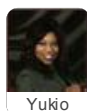




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Omega-3 in fish: Why salmon is healthy for pregnant women

By [Yukio Strachan](#)Mar 22, 2012 - 19 hours ago in [Health](#)[Comments](#)

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Eating salmon twice per week during pregnancy increases omega-3 levels in both the mother and the developing child, improving the antioxidant defenses of both, a study has suggested.

What we already know

Proper nutrition prior to and throughout pregnancy has long been known for optimizing the health and well-being of both mother and baby, previous [research shows](#).

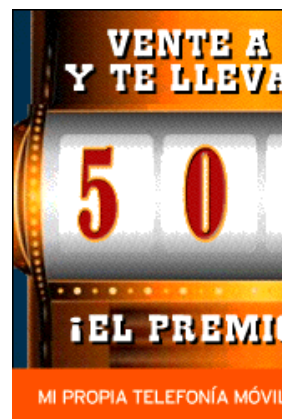
Pregnancy places an increased demand on the mother to provide adequate nourishment to the growing baby inside her womb, while at the same time maintaining adequate nourishment for all the changes going on inside herself -- preparing her body for labor and other bodily changes and challenges in preparation for delivery.

Because of this delicate balance, inadequate supplies of essential nutrients can lead to a state of biological competition between the mother and the unborn baby, which can be detrimental to the health status of both

In particular, when a supply of antioxidants is limited, exaggerated oxidative stress within both the placenta and maternal circulation occurs, resulting in adverse pregnancy outcomes, such as preeclampsia and low fetal birth weight.

The Salmon in Pregnancy Study (SIPS)

"Salmon," they reported [online](#) in The American Journal of Clinical Nutrition, "provides omega-3 fatty acids that are considered to be important in the growth, development, and health of the fetus and newborn infant."



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There are no published intervention trials with fish during pregnancy, until now. The Salmon in Pregnancy Study (SIPS) is the first single blind (investigator) randomized controlled trial with oily fish (in this case farmed salmon) in pregnant women, the [study](#) authors write.

The researchers, from the University of Granada, Spain, found that eating two servings of salmon reared at a fish farm a week during pregnancy is beneficial both for the mother and child by increasing omega-3 levels both in the mother and child, improving their antioxidant defenses, the [press release](#) explains.

It is recommended that pregnant women and women of reproductive age should consume oily fish. Yet, the researchers note, many pregnant women avoid salmon, in part, because of concerns about potential mercury contamination.

But there's a way around it: The level of contaminants in oily fish can be greatly reduced by aquaculture using feed resources that are low in contaminants.

Enter: Tailor-made salmon

The salmon used in this study weren't your ordinary run of the mill fish, but had been reared at Skretting Aquaculture Research Centre, Stavanger, Norway -- a fish farm. That means they were fed a special diet with a special goal in mind: fish rich in omega-3 fatty acids that contain very low contaminant levels, researchers note.



Figure 2.2: Vacuum sealed salmon as delivered to the pregnant women.

screengrab via Salmon Study author Maria Vlachava thesis

Vacuum sealed farmed salmon delivered to pregnant women enrolled in the Salmon in Pregnancy Study (SIPS)

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Salmon were farmed until they averaged 4 kg in weight and were then killed. They were then filleted into 150 g portions and the fillets frozen individually in vacuum sealed bags in Norway, from where they were shipped to Southampton and stored at - 30C until delivery to the women. Women then stored the fillets in their home freezer until the day of cooking.

The participants

To carry out this study, researchers provided two meals of salmon per week to a sample of one hundred and twenty-three pregnant women from week 20 of gestation with low habitual intake of oily fish (≤ 2 /month). The recruited women were then randomly assigned to one of two groups.

Women in one group consisted of 61 women and were referred to as the control group, they were asked to continue their habitual low oily fish diet. Women in the second group consisted of 62 women and were referred to as the salmon group. They were asked to incorporate 2 portions/week of "tailor- made" salmon into their diet from 20 weeks of gestation until the end of their pregnancy.

'Fish diary'

All study participants were also asked to keep a 'fish diary'. This was a diary in which they were

asked to fill in the quantity, exact name, and cooking method of any fish consumed during their pregnancy. They were also asked to complete a questionnaire of food habits at weeks 20 and 34 of gestation –which would provide information about food intake during the previous 12 weeks.

The women attended a clinic at weeks 20, 34, and 38 of pregnancy at which blood and urine samples were taken from the two groups. Subsequently, blood and urine samples were taken again at week 38 of gestation and at labor –where also cord blood samples were taken. The new moms were then followed-up at 3 months postpartum.

What did they find?

Omega-3 concentrations improved when pregnant women who did not frequently eat fish ate two servings of salmon weekly; the same results were obtained for the newborns.

"If pregnant women, who do not regularly eat oily fish, eat 2 portions of salmon/wk, they will increase their intake of EPA and DHA, achieving the recommended minimum intake," the authors write, "and they will increase their and their fetus' status of EPA and DHA compared with those who did not."

Two servings of salmon per week help the mother and her child reach the minimum recommended omega-3 intake for healthy fetus develop(between 200 and 300 mg daily).

In addition, higher selenium and retinol plasma concentrations were observed after dietary salmon supplementation, previous [research](#) has found selenium levels reduced in women who miscarried or had preeclampsia.

The authors of the study do concede the small study sample as a limitation in interpreting results. Although the study began with 123 women, it ended with 86.

Take home point

A review [article](#) called, "The Importance of Antioxidant Micronutrients in Pregnancy" says: "Only by fully understanding the requirements for micronutrients during pregnancy will we be able to evaluate the potential use of these dietary antioxidant supplements as a way of preventing pathological pregnancy outcomes.

University of Granada researchers have added to this knowledge. They write "the intake of salmon increases omega-3 fatty acid levels and improves antioxidant defenses in pregnant women and their babies."

