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Zulyniak, MA orcid.org/0000-0003-4944-5521, de Souza, RJ, Shaikh, M et al. (16 more authors) (2018) Does the impact of a plant-based diet during pregnancy on birthweight differ by ethnicity? In: Proceedings of the Nutrition Society. Nutrition Society Summer Conference, 10-12 Jul 2018 Cambridge University Press , E130-E130.

<https://doi.org/10.1017/S0029665118001362>

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Does the impact of a plant-based diet during pregnancy on birthweight differ by ethnicity?

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Birthweight is an indicator of newborn health⁽¹⁾ and a strong predictor of health outcomes in later life, including cardiovascular disease, diabetes, and obesity⁽²⁾. Significant variation in dietary intake during pregnancy between ethnic groups⁽³⁾ provides an ideal opportunity to investigate the influence of maternal diet on birthweight. We aimed to investigate the impact of maternal dietary patterns on birthweight in four multi-ethnic birth cohorts in Canada.

We analyzed 3,997 full-term mother-infant pairs from diverse ethnic groups. Multivariable regression was used to test the association between 3 principal component analysis-derived diet patterns (plant-based, Western, health-conscious) and birthweight. The foods comprising significant diet patterns were investigated to identify key foods contributing to this association.

No associations were identified between the Western and health-conscious diet patterns and birthweight; however, the plant-based dietary pattern was inversely associated with birthweight ($\beta = -67.6$ g per 1-unit increase; $P < 0.001$) and an interaction with non-white ethnicity and birthweight was present. Ethnically stratified analyses demonstrates that among white Europeans, maternal consumption of a plant-based diet associated with lower birthweight ($\beta = -65.9$ g per 1-unit increase; $P < 0.001$), increased risk of small for gestational age (SGA; OR = 1.46; 95 %CI: 1.08–1.54; $P = 0.005$), and reduced risk of large for gestational age (LGA; OR = 0.71; 95 %CI: 0.53–0.95; $P = 0.02$). Among South Asians, maternal consumption of a plant-based diet associated with a higher birthweight ($\beta = +40.5$ g per 1-unit increase; $P = 0.01$), partially driven by cooked vegetable consumption.

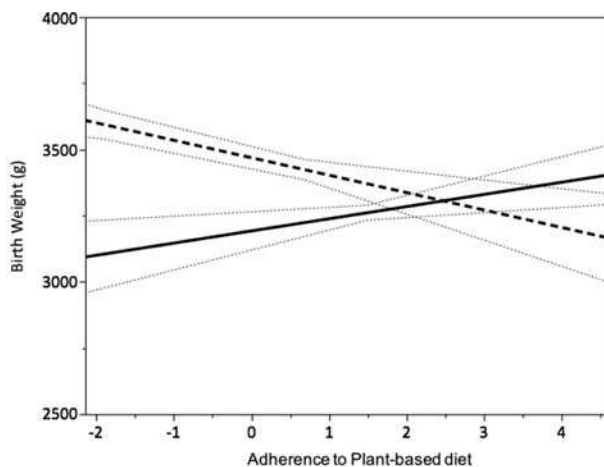


Fig. 1. Multivariable regression between maternal adherence to a plant-based diet (higher score reflects greater adherence) and birthweight in white Europeans (dashed line; $n = 2,367$) and South Asians (solid line; $n = 884$). Dotted line is the 95 % confidence interval.

In conclusion, maternal consumption of a plant-based diet during pregnancy is associated with birthweight. Among white Europeans, a plant-based diet is associated with lower birthweight, reduced odds of an infant born LGA, and increased odds of SGA, whereas among South Asians living in Canada, a plant-based diet is associated with increased birthweight.

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