

Dietary omega-3 fatty acids for women

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Primarily from flaxseed (linseed), walnut, and hemp oils.

EPA Eicosapentaenoic acid, animal derived 20-carbon long omega-3 fatty acid.
Primarily from cold-water fatty fish.

DHA Docosahexaenoic acid, 22-carbon long omega-3 fatty acid.
Primarily from cold-water fatty fish.

There are vegetarian sources (algae) for DHA.]

This article has 103 references.

FROM ABSTRACT:

This review details the specific needs of women for omega-3 fatty acids, including alpha linolenic acid (ALA [flaxseed oil, etc.]) and the very long chain fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

Omega-3 fatty acid (dietary or in capsules) ensures that a woman's adipose tissue contains a reserve of these fatty acids for the developing fetus and the breast-fed newborn infant.

This ensures the optimal cerebral and cognitive development of the infant.

The presence of large quantities of EPA and DHA in the diet slightly lengthens pregnancy, and improves its quality.

Human milk contains both ALA [flaxseed oil, etc.] and DHA, unlike that of other mammals.

Conditions such as diabetes can alter the fatty acid profile of mother's milk, while certain diets, like those of vegetarians, vegans, or even macrobiotic diets, can have the same effect, if they do not include seafood.

ALA [flaxseed oil, etc.], DHA and EPA, are important for preventing ischemic cardiovascular disease in women of all ages.

Omega-3 fatty acids can help to prevent the development of certain cancers, particularly those of the breast and colon, and possibly of the uterus and the skin, and are likely to reduce the risk of postpartum depression, manic-depressive psychosis, dementias (Alzheimer's disease and others), hypertension, toxemia, diabetes and, to a certain extent, age-related macular degeneration.

Omega-3 fatty acids could play a positive role in the prevention of menstrual syndrome and postmenopausal hot flashes.

The normal western diet contains little ALA [flaxseed oil, etc.] (less than 50% of the RDA). The only adequate sources are rapeseed oil (canola), walnuts and so-called "omega-3" eggs (similar to wild-type or Cretan eggs).

The amounts of EPA and DHA in the diet vary greatly from person to person. The only good sources are fish and seafood, together with "omega-3" eggs.

THIS AUTHOR ALSO NOTES:

"Polyunsaturated fatty acids are dramatically involved in human health and pathologies."

Both the omega-6 fatty acid linoleic (LA, 18:2(n-6)) and the omega-3 fatty acid alpha-linolenic acid (ALA [flaxseed oil, etc.], 18:3(n-3)) are "physiologically essential." **[Important, ALA is physiologically essential]**

"Not only is the intake of ALA [flaxseed oil, etc.] far too low, but also its conversion to longer chain fatty acids is reduced because it has to compete with the larger quantities of LA for the same enzymes."

Dietary omega-3 fatty acids are below the recommended quantities.

Pregnant women that consume more fish oil lengthen pregnancy by about 6 days, increasing the amount of omega-3 fatty acids in the plasma phospholipids of both the mother and the baby, reducing hypertension and preeclampsia.

"Vegetarians are more prone to premature births, and that Caesarean sections are more likely. The average pregnancy is 5.6 days shorter, while the birth weights are slightly lower."

Daily maternal supplementation of fish oil containing a DHA/EPA mixture is good for fetal development.

"There are several lines of experimental evidence showing that omega-3 fatty acids are most important as structural elements in the developing nervous systems of the fetus and newborn, and that this is linked to the mother's food."

"ALA [flaxseed oil, etc.], is the first dietary component that experiments in a range of disciplines, including chemistry, physical chemistry, biochemistry, enzymology, toxicology, physiology, electrophysiology, vision and behaviour have shown to influence brain structure and function."

"Adding omega-3 fatty acids to baby formula, to make it more like mother's milk, influences the visual, cerebral and intellectual capacities of newborn babies."

“The fetus uses most of the portion of dietary omega-3 fatty acids supplied to it for its developing brain.” **[Very Important]**

“A dietary supplement of DHA increases the maternal DHA and limits the decrease during the last trimester in which there is a preferential transfer from the mother to the fetus.”

Maternal DHA status decreases during pregnancy, and this could be severe in a multiple pregnancy.

Ingesting fish oil increases the DHA and EPA contents of adipose tissue where it is stored in reserve.

“The cerebral and overall DHA status of breast-fed babies is better than that of infants fed formula lacking DHA.”

