

FATS & BREAST CANCER

In October, I attended an all-day series of U.C. workshops in San Francisco on Nutrition and Women's Health, directed by Laura Brainin-Rodriguez, who was receiving her masters degrees in nutrition science and public health nutrition at U.C. Berkeley in the late 1970's, when I was a middle-aged re-entry student there. Snappy brown eyes and a great complexion hint at a nutritionist who practices what she preaches. Laura has begun to emphasize Omega-3 oils in her patients' diets. Susan Rennie, Ph.D., a political scientist, spoke on the epidemiology of breast cancer and the diet connection. Evidence shows that women in high fat-consuming countries, such as the Netherlands, U.K., and the United States, have a high incidence of breast cancer, in contrast to the populations of low fat-consuming countries, at the opposite end of the breast-cancer scale.

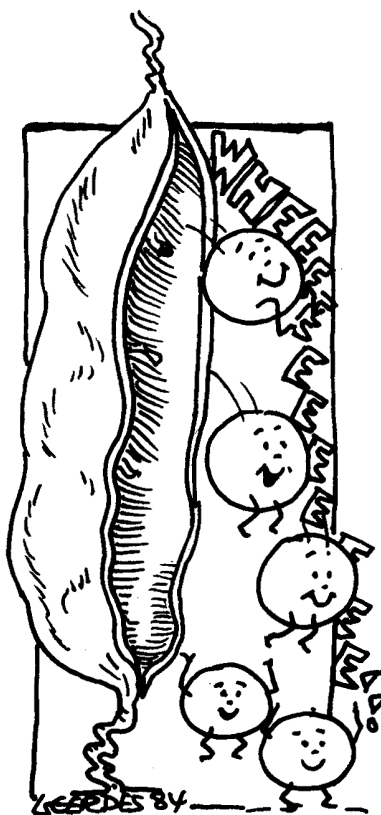
A high fat diet can lead, at least in some women, to excess levels of estrogens. Normal levels are protective against osteoporosis and heart attacks, but too much estrogen circulating in the blood has been linked to higher rates of breast cancer. When I asked Dr. Rennie if any particular fats appeared to be the culprits, she said the epidemiological evidence suggests the **total** fat content of the diet is responsible, **including excessive polyunsaturated fats**, not just saturated ones. However, while too much dietary fat may promote breast cancer, she said the evidence indicates that fat does not *initiate* it. Predisposing factors, she said, could be genetic, viral, radiation damage (very clearly shown in the aftermath of Hiroshima and Nagasaki), a weakened immune system, and so on.

Protective Factors

Susan Rennie described a protective diet, based on available evidence, as one that is very low in any kind of fat [more on this later] and very high in vegetables and fruits supplying **beta-carotene** and **vitamin C**, including the cab-

bage family: cabbage, broccoli, kale, collard greens, brussels sprouts, etc. Additional protective factors appear to be **low refined sugar**, **very high fiber**, and **plenty of selenium** — perhaps 200 micrograms a day from the diet (she suggests seafood as a good source). Selenium is clearly associated statistically with lower cancer risk. Our old friend, fiber, it turns out, helps to bind excess estrogen and take it out of the body.

Laura pointed out that the liver regularly breaks down estrogen, aided by vitamin E and the B vitamins, to keep excessive levels from circulating in the blood. However, if the liver is burdened by having to process large amounts of fats and oils every day, or detoxifying alcohol and drugs, and if it's not getting all the dietary elements it needs to do these complex jobs, one result will be a build-up of estrogen. So, ladies, one way to prevent breast cancer is to be kind to our livers!



