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## **EFFECT OF INTRAUTERINE EXPOSURE TO OBESITY ON ADOLESCENT BLOOD PRESSURE**

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### **Background:**

Maternal undernutrition during pregnancy increases a child's risk for heart disease later in life. It is unclear if a similar association exists between maternal overnutrition and heart disease risk early in life.

### **Objective:**

We relied on a large pregnancy cohort to test the hypothesis that intrauterine exposure to maternal obesity would be associated with elevated blood pressure (BP) in adolescence.

### **Methods:**

We analysed data from a well phenotyped cohort of mothers and offspring enrolled in the Avon Longitudinal Study of Parents and Children (ALSPAC) cohort. Pregnant women were recruited in Bristol, UK between April 1991 to December 1992 and the children arising from those pregnancies were followed throughout adolescence. The main outcome was maternal pre-pregnancy body weight categorized as healthy weight, overweight or obese according to international criteria for body mass index (BMI-kg/m<sup>2</sup>). The primary outcomes were mean offspring systolic and diastolic blood pressure. Confounders included maternal education, depression, smoking in pregnancy, birth weight, and pre-eclampsia.

### **Results:**

Among 4371 mother-offspring pairs, 3529 were healthy weight (HW), 638 were overweight (OW) and 204 were obese (OB) prior to pregnancy. Compared to OB, HW mothers were of similar age (mean 29 years), more likely to have completed higher education (OR: 4.4, 95% CI: 2.6, 7.7), less likely to have pre-eclampsia (OR: 0.6 95% CI: 0.46-0.91), smoke, and experience less pregnancy weight gain (-2.1 kg; 95% CI: -2.9, -1.3 kg). After adjusting for confounding, absolute SBP of offspring was higher (+2.6 mmHg; 95% CI: 0.6, 4.7 mmHg) and DBP was not different in those exposed to OB in pregnancy compared to HW.

### **Conclusion:**

In this large birth cohort with extensive follow-up, intrauterine exposure to maternal obesity was associated with increased systolic blood pressure by 15 years of age.