THERE ARE THOUSANDS of vitamins and supplements in all different shapes and sizes that claim to increase energy, increase longevity, balance hormone function, etc. But out of all of these, the single most important is omega 3 fish oil.

All fats are composed of hydrogen atoms and carbon chains. Animal fat is saturated fat, composed of 18 carbon and 18 hydrogen atoms. Having a hydrogen atom on every carbon atom makes the chain flat, much like a piece of paper. However, an unsaturated fat does not have hydrogen on every carbon atom; thus, the chains have kinks in them, much like a rumpled piece of paper, which takes up a lot of room.

Saturated (animal) fats are solid at room temperature but if one takes margarine (which is technically made from corn oil) and hydrogenates it (which means that it is put through a chemical process to add hydrogen atoms to the carbon atoms), the corn oil becomes a solid at room temperature and is no different chemically than butter, which has “cholesterol.” However, we do not say that the margarine has cholesterol since it is derived from a plant source. But in fact, it’s more dangerous to eat hydrogenated corn oil (margarine) than to eat butter. Also, those rumpled pieces of paper (unsaturated fat) make the arterial cell membranes fluid, which allows nutrients to pass more easily so the body can use them as fuel. Monounsaturated fats such as avocados, olive oil, almonds, nuts, etc. are actually good for us, and notice that olive oil is liquid at room temperature. Margarine (a transfat) actually raises the bad cholesterol and lowers the good cholesterol more than butter (saturated animal fat).

In an effort to simplify the subject a bit, you should know that there are two major types of oils: omega 3 types and omega 6 types. In short, omega 6 needs to be in balance with omega 3 in order for the human body to function optimally, and we need much more omega 3 than omega 6.

Unfortunately, we find omega 6 oils everywhere. Burgers and fries from fast food chains are loaded with omega 6 and do not have omega 3. And on grocery store shelves, there are many products that would appear to be healthy choices that contain omega 6 oils. For example, many salad dressings contain safflower oil, sunflower oil, peanut oil, corn oil and cottonseed oil; all of which are omega 6. Therefore, it is much better to use an olive oil-based salad dressing than any of the above.

Omega 3 oils are made up of two major fats: EPA, which has potent anti-inflammatory effects, and DHA, which is needed for brain function. Omega 6, by contrast, contributes to heart arrhythmias and atherosclerosis, depresses brain function and immune function, increases inflammation, causes platelets to clump, causes blood vessels to constrict and promotes cancer. Omega 3, on the other hand, increases immune function, improves brain function, helps with heart arrhythmias, prevents atherosclerosis, decreases inflammation, promotes opening of the arteries and prevents clumping of platelets.

The journal Circulation 2002; 105:1897-1903, notes a study involving 11,000 heart attack survivors. They were either given a gram a day of EPA plus DHA (omega 3), 300mg of vitamin E, both together, or neither. They were all also given the usual medications and the same diet and exercise advice that follows a heart attack. In addition, they were asked to eat a Mediterranean diet. The study indicated that the only thing that had an impact on survival was the omega 3 (EPA and DHA). There was a 41% decrease in mortality after three months in the patients given EPA plus DHA. After four months, there was a 53% reduction of sudden death. It was believed that the beneficial results were caused by the decreased triglyceride (bad cholesterol) levels and by the omega 3’s anti-arrhythmic properties.

In the Journal of the American Medical Association (JAMA), 2002; 287:1815-1821, it is noted that 84,688 female nurses were studied for 16 years, and omega 3’s effect on coronary artery disease was measured. The results showed that the incidence of coronary artery disease was 34% lower in those who consumed the most fish and 33% lower in those who consumed the most omega 3’s. Plus there was 45% less coronary heart disease in the women who consumed the highest amounts of fish and omega 3 over the 16 years. The main mechanism was believed to be that the fish and omega 3’s stabilized atherosclerotic plaques.

Atherosclerotic plaques are like pieces of rust in a tiny pipe, flaking off and blocking circulation. Omega 3’s improve the elasticity of the arteries, promote vasodilation of the arteries and reduce platelets from aggregating and making more atherosclerotic plaques. In the International Journal of Cancer, 2002; 98:78-83, there was a study that showed an inverse relationship between breast cancer risk and omega 3, while omega 6 was positively associated with an increased breast cancer risk.

How much fish oil do we need? The current American intake is 0.12 grams per day and the American Heart Association’s recommendation is 0.25 grams per day and at least two servings of fish per week. One tablespoon of cod liver oil contains 2.5 grams (2500mg). Salmon has 2.1 grams per serving and contains the least amount of mercury. However, you want Atlantic salmon, not farm-raised salmon. How much fish oil should we take? It depends on what you read, but most experts say that approximately two grams per day should suffice. However, to specifically improve cardiovascular health, 2.5–5 grams are required daily. To improve brain function and reduce inflammation would suggest a daily dosage of 8–9 grams. At that level, however, fish oil may cause diarrhea. What about beef? 7% of the fat in beef from grain-fed cattle will have omega 3. However, the meat of grass-fed cattle has less than 1% omega 3.

What about contaminants? PCB is found in fresh water fish, and fish from the ocean may have mercury. Therefore, pregnant women should refrain from eating certain fish, and that information is readily available. Many fish oil supplements document how much mercury they contain, and if you see a figure of .0001 or less, they should be acceptable. Any supplement that says “Pharmaceutical grade fish oil,” should have undetectable levels of mercury and PCBs and will also have less gastrointestinal side effects.

Many health insurance plans cover up to four grams (4000mg) of Lovaza (a pharmaceutical-grade EPA-DHA) per day for a small co-pay. Unfortunately, with the health insurance market changing, this will probably no longer be covered.

In summary, omega 3 oils reduce inflammation; the risk of cardiovascular disease, cancer, neurological and brain disease, the incidence of dementia and Alzheimer’s disease.

On a personal note, my maternal grandfather was a Greek fisherman who died in his sleep at 98 years of age with all of his teeth and all of his faculties, and without taking any medications. However, my paternal grandfather was from the mainland and ate mainly meat, and he died at age 65 of heart disease.