Contradictory Medical Views

Dr. Rennie stated that the regimen of the late Nathan Pritikin, using a very low-fat diet, might be ideal for preventing breast cancer. At this point, I'd like to kill two or three birds with one stone, including answering a reader in St. Louis, who asked an important question: "Why does Pritikin propose . . . that a diet of **no** fat, rather than including some form of acceptable oils, will help prevent as well as actually 'cure' arteriosclerosis? . . ." **The core of the matter is a conflicting set of views held by major medical policy makers.** The American Heart Association recommends decreased consumption of saturated fat but wants us to **eat more polyunsaturated fats** in order to lower the risk of **heart disease**. The Cancer and Diet Panel of the National Academy of Sciences, while agreeing on the need to decrease saturated (hard) fats, wants us to **DECREASE intake of the polyunsaturated ones**, in order to lower the risk of **cancer**.

The contradictory recommendations arise from a lack of awareness of the pivotal role of **two** families of essential polyunsaturated fats, **not one**, in controlling health. The emphasis in research has been almost entirely on linoleic acid of the Omega-6 family. The only other fats required in the diet, the Omega-3 group, have been ignored, like a poor relation. But these two fatty acid families are not just your any old garden variety of fats! **Working in tandem, they form a lipid-based regulatory system, located in our individual cells, which has every bit as much to do with directing our physical and mental functions as the 'mainstream' protein-based hormones.** They also form the membranes in each of the billions of cells in the body, including those in the brain — meaning their influence is felt from head to toe. To ignore the Omega-3 fatty acids makes about as much sense as trying to understand how a person runs by examining the action of one leg! The net effect has been to set research back about 25 years.

Worse yet, the experts have promoted linoleic to a fare-thee-well so that it's coming out of our ears. While it's being sold to us by the tankcar load, the Omega-3's have been drummed out of business, i.e., removed vigorously from fats and oils via hydrogenation and other noxious means, without a peep from the nutritional or medical politburos (although individual scientists have fought this bitterly).

Since nature never intended us to be deprived of one essential fatty acid while overdosing on the other, the health effects have been so screwed up that the Heart people are telling us to eat more linoleic acid to prevent heart attacks, while the cancer folks are warning us that the same tactic will bring on the Big C!

An Oil Glut

The plain fact is we are being bombarded with Omega-6 linoleic acid in our diet — in margarines, shortening, mayonnaise, salad oils, fried foods, baked goods, snack foods, ad nauseum. We are also getting a lot of weird fats — *trans*-fatty acids and isomerized fats — created by light and heavy hydrogenation of oils, much of it done by the oil processors to get rid of alpha-linolenic, the first member of the Omega-3 group. It oxidizes too easily, they say. You can take bets, though, when the big enlightened push comes, triggered by folks like *Felix Letter* readers, to restore Omega-3's to the American table, food-oil engineers and chemists will quickly do a turnaround to find a dozen ways to bring them back safely and efficiently.

In the meantime, for a variety of reasons, the food we're eating contains about 80% less Omega-3 fats than it should. One gauge is that in traditional cultures where both cancer and heart disease are rare, people get at least 80% more Omega-3 fats in their diet than we do, in the form of alpha-linolenic acid (ALA) from walnuts, soybeans, whole wheat, flax seed, linseed oil, leafy vegetables, etc., plus EPA and DHA from fish, shellfish, and marine plants. Before the turn of the century, we ate these foods routinely and we weren't eating any hydrogenated fats, since they hadn't been invented yet.



Clara & Big Brother David

Dying of Unnatural Causes

Soon after 1920, heart disease, cancer, diabetes, schizophrenia, and other mental and physical diseases began to rise and continued to do so, in an alarming and illogical way — just as medical science was being congratulated for having done such a splendid job wiping out the major infectious killer diseases. The rise has been linked variously to sedentary life styles, too much stress, too much saturated fat, too little fiber, loss of vitamins and minerals, too much white flour and sugar, smoking, toxic pollutants, and so on. But while health professionals of many persuasions work devotedly on these problems, for the most part they still remain unaware of a major heavy factor tipping the scales towards poor health.

