WHAT EXACTLY IS

OMEGA-3 ?

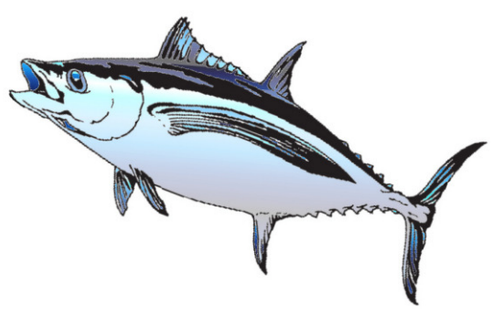
Omega-3 fatty acids are polysunsaturated fatty acids essential to normal growth in young children and animals. A study published in the April 2007 *Journal of the Developmental and Behavioral Pediatrics* reported the benefits of Omega-3 supplements for children with learning and behavioral problems. The results support those of other studies that have found improvement in poor developmental health with essential fatty acid supplementation.

BUT WHAT ABOUT THE

WARNINGS?

A national survey by Opinion Research Corporation in 2006 found that 40 percent of Americans believe at least 10,000 childhood cases of mercury poisoning are documented each year.

THERE ARE NO REPORTED CASES IN THE U.S. OF MERCURY POISONING FROM EATING SEAFOOD.



A BIT OF BACKGROUND ON MERCURY:

Today's mercury concerns originated with two historic poisoning disasters.

Between 1932 and 1968, the Chisso Corporation in Japan dumped about 27 tons of mercury compounds into Minamata Bay. Hundreds died of mercury poisoning; thousands were diagnosed with "Minimata Disease" after eating contaminated fish – with measured methylmercury levels up to 40 parts per million (ppm).

In Iraq in the 1970s, grain for agricultural use was treated with a fungicide containing mercury. Instead of being planted, however, it was eaten; it killed more than 400 people and hospitalized thousands. Measured hair mercury levels then were as high as 674 ppm.

Hair mercury levels today are typically measured at less than 1.4 ppm – a small fraction of those documented during the poisonings in Japan and Iraq.

WHAT ABOUT THE WARNINGS?

Two studies, one in the Faroe Islands off the coast of Iceland and another in the Seychelles Islands east of Africa, exemplify the ongoing debate.

In the Faroe Islands study, slight neurological defects were reported in children neonatally exposed to mercury. But people in the Faroe Islands area consume large quantities of WHALE MEAT, far higher in mercury content than what the U.S. consumer is likely to eat.

The Seychelles Islands study, however, found no adverse effects in children born to mothers who ate fish. People in that area eat TEN TO TWENTY TIMES as much fish as the typical U.S. consumer.

WHY DOES WHALE MEAT CONSUMPTION MATTER IN THE FAROE ISLANDS STUDY?

Compare these methylmercury levels:

TYPE/SOURCE	PPM
FRESHWATER FISH	0.1 – 0.4
OCEAN FISH	0.6 – 0.8
PREDATOR FISH	> 1.0
POLLUTED LAKES FISH	< 10.0
MINAMATA BAY FISH	< 50.0
WHALE MEAT	< 4.0
WHALE LIVER	> 1000.0

Based on the Faroe Islands study and Iraqi history, the U.S. EPA set a Benchmark Dose Lower Limit – the lowest lifetime level of exposure that could cause problems. The reference dose was calculated as 0.1 microgram per kg of body weight per day. (A 150-pound person therefore has a reference dose of 6.8 micrograms per day.)

BUT THE U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION INDICATE THAT NO ONE IN THE U.S. TESTS ANYWHERE NEAR THIS LEVEL.

A THIRD STUDY made mercury warnings about fish even more controversial. Research in the United Kingdom found increased risks of neurodevelopmental defects in children whose mothers decreased their fish consumption. Mothers' compliance with the EPA's guidelines increased the risk of their children scoring in the lowest quartile for verbal IQ. The children also showed increased risks for pathological scores in fine motor, communication, and social skills compared with children of mothers who exceeded the EPA recommendation.

The potential risk of including fish in the diet – and how much fish is included - must be considered in the context of the nutritional benefits; significant nutritional and developmental nutrients will be sacrificed if fish consumption is needlessly avoided because of misunderstandings about media reports and agency warnings. Leading-edge research efforts, though, continue to define and understand the potential risk of mercury exposure within the context of nutritional benefits.

