



Fish for Health?

GET THE FACTS!

Essential Fatty Acids

Essential fatty acids (EFAs) are polyunsaturated fats, namely omega-6 and omega-3 fats. The omega-3 fats, particularly, help keep the heart healthy.

Fish is a source of EFAs, particularly omega-3 fats, but not all fish contain them. Those that do are principally oily fish such as herring, salmon, mackerel, sardines and fresh tuna. White fish, such as cod, haddock and plaice, don't and nor does tinned tuna. ⁽¹⁾

The richest sources of omega-3 fats are not fish, but plants. Oils from linseed (flax), hempseed, rapeseed (canola) and soya are rich in omega-3, so are seeds and nuts, particularly walnuts. Green leafy vegetables are also a source. ^{(2), (3)}



Plant Sources of EFAs

Good sources of Omega 6 (Linoleic Acid)

Safflower, Sunflower, Corn, Soya, Evening primrose, Pumpkin, Wheatgerm

Good sources of Omega 3 (Alpha-Linolenic Acid)

Flaxseeds/Linseeds (Flaxseed oil contains twice as much Omega 3 as is found in fish oil), Mustard seeds, Pumpkin seeds, Soya bean, Walnut oil, Green leafy vegetables, Grains, Spirulina ⁽⁴⁾



Do we need Fish Oils ?

The majority of people can achieve good health without fish, if the intake of essential fats and their conversion is optimised.

Algae sourced DHA* supplementation is however recommended in pregnancy as studies have shown lower levels in babies born to vegan mothers.

People with a health condition such as diabetes or atopic allergies might be limited in their ability to convert their own fats so will need to consider an algae-based DHA EPA supplement. ⁽⁴⁾

**DHA is an omega-3 essential fatty acid*

PLANT OILS ARE A BETTER ALTERNATIVE TO FISH-DERIVED EFAs BECAUSE:

They contain anti-oxidants which are a natural defence against free radicals such as mercury. Fish oil does not.

The anti-oxidants help to slow down the decaying process of the EFAs, which spoil very easily. “Smelly” fish is a sign of spoiled EFAs.

They halve the risk of heart disease for high risk patients, compared with fish oils.

Unlike fish oils, they also protect low risk patients. ⁽¹⁾





Brain Food

Fish or Veg?

50% of our brains are made up of essential fatty acids. Growing brains also need a one-to-one balance of omega-3 to omega-6 fats. It is this balance that promotes the growth of the cerebral cortex, the site of intellect and reasoning.

Based on these facts, fish is promoted

as essential for infant development and an aid to overcoming both learning and behavioural problems.

Plant-derived EFAs are an excellent alternative source. Thousands of healthy intelligent vegetarian and non-fish eating families attest to the fact that brains can function perfectly well without consuming fish. ⁽¹⁾

Scientists at Cornell University found that the flavonoid quercetin can protect against brain-cell damage. Antioxidants like quer-

etin counter the damaging effect of free radicals on brain function. Apples, especially the skins, contain some of the highest levels of quercetin. Other foods rich in quercetin include onions, blueberries, and cranberries. ⁽⁵⁾

People who consume a diet high in soy products also enjoy a better recognition and recall ability in memory testing compared to those on a low-soy diet. ^{(6),(7)}

Although fish is a source of EFAs, there are many risks associated with eating fish.

TOXIC FISH



Fish's bodies absorb toxic chemicals in the water around them, and the chemicals become more concentrated as they move up the food chain. Big fish eat little fish, with the bigger fish (such as tuna and salmon) absorbing chemicals from all the other fish they eat. ^{(1), (10)}

Fish flesh stores contaminants, such as:

- **PCBs:** cause liver damage, nervous system disorders, and fetal damage
- **dioxins:** linked to cancer
- **radioactive substances such as strontium-90, cadmium, mercury, lead, chromium, arsenic, etc:** cause health problems ranging from kidney damage and impaired mental development to cancer. ^{(3), (4)}

Oily fish like mackerel and salmon carry the most risk as their fatty tissue soaks up these poisons.

