

Fish oil supplement in pregnancy is linked to increase in lean and bone mass by age six years

September 4 2018



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Fish oil supplement in the later stages of pregnancy is associated with a higher body mass index (BMI) in children in the first six years of life,

which is explained by an increase in total lean and bone mass at 6 years of age, but with no increase in fat mass, suggest the findings of a large randomised controlled trial published by *The BMJ* today.

Studies in animals have shown that supplementing the diet with [fish oil](#) during pregnancy affects adipogenesis (the development of fat cells). However, while trials in humans have shown that pregnant women with a higher intake of fish oil give birth to higher birth weight infants, the impact on children later in life has been unclear.

So a team of researchers based in Denmark and the UK set out to examine the effect of taking [fish oil supplements](#) during pregnancy on the growth and body composition of children later in life.

The trial involved 736 [pregnant women](#) from the Copenhagen Prospective Studies on Asthma in Childhood study who were randomised to receive n-3 long-chain polyunsaturated fatty acids (LCPUFAs) (fish oil) or olive oil (control) daily from week 24 of pregnancy week until one week after birth.

Height, weight, head and waist measurements were assessed 11 times from birth to age 6 years and adjusted for age and sex. These revealed a sustained higher BMI from 1 year to 6 years of age.

Body composition was assessed using dual-energy X-ray absorptiometry (DXA) scans at 3.5 and 6 years of age and demonstrated that the higher BMI was not the result of a higher fat percentage, but reflected a proportional increase in lean mass, bone mass, and [fat mass](#), suggesting that the [fish oil supplementation](#) had a general growth stimulating effect.

At age 6, DXA scans showed children whose mothers had taken fish oil supplements while pregnant had a 395g higher total mass, 280.7g higher lean mass, 10.3g higher bone mineral content and 116.3g higher fat mass

compared with children of mothers who took the control oil.

The researchers conclude: "The [body composition](#) at age 6 years in children given fish oil supplementation was characterised by a proportional increase in lean, bone, and fat mass suggesting a general growth stimulating effect."

More information: Effect of fish oil supplementation in pregnancy on bone, lean, and fat mass at six years: randomised clinical trial, *BMJ* (2018). www.bmj.com/content/362/bmj.k3312

Provided by British Medical Journal

Citation: Fish oil supplement in pregnancy is linked to increase in lean and bone mass by age six years (2018, September 4) retrieved 3 May 2024 from <https://medicalxpress.com/news/2018-09-fish-oil-supplement-pregnancy-linked.html>

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