

OMEGA-3 OIL FISH OR PILLS?

A flood of scientific findings on fish oil points to a startling conclusion: Certain omega-3 fatty acids in the oil, consumed either from fish or fish-oil capsules, appear to offer as much protection against dying from coronary heart disease as do cholesterol-lowering drugs.

The evidence of fish oil's protective powers is so strong that the American Heart Association now urges everyone to eat at least two small 3-ounce servings of fish a week. That's particularly important after menopause in women and after age 45 or so in men, when coronary risk starts to rise.

Last fall the heart association advised people who already have heart disease to consume about 1 gram a day of the active ingredients in fish oil—omega-3s called EPA and DHA. To follow that recommendation, the average person would have to take at least some fish-oil pills. This is one of the few times that a major health organization has endorsed any dietary supplement for treating or preventing disease.

But consumers who want the coronary protection that those omega-3s can provide may have other questions:

- Who else needs the pills? Millions of Americans have increased coronary risk but no apparent heart disease. Our medical consultants say that fish-oil supplements may make sense for those people as well, depending on the extent

of their risk for heart disease.

- Is fish safe? Young children and women who are nursing or pregnant or who may become pregnant should avoid or limit their intake of certain types of

CR Quick Take

Certain omega-3 fatty acids in fish oil can help prevent cardiovascular disease. The only way to get substantial amounts of those omega-3s is from fish or fish-oil supplements.

- Most people with normal heart risk should eat at least two small servings of fish a week. Young children and pregnant women should avoid or limit their intake of species that may be contaminated with pollutants; others should vary their choices and sharply limit intake of the worst offenders. If you don't like fish, you could consume the equivalent amount of omega-3s from fish-oil pills: about 2 grams (two daily doses) a week.

- People with heart disease should consume about 1 gram a day of the omega-3s, from fish or fish-oil supplements, provided their doctor gives the OK.

- The more risk factors you have for heart disease, the more you should consider following the above advice for heart patients.

- Our tests of 16 leading pill brands found that all contained roughly as much omega-3s as their labels claimed, and none were contaminated or spoiled. So choose them based mainly on price.

fish that can be contaminated, notably with mercury. Other people should vary their choices, frequently eat the species unlikely to contain contaminants (see Shop Smart on page 32), and sharply restrict their intake of the species with the most mercury, namely shark, swordfish, and king mackerel.

- Are fish-oil supplements safe and are their contents reliable? The federal Food and Drug Administration rarely monitors the composition and purity of dietary supplements. But our tests of 16 top-selling fish-oil supplements were reassuring: All those pills contained roughly as much EPA and DHA as their labels promised. None showed evidence of spoilage, and none contained significant amounts of mercury, the worrisome PCBs, or dioxin.

So the choice boils down to price, and we found good news there, too: Two brands, Kirkland Signature Natural Fish Oil and Member's Mark Omega 3 Fish Oil, each a CR Best Buy, supplied the desirable daily dosage for less than half to as little as a tenth of the cost of the other brands we tested.

FIVE-WAY PROTECTION

Studies suggest several possible mechanisms to explain how fish oil helps minimize the consequences of heart disease and perhaps prevent the disease in the first place:

- It may electrically stabilize the heart-

muscle cells, reducing the likelihood that a heart attack will trigger an arrhythmia or potentially deadly heart-beat disturbance.

- It may fight inflammation, which makes arterial plaque deposits more likely to break apart, create blood clots, and thus trigger a heart attack.
- It may make certain blood cells less sticky and less likely to form clots.
- It may make the arteries more elastic,

reducing the chance that increased blood pressure will cause plaque deposits to rupture.

- High doses can reduce blood levels of triglycerides, a fat that may increase heart-disease risk.

A DRAMATIC DROP IN DEATHS

The benefits of fish oil emerged when researchers noticed that people who ate fish frequently suffered fewer

heart attacks and died of heart disease at a lower rate than those who seldom ate fish. Most significant, those studies showed that eating fish offers powerful protection against one of the most dreaded and unpredictable consequences of heart disease: "sudden-death" heart attacks that kill within minutes. Subsequent research suggested that high fish consumption may also reduce the risk of stroke.

Ratings fish-oil pills



1 Kirkland Signature



2 Member's Mark

In price order.

