

FISH OILS & THE HEART

What I knew of the essential fatty acids when I published the first *Felix Letter* in late 1981 was limited to the standard, all-too-forgettable information from my biochemistry texts. I suspect that most health professionals facing the current explosion of news about the sterling effects of fish oils on the heart are in the same boat. Unless they're specialists in the field, they're understandably rattled by the "eicosapentaenoics" and "prostaglandins" they're finding sprinkled airily in newspaper stories. Undoubtedly, lights are burning late in many a medical library while legions of health workers try to figure out how a simple fish oil of the "obscure" Omega 3 fatty acid family could have captured all those unyielding medical hearts! I had to do some serious digging in these libraries myself a few years ago, when I began sharing Dr. Donald O. Rudin's story of the missing Omega 3 essential fatty acids with my readers,¹ and I can state with conviction: the answers aren't in the textbooks...not yet. Even journals devoted mainly to fatty acids and prostaglandins aren't much help. For years, the research thrust has been directed almost entirely at the Omega 6 family of essential fatty acids — the ones starting with linoleic acid, found in most vegetable oils — and the hormonelike prostaglandins made from them. The other fats which have to come from the diet — the Omega 3 — have been all but ignored, except by a handful of scientists who bucked the tide by stubbornly insisting they were just as fundamental to human health.

They must be feeling pretty good right now. The May 9th issue of the *New England Journal of Medicine* (Vol. 312, 1985) hit the front pages of newspapers with its lead editorial, "Fish, Fatty Acids, and Human Health," and three impressive research reports. The first, a 20-year-long study of 852 middle-aged men in an industrial town in the Netherlands, 20% of whom ate no fish, demonstrates a strong inverse relation between fish consumption and coronary heart disease, i.e., the more fish eaten, the fewer heart attacks. Mortality was more than 2½ times lower in the fish eaters than in the abstainers. The

authors tie the results to the presence in fish oils of two highly unsaturated Omega 3 fatty acids — eicosapentaenoic (EPA) and docosahexaenoic (DHA). They note that Eskimos in Greenland who have an exceptionally low death rate from heart disease consume about 400 grams (14 oz) of fish daily. In Japan, where heart disease mortality is also low, people eat about 100 grams (3½ oz) of fish per day; and on the Japanese island of Okinawa, where fish consumption is about twice as high as on mainland Japan, the death rate from heart disease is the lowest in the whole country.

Apparently, the Dutch people have been privy to good advance nutritional advice, because fish consumption in the Netherlands, which averaged 25 grams (less than one ounce) daily in 1960, had risen by 1980 to 40 grams.



Oiling the Arteries

A group of iconoclasts at Oregon Health Sciences University in Portland who had the insight to follow an unpopular but logical research trail have been coming up in the last few years with a marvelous series of experiments using salmon and salmon oil with human subjects. Their study in the *New Eng J Med* deals with the effects of dietary oils on blood lipids in twenty persons suffering chronically from extremely high plasma levels of

cholesterol and triglycerides, oftentimes a familial disorder associated with heart disease. The experiment was designed to find out which would be more effective in reducing these abnormal levels of fats in the blood: (a) a four-week diet rich in EPA and DHA provided by salmon oil and a commercial fish oil product, trademarked MaxEPA; or (b) a four-week diet high in linoleic acid (Omega 6) provided by a mixture of corn and safflower oils.

For twenty-five years, the Omega 6 oils have had star billing in experiments that show them to be capable of lowering cholesterol and triglycerides — but they were never pitted against the Omega 3's! In the Oregon study, the fish oil diet reduced triglycerides by a phenomenal, unprecedented 79 percent, and cholesterol 45 per cent, in the ten patients with the most serious blood disorders. By the end of four weeks, total plasma cholesterol and triglyceride levels had fallen very markedly in all 20 patients without exception — in some cases even to normal levels! The *Journal's* editorial notes: "In contrast, a diet containing vegetable oil was much less effective."

The Oregon group speculates that EPA and DHA may prevent the liver from overproducing certain fats, which remain at a low, reasonable level in the blood. Apparently, Omega 6 oils do not have the same specific ability to inhibit fat synthesis in the liver.

