The balance between the metabolites of n-3 and n-6 fatty acids plays an important role in the maintenance of normal gestation length and is a critical element in cervical ripening and the initiation of labor.

**Key insights**
Globally, early preterm birth is a leading cause of death in children under 5 years of age. Initial observations on the longer duration of pregnancies and reduced incidence of preterm birth in fish-eating communities prompted further research into the role of omega-3 (n-3) long-chain polyunsaturated fatty acids (LCPUFA) in improving gestation length. The prenatal period is a vulnerable window that is highly sensitive to n-3 LCPUFA deficiency.

**Current knowledge**
The majority of preterm births occur spontaneously and are due to multiple factors that trigger the normally quiescent uterus to undergoing contractions and labor. Currently, there is no strategy that can be used as a primary prevention for widespread clinical use. The n-3 LCPUFA such as docosahexaenoic acid (DHA) and eicosapentaenoic acid are dietary agents that can modulate several clinical conditions via their anti-inflammatory actions. These may be relevant for modulating the inflammatory cascades that underpin the maternal response to the fetus during the birth process.

**Practical implications**
The most compelling evidence to support the efficacy of DHA supplementation in reducing preterm birth came from the DOMInO trial. Supplementation of n-3 LCPUFA during the last half of pregnancy in 2,399 women resulted in a 50% reduction in the incidence of early preterm birth. These findings have been supported by those from several other trials and meta-analyses. In general, supplementation with marine oil or n-3 LCPUFA in pregnancy is safe and well tolerated, but further work needs to be done to clarify the optimal dosage and timing of n-3 supplementation during pregnancy.

**Recommended reading**