

Associations between maternal Energy-adjusted Dietary Inflammatory Index (E-DII™) and placental weight at birth

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Introduction

- The placenta plays a fundamental role in pregnancy by providing oxygen and nutrients to the developing fetus ⁽¹⁾.
- Suboptimal maternal nutritional status may alter placental growth and function.
- Placentae of small and large sizes are implicated as independent predictors of adverse perinatal outcomes ⁽²⁾.

Objective

To investigate if the inflammatory potential of maternal diet during pregnancy is associated with placental weight at birth.



Methods

This is secondary analysis of 518 women from the ROLO (Randomised cOntrol trial of LOw glycaemic index diet in pregnancy) study ⁽³⁾.

Data from 3-day food diaries were used to calculate maternal Energy - adjusted Dietary Inflammatory Index (E-DII™) for early (12-14 weeks) and late (34 weeks) pregnancy.

Placental weights were recorded at birth and obtained from medical records.

Multiple linear regression examined associations between E-DII™ in early and late pregnancy and placental weight at birth.

Results

- Mean age of women at delivery was 32.8 years.
- Median BMI at first antenatal appointment was 24.5 kg/m².
- 86.7% of women were Caucasian.
- 64.5% had attained third level or above education level.
- Mean placental weight at birth was 770.6g
- Early maternal E-DII™ was positively associated with placental weight at birth (Table 1)
- No significant association was observed between late E-DII™ and placental weight at birth (Table 1).

Table 1: Associations between E-DII™ and placental weight (g) at birth.

	Early E-DII™				Late E-DII™			
	B	95% CI		P-value	B	95% CI		P-value
		Lower	Upper			Lower	Upper	
Placental weight (g)	12.202	1.885	22.518	0.021	-1.673	-12.186	8.840	0.755

Multiple linear regression: All models adjusted for maternal age at delivery, maternal smoking, RCT group, maternal education level; 95% Confidence Interval; Statistically significant p<0.05

Conclusion

- Diets rich in anti-inflammatory foods in the first trimester of pregnancy may influence placental weight at birth
- Further research is required to ascertain the impact of maternal E-DII™ during pregnancy and optimal placental weight at birth.



References
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