The good results seen in the Netherlands study took place in men who, when it began, were already middle-aged but free of heart disease. The researchers conclude that eating modest amounts of fish regularly for twenty years afforded these men a substantial measure of protection against heart attacks. In the Oregon experiment, because the subjects were suffering from serious disorders which caused blood lipid levels to skyrocket, they were given much larger doses of fish oils than would ordinarily be consumed (equivalent, say, to the oils obtained if several pounds of salmon were eaten daily). The researchers initially were very cautious about using such large quantities with the ten "Type V hyperlipidemia" subjects. Persons with this disorder usually are advised

to stick to a very strict low-fat, low-cholesterol diet containing a mere 5% of calories from fat, because ordinary amounts of fat in the diet not only send blood fat values off the chart, but can cause severe abdominal pain and inflammation of the pancreas. To everyone's immense relief, as the Omega 3 fatty acids on the experimental diet began to be absorbed and incorporated into the blood components, the subjects' triglyceride levels started plummeting! The researchers note happily that no other therapeutic measures heretofore used in Type V hyperlipidemia — either dietary or drug — have come even close to the startling effects produced by the simple fish oils.



Nutrients as Healers

The point of the two studies is that *the fats in fish helped individuals with a serious blood fats disorder to get well and healthy persons to stay well*. This is entirely in line with Dr. Rudin's theme: that the majority of illnesses we see today are tied into a *synergistic malnutrition* in which a diet high in refined flour/sugar and hydrogenated oils, and low in fiber, vitamins and trace minerals, reacts virulently with the modern-day *80 percent loss in dietary sources of Omega 3 fatty acids*, to disrupt human functioning at the fundamental cellular level. The marvelous results seen in Type V hyperlipidemia subjects when the missing Omega 3 fatty acids were soaked up by their cell membranes and tissues are far less dramatic than the 'miracles' seen in 1939, for example, when supplements of the B vitamin, niacin, first became available to desperately ill, raving mad pellagra patients in the U.S. Not only did niacin produce healing, *within three days*, of terrible skin lesions, intractable diarrhea, and fiery redness and swelling of the tongue, gums, mouth, throat and vagina,

but the acute mental symptoms disappeared as well! The history of nutrition is filled with similar 'magical' recoveries following replacement of missing nutrients; i.e., vitamin C-rich citrus fruits to sailors dying of scurvy in the 1700's; vitamin B1 (thiamin) which raised beriberi victims practically from the dead.

They Overlooked A Fatty Acid

Having fallen heir to an impressive armamentarium of drugs, antibiotics, and high-tech methodology, 20th century western medicine has tended to resist the implication that nutrition was in any way connected to the rising modern illnesses. In the 1960's, when it finally did accept the possibility that the heart attack epidemic might be related to diet, it chose a single-minded approach: consumption of dietary cholesterol and saturated fats was to be reduced and that of unsaturated ones increased. While simplistic, it had some good things going for it. For instance, it made sense to increase our intake of "natural" oils and cut down on hydrogenated fats and shortening, which had taken over commercial and home food preparation since the early 1900's. However, modern medicine has never been exactly noted for its wholistic approach in matters of nutrition! The oils and margarines that have flooded the market for 25 years with its blessing are sources of only one group of fatty acids essential to health — the Omega 6, but unfortunately our body requires Omega 3 fats as well! Long after they were found to be major components of the brain, eyes, and testes, and to be precursors of prostaglandins which had artery-saving qualities, mainstream medicine was still ignoring the Omega 3's and denying any role for them in human health. It was an upstream battle all the way (hah-hah) for the salmon-oil scientists, but they're beginning to change the currents of medical thinking!



Anti-inflammatory Omega 3

In arteries, a harmful inflammatory process occurs when large numbers of white blood cells cluster together and work their way into a portion of an artery wall. The infiltration of white blood cells is thought to initiate plaque formation by stimulating a tumorlike overgrowth of cells in the wall — the beginning, in other words, of atherosclerosis. The third study in the journal demonstrates that EPA from dietary fish oil has great power to deter this invasive action. Apparently, after EPA is incorporated into the cell membranes of our white blood cells, it produces its anti-inflammatory effect by sharply cutting down the formation of inflammation-promoting prostaglandins. These prostaglandins are made from Omega 6 arachidonic acid, also found in white blood cell membranes. Without the normalizing competition from EPA, arachidonic acid tends to run amok and make too many prostaglandins, which can set off the inflammatory invasions. The implication of the study is that adding ample EPA to the diet may help prevent the onset of atherosclerosis.

