Low US seafood consumption is of particular concern for pregnant and nursing women. They obtain about 100 mg of DHA/day, half what experts believe they need for themselves and their infants—200 mg of DHA daily. The result of not eating much fish appears in the low DHA content of US women’s breast milk (chart). The question is, do these low intakes matter? Much evidence says they do.

Diverse Health Benefits From Seafood’s Long-Chain Omega-3s

Long-chain omega-3s found in seafood benefit everyone’s health. Evidence continues to accumulate revealing how seafood omega-3s may improve our health. The benefits include:

* **Heart health** – Lower chance of dying from coronary heart disease and sudden cardiac death – 20% to 50% less likely
* Improved electrical properties of the heart, including more stable rhythms, lower heart rate and better heart rate variability (adaptability)
* Less chance of a first heart attack and other nonfatal cardiac events
* Improved blood lipid patterns with lower blood triglycerides (fats) and higher HDL or “good” cholesterol levels; however, seafood omega-3s have little effect on LDL or “bad” cholesterol
* Less unwanted blood clotting that could lead to a heart attack or stroke
* Reduced inflammation, an underlying contributor to heart disease and other disorders
* Healthier blood vessel function and blood flow
* Slower progression of atherosclerosis and clogged arteries

**Brain function** –Sharper brain function including neurotransmission (communication between brain cells), protection of neurons from injury and disease, rapid responses to hormones and regulatory substances, and improved brain cell repair and regeneration

* Healthy cognition and memory, especially in aging; seafood omega-3s may lower the risk of developing Alzheimer’s disease, other dementias and possibly Parkinson’s disease
* Omega-3s growth and development in fetal and infant life. Insufficient intake of DHA and EPA is associated with lower brain DHA content and a greater chance of childhood behavioral disorders such as dyslexia, attention deficit hyperactivity disorder and conditions affecting movement and coordination
* **Mental health** – Reduced risk and severity of several mental disorders, including depression, bipolar disorder, and mood disorders such as anxiety, hostility and aggression

DHA also contributes to slightly longer gestation (dim-light and night vision). DHA promotes healthy visual development in early infancy and protects against loss of blood vessels in visual damage.

**Immune function** – Seafood omega-3s promote immune system maturation in infancy and may lower the chance of childhood allergies. Increased omega-3 consumption may ease the symptoms of inflammatory conditions, such as rheumatoid arthritis, asthma, certain allergies and digestive disorders. Omega-3s tone down overactive immune responses making symptoms less severe, but they do not cure the conditions.

* High levels of long-chain omega-3s have been used to treat rheumatoid arthritis, without the adverse side effects of some anti-inflammatory drugs. Some evidence suggests that increased intake of long-chain omega-3s during pregnancy reduces the infant’s chance of developing allergies, such as eczema, allergic rhinitis and asthma.
* **Clinical conditions** – Long-chain omega-3s may reduce the chance of type 2 diabetes and improve the welfare of patients needing total parenteral nutrition; they may be helpful in post-surgery and trauma, inflammatory bowel and Crohn’s disease, possibly some forms of cancer and most recently bone health.

New products such as yogurt, margarine, spreads and snack bars may have omega-3s added, but may not indicate which ones they have. Such foods nearly always have alpha-linolenic acid from flax seed or oil. Unless the label specifically mentions “long-chain” omega-3s, or EPA, or DHA, it will not have fish oil omega-3s. Be sure to read the label.

**Visual function** – Long-chain omega-3s are vital for healthy visual and retinal function; they may lower the chance of developing age-related macular degeneration and possibly cataract, dry eye, glaucoma and other visual disorders. The retina has the body’s highest concentration of DHA, which aids in converting light to visual signals and in dim-light and night vision. DHA promotes healthy visual development in early infancy and protects against loss of blood vessels in visual damage.

**Potential benefits**:

- Reduced risk of diabetic retinopathy
- Increased visual acuity and contrast sensitivity during dim-light and nighttime vision
- Reduced risk of age-related macular degeneration (AMD), the leading cause of vision loss in the US among adults aged 60 or older
- Reduced risk of vision loss in people with diabetes
- Reduced risk of cataracts
- Reduced risk of glaucoma
- Reduced risk of macular degeneration
- Reduced risk of pseudoxanthoma elasticum
- Reduced risk of xerophthalmia
- Reduced risk of dry eye
- Reduced risk of visual fatigue

In contrast to the potential harm from mercury, the great majority of scientific evidence suggests that eating fish does much more for your health than against it. Seafood consumption has net health benefits in cardiovascular, neurologic, immune, behavioral and mental health outcomes. Moreover, seafood carries a protective factor against mercury toxicity.

**Who can be at Risk from Mercury?**

Because mercury can affect the developing nervous system, pregnant and nursing mothers exposed to large amounts of mercury could jeopardize the brain development of the fetus and infant. Most other adults are at very low risk from mercury. Detrimental effects of mercury have been observed in accidental poisonings in Japan and Iraq, but there is no clinical evidence that women who consume fish, even large amounts of fish, as women in Japan and Iceland do, harm their infants. In fact, the opposite seems to be the case. A large study in the United Kingdom reported that children whose mothers had the greatest fish consumption—more than the US Food and Drug Administration (FDA) recommends—had higher neurodevelopmental scores than children whose mothers consumed less fish or none. Children whose mothers avoided fish had suboptimal scores. Other studies suggest that children whose mothers have high fish intakes during their pregnancy are less likely to develop eczema and asthma. Thus, several lines of evidence suggest that avoiding fish consumption during pregnancy may be detrimental to the child’s health and development.
The Mercury Shield in Fish: Selenium

Worries about the effects on childhood development of mothers' dietary selenium and mercury levels, so fish with high mercury and low selenium would be expected to pose a greater health risk than ocean fish. The relative amounts of selenium and other trace elements in fish may be the most reliable way to assess the potential risk from fish in its diet.

Choosing Fish Wisely

Smart consumers will include seafood on their menu regularly, at least 2 to 3 times a week so they obtain the many health benefits of long-chain omega-3s. Many, if not most, of these benefits cannot be obtained from plant sources of omega-3s (e.g., flax, walnuts, canola and soybeans oils) because the body converts the omega-3s in plants to the long-chain omega-3s very inefficiently. Conversion to DHA is almost negligible, so pregnant and nursing women would be especially short-changed by relying solely on plants for their omega-3s.

All seafoods have some long-chain omega-3s, but the fattier species, such as salmon, rainbow trout, light tuna, mackerel, sardines, blackcod and herring have the greatest amounts. Most fish are low in mercury, but large long-lived fish, such as shark, marlin, swordfish and very large halibut tend to have higher levels. With the exception of shark, some swordfish and very large halibut tend to have higher levels of mercury, even in large pelagic fish that are more likely to carry higher levels of mercury. A recent study of 15 species of pelagic fish reported that only black marlin had mercury more than selenium. In the Faroe Islands, pilot whale also has considerably more mercury than selenium, making it more harmful than if selenium was more abundant than mercury. Freshwater fish also vary widely in their selenium and mercury levels, so fish with high mercury and low selenium would be expected to pose a greater health risk than ocean fish. The relative amounts of selenium and other trace elements in fish may be the most reliable way to assess the potential risk from fish in its diet.

References