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Effects of maternal omega-3 fatty acids supplementation during pregnancy/lactation on body composition of the offspring: a systematic review and meta-analysis

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Abstract:

Background and aims: The effect of maternal omega-3 fatty acids intake on the body composition of the offspring is unclear. The aim of this study was to conduct a systematic review and meta-analysis to confirm the effects of omega-3 fatty acids supplementation during pregnancy and/or lactation on body weight, body length, body mass index (BMI), waist circumference, fat mass and sum of skinfold thicknesses of offspring.

Methods: Human intervention studies were selected by a systematic search of PubMed, Web of Science, the Cochrane Library and references of related reviews and studies. Randomized controlled trials of maternal omega-3 fatty acids intake during pregnancy or lactation for offspring's growth were included. The data were analysed with RevMan 5.3 and Stata 12.0. Effect sizes were presented as weighted mean differences (WMD) or standardized mean difference (SMD) with 95% confidence intervals (95% CI).

Results: Twenty-six studies comprising 10970 participants were included. Significant increases were found in birth weight (WMD=42.55 g, 95% CI: 21.25, 63.85) and waist circumference (WMD=0.35 cm, 95% CI: 0.04, 0.67) in the omega-3 fatty acids group. There were no effects on birth length (WMD=0.09cm, 95% CI: -0.03, 0.21), postnatal length (WMD=0.13cm, 95% CI: -0.11, 0.36), postnatal weight (WMD=0.04kg, 95% CI: -0.07, 0.14), BMI (WMD=0.09, 95% CI: -0.05,