THE OMEGA PLAN: A Review

A rtemis P. Simopoulos, M.D., grew up on her family's estate in Greece, where her everyday foods were a nutritionist’s dream: “The eggs that went into the spinach pie had been laid by our hens that very morning. The milk was from the day’s first milking... and the olive oil that anointed the bread had been pressed from our own olives. For lunch, we had charcoal-broiled fish that had been swimming in the Mediterranean Sea only the day before.” One big, happy childhood memories is of hurraying down to a breakfast that included a bowl of freshly picked fruit from their own trees.

The girl who, in 1949, first encountered dorm food when she came to the U.S. to study chemistry at Barnard College, was “in for a rude shock...”The stark contrast between the American diet of the 1950s and the traditional Greek diet made such an impression on me that it helped shape my entire medical career. When I went to medical school, I specialized in pediatrics and focused much of my attention on infant and maternal nutrition. I began to realize that many of the children with serious diseases had been malnourished in the womb. This unfortunate start was made worse by the types of food eaten in the home – refined foods, lots of saturated fat and sugar, very few fruits and vegetables, and margarine with its hidden cargo of trans-fatty acids.”

The Omega Plan by Dr. Simopoulos and Jo Robinson [HarperCollins, 1998. In bookstores, or order by credit card at 800-331-3761] is a distinguished scientist’s answer to the ghastly “lo-fat” dictum that’s helping us to make fatties out of millions of Americans, i.e., over-weight ad 10% of them were from 25 percent of the population (in 1955) to 40 percent in 1995; and is not only a factor in a rise in diabetes, but may be contributing to instead of reducing risk of heart disease.

Ironically, the lo-fat business was a spinoff of the American Heart Association (AHA) “prudent diet” – the doctors’ and dieticians’ gold standard for lowering blood cholesterol “to protect against cardiovascular disease.” Daily fat intake is supposed to be lowered to 30% of total calories. (Ordinarily it’s about 37% to 40%) Saturated fat is limited to 10%. Dietary cholesterol is limited to a little more than the amount in one large egg, or 250 to 300 milligrams a day [though many studies show dietary cholesterol has little effect on blood cholesterol, most of which is manufactured by our bodies]. A major goal has been to increase polyunsaturated fat, thought to reduce cholesterol levels, to about 10% of calories, most of it in the form of oils like corn and safflower that are high in omega-6 essential fats and (very low in omega-3).

Even before the “prudent diet” campaign began, the American public had shortchanged itself grievously of omega-3 fats. The commercially trumpeted lo-fat flummery has turned omega-3 intake into a further disaster area.

In addition, medical advice to the public to substitute carbohydrates for fats was readily interpreted to mean it’s okay to load up on anything labeled “lo-fat.” In real life, folks are practically inhaling “lo-fat” commercial cookies, cakes, breads, and chips. Many of these foods are prepared with hardened omega-6 oils, the main source of those infamous “anti-nutrients,” the trans-fatty acids.

So people’s weights keep soaring, and so does the incidence of adult-onset diabetes. Obesity plus low omega-3 content of tissues are two propelling factors in “insulin-resistance,” a condition in which folks make enough insulin but their tissues don’t respond to it. End result: blood sugar stays too high and so does blood level of insulin. And obesity plus diabetes are prescriptions for cardiovascular trouble. In fact, we are learning that relentless consuming of low omega-3 foods coupled with high omega-6s can push buttons to set off all kinds of mischief, such as asthma, depression, even cancer.

Clearly dietary how-to’s in Simopoulos’ “Omega Plan” incorporate the best aspects of worldwide research on the inculcable ways in which omega-3 and omega-6 essential fats affect our health. Pay attention to the word “essential.” It means we have to consume certain fats, or our health fails. Our clever bodies can manufacture fats from sugars, starches, and fats. We can make short-chained, medium-chained, and long-chained fats (referring to the number of carbon atoms connected together in “daisy-chains” forming each fatty acid molecule). We can even desaturate fats, forming monounsaturates and polyunsaturates. But we can’t make the primary omega-3 or omega-6. They’re the fatty acids which, after we eat them, undergo chain lengthening and desaturation to snuggle into membranes of every blessed cell in our bodies, and are the only fats that can become eicosanoids -- the major lipid regulators at the cellular level of just about every bodily function.

Dr. Simopoulos was one of the first scientists to warn about potential perils from our lopsided omega-6/omega-3 intake. In earlier works, she described a one-to-one ratio as probably closer to that of our hunter-gatherer ancestors. In FLS 94/85, I summarized an electrifying review by Harumi Okuyama1 and colleagues from Nagoya, Japan, on the downward slide in their people’s health, ever since traditionally high intake of omega-3 fats gave way to an unprecedented consumption of high omega-6 vegetable oils. A big source is commercial snack foods, especially popular with younger Japanese who, it seems, are coming down disproportionally with once-rare “western” diseases, which the older folks who stick to traditional foods are able to avoid.