The Whole System

As useful as these and dozens of other studies have been, they all have been directed solely towards the effects of fish oils on the cardiovascular systems — as if the Omega 3 fatty acids we eat line up dutifully and march toward the blood components which are being tested, but carefully avoid the rest of the body! In truth, they are incorporated into cell membranes in *every* part of the body, where they seem to be needed just as sorely as they are in the blood. If, as Donald O. Rudin, M.D. observes, we are suffering as a nation from an Omega 3 deficiency, coupled with an oversupply of Omega 6 oils in our diet, the stage is set for runaway production of prostaglandins (from arachidonic acid). *The inflammation or irritation which this may trigger can take place not just in arteries, but everywhere in the body, including the brain*. It's entirely logical to expect that *all* our organs, joints, muscles and tissues would benefit from an Omega 3/Omega 6 balance to keep this harmful process in check. The great value of the fish oil studies, and of Dr. Rudin's own pilot study with 44 patients using linseed oil (containing the parent Omega 3, alpha-linolenic), is that they clearly point to simple, safe dietary means towards this goal. □

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



FISH OILS & ARTHRITIS

Folk medicine has long given high points to cod-liver oil as a beneficial agent in arthritis and rheumatism. We know now it wasn't just the vitamins A and D but undoubtedly the highly unsaturated Omega 3 fats it contains as well. The health of the joints is dependent on the fatty acid composition of the cell membranes in the joints, and on the prostaglandins made from the fatty acids. A research group at Albany Medical College — one of the few to break away from a single-minded obsession with the effect of fish oils on cardiovascular health — recently reported that 10 capsules daily for 12 weeks of Max-EPA™, providing both EPA and DHA from fish oil, caused improvement in morning stiffness and decreased the number of tender joints in 17 patients with rheumatoid arthritis, compared with a control group on a low Omega-3 diet. The researchers note:

The influence of diet on the clinical manifestations of rheumatoid arthritis is controversial... There is growing evidence, however, that manipulation of fatty acids in the diet can be beneficial in animal models of inflammatory disease. The types of fatty acid in the diet strongly influence the fatty-acid composition of tissue and serum lipids, and prostaglandin metabolism is largely dependent on the amount and types of fatty-acid precursor in the diet.²

They suggest that high dietary levels of EPA would lead to fewer inflammatory prostaglandins, and to a beneficial effect on the immune response. (Rheumatoid arthritis is thought to result from "self-attack" on the joints by an immune system gone haywire.) Again, we have an experimental approach to a serious disease, in which simple and safe dietary measures are coming up roses! □

NATURAL FARMING

The June 1985 issues of *Mother Jones*³ has an article to warm the cockles of one's heart. Dale Billberg, a fourth generation farmer in the Red River valley in northwest Minnesota, decided with his father, Paul, to go "cold turkey" in 1974. Since then, the Billbergs have done without farm chemicals, "except for a half pint of the herbicide MCP to stunt wild mustard in the wheat fields, "mainly to keep the wild mustard seeds from blowing on neighboring farms. The decision to go natural shook up the whole farming community. The way to keep crop yield high in the valley, everyone knew, was high-volume chemical farming — the routine application of insecticides, herbicides, and petrochemical fertilizers. After World War II, their use was standardized and encouraged by corporate planners of agriculture and the U.S. Dept. of Agriculture. The Billbergs' neighbors had forgotten what farming used to be like, when Dale Billberg's grandfather farmed a typical field in a three-year cycle: "first, manure was spread, the field plowed, grain planted; second, alfalfa, a legume that transfers airborne nitrogen to the soil, was harvested for hay; third, cows, which leave their own benefit, were run on it. By this process, minerals and other nutrients broke down naturally and became available to wheat and other grains."

Dale Billberg now is convinced that chemical fertilizers, such as liquid anhydrous, may produce bumper crops for a while but in the long run are not good for the soil. And pesticides disrupt the microbes and earthworms that keep the soil absorbent. "A worm, he'll come crawling up to see the moon, and pretty soon he's blistered and sizzled," he said. In Iowa, farmers have a 32 percent greater risk of dying from cancer than nonfarmers; similar or worse statistics hold for Nebraska, Minnesota and Wisconsin. According to research at the National Cancer Institute and several midwestern universities, a very probable cause is the heavy use of pesticides and chemical fertilizers. Dale Billberg says his family and the farm animals are much healthier since they went 'natural.'

Does It Pay?

But what about the economic consequences? Can natural farming pay? Billberg says that although they are harvesting somewhat fewer bushels, they actually are coming out ahead by saving money on their chemicals bill. They're still

very much in the minority in the community, but where there once was active hostility there now is respect. There's even some growing interest on the part of neighboring farmers, now that the Billberg farm is regarded by conservative experts from the USDA as something of a scientific model. In their report to the Secretary of Agriculture under Carter, the study team, while they differed about the virtues and dangers of chemicals, agreed that "non-chemical farmers can compete head-to-head economically with those who use chemicals."