The essential fatty acids were the last major nutrient class to be investigated. Much of the salient information about their extraordinary roles in regulating the body, especially the ways in which dietary fats influence the prostaglandins, which are made only from Omega-3 and Omega-6 fats, is too recent to be incorporated, to any degree, into biomedical and nutritional reference texts. So, while the periodicals which specialize in lipids and prostaglandins are buzzing with this research material, few health workers and physicians get more than bits and pieces of it. The fact is, Omega-3 and Omega-6 fats in our foods have a direct influence on the body's functions. The implications for the treatment and prevention of illness by *purely nutritional means* are very great.

Yet, most physicians, who may be prescribing aspirin and indomethacin to stop the production of inflammatory prostaglandins, or may be injecting synthetic prostaglandins of the opposite kind to stop inflammation, simply don't know that two essential fats in the diet, when eaten in the balanced amounts which nature intended, will make the right kinds of prostaglandins for us — at the right time, in the right places, and in the right amounts! Donald O. Rudin, M.D., who was director for 24 years of the Dept. of Molecular Biology at Eastern Penna. Psychiatric Institute, has written a textbook on biomedical nutrition based on this understanding. Together with a popular adaptation which I co-authored (both awaiting publication), it should shed some nice light on the subject.

Getting back to the original question; despite conflicting recommendations, is there a diet that might be valuable in preventing breast cancer *and* heart disease? Of course there is. It's unlikely that nature would have gone to such great pains to give us foods to benefit the cardiovascular system, only to have the same diet do us in with cancer! If it's good for the heart, it should also be good for the skin, kidneys, digestive organs, eyes, teeth, gums, immune system, and the brain. Giving nature credit for less would be a calumny. We evolved as a species because a marvelously balanced group of precise nutrients was available to us, in our early tree-filled Eden. It's foolhardy of us to believe we can upset this balance and get off scot-free.



Photo by Clara Felix

How do we find the foods of our ancestral Eden, or a decent approximation, nowadays? Check your local supermarket, farmer's market, fish market and organic food store. They've made it easy for us. Most of us don't have the facilities (or faculties!) for climbing coconut trees, spearing wild game, and fishing in blue lagoons. Instead, we lucky moderns loll around in factories, shops, assembly lines, offices, buses and other assorted palaces of pleasure. Farewell, Tarzan and Jane and the vines you swung on! Hello, tennis courts, jogging paths, and mini-trampolines.

Although, modern life does have much to offer! Personally, I suspect I never could have maintained Jane's sweet nature in the face of malarial mosquitoes, mamba snakes, and no typewriters. And next month, I begin to explore the world of computers. I understand it will transform my disheveled, hopscotch way of pouncing on thoughts into a model of crisp efficiency.



Rudin-izing Pritikin's Diet

Nathan Pritikin, who died tragically of suicide this year, had seen many beneficial turnarounds in heart patients who went on his program of guided exercise, no junk foods, plenty of whole grains, vegetables, beans, fruits, very little meat or fish, and no added fats of any kind, saturated or unsaturated. Like many sincere health workers, he was not aware of the hazards of limiting Omega-3's in the diets of persons suffering from the effects, probably, of a lifelong deficiency. The good results he saw came about, in part, because, in a diet severely limiting **all** fats and oils, the previous imbalance, favoring Omega-6 fatty acids was changed in a good direction. The Omega-3's available from whole wheat, beans, leafy greens, and tiny rations of lean fish could become more effective, because they no longer were being overwhelmed by Omega-6 fats in the competition for cell enzymes, which process both families and convert them into membrane components, prostaglandins, cholesterol modifiers, and other regulatory molecules.



Dr. Rudin's safer approach to the same ends is to "Omegafy" Pritikin's diets by including optimal amounts of Omega-3 fatty acids, while keeping Omega-6's down to the minimum RDA. Fortunately, good experimental evidence suggests *the Omega-3's are much more effective than Omega-6's, gram per gram, in heart and artery disease. That means we can get better results using less fat.*

Recent studies show that Omega-3 oils suppress mammary tumors in rats (Karmali et al., *JNCI (U.S.)* 73:457, 1984). In Japan, Thailand, and the Philippines, where women have about one-fifth as much breast cancer as we in the United States do, *the Omega-3 fatty acids from fish (fatty ones are prized), beans, soybeans and soybean oil represent a very high proportion of the generally small amount of fats eaten.* Soybeans have the highest Omega-3 content of any beans; the oil becomes an excellent source, except when processors in the United States "partially" or "lightly" hydrogenate it — an uncommon practice in southeast Asia.