Human milk contains considerable concentrations of both DHA and ALA [flaxseed oil, etc.].

Eating fatty fish and taking fish oil capsules increases the DHA in maternal milk.

Eating eggs enriched in omega-3 fatty acids also increases the amounts of ALA [flaxseed oil, etc.] and DHA in mother's milk.

A diet containing flaxseed oil, which has a high ALA content, increases the ALA and EPA in the milk and erythrocytes of lactating women, but not DHA.
[Very Important for vegan mothers]

“Although the diets of vegans and vegetarians contain reasonable amounts of ALA [flaxseed oil, etc.], it is unlikely that enough is converted to DHA to satisfy the needs of pregnancy and lactation, particularly as these diets contain large amounts of competing omega-6 fatty acids.” **[Very Important]**

Women on a macrobiotic diet “should try to consume at least one serving of fatty fish per week.”

“Thus dietary fish or any seafood, or supplements, are advisable, and prudent for pregnant and lactating women: the mental performance of children born to mothers who take cod liver oil during these periods is above normal when measured at the age of 4 years.”

"DHA is important for the retina (the highest DHA contents of all body tissues), the brain, photoreceptors, neurotransmission, rhodopsin activity, the development of rods and cones, neuronal connections and the maturation of cerebral structures. As a result omega-3 fatty acids may well be important for preventing age-related macular degeneration, and perhaps certain retinopathies."

"There is no doubt that supplements of omega-3 fatty acids, generally taken as fish oil, improve infant visual acuity." **[Important]**

A lack of omega-3 fatty acids damages hearing and leads to premature aging of the auditory nervous system.

"Omega-3 fatty acids are important dietary components for preserving hearing throughout life."

Children given fish oil during the first year of life are less likely to develop type I diabetes, perhaps because of the anti-inflammatory action of very long chain omega-3 fatty acids.

Omega-3 fatty acids influence body weight and glucose metabolism.

Fish consumption reduces the risk of breast cancer by as much as 52%.

"Excess omega-6 fatty acids seems to increase the risk of breast cancer metastasis, while omega-3 fatty acids have the opposite action."

"There should always be a good intake of antioxidants to restrict the peroxidation of fatty acids, as these peroxide derivatives are genotoxic and cytotoxic." **[Very Important]**

"People who eat the most fish are at the lowest risk of colon cancer."

High intakes of saturated fats increase the risk of colon cancer.

The effective intake of EPA + DHA to prevent colon cancer is estimated to be about 2.5 g per day.

Omega-3 fatty acid intake reduces skin cancer and melanoma.

Omega-3 fatty acids may well be important for controlling cancer of the uterus, skin and melanoma.

"Omega-3 fatty acids if adequately preserved from oxidation," benefit atherosclerosis, chronic hepatitis, inflammatory bowel diseases, psoriasis, and rheumatoid arthritis.

Omega-3 fatty acids reduce the risk of depression and the risk of postpartum depression.

“Pregnant women are invariably likely to benefit from a prophylactic treatment based on DHA and EPA.” **[Very Important]**

Eating fish and omega-3 fatty acids reduce the risk of suicide attempts, reduce the frequency of bipolar disorder (manic-depressive patients), and reduce the risk of dementia, particularly Alzheimer's disease.

Studies show that ALA [flaxseed oil, etc.] significantly protects against cardiovascular disease.

Patients taking ALA [flaxseed oil, etc.] supplements reduce non-fatal cardiac infarctions by 340% and reduce fatal cardiac infarctions by 530%.

Dietary fish offers significant cardiovascular protection for both men and women of all ages.

The omega-3 index of EPA + DHA concentration in erythrocytes is an indicator of cardiovascular risk.

“Hundreds of publications describing studies on animals and humans have shown how effective omega-3 fatty acids from fish oil [through supplementation] are at preventing ischemic cardiovascular disease and cerebral infarcts.”

Assuming ALA [flaxseed oil, etc.] intake is sufficient, newborn babies can only in small quantities convert ALA to DHA, and therefore DHA is considered an essential nutrient for babies.

Many adults, especially lactating women, are also poor at converting ALA [flaxseed oil, etc.] to DHA, and therefore “DHA is an essential nutrient.”

Optimum dietary intake of ALA [flaxseed oil, etc.] cannot “adequately cover the needs of the human body for DHA.”

