

Prenatal exposure to fish beneficial to child development: New study adds to evidence that 'good' outweighs the 'bad'

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Resolution: Eat more fish

(Medical Xpress)—A study published recently in the *Journal of Nutrition* adds to the growing scientific evidence that when expecting mothers eat fish often, they are giving their future children a boost in brain development even though they are exposing their children to the neurotoxin, methyl mercury, present in fish.

The [Food and Drug Administration](#) (FDA) advises pregnant woman to eat only two meals of fish a week and to avoid most large fish to reduce the exposure of their babies' developing brains to mercury. However, a recent joint report from the [World Health Organization](#) and the Food

and Agriculture Organization of the United Nations recommended nations actually emphasize the benefits of eating fish for pregnant women and nursing mothers and the potential risks of not consuming fish to [brain development](#).

These messages are confusing for consumers, which is why researchers at the University of Rochester, the University of Ulster, and in the Republic of Seychelles are trying to sort out what happens to children's development when their mothers eat fish while pregnant. The study, which was published in November, included 225 mothers and their children, from whom researchers collected detailed information about the [nutritional status](#) of the mothers and completed almost a dozen standard assessments on language and intelligence of the children over several years.

"This study shows that there are no adverse effects of prenatal [mercury exposure](#) from fish on children at 5 years old on 10 [developmental outcomes](#) when adjusted for maternal levels of [polyunsaturated fatty acids](#). In fact, we found positive associations with those nutrients and children's [language development](#)," said Phil W. Davidson, Ph.D., professor emeritus of Pediatrics, principal investigator of the ongoing Seychelles Child Development Study and an author of the *Journal of Nutrition* paper.

Women in this new study, which was conducted in the Republic of Seychelles in the Indian Ocean, eat an average of 10 times as much fish as mothers in the U.S. The fish eaten there has about the same level of mercury as fish in the U.S. The study children's standard language development scores rose as levels of omega-3 [fatty acids](#) rose in mothers. These nutrients are important building blocks in the brain and are present in large amounts in fish. Fish are the primary dietary source of many of the fatty acids that play a crucial role in brain development.

"Based on our results, we would argue that the beneficial effects of fish consumption during pregnancy outweigh any adverse effects of methyl mercury," said Sean Strain, Ph.D., lead author of the [Journal of Nutrition](#) paper and professor of Nutrition at the University of Ulster in Northern Ireland.

Authors found positive associations between the level of polyunsaturated fatty acids in mothers and their children's subsequent scores on preschool language and verbal assessments. In particular, those scores were associated with DHA, an omega-3 fatty acid.

The Seychelles Child Development Study, headquartered at the University of Rochester, has been studying the impact of maternal fish consumption for three decades and is among the longest running epidemiologic studies. An earlier study showed a positive – and surprising – association between higher levels of mercury in pregnant mothers and subsequent child development. Because mercury is a neurotoxin, the researchers knew that they had to dig further to find another reason. This study points to polyunsaturated fatty acids, but authors say they need to conduct more research to understand the relationship between those fatty acids and methyl mercury in fish.

"The potential interplay of mercury and polyunsaturated fatty acids from [fish](#) appears very complex and we are just beginning to understand their relationship. It may be that polyunsaturated fatty acids impact the inflammation or oxidation that mercury causes in the brain," said Gary Myers, M.D., professor of Neurology, Environmental Medicine and Pediatrics at URM, child neurologist and a researcher on the Seychelles Child Development Study team.

Provided by University of Rochester Medical Center

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