The toxins are stored in the body fat of humans who eat fish, and remain in their bodies for decades. ⁽⁷⁾



FOOD POISONING

According to the Centers for Disease Control and Prevention in the US, there are about **75 million cases of foodborne illness** every year, hundreds of thousands of hospitalizations and thousands of deaths. And **seafood is the number one cause of food poisoning** in the United States. Seafood poisoning can cause mild to extreme discomfort, nervous system damage, and even death. ^{(16), (17)}

Seafood poisoning is caused by eating foods contaminated with viruses or bacteria including salmonella, listeria, and E. coli.

In the US, when Consumer Reports looked at bacteria levels in fresh fish bought at supermarkets around the country, they found that between 3 and 8 percent of the samples tested had unacceptable levels of E. coli, a bacterium that comes from human or animal feces, that has been found to pollute some waterways. ⁽¹⁸⁾

A close-up, profile view of a woman and a young child looking at each other. The woman is on the left, and the child is on the right. They are both looking towards the center, creating a sense of connection and care. The background is a soft, out-of-focus light color.

Fish for Mother & Child ?

Women who eat more than one can of tuna a month during pregnancy could ingest enough mercury to damage the developing brain of a fetus. ^{(10), (13)}

PCBs, mercury, and other toxins found in fish can be passed on to nursing babies through a mother's milk. Mercury can even harm a developing fetus. During some poisoning outbreaks some mothers with no symptoms of nervous system damage gave birth to infants with severe disabilities. ^{(9), (14), (15)}

Mercury causes impaired neurological development to the fetus, babies and children. Impacts on cognitive thinking, memory, attention and language have been seen in children exposed to methylmercury in the womb through their pregnant or nursing mothers. ⁽¹⁵⁾

Mercury contamination of seafood can cause heart damage and irreversible impairment to brain function in children, both in the womb and as they grow. **Even mild exposure can result in impaired immune function, developmental delays, and physical deformities.** ^{(8), (11)}

