

S02-07 Potential benefits of maternal fish consumption to fetal and child development

J J Strain¹

1. Northern Ireland Centre for Food & Health (NICHE), University of Ulster, Coleraine, BT52 1SA, Northern Ireland

E-mail: JJ.Strain@ulster.ac.uk

Maternal fish consumption can be an important source of nutrients (particularly long-chain polyunsaturated fatty acids, LCPUFA) for fetal growth and development of the brain. In the Seychelles Child Development Nutrition Study, a priori models of n-3 and n-6 LCPUFA measures in maternal serum (mean of 28 weeks and at delivery) were examined to test the hypothesis that these LCPUFA families before or after adjusting for prenatal MeHg exposure would reveal associations with child development assessed by the BSID-II at ages 9 and 30 months. At 9 months, the PDI was positively associated with total n-3 LCPUFA and negatively associated with the ratio of n-6/n-3 LCPUFA in 229 children with complete outcome and covariate data available for analysis. These associations were stronger in models adjusted for prenatal MeHg exposure. At 30 months, there were significant adverse associations between prenatal MeHg and the PDI only when the LCPUFA measures were included in the regression analysis; there were no significant associations between LCPUFA measures and the PDI at that age. **These findings highlight the potential importance to child development of the prenatal availability of n-3 LCPUFA from fish and the overall diet** and also indicate possible attenuation of such effects by both the n-6 LCPUFA and Me Hg. One possible mechanism that might explain these findings is that the n-3 LCPUFA, in contrast to the n-6 LCPUFA, have anti-inflammatory effects which might counter the pro-inflammatory effects following oxidative damage of neural membranes by MeHg.

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