"THERE HAS BEEN NO CASE OF FETAL MERCURY TOXICITY DUE TO FISH CONSUMPTION REPORTED IN THE UNITED STATES," says Dr. Ashley Roman, a professor of Obstetrics and Gynecology at New York University Medical Center.

The only time mercury in fish has been shown to be harmful was Japan's Minamata Bay poisoning disaster - caused by industrial pollution. Many poisoning cases were caused by contaminated fish that washed ashore and were eaten. According to Dr. Gary J. Myers, a professor of neurology and pediatrics at the University of Rochester Medical Center in New York, **THERE HAS NEVER BEEN ANOTHER CASE REPORTED ANYWHERE ELSE IN THE WORLD RELATED TO FISH CONSUMPTION.**
U.S. News & World Report, Oct.2007

LIKE FISH? EAT IT!

Alaska says the benefits of eating fish outweigh the risks. The Department of Health and Social Services recently published guidelines sa that eating fish is "an important part of a healthy diet for everyone, including pregnant and nursing women and young children." They researched 2,300 fish from 23 species over the course of six years. Though all fish contain mercury at some level, their study shows Alaska's fish are healthy to eat.

Lori Verbrugge, a DHSS toxicologist, said mercury content in Alaskan ocean fish is ocean-current-bound from coal burning in China and other Asian countries. Their research found mercury in the hair of ancient mummies they studied in caves in the Aleutians. The Alaska Department of Public Health tracks mercury levels with free hair-mercury tests. Verbrugge says not one woman in the state has been exposed to elevated levels of mercury from eating fish.

The American Fishermen's Research Foundation (AFRF), founded in 1971, assists with research on albacore fisheries. AFRF is a non-profit organization supported entirely by troll and baitboat albacore fishermen of the U.S., Canada, and New Zealand - along with major West Coast processors, buyers, and others. AFRF aids, encourages, promotes, and supports science and education related to Pacific albacore tuna. We work with the scientific community and the National Marine Fisheries Service (NMFS), an agency of the U.S. Department of Commerce's National Oceanic & Atmospheric Administration (NOAA), and with research organizations and agencies of other nations. AFRF is managed by the Western Fishboat Owners' Association; more information on the troll and baitboat fishery can be found on WFOA's website at wfoa-tuna.org

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For more details on albacore fishing and the Pacific fleet:
ALBATUNA.COM WFOA-TUNA.ORG

FISH ARE AMONG THE RICHEST SOURCES OF NUTRITIONAL SELENIUM IN THE AMERICAN DIET. OF 1,100 FOODS COMMONLY CONSUMED IN THE UNITED STATES, 17 OF THE TOP 25 SOURCES OF DIETARY SELENIUM ARE OCEAN FISH.

The U.S. Food and Drug Administration recommends that pregnant women avoid shark, swordfish, king mackerel, and tilefish because of their high mercury content. The FDA and the National Marine Fisheries Service recommend that pregnant women avoid consuming excess methylmercury by eating too much fish.

But how much is too much? The agencies recommend 12 oz. per week of low-mercury fish (such as shrimp, tuna, salmon, pollock, and catfish) or 6 oz. of albacore per week. The Environmental Protection Agency says fish and shellfish are an important part of a healthy diet. Fish and shellfish contain high-quality protein and other essential nutrients, are low in saturated fat, and contain omega-3 fatty acids. A well-balanced diet including fish and shellfish can contribute to heart health and children's proper growth and development.

The EPA, the U.S. Department of Agriculture, the American Heart Association, and the American Diabetes Association recommend that everyone include fish in their diets.

WHAT ABOUT MERCURY RESEARCH? Numerous reports in the media offer seemingly conflicting information on the dangers and benefits of eating fish. Nutrition experts extol the benefits, yet warnings about methly-mercury in fish still are prevalent. Nutrition benefits are well documented; seafood and fish – especially ocean fish – provide an excellent source of protein, Omega-3 fatty acids, vitamin A, vitamin B12, niacin, and selenium.

AND THE LATEST ON SELENIUM? An essential nutrient, selenium's important for biological processes. It has powerful antioxidant properties, protects against cancer and heart disease, and is especially important for development, reproduction, and the immune and nervous systems. Selenium is an antagonist to mercury and other elements; it binds with the mercury and renders it unavailable. Selenium therefore has a "protective effect" against mercury.