“The diets of women, both pregnant and women of child-bearing age, provide less than 50% of the RDA” for ALA, and a lack of dietary ALA [flaxseed oil, etc.] leads to reduced DHA synthesis.

In most Western countries, 90% of the women are deficient in DHA.

People who eat no animal lipids are very deficient in DHA.

CONCLUSIONS

"Omega-3 fatty acids may be beneficial in situations other than those described above. They are frequently said to help to prevent menstrual syndromes, particularly dysmenorrhea. They are believed to do this by reducing the production of eicosanoid pro-inflammatory molecules derived from omega-6 fatty acids by competing with their common metabolic enzymes. This is also why other problems, such as menopausal hot flushes, are less frequent in Japanese women who eat large amounts of fish. Bone formation and mineralization also seems to benefit from a high omega-3/omega-6 fatty acid ratio, which could reduce the risk of osteoporosis."

"The dietary lack of ALA [flaxseed oil, etc.] is readily overcome. The only rich foods are rapeseed (canola) and walnut oils (soybean oil has an imbalance of omega-3 and omega-6 fatty acids) and omega-3 eggs."

"Only seafood provides adequate EPA and DHA."

Even fish with the lowest DHA content has 20 times more than red meat.

"There is practically no toxicological risk from eating too much omega-3 fatty acid." **[Important]**

There is a bleeding risk if omega-3 fatty acids "are combined with certain drugs." **[Important]**

"Women therefore have specific requirements for omega-3 fatty acids that should be recognized and fulfilled, either by the diet or with capsules."

KEY POINTS FROM DAN MURPHY

ALA Alpha-linolenic acid, plant derived 18-carbon long omega-3 fatty acid.
Primarily from flaxseed (linseed), walnut, and hemp oils.

EPA Eicosapentaenoic acid, animal derived 20-carbon long omega-3 fatty acid.
Primarily from cold-water fatty fish.

DHA Docosahexaenoic acid, 22-carbon long omega-3 fatty acid.
Primarily from cold-water fatty fish.
There are vegetarian sources (algae) for DHA.

1) Adequate maternal omega-3 fatty acid intake "ensures the optimal cerebral and cognitive development of the infant."

2) Human milk contains both ALA [flaxseed oil, etc.] and DHA, unlike that of other mammals. **[This is one of the reasons that cow's milk is not a substitute for human milk for infants.]**

- 3) Vegetarian and vegan mother's milk have altered fatty acid profiles which impair the cerebral and cognitive development of their infants. **[Very Important]**
- 4) ALA [flaxseed oil, etc.], DHA and EPA, are important for preventing ischemic cardiovascular disease in women of all ages.
- 5) Omega-3 fatty acids can help to prevent the development of certain cancers, particularly those of the breast and colon, and possibly of the uterus and the skin, and are likely to reduce the risk of postpartum depression, manic-depressive psychosis, dementias (Alzheimer's disease and others), hypertension, toxemia, diabetes and, to a certain extent, age-related macular degeneration.
- 6) Omega-3 fatty acids play a positive role in the prevention of menstrual syndrome and postmenopausal hot flashes.
- 7) The normal western diet contains little ALA [flaxseed oil, etc.], providing less than 50% of the RDA.
- 8) The best sources for EPA and DHA are fish, seafood and "omega-3" eggs.
- 9) Both the omega-6 fatty acid linoleic (LA, 18:2(n-6)) and the omega-3 fatty acid alpha-linolenic acid (ALA [flaxseed oil, etc.], 18:3(n-3)) are "physiologically essential." **[Important, ALA is physiologically essential]**
- 10) The intake of ALA [flaxseed oil, etc.] is far too low.
- 11) Pregnant women that consume more fish oil, improve the pregnancy for both the mother and the baby, reducing prematurity and low birth weight in the infant, and reducing hypertension and pre-eclampsia in the mother.
- 12) Vegetarians are more prone to premature births and Caesarean sections.
- 13) Vegetarian mothers are more likely to have premature babies with low birth weight.
- 14) Daily maternal supplementation of fish oil containing a DHA/EPA mixture is good for fetal development.
- 15) "Omega-3 fatty acids are most important as structural elements in the developing nervous systems of the fetus and newborn, and this is linked to the mother's food."
- 16) ALA [flaxseed oil, etc.], influences vision, behavior and brain structure and function.
- 17) "Adding omega-3 fatty acids to baby formula, to make it more like mother's milk, influences the visual, cerebral and intellectual capacities of newborn babies."

