

Dietary Sources of Omega-3 Fatty Acids

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Modern diets are often low in omega 3 fatty acids

- Our diet has been constantly changing over the centuries and so have our dietary sources of fatty acids. Research indicates that the diet of our 'hunter-gatherer' ancestors was relatively low in saturated fat but contained special kinds of polyunsaturated fats (omega-3 and omega-6) that are crucial to brain development and function. The ratio of omega-6 to omega-3 in the diet at that time is thought to have been around 1:1, and our physiology has not changed significantly since then.
- In contrast, modern diets are often high in saturated fat and trans fats (artificially saturated fats found in many processed foods), and they particularly lack omega-3 fatty acids. The current dietary ratio of omega-6 to omega-3 fats ranges from 14:1 to about 20:1 in the western world.
- This relative deficiency of omega-3 fatty acids (and the high level of saturated and trans fats) has been linked with many physical health problems, including heart disease and stroke, cancer, inflammatory conditions and auto-immune diseases. Research also shows that a lack of omega-3 may increase the risk of depression and other mental health conditions.
- Because omega-3 fatty acids are so important for both physical and mental health, current advice from UK and US governments is that we should try to increase our intake of omega-3 fatty acids (and reduce our intake of trans fats).

Only fish and seafood provide the complex omega-3 most important to the brain

- The two most important omega-3 fatty acids for brain function and brain development are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). These can be found directly only in fish and seafood. Oily fish contains more EPA and DHA than white fish. Sardines and pilchards, anchovies, mackerel, salmon and herring are particularly good sources.
- The UK Food Standards Agency recommends that we eat at least two portions of fish per week, (one of which should be oily fish). This would provide around 1-2 grams of EPA and DHA combined. However some people may benefit from a much higher intake of these complex omega-3, as suggested by treatment studies in physical conditions such as arthritis, or psychological conditions including dyslexia, ADHD, depression or schizophrenia.

Some vegetarian foods contain simpler omega-3 fats

- Vegetarians, who do not eat fish, have no direct source of EPA and DHA in their diet, so they rely on the body converting a simpler omega-3 fatty acid, alpha-linolenic acid (ALA), into EPA and DHA. ALA is found in green vegetables and some nuts and seeds (such as walnuts, brazil nuts and flaxseed), although the best concentrated source is flaxseed (linseed) oil.
- Although some people can obtain enough EPA and DHA without consuming fish or seafood, others may have difficulties with this. The conversion process for making these complex omega-3 fats from ALA can be inefficient – either because of diet and lifestyle, or for constitutional reasons. For example, low levels of certain vitamins and minerals, or high stress levels, can impair this process, and it also appears to be less efficient in males than females. Conversion is also limited in young infants, and tends to decline in the elderly, but individual metabolic differences might impair some people's ability to make EPA and DHA from ALA at any age.

Further information

Further details of the best dietary sources of omega-3 fatty acids can be found in the following, all of which are available from www.fabresearch.org

- Seafood Sources of Omega-3 fatty acids (FAB Research Factsheet 005/DSOM3-S)
- Plant Sources of Omega-3 fatty acids (FAB Research Factsheet 006/DSOM3-P)
- Omega-3 fatty acids for Vegetarians (FAB Research Handout. Vegetarian Society, November 2003).
- The Omega Diet - Artemis Simopoulos and Jo Robinson. Harper Perennial 1999.