Heart disease has been low in these countries as well. However, as Japan, for example, Westernizes by moving away from traditional rice, fish and vegetables, to more and more beef, ice cream, processed foods, etc., heart disease has jumped upwards.

Pritikin banned soybeans, walnuts, and all fatty fishes from his diet, not realizing yet that their oils provided badly needed ammunition in the fight against heart disease and cancer both.

Getting the Right Fats on a Low-Fat Diet

Some suggestions for a protective "Omegafied" (Rudin-ized) low-fat diet:

- **K**eeptake of saturated fats down, switching to low-fat dairy products and lean meats. No hydrogenated and partially hydrogenated products because they are full of not-so-good "funny fats". Butter is okay in very modest amounts.

- **T**o get some idea of fatty-acid amounts compatible with good health, intakes have been suggested of linoleic acid at 5-8% of total calories. While less is known about optimal amounts of Omega-3's (ALA, EPA and DHA), 2-4% should fill up depleted tissues. On a 2000 calorie diet, if we choose the higher limits, 8% is 160 calories for linoleic. At 9 calories per gram for all fats, that's **around 18 grams of linoleic acid (LA)**. Four percent (80 cal.) worth of Omega-3 fats would represent **about 9 grams in all of ALA, EPA and DHA.**

- **G**et less of your Omega-6 requirements from oils and mayonnaise, and more from whole foods. Reduce total fat intake by choosing certain "**double-duty**" foods which are good sources also of Omega-3 alpha-linolenic acid (ALA). These are some: (See key below)

Grams of Fatty Acid (approx.)

Soybeans, 1/2 cup cooked	—	2.5 LA & 0.7 ALA
Flax seed, 1 rounded TBSP	—	0.9 LA & 2 ALA
Wheat-germ, 2 TBSP	—	0.7 LA & 0.08 ALA

• "**D**ouble-duty" oils include the following (make sure they are NOT labeled "partially or lightly hydrogenated"):

Grams of Fatty Acid (approx.)

Linseed oil, 2 teaspoons	—	2 LA & 5 ALA
Walnut oil, 1 TBSP	—	7.8 LA & 1.8 ALA
Soybean oil, 1 TBSP	—	7.2 LA & 1 ALA
Wheat germ oil, 1 TBSP	—	5.7 LA & 1.3 ALA

(Key: LA = Omega-6 linoleic acid. ALA = alpha-linolenic acid. EPA = eicosapentaenoic acid. DHA = docosahexaenoic acid. ALA, EPA and DHA are Omega-3's.)

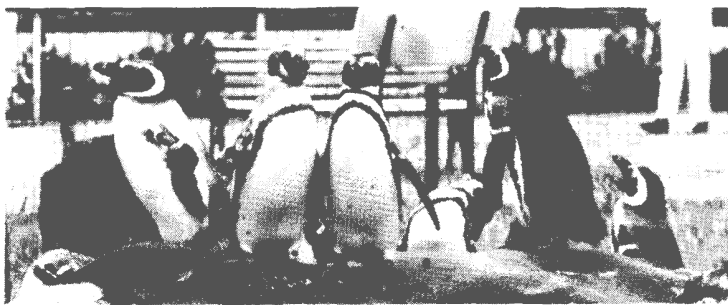


Photo by Clara Felix

• **A** diet containing whole grains, seeds, nuts, beans, poultry, game, and organ meats would supply plentiful linoleic acid. Additionally, a spoon of walnut, soybean oil, or mayonnaise for salads, sauteing, or baking, should more than take care of the 18 grams.

• **O**mega-3's are much scarcer, particularly in land-based foods. Linseed and/or fish oils provide a boost towards a quota of 9 grams per day, as would walnut and soybean oils.