Key number	Product	Pills per day	Cost	
			Per day	Per year
BEST BUY 1	Kirkland Signature Natural Fish Oil (Costco)	3	\$0.06	\$22
BEST BUY 2	Member's Mark Omega 3 Fish Oil (Sam's Club)	3	0.06	22
3	Spring Valley Natural Fish Oil Concentrate	3	0.18	66
4	Walgreens Fish Oil Concentrate	4	0.24	88
5	Vitasmart Naturals Fish Oil Concentrate (Kmart)	4	0.28	100
6	CVS Pharmacy Natural Fish Oil Concentrate	3	0.30	110
7	Natrol Omega-3	4	0.32	117
8	Sundown Fish Oil	4	0.32	117
9	GNC Fish Body Oils	4	0.36	131
10	Nature's Bounty Salmon Oil	5	0.40	146
11	Rite Aid Natural Fish Oil	4	0.40	146
12	YourLife Natural Fish Oil Concentrate	3	0.42	153
13	Country Life Natural Omega-3 Fish Body Oils	4	0.48	175
14	Eckerd Natural Fish Oil Concentrate	4	0.52	190
15	Spectrum Essentials Omega 3 Norwegian Fish Oil	4	0.52	190
16	Solgar Omega-3 "700"	2	0.60	219

Guide to the Ratings

We tested all 16 products in our laboratories for the omega-3s EPA and DHA. And we commissioned two independent labs to test them for mercury, dioxin, dioxin-like PCBs, and decomposition. **Pills per day** is the number of pills needed to obtain close to 1 gram of EPA and DHA combined, the daily dose recommended by the American Heart

Association for people with heart disease. **Cost per day**, based on the approximate retail prices of the largest available bottles, gives the daily cost of the number of pills needed to supply close to the association's recommended daily dose. **Cost per year** gives the cost of taking those daily doses for 1 year.

CR Quick Recommendations

We found no significant differences in the quality or purity of these supplements. So choose them based on price. The two least-expensive products we tested are sold only at warehouse clubs: Kirkland Signature Natural Fish Oil (1) at Costco and Member's Mark Omega 3 Fish Oil (2) at Sam's Club. For a daily dose of about 1 gram of EPA and DHA combined—the amounts recommended for people with heart disease—those products cost at least \$44 a year less than their nearest competitor in price. That savings will roughly pay for the annual membership fee of \$45 at Costco, \$35 at Sam's Club.

If you don't have one of those clubs near you or don't want to join, you can order Kirkland Signature over the Internet at generally higher prices but without the annual fee. For example, we found a year's supply for about \$43, including shipping, at www.mypatienteducation.com; that's still less expensive than any products we tested that are sold outside the clubs. You can order a minimum of a year's worth, since the capsules should remain unspoiled for at least that long after they were manufactured, provided you keep them out of direct sunlight. But check the expiration date to be sure. Refrigerating or freezing the supplements should prolong their shelf life.

For optimal use of fish-oil pills, follow these guidelines:

- To get roughly the clinical-trial dosage of EPA and DHA, take the number of pills listed in our table. In several cases that number is different from the number or range on the label. That's because the manufacturer recommended a higher or lower dosage than was used in the most compelling clinical trials.
- The pills may cause some initial side effects, such as bloating and burping up a "fishy" taste. Freezing the capsules before taking them may minimize those effects.
- For heart benefits, it doesn't seem to matter whether you take the daily capsules all at once or separately. But taking them with meals might decrease any side effects.

Controlled clinical trials have confirmed that a steady diet of fish or fish-oil supplements works as "secondary prevention," reducing the likelihood of a repeat heart attack in people who've already had a first attack.

For example, the Diet and Reinfarction Trial, involving some 2,000 heart-attack survivors in Wales, found that those who increased their EPA and DHA intake from fish by at least 500 milligrams a day for two years had a 29 percent lower death rate than those who didn't boost their fish intake; a drop in fatal heart attacks accounted for that entire benefit. Another trial, involving some 11,300 Italian heart-attack survivors followed for 3½ years, found that those given 850 milligrams a day of EPA and DHA from supplements had 20 percent fewer deaths overall and 45 percent fewer sudden-death heart attacks than the untreated control group.

Long-term clinical trials of fish-oil supplements have not yet been conducted in one important group: people who have major risk factors for heart disease, such as diabetes or high blood pressure, but who haven't developed any apparent signs of the disease. So researchers cannot be sure that taking these supplements would work as "primary prevention"—keeping a heart attack from occurring in the first place.

