

P2-78 Maternal pre-pregnancy body mass index and early infant growth in the Amsterdam Born Children and their Development (ABCD) study

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Aim: Maternal underweight and overweight are adverse intra-uterine conditions which may adversely affect fetal growth and development. We studied the relation between maternal pre-pregnancy body mass index (pBMI) and infant growth until 24 months.

Study design: Prospective population-based cohort study.

Subjects: Singleton born infants from the ABCD-study with growth data (N = 3773).

measures: pBMI was self-reported and categorized (5 strata). Children's growth data included: weight, length and child BMI (cBMI), repeatedly measured on average 10 times during first 2 years, transformed into Standard Deviation Scores (SDS; age and gender specific Dutch reference). Multilevel analysis was performed. Results were adjusted for maternal age and height, parity, gestational age, birthweight, maternal education, smoking during pregnancy, ethnicity and duration of breast feeding.

Results: Low pBMI was related to decreased, high pBMI to increased SDS for weight, length and cBMI during complete two years. After adjustment, birthweight showed the largest effect, the relation was attenuated but still significant for weight and cBMI.

Conclusions: pBMI is related to infant growth, partly due to its influence on birthweight. Maternal underweight has larger effects than overweight.

Table 1

Mat pBMI (kg/m ²)	N	ΔSDS ± se					
		SDS weight		SDS length		SDS cBMI	
		unadjusted	adjusted	unadjusted	adjusted	unadjusted	adjusted
<18	115	-0.45 ±0.09***	-0.17 ±0.07***	-0.31 ±0.08***	-0.05 ±0.06	-0.31 ±0.09***	-0.17 ±0.08*
18–20	529	-0.19 ±0.04***	-0.08 ±0.03***	-0.11 ±0.04**	-0.02 ±0.03	-0.17 ±0.04***	-0.11 ±0.04**
20–25	2199	ref	ref	ref	ref	ref	ref
25–30	691	0.16 ±0.04***	0.09 ±0.03***	0.03 ±0.04	0.02 ±0.03	0.19 ±0.04***	0.11 ±0.04**
>30	239	0.20 ±0.06***	0.06±0.05	0.04 ±0.06	-0.01 ±0.05	0.23 ±0.06***	0.09 ±0.06

*** p < 0.001, ** p < 0.01, * p < 0.05.

P2-79 Effect of fetal number, ewe size and nutrition during pregnancy on mammary gland size

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Aim: To investigate effect of ewe size, fetal number and nutrition during pregnancy on mammary gland (MG) size.

Study design: Sixty pregnant heavy (H) or light (L) ewes, bearing singles (S) or twins (T), fed either *ad libitum* (A) or maintenance (M) from day 21–140 of pregnancy, were euthanased at day 140. Mammary glands (MG) were removed, weighed and adjusted to a common body weight.

Results: A significant size × nutrition × litter-size interaction (P < 0.02) indicated that HAT ewes had much heavier MG (1543 ± 154 g [LSM ± sem]) than all other twin-bearing groups (HMT: 1220 ± 98, P < 0.08; LAT: 980 ± 99, P < 0.002; LMT: 1009 ± 129, P < 0.04) but that HAS ewes did not have heavier MG (803 ± 135) than other single-bearing ewes (HMS: 1018 ± 70; LAS: 1050 ± 72; LMS: 1034 ± 132).

Conclusion: Udder size depends upon ewe size and number of fetuses but is markedly affected by nutrition. Heavy ewes

bearing twins are much better able to utilise additional feed for MG growth than ewes with a single fetus. Factor(s) associated with carrying a conceptus (anabolic protein hormones prolactin and placental lactogen, or steroids, oestrogen and progesterone) stimulate MG growth by direct or indirect actions on the MG, and also, perhaps, by partitioning nutrient flow to the MG, or through the stimulatory action of placental lactogen on feed intake.

P2-80 Maternal vitamin B12 status in pregnancy and cognitive function in 9-year old Indian children

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Aims: Vitamin B12 is important for brain development and function. We investigated the relationship between maternal plasma vitamin B12 concentrations (B12) during pregnancy (28wks) and child's cognitive performance at 9y.

Study design: A nested case control design in the Pune Maternal Nutrition Study (PMNS).

Subjects: Cases (n=49) and controls (n=59) were children of mothers in the lowest tenth (<77pmol/L) and highest tenth (>224 pmo/L) of B12 during pregnancy. Ethical approval and consent was obtained.

Outcome measures: Cognitive performance tests: Raven's Colour Progressive Matrices (intelligence), Digit Span (working memory), Colour Trails A&B (sustained attention) and Visual Recognition (visual agnosia).

Results: Cases performed slower on the test of sustained attention (Colour Trail A Test) compared to controls (182 s vs. 159 s, p < 0.05, adjusted for age, gender, socioeconomic status, child's B12 and head circumference). There was no difference for other tests. The child's birth weight and head circumference were independent predictors of cognitive performance (p < 0.05 adjusted for age, gender, socioeconomic status).

Conclusions: Maternal vitamin B12 status in pregnancy and the child's head growth are independent predictors of cognitive performance in Indian children.

P2-81 Dietary intakes of folate and vitamin B12 in female urban slum-dwellers in Mumbai, India

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Aims: To estimate dietary intakes of folate and vitamin B12 (vital nutrients during the early stages of human development) in women of childbearing age (15–40 years).

Study design: Baseline data were collected from 1668 women recruited to an intervention trial.

Materials: An interviewer-administered food frequency questionnaire (101 items, 15 food-groups) was developed to obtain intakes in the past month. Data were recorded as frequencies ranging from three times/day to once/month or less. Daily folate and B12 intakes were calculated, assuming standard portion sizes, and using published nutrient-content tables and (for GLVs) laboratory analysis.

Outcome measures: Adequacy of intakes according to ICMR Recommended Daily Allowances (RDAs; folate 100 µg/day; B12 1 µg/day).