• **T**o get pre-formed EPA and DHA, the superpolyunsaturated Omega-3's, use fish oils, fish and shellfish — the fatter the better. Fortunately for very strict vegetarians, the body can make EPA and DHA by enzymatic conversions from alpha-linolenic (ALA), if all the enzymes and vitamin/mineral co-enzymes are available and in good working order.

• 100 grams (3.5 oz.) of herring, mackerel, or salmon contain roughly 1 gram EPA and 1 gram DHA.

• Lean fish and shellfish contain anywhere from 1/10 to 1/2 gram EPA and DHA.

• Fresh, not dried, seaweeds are sources of EPA.

• Cod-liver oil: one teaspoon has about 1/2 gram each of EPA and DHA. Much larger doses than that should not be taken regularly; a continual oversupply of A and D can become toxic. Supplements of Max-EPA or salmon oil, which don't contain A and D, can be used more freely as EPA and DHA sources, although expensive compared with cod-liver oil.

• **P**olyunsaturated fats in our tissues need protection against free-radical oxidative damage. Vitamins E and C and the mineral, selenium, are all useful in this

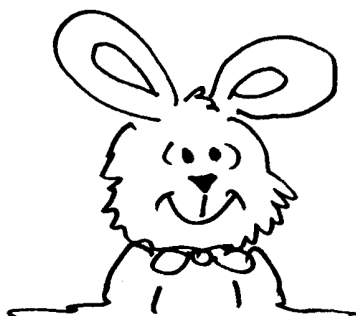
regard. A 1984 study (*Br. J. Cancer*, 49:321) of plasma vitamin E levels in over 5000 women in the U.K. showed that the risk of developing breast cancer was about five times higher in women with the lowest vitamin E levels in plasma. A word to the wise: the more unsaturated the fats, the more we should consider using supplements of the protective nutrients C, E, and selenium.

• **A**t the October workshops, Laura suggested that *modest supplements of all the B vitamins may aid the liver to process excess estrogen*. Since the B vitamins and trace minerals also process the essential fats, supplements of trace minerals could be helpful in general.

• **I**t goes without saying that whole grains and other fiber-filled foods, such as beans, potatoes, yams, seeds, nuts, and dark green, red and yellow vegetables and fruits, are the best possible sources of the very elements which make it safe to consume reasonable amounts of fat without penalty.

• **A**ll of the above measures will go a long way towards strengthening our immune system, which, after all, represents our greatest natural bulwark against not only bacterial, fungal, or viral diseases, but also against the Big C.

• **T**he same dietary approach will be good for the heart.



Nature's Anti-freeze Oils

• **A**n interesting aside about Omega-3's as nature's "winterizing" oils: plants which survive long, cold winters are the ones able to convert enough of their Omega-6 LA into Omega-3 ALA. (As we know, plants, but not people, can make LA and ALA and switch them around.) Omega-3's are more unsaturated, hence more fluid at cold temperatures. They provide tissue flexibility to all organisms living in cold climates. The colder the climate, the more ALA the terrestrial plants need. The colder the waters, the more superpolyunsaturated EPA and DHA there will be in plankton and seaweed! In fish and marine animals, Omega 3's from the sea vegetation quickly become tissue Omega-3's. In all mammals, including ourselves, the Omega-3's have much to do with regulating thermogenesis — i.e., converting food calories into *heat* instead of into energy or fat.

Since in the U.S. we face chilly or down-right freezing temperatures more often than we like to think about, it makes a good deal of sense to depend more on compatible northern-grown foods, such as navy, red, kidney, pinto and northern beans, soy-beans, and walnuts. It's walnut season now; they're unusual, as nuts go, because of their high ALA content. They're good sources of vitamin E, folacin, minerals and fiber. I've learned to store all nuts (shelled or not) in the freezer. They can be eaten straight from the freezer — their fatty acids keep them from freezing — and they stay fresh weeks and month longer. Enjoy and prosper!



Illustrations are by Clay Geerdes and other artists as noted.

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