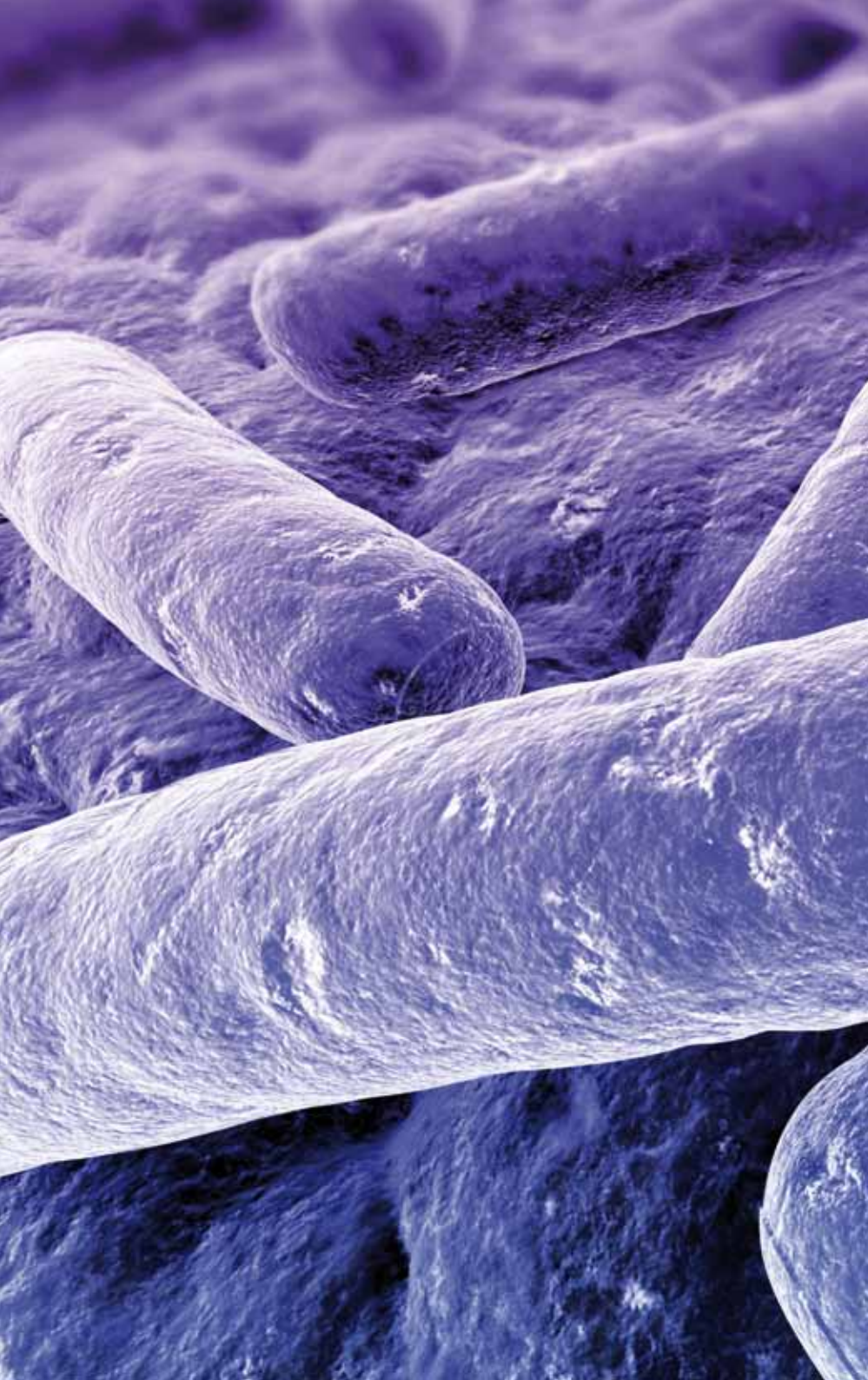
A black and white photograph showing the profile of a woman's face and shoulder. She has short, light-colored hair and is looking towards the right. The lighting is dramatic, highlighting the contours of her face and shoulder against a dark background.

Breast Cancer and Fertility

Scientists at the University of Wisconsin-Madison found that premenopausal women in Wisconsin who consume freshwater fish suffer from unusually high rates of breast cancer. ⁽²⁰⁾

A similar study conducted by Danish researchers has confirmed the link between fish consumption and increased breast cancer risk. ⁽²¹⁾

Fish consumption has been linked to decreased fertility. Higher blood mercury concentration is associated with female infertility. Close monitoring of mercury levels is recommended. ^{(22), (11)}



ANTIBIOTIC RESISTANT BACTERIA

The academic journal *Environmental Microbiology* published an alarming report in July 2006 about the human-health threat caused by the massive amounts of antibiotics that are fed to fish on fish farms. These drugs are used to keep animals alive in filthy, crowded conditions that would otherwise kill them. Scientists are very concerned that the overuse of these drugs will cause antibiotic-resistant bacteria to multiply in the fish so that people who eat the infected fish flesh will contract dangerous illnesses that cannot be cured by drugs. If we don't curb the heavy use of prophylactic antibiotics in aquaculture, then we will ultimately see more and more antibiotic-resistant pathogens emerging, causing increased disease to fish, animals, and humans alike, said Dr. Felipe Cabello, the author of the study. ⁽¹⁹⁾



Already, ^{29%} of edible fish and seafood species have declined by 90%, a drop that means the collapse of these fisheries. A 2006 report in the journal 'Science' found that **the oceans will be essentially empty of fish by the year 2048.** ⁽²³⁾

EU fish stocks are at risk of widespread collapse. ⁽²⁴⁾

The subsidies to the fishing industry worldwide are approximately **£15 billion each year**, the bulk of which leads to over-fishing. ⁽²⁵⁾

Sources

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