However, William S. Harris, Ph.D., professor of medicine at the University of Missouri and director of the Lipid and Metabolic Research Laboratory at the MidAmerica Heart Institute, notes, "There has never been a cardiologic treatment that worked as secondary prevention that didn't also work as primary prevention." □

shopsmart

RIGHT FISH, LEAST RISK

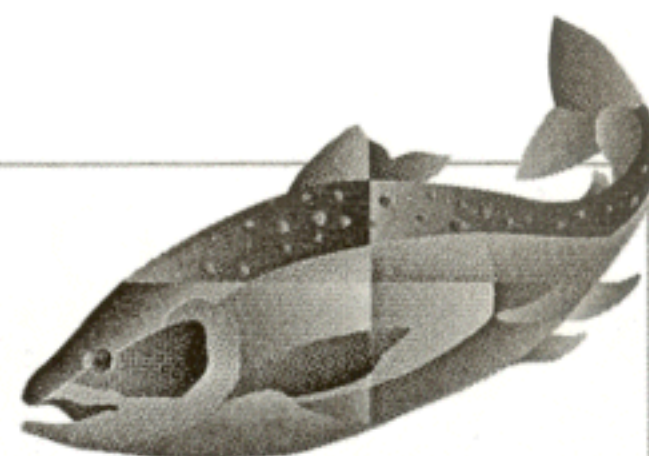
Fish is rich in omega-3s and other nutrients. But some species may contain excessive amounts of certain pollutants. The most comprehensive data on those pollutants involve mercury. The amounts of that heavy metal in some fish can harm the nervous system of a fetus or young child; whether they do so in adults isn't clear. While studies show that eating fish generally reduces the overall death rate, it's wise to minimize any potential risks from pollutants.

YOUR CHOICES

- Most people should eat a variety of fish, frequently choosing the species in the table at right that don't have any asterisks. (Fish marked with one asterisk may be high in mercury.) Most people should eat no more than 8 ounces a month of the species marked with two asterisks, which contain the most mercury—shark, swordfish, and king mackerel. Note that prepared breaded and fried fish are generally poor choices, since they tend to be high in heart-unhealthy trans fat and low in omega-3s.
- Women who are nursing or pregnant or who may become pregnant should avoid the species with two asterisks and eat no more than 8 ounces per week of those fish with one asterisk. They should heed any warnings from their state, posted on the Internet, about locally caught fish that may be contaminated.
- Children under age 5 should eat none of the asterisked fish, except white tuna. That should be limited to 1.5 ounces per week. State warnings generally apply to young children as well.

KEEPING FISH FRESH

- Choose fish that looks neither dry nor slimy and that doesn't smell excessively "fishy."
- Refrigerate fresh fish as soon as possible. If you won't be eating it within a day, wrap it tightly and put it in the freezer.



3-oz. serving (steamed or baked, except where noted)	Omega-3 content (EPA & DHA, in g)
SALMON, ATLANTIC	1.8 g
HERRING, ATLANTIC	1.7
SALMON, PINK, CANNED	1.4
WHITEFISH	1.4
TUNA, BLUEFIN *	1.3
MACKEREL, ATLANTIC	1.0
TROUT, RAINBOW	1.0
BLUEFISH	0.8
SARDINES, OIL-CANNED	0.8
MUSSELS, BLUE	0.7
SWORDFISH **	0.7
TUNA, WATER-CANNED, WHITE *	0.7
BASS, FRESHWATER *	0.6
SHARK (fried) **	0.6
POLLOCK, ATLANTIC	0.5
CRAB, ALASKAN KING	0.4
HALIBUT *	0.4
SOLE/FLOUNDER	0.4
MACKEREL, KING **	0.3
OYSTERS (raw)	0.3
PERCH, OCEAN	0.3
SHRIMP	0.3
CATFISH, FARMED	0.2
CLAMS	0.2
COD, PACIFIC	0.2
TUNA, WATER-CANNED, LIGHT	0.2
TUNA, OIL-CANNED, LIGHT	0.1

The recommended intake of EPA plus DHA omega-3s for most adults is at least 2 grams per week.

* May be high in mercury; see text for precautions.

** Contains the most mercury.

Sources: For omega-3s, USDA; for mercury, FDA, Environmental Protection Agency, and CONSUMER REPORTS tests.

closeup

WHAT ABOUT CANOLA OIL?



Fish is the only food that directly supplies substantial amounts of the omega-3 fatty acids EPA and DHA. But you can get them indirectly from vegetable oils rich in another omega-3, alpha-linolenic acid, which the body converts to EPA and DHA. Flaxseed oil contains the most alpha-linolenic acid; canola, olive, soybean, and walnut oil contain moderate amounts. Researchers aren't certain how much alpha-linolenic gets converted, but it's almost surely less than 15 percent, probably much less.

Nevertheless, several population studies suggest that people whose diet supplies a lot of alpha-linolenic acid may suffer fewer fatal heart attacks than others. So far, researchers have not clearly determined whether alpha-linolenic supplementation can reduce coronary risk.

Based on the available evidence, the American Heart Association advises everyone not only to consume fish or fish oil regularly, depending on their coronary risk, but also to prepare meals using oils rich in alpha-linolenic acid.