’m eating sandwiches again! To be sure, the loaves lack the indescribable appeal (for us addicts!) of bagels, sour dough rye, or Natural Oven’s great linedool breads, but they make tasty toast and sandwiches, and my hat’s off to Ener-G Foods’ resourceful bakers, hence this plug. They can be reached at P.O. Box 84487, Seattle, WA 98124. I used my Visa card to order on tollfree 1-800-331-5222. Prices run about $2.49 plus shipping for standard-size loaves.

Celiac Disease

These breads must be a godsend to celiacs. Gluten in grains sets off a virulent immune response, in which white blood cells attack the villi that line the gut like a tiny velvet shag rug. Besides making enzymes to digest protein, carbohydrate and fat, the villi vastly increase the gut’s absorbing surface. Their destruction creates desperate problems with digestion and absorption. Gluten-free flours made from corn, soy, tapioca, and potato are about the only safe ones.

The disease was late in being recognized. Untreated, the inevitable nutrient deficiencies can lead to a formidable array of disorders, without a clue as to their origin. So far, the only reliable medical test for the disease involves snaking a thin tube down past a person’s throat and stomach into the small intestine. A tiny covered knife at the end of the tube is unleashed to snip off and retrieve a piece of gut. The biopsy works only if the patient has been eating gluten-containing foods, because on a gluten-free diet, the intestinal villi—happily for patients!—can regenerate and normalize quickly. Interest in the disease is growing, so as I write, diagnostic methods that are less invasive are being developed, soon, I hope. Write to Celiac Sprue Assoc./USA, P.O. Box 31700, Omaha, NE 68131, if you’d like information.

While celiac disease has yet to be proven to be as extensive as some researchers imply, allergies to wheat are common. Maybe we’re overexposed to gluten grains. Countries like Indonesia, the Philippines, Thailand, Vietnam, Burma, and Korea depend to a big extent on nonglutinous rice, corn, manioc, and/or tapioca rather than on wheat. In many African nations, millet, rice, cassava, corn, sorghum, and manioc are staples. A friend of mine who is a California public health nutritionist came back recently after working six months in Managua, Nicaragua. A dedicated bread and pasta lover, she quickly adapted to a daily fare of tortillas and her favorites, rosasquillas, little corn pones made of corn, dry cheese, milk, and lard. She loved them toasted, with guava jelly, for breakfast! Since Nicaragua has to import most of its wheat, even its capital city has only a limited supply of bread made from wheat flour.

For those of us who have, or suspect, an allergy to wheat or gluten, alternative and tasty foodstuffs are out there, provided we use a bit of imagination. After a year of stiff resolve, I’m allowing myself the pleasure of my favorite breads or bagels about every fifth day. I’m hoping the “rotation” method prevents a buildup of allergen-antibody immune complexes.

The rest of the time, I’ll stay with tortillas, rice crackers, etc. and the newly found nongluten breads and say my thanks for the privilege of an abundant table.

I would like to dedicate this issue of THE FELIX LETTER to Ed Corriea. He printed the letter since I started it in 1981 and helped me make it look the way I felt it ought to look. Ed passed away in May of this year and I want to express my sympathy to his family and my appreciation for the help they have given me over the years.

-Clara Felix

Illustrations are by Clay Geerdes and other artists as noted.

The Felix Letter © Clara Felix, P.O. Box 7094, Berkeley, CA 94707, All Rights Reserved.