

Omega-3 long-chain polyunsaturated fatty acids and fish oil supplementation during pregnancy

The pregnancy is a time of increased risk for omega-3 deficiency as they are used for the baby's brain and eye development both before and after birth. Data derived from observational studies have found that low intake of fish and fish oil during pregnancy is associated with worse neurodevelopmental outcomes in the child.

Data from observational studies and from RCTs may suggest that omega-3 during pregnancy could be associated with several benefits such as lower risk of preterm birth, preeclampsia, IUGR and other obstetrics complications. However, there are contradicting results. A recent meta-analysis of nine RCTs including 3,854 singleton gestations without prior PTB showed that omega-3 is not associated with prevention of preterm birth or with improved neonatal outcomes. Another meta-analysis of two RCTs including 1,080 women showed no benefits in prevention of recurrent preterm birth in women with prior preterm birth. Regarding preeclampsia and IUGR seven RCTs including 2,869 women were performed. The Cochrane Review showed no benefit in prevention of these complications.

According to ACOG "women should eat at least two servings of fish or shellfish (about 8-12 ounces) per week and while pregnant or breastfeeding." Seafood can also contain organic mercury and other harmful toxins (eg PCBs) which could be harmful to the growing fetus. For this reason, the FDA recommends limiting fish consumption to 2 serving (340 g / 12 oz) per week and ACOG suggests to prefer low-mercury fish such as shrimp, salmon and catfish avoiding shark, swordfish and tilefish. This amount of fish would provide approximately 200 mg of DHA per day. Alternate sources of omega-3 include fish oil capsules, which are low in contaminants such as mercury. According to several associations (e.g. FAO, ISSFAL, WAPM) daily intake of omega-3 supplementation with fish oil capsules is recommended during pregnancy.

In non-pregnant women regular fish consumption (2-3 servings per week) are recommended since it is protective against coronary heart disease and ischemic stroke. The serving should provide at least 200-500 mg of DHA and EPA.

Most nutritional advice for pregnant women is based on the IOM Pregnancy Report. For the first and the second trimester a pregnant women should not need to have more calories than they did before the pregnancy (about 2,000 calories a day). During the third trimester, additional 200 calories were required. However, the US Department of Agriculture has created online resource in order to help everyone, including pregnant women, in making a planned healthy diet. Pregnant women should eat a well-balanced diet incorporating a variety of food during pregnancy and including fats. Indeed, oils and fats provide energy and help build many fetal organs and the placenta. According to ACOG a pregnant women should limit solid fats, such as those from animal sources, and prefer omega-3 fatty acids. Omega-3 are a type of long-chain polyunsaturated fatty

acids found naturally in fish and fish oil. These are essential fats because the body cannot produce them, and therefore must be obtained through the diet.

Publication

[Omega-3 supplementation to prevent recurrent preterm birth: a systematic review and metaanalysis of randomized controlled trials.](#)

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Am J Obstet Gynecol. 2015 Aug