Simopoulos, on the same wavelength as the Japanese researchers, writes: “A critical finding is that your body functions best when your diet contains a balanced ratio of EFAs [essential fatty acids], yet the typical Western diet contains approximately fourteen to twenty times more omega-6 fatty acids than omega-3s. [My emphasis. CF] She says a spate of studies have accumulated by now to link this imbalance -- hold on to your hats -- with:

- Heart attack
- Stroke
- Cancer
- Arthritis
- Insulin resistance
- Diabetes
- Asthma
- Depression
- Schizophrenia
- Attention deficit hyperactivity disorder
- Postpartum depression
- Alzheimer’s disease

Surely it’s no coincidence that most of these are the same ailments that rose for the first time in Japan, on the heels of that country’s big increase in omega-6 oil intake.
Over 600 French patients recovering from heart attacks were placed either on the high omega-6 "prudent diet" recommended by the American Heart Assoc. (AHA), or on a modified Crete diet, in which canola oil was used as the major source of omega-3 alpha-linolenic acid. The Crete-type diet contained 35% fat; the AHA diet was 30% fat. The ratio of omega-6 to omega-3 on the Crete-type experimental diet was 4 to 1 -- much lower than the AHA diet.

Compared with the control group on the AHA "prudent diet," those on the experimental diet soon had lower blood levels of omega-6 fats and much higher levels of all omega-3s. Clearly, some of the dietary alpha-linolenic acid was being converted in their system into EPA and DHA, the super-potential omega-3s which are known to protect cardiovascular health.

Simpoulo describes the study as a "true blue" experiment. The researchers discovered there had been significantly fewer deaths in the group on the modified Crete diet than on the AHA diet. This in itself is remarkable because no one had ever shown a lifesaving benefit until patients have been treated for at least six months. The survival gap widened with each passing month. When the patients had been followed for about two years, the study was halted abruptly because the new diet was proving so superior it would have been unethical to continue the research. Compared to those on the AHA diet, the patients on the Crete diet had an unprecedented 76 percent lower risk of dying from cardiovascular disease or suffering heart failure, heart attack, or stroke!

Remarkably, the new diet had proven more effective at saving lives than any other heart diet, drug, surgical technique, lifestyle program, or any combination of these elements.

There's a quirk about the French study: the protective effects in the Crete-type diet were not related to patients' serum concentrations of total, LDL, or HDL cholesterol. (Meaning, patients on the Crete-type diet had no better cholesterol picture than those on the AHA diet, but were avoiding heart attacks and even death better!) Moreover, the Am. J. Clinical Nutrition, June 1997, pp 1882-6, has a follow-up by A. Kafatos et al. from University of Crete School of Medicine on the original men from Crete who were among the "winners" in the original Seven Countries Study, thirty some years ago. Guess what? Their serum cholesterol picture was never in the so-called desirable range (under 180 mg/dL), even when they were in top notch shape at age 40 to 59, back in 1960. It averaged about 205 mg/dL. Now that they're age 70 to 89, it's gone up, averaging about 220. In spite of this, they've gone on to become healthy old guys, thanks at least to plentiful omega-3s. (Methinks we've got to rethink the low-cholesterol theory.)
She takes us on a wonderful research journey, illuminating how the good omega-3/omega-6 balance of the Omega Plan actually works to help protect and heal us from heart attacks, cancer, insulin resistance, obesity, immune disorders, etc.

For instance, we know now the essential fats can "talk" to our genes, sending messages to make more or less of certain proteins. Simopoulos tells of a new study showing that oils high in omega-6 "send a message to the genes to produce more of a cancer-promoting protein called 'ras p21.'

By contrast, omega-3 fatty acids render this protein inactive, possibly reducing the risk of cancer."

"Seven Dietary Guidelines"

Here's how Simopoulos says we can turn this around:

1. Eat foods rich in omega-3 fatty acids such as fatty fish (salmon, tuna, trout, herring, mackerel), walnuts, flax oil, canola oil, flaxseeds, and green leafy vegetables. “Ideally, you should be getting seven grams of EPA plus DHA per week, from fish and/or fish oil supplements. Additionally, two grams a day of LNA — about the amount in a teaspoon of flax oil — is recommended UNLESS you don’t eat fish or take fish oil supplements. Then you’ll need much more LNA, because it takes about ten grams of LNA to yield one gram of EPA and DHA.”

2. Use monounsaturated oils such as olive oil and canola oil as your primary oil.

3. Eat seven or more servings of fruits and vegetables every day.

4. Eat more peas, beans, and nuts.

5. Avoid saturated fat by choosing lean meat over fatty meat (if you eat meat) and low-fat over full-fat milk products. (I question Dr. Simopoulos’ admonition against using tropical fats; while saturated, they have an even longer history of safe use by humans than olive oil. Of course, moderation is the key.)

