Reference:

Effects of Omega-3 Fatty Acids in Prevention of early Preterm Delivery: a Systematic Review and Meta-analysis of Randomized Studies


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Summary:

Various healthcare strategies have been employed to try and prevent preterm delivery (especially before 34 weeks of gestation) because preterm births represent one of the key factors resulting in infant morbidity and mortality and health challenges later in life. Since there have been a number of isolated clinical trials which have evaluated the potential for supplementation with DHA/EPA omega-3 fatty acids to improve pregnancy outcomes, the present analysis represents an extensive review of the topic. Of the nine included trials involving 5980 women, six (involving 4193 women) studied the effects of omega-3 supplementation on early preterm delivery. The omega-3 interventions (with DHA, or EPA, or DHA/EPA) were commenced mostly before 24 weeks gestation with omega-3 daily dosages varying from 133 up to 3000 mg.

As compared to the control groups (not receiving omega-3 supplements), omega-3 supplementation was found to significantly reduce the risk of early preterm delivery by 58% and any preterm delivery by 17%. In addition, the mean gestational age was significantly increased by 1.95 weeks overall and mean birth weight by 122 grams. The authors concluded that omega-3 fatty acids are effective in the prevention of early and any preterm delivery. They also indicated that such an intervention being both simple and readily available could be applied to population-based strategies for preventing preterm birth.
Dr. Holub's Comments:

There are many potential mechanisms that could provide a biological understanding of the reported effects of DHA/EPA supplementation including a modified production of bioactive metabolic products (e.g., eicosanoids) from the long-chain polyunsaturated fatty acids which influence uterine relaxation. In the present review, the authors did not specifically address the actual doses of DHA/EPA used in the clinical trials. In the study by Makrides et al. from Australia (J. Am. Med. Assoc., 304: 1675-1683 (2010)), the daily omega-3 supplemental dose consisted of 800 mg DHA plus 100 mg EPA which, in addition to reducing premature births, lowered infant admissions to intensive care by 45% relative to the controls not receiving the omega-3 fatty acids. A later US-based study by Carlson et al. (Am. J. Clin. Nutr., 97: 808-815 (2013)) targeted supplemental DHA omega-3 at 600 mg/day (actual intakes determined to be 469 mg/day) and found, in addition to reductions in premature births, that infants of mothers who received the omega-3 supplements had a 80% reduction in intensive care admissions and 82% fewer preterm infant days in hospital as compared to infants of mothers not receiving omega-3 supplementation. It is noted that typical intakes of DHA/EPA from dietary sources in these two countries are in the range of only 110-150 mg/day.