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CARE DP abstract for SPER

Maternal dietary patterns during pregnancy in relation to offspring size at birth: evidence from a British cohort

Nykjaer, C, Higgs, C, Cade, JE, Greenwood, DC, Simpson, NAB and Alwan, NA

Maternal diet during pregnancy has been recognised as one of the major lifestyle factors influencing both fetal growth and long term health. This study aimed to investigate the associations between maternal dietary patterns during pregnancy and offspring size at birth using data from a British prospective cohort of 1,109 low risk pregnant women aged 18-45 years.

Dietary intake was reported in a 24-hour recall administered by a research midwife at 14-18 weeks gestation. The 1,770 recall food items were aggregated into 73 food groups and principal component analysis was used to derive dietary patterns. Information on delivery details was obtained from the hospital maternity records. Small for gestational age (SGA) was defined as <10th birth weight centile. Outcomes were related to dietary patterns in multivariable regression models, taking into account known confounders including salivary cotinine as a biomarker of smoking status.

Four dietary patterns were derived and identified as: 'fruit & wholegrains', 'traditional meat & vegetables', 'vegetables & oils' and 'cheese, pasta & sauce'. Only the first component, characterised by high positive correlations with fruits, and unrefined grains as well as wholegrain and bran breakfast cereal and negative correlations with refined grains, was found to be significantly associated with offspring size at birth, and only so for mothers who entered pregnancy with a healthy body mass index (BMI) (<25 kg/m<sup>2</sup>). For every 1 unit increase in the 'fruit & wholegrains' dietary pattern score, mothers with a pre-pregnancy BMI <25 (kg/m<sup>2</sup>) had 20% lower odds of having an infant born SGA (95% confidence intervals (CI): 0.66, 0.96, P=0.01).

In this low risk pregnant population, a dietary pattern characterised by high intakes of fruits, and unrefined grains as well as wholegrain and bran breakfast cereal may contribute to reduce the risk of SGA but only so for mothers entering pregnancy with a healthy BMI.