- 18) "The fetus uses most of the portion of dietary omega-3 fatty acids supplied to it for its developing brain." **[Very Important]**
- 19) Maternal DHA status decreases during pregnancy.
- 20) "The cerebral and overall DHA status of breast-fed babies is better than that of infants fed formula lacking DHA."
- 21) Human milk contains considerable concentrations of both DHA and ALA [flaxseed oil, etc.].
- 22) Eating fatty fish, taking fish oil capsules and eating omega-3 eggs increases the DHA in maternal milk.
- 23) A diet containing flaxseed oil, which has a high ALA content, increases the ALA and EPA in the milk and erythrocytes of lactating women, but not DHA. **[Very Important for vegan mothers]**
- 24) "Although the diets of vegans and vegetarians contain reasonable amounts of ALA [flaxseed oil, etc.], it is unlikely that enough is converted to DHA to satisfy the needs of pregnancy and lactation." **[Very Important]**
- 25) Dietary fish, seafood or omega-3 supplements are advisable and prudent for pregnant and lactating women. **[Very Important]**
- 26) Omega-3 fatty acids prevent age-related macular degeneration.
- 27) "There is no doubt that supplements of omega-3 fatty acids, generally taken as fish oil, improve infant visual acuity." **[Important]**
- 28) A lack of omega-3 fatty acids damages hearing and leads to premature aging of the auditory nervous system. "Omega-3 fatty acids are important dietary components for preserving hearing throughout life."
- 29) Children given fish oil during the first year of life are less likely to develop type I diabetes, perhaps because of the anti-inflammatory action of very long chain omega-3 fatty acids.
- 30) Fish consumption reduces the risk of breast cancer.
- 31) "Excess omega-6 fatty acids seems to increase the risk of breast cancer metastasis, while omega-3 fatty acids have the opposite action."
- 32) "There should always be a good intake of antioxidants to restrict the peroxidation of fatty acids, as these peroxide derivatives are genotoxic and cytotoxic." **[Very Important: this is why Nutri-West recommends that everyone takes one of their specially formulated Complete Omega-3 Co-Factor antioxidants with each gram of fish oil: 800-443-3333]**

33) "Omega-3 fatty acids if adequately preserved from oxidation," benefit atherosclerosis, chronic hepatitis, inflammatory bowel diseases, psoriasis, and rheumatoid arthritis. **[Important, again: this is why everyone should take one Nutri-West Complete Omega-3 Co-Factor antioxidants with each gram of fish oil: 800-443-3333.]**

34) Eating fish and omega-3 fatty acids reduce the risk of suicide attempts, reduces the frequency of bipolar disorder (manic-depressive patients), and reduces the risk of dementia, particularly Alzheimer's disease.

35) Studies show that ALA [flaxseed oil, etc.] significantly protects against cardiovascular disease.

36) Assuming ALA [flaxseed oil, etc.] intake is sufficient, newborn babies can only in small quantities convert ALA to DHA, and therefore DHA is considered an essential nutrient for babies. **[Important for strict vegetarians.]**

37) Both ALA [flaxseed oil, etc.] and DHA are essential nutrients.

38) People who eat no animal lipids are very deficient in DHA. **[Important for strict vegetarians.]**

39) Omega-3 fatty acids help to prevent menstrual syndromes, particularly dysmenorrhea and menopausal hot flushes and reduce the risk of osteoporosis.

40) "Only seafood provides adequate EPA and DHA."

41) "There is practically no toxicological risk from eating too much omega-3 fatty acid." **[Important]**

42) "Women therefore have specific requirements for omega-3 fatty acids that should be recognized and fulfilled, either by the diet or with capsules."

COMMENTS FROM DAN MURPHY

A central issue from this article is that alpha-linolenic acid (ALA, from flaxseed oil and other sources) is essential for health and must be included in the diet. Many individuals taking fish oil (omega-3 supplements) are unaware that fish oil capsules usually do not contain ALA. It is because of this understanding that Nutri-West **[800-443-3333]** includes ALA in its **Complete Omega-3 Essential** fish oil formula.

Again, this article supports the importance of using antioxidants when consuming omega-3 fatty acids. Nutri-West recommends that everyone take one of their specially formulated **Complete Omega-3 Co-Factor** antioxidants with each gram of fish oil: **800-443-3333**.