

Study shows early preterm births can be decreased with DHA supplementation

17 May 2021



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Early preterm births may be dramatically decreased with docosahexaenoic acid (DHA) supplements, with a dose of 1000 mg more effective for pregnant women with low DHA levels than the 200 mg found in some prenatal supplements, according to a study led by researchers from the University of Kansas and the University of Cincinnati and published today in *EClinicalMedicine*, a clinical journal of The Lancet. Early preterm birth, defined as birth before 34 weeks gestation, is a serious public health issue because these births result in the highest risk of infant mortality and child disability.

"This study tells us that [pregnant women](#) should be taking DHA," said Susan E. Carlson, Ph.D., professor of nutrition in the Department of Dietetics and Nutrition in the KU School of Health Professions, co-principal investigator and first author on the study. "And many would benefit from a higher amount than in some prenatal supplements, particularly if they are not already taking a prenatal vitamin with at least 200 mg DHA or eating seafood or eggs regularly," Carlson said. "Many pregnant women take DHA, but we wanted

to see if the amount in most [prenatal supplements](#) was enough to prevent early preterm birth."

Overall, women who received the higher dose had fewer early preterm birth, however, participants with low DHA levels at enrollment had half the rate of early preterm birth (2.0% compared to 4.1%) when they were given a supplement of 1000 mg compared with those given a 200 mg supplement during the last half of pregnancy. For women who began the study with high DHA levels, many of whom were already taking prenatal DHA, the rate of early preterm birth was 1.3%, and there was no benefit of the higher dose.

"We knew from our previous work that women in the United States eat very little food sources of DHA, and we thought a higher dose might be needed to boost intake," said Christina J. Valentine, M.D., a neonatologist and registered dietitian at the University of Cincinnati and one of three principal investigators for the study.

Because preterm birth is associated with such negative outcomes and high health care costs, having an option for women to prevent preterm birth reliably and inexpensively is significant.

"This study is a potential game changer for obstetricians and their patients," said co-author Carl P. Weiner, M.D., professor of obstetrics and gynecology and professor of integrative and molecular physiology at the University of Kansas School of Medicine and professor of pharmaceutical sciences at the University of Kansas School of Pharmacy. "The dramatic decrease in early preterm birth with DHA supplementation will improve short- and long-term outcomes for children, families and society in a cost-effective fashion."

Carlson notes that this information should be widely shared with [women](#) who are pregnant and those planning to become pregnant. "Women should be

consulting with their doctor and getting their DHA levels tested to ensure they are taking the proper dose to prevent [preterm birth](#)," she said.

The multi-center, double-blind, randomized, superiority trial recruited participants at three large academic medical centers in the United States (the University of Kansas Medical Center, Ohio State University and the University of Cincinnati).

The study used an innovative Bayesian response adaptive randomization design developed by Byron J Gajewski Ph.D., a professor in the department of Biostatistics & Data Science in the KU School of Medicine and one of three principal investigators on the study. "The study design allowed us to preserve the rigor of the study while allowing us to more efficiently work to accomplish the study goals," he said. One example of that, Gajewski said, is that once one arm of the study showed more success, future enrollees were more likely to be placed into that arm. "People enrolling the participants don't see behind the scenes, but the statisticians are able to use this technique to more efficiently get to the answers the study is seeking."

More information: Susan E Carlson et al, Higher dose docosahexaenoic acid supplementation during pregnancy and early preterm birth: A randomised, double-blind, adaptive-design superiority trial, *EClinicalMedicine* (2021). DOI: [10.1016/j.eclinm.2021.100905](https://doi.org/10.1016/j.eclinm.2021.100905)

Provided by University of Kansas

APA citation: Study shows early preterm births can be decreased with DHA supplementation (2021, May 17) retrieved 10 June 2021 from <https://medicalxpress.com/news/2021-05-early-preterm-births-decreased-dha.html>

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