6. Avoid oils high in omega-6 fatty acids, including corn, safflower, peanut, soybean, sunflower, and cottonseed oils. Avoid mayonnaise and salad dressings made with these oils.

7. Avoid trans-fatty acids by cutting back on margarine, vegetable shortening, commercial pastries, deep-fat fried food, and most prepared snacks, mixes, and convenience food.

Monounsaturated fats: Can the fatty acid balance affect our mind and our moods? Absolutely! She describes medical studies showing that people who eat a lot of fish have low rates of depression! "The Japanese are a striking example. The traditional Japanese diet contains about fifteen times more omega-3 fatty acids than the American diet. Careful studies show that the Japanese people have one-tenth the rate of depression of Americans...The very lowest rates of depression in Japan are found in fishing villages."

James A. Duke, Ph.D., the great botanist who retired from the USDA in 1995 only to embark on another lively writing and research career, sent me a copy of pages 156 and 157 from his 1992 Handbook of Edible Weeds (CRC Press, Inc., Boca Raton, FL, 1992) on Portulaca Oleracea L. Common Purslane. It has the drawing I’ve used below. (I’m going to try to grow purslane again in the spring, although there may not be enough sun in my backyard.)

He writes: "...this mucilaginous potherb has been used by many ethnic groups on many continents...Tender parts, leaves, flowers, pods, seeds, and stems all may be stewed as potherbs, improved by adding egg and/or breadcrumbs...Buntings, doves, larks, long-spurs, mice, and sparrows eat the seed. Rats and rabbits graze the foliage. Weed scientists tend to overlook its value as food, instead stating it is now 'used widely as a food for pigs.' So there may be a bit of purslane in a pig's ear." [He loves puns.] Cherokee squeezed purslane juice into the ears for earache, also used the plant for worms. Iroquois poulchit its onto bruises and burns. Navajo used it for pain and stomachache, almost as a panacea. Chinese use it for anthrax, boils, bug bites, colic, dermatitis, eczema, gas, rats, scabies, skin diseases, indigestion, leukorrhea, ophthalmia, piles, snakebite, and tumors (Duke and Ayensu, 1985)..."

The Omega Plan has recipes, menus, sources, a table of omega-6 & omega-3 content of foods, etc. to make implementation of the Plan a pleasure not a pain. It may prove to be the most effective weapon yet for combating the lethal effects of outdated medical policies. I suspect that the Big Wheels in medicine and the food industry already are sitting up and taking notice.
Just as I finished writing the above, my copy of Duke’s *The Green Pharmacy* (Rodale Press, 1997) came, delivered by a very wet mailman -- the Bay area is getting socked and soaked by El Nino this winter. The book, delicately illustrated by wife Peggy (they met as young folks at Univ. of N. Carolina graduate school), is a goldmine of information on how to use easy-to-get plants to heal body ‘n soul. Here are some of many references to purslane:

**(On aging):** "Exceptionally rich in antioxidants, purslane is the top herb that pops up in my database when I’m looking for combinations of the antioxidant vitamins A, C and E. It’s also rich in the compound glutathione, which is both a powerful antioxidant and an immune system booster...."  

**(Intermittent claudication):** "The beneficial oils known as omega-3 fatty acids help prevent cardiovascular disease, and purslane is our best leafy source of omega-3’s.....Purslane is a delicious vegetable. I steam the leaves and eat them like spinach or add them raw to salads and soups."  

**(Cardiac arrhythmia):** "According to estimates I’ve seen, more than 70 percent of Americans may get insufficient magnesium. Maybe that’s why we have so much arrhythmia...Purslane is very rich in magnesium (nearly 2 percent on a dry-weight basis)...."  

**(Skin problems):** "Like carrots, purslane is generously endowed with carotenoids. I’m not the facial mask type, but if I were, I might try putting a handful of this useful weed into a blender with a carrot and maybe even some pineapple. This would create an invigorating face mask with healing properties. I’d suggest leaving it on for 20 minutes or so."  

Yep, I’m definitely going to grow purslane this year.  

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He continues: “In 1992, we founded a society, the Japan Society for Lipid Nutrition, for which I am serving as the president. Now we have more than 500 members....and I feel that lipid nutrition is changing steadily in Japan. Of course, people in [the] food industry are not willing to change but consumers are gradually forcing them to change.”  

**Dr. Okuyama** writes that Americans “consume ten times more non-steroidal anti-inflammatory drugs (NSAID, e.g., aspirin) than do average Japanese. Of course, difference in accessibility to these drugs (sold in local markets in the USA but not in Japan) may account for the difference, but much higher n-6/n-3 ratios in the USA may be producing more inflammatory mediators requiring more NSAID.” Interesting!  

Just before my letter came, he said he’d received the new Japanese edition of the Rudin-Felix book *Omega 3 Oils*. Maybe Dr. Rudin and I will see a copy some day. There’s a Taiwanese edition in Chinese in the works, too. Hooray!  

Thank you, Donald and Joan Rudin — what a great space trip it’s been!  

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

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