Under Reagan, spending for research into nonchemical farming has been cut back. The author notes that although "Ronald Reagan himself, on his Santa Barbara ranch, is raising beef cattle without the routine use of antibiotics or growth hormones, Reagan's agriculture secretary, John Block — like most of his predecessors since World War II — finds it hard to believe that a farmer can impressively fill silos and stay solvent without the intervention of chemicals." Dow, Shell, Du Pont and other U.S. chemical companies have a big stake in keeping this thinking going. There are only about 35,000 nonchemical farms in this country, with most of their products going to specialty healthfood stores. It's true, we're a long way off from a return to Eden, but as commonsense word gets around on the farm grapevine that natural farms like the Billbergs' can compete successfully in the commercial marketplace, we'll be seeing more and more of them.



1. FELIX LETTER, Issues 14-17.
2. Effects of manipulation of dietary fatty acids on clinical manifestations of rheumatoid arthritis. J.M. Kremer et al., THE LANCET, Jan. 26, 1985.
3. "Red River Renegade" by Howard Kohn.

No-pesticide Asparagus

I try to buy vegetables and fruits grown "organically" as often as I can, and we also grow a few vegetables in our own little backyard. I don't, however, go into a tizzy when I eat commercially grown ones. Life's too short for that kind of aggravation, and besides, living in a state of terror about ingesting noxious chemicals will kill a person a lot faster than the chemicals. Nevertheless, I was tickled to read Jane Benet's food column in the May 8, 1985 *San Francisco Chronicle*, in which she describes one of my favorite veggies, asparagus. It's a very sensitive plant, she tells us, that stops producing edible spears "and goes to flower if touched by pesticide sprays." Therefore, it's one of the few absolutely "natural" vegetables grown on the giant California agribusiness farms which ship asparagus all over the country. Eat and enjoy! □



SQUATTERS' RITES

Who would've thought a simple bit of homely wisdom in the *Felix Letter* would have international consequences! In Issue 18, I described in rhapsodic detail — from information gleaned from a learned colleague — how *squatting* on a toilet bowl, rather than using the conventional sitting posture, could have incredibly moving results. Several months ago, I heard

from one of my subscribers in England (who shall be nameless):

I thought you'd be interested to know that the advice about chronic hemorrhoids... really was invaluable for my husband, who has suffered from them for years. In spite of a diet rich in fibre, etc. [Readers, note the British spelling, CF], he found that when under stress, which he had been at work, they were getting worse, and was advised by the doctor to have the operation. After reading your colleague's advice, however, he decided to give the squatting technique a try - and it worked so well that the operation was called off! (Incidentally, he didn't fancy the complicated yoga-type technique of squatting on a toilet seat, so we simply bought an old-fashioned chamber pot, and he squats over that, in the bathroom.)

Dear Readers! Are you aware of the implications? If squatting becomes "in", hemorrhoids as a civilized institution may become a thing of the past (and proctologists would have to look to other outlets). It's a well-known fact that hemorrhoids produce irascibility. All generals have hemorrhoids. In fact, both the Pentagon and CIA headquarters are known to intimates as Hemorrhoid Heaven. When your hemorrhoids hurt, you hurt all over and would just as soon see the whole world blow up. What do you suppose would happen if squatting became the mode? Of course! One less hemorrhoid sufferer in high places would mean one more lover of peace. Think of it!

A Movement for Everyone!

I'm depending on *Felix Letter* readers everywhere to carry the message as far as they possibly can. The more enterprising among you may note that chamber pots in the U.S. (once known euphonically as "thunder mugs") are available only in dusty antique stores where they are used as charming lamp bases, and will hasten to corner the chamber pot market. I'm sure a well-designed model would sell, perhaps a suitably larger version of the very popular potty chair, preferably one with a lid. Or with such niceties as a furlined seat, to capture the Yuppie market... but I will leave that all to you! □

As readers know, I've been adapting a biomedical text by Donald O. Rudin, M.D., that should be out in easy to follow popular style early in 1986. The publication of his complete work will follow some time afterwards. By establishing the poorly understood essential fatty acids in their proper place as the key nutrients in all fundamental metabolic processes, his work will go a long way in helping to establish nutrition as the primary therapeutic vehicle of the 21st century, with drugs falling into their rightful place as emergency backup measures. I plan to continue sharing Rudin's observations with my readers, because I believe they're invaluable in clarifying how nutrition runs the whole biochemical human 'show.' Best of all, they can help each of us in a practical way to make our own individual 'show' a hit with an extended run! □

YOU TAKE ALL THESE VITAMIN SUPPLEMENTS, AN' EAT THOSE NATURAL FOODS BUT I DON'T THINK THERE'S MUCH TO THEM. I'M 60, AN' I'M ALL RIGHT. I TAKE MY MEDICATION, AN' DOC SAYS I'M FINE. LISTEN, I'LL GET MY TEETH, AN' WE'LL GO OUT FOR SOME BURGERS. HOW OLD ARE YOU, SON?

I'M 58.



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