

## In This Issue

This issue of the *Journal of Developmental Origins of Health and Disease* contains seven Original Articles and one Brief Report. In keeping with our mix of human and animal studies, the Journal has four epidemiologic studies and four basic science manuscripts examining rat development. Two of the human studies examine social aspects of cigarette smoking, focusing on both determinants of cigarette use and consequences of maternal smoking during pregnancy. The animal studies have a vascular focus, including aspects of hypertension, aortic wall stiffness and cardiomyocyte development.

### Original Articles

**Self-reported depression and anxiety after prenatal famine exposure: mediation by cardio-metabolic pathology?** de Rooij *et al.* examined a cohort of 819 individuals born as term singletons around the 1944–1945 Dutch famine. The authors found that mild to severe anxiety symptoms were more prevalent among men exposed to famine during early gestation, although there was no effect among women. The authors discuss their results in comparison with previous studies that demonstrated a stronger association between prenatal famine and symptoms of depression and anxiety.

**Anthropometry from birth to 24 months among offspring of women with gestational diabetes: 2004 Pelotas Birth Cohort.** Dode *et al.* examined a birth cohort from 2004 in Pelotas, Brazil. Offspring of gestational diabetes mothers had greater weight and abdominal circumference at birth than non-GDM (gestational diabetes mellitus) offspring. In the first 3 months of life, the GDM babies demonstrated a ‘catch-down’ remaining lighter than non-GDM offspring until 24 months. The markedly different growth patterns among GDM and non-GDM offspring during the first 2 years of life may significantly impact on adult obesity and glucose tolerance.

**Psychosocial determinants of cigarette smoking among university students in Jordan.** Farajat *et al.* examined the prevalence of cigarette use and water pipe smoking and psychosocial factors that predicted smoking among Jordanian university students. The authors reported that the I-Change model, a comprehensive psychological model, predicted 85% of the total variance of cigarette smoking behavior. These findings may have significant value in addressing health promotion interventions so as not to engage in smoking behavior.

**Exposure to maternal smoking during fetal life affects food preferences in adulthood independent of the effects of intrauterine growth restriction.** Ayres *et al.* examined a prospective cohort of births from southeast Brazil between 1978 and 1979. At 24 years of age, individuals exposed to maternal smoking during gestation ate more carbohydrates

than protein as compared with non-exposed individuals. The authors conclude that adverse fetal life events may program food preference and thus may contribute to adult diseases.

**Maternal low-protein diet suppresses vascular and renal endothelial nitric oxide synthase phosphorylation in rat offspring independent of a postnatal fructose diet.** Sato *et al.* utilized pregnant rats fed either control or low-protein diets during gestation and lactation, after which they were randomized to standard chow or 60% fructose diet. The authors demonstrated that low-protein diets result in increased offspring blood pressure and downregulated nitric oxide production and eNOS phosphorylation, although there was no impact of postnatal fructose diets. Although fructose dietary exposure is common in Western countries, there was no evidence that a postnatal fructose diet contributed to programmed hypertension in this model.

**Branched-chain amino acid-supplemented diet during maternal food restriction prevents developmental hypertension in adult rat offspring.** Fujii *et al.* utilized a model of 70% undernourished pregnant rats that develop increased systolic blood pressure at 8 and 16 weeks of age. Branched-chain amino acid supplementation mitigated the increase in blood pressure and altered renal angiotensin receptor Type II mRNA and protein expression, suggesting possible prophylactic/therapeutic approaches.

**Neonatal oxygen exposure leads to increased aortic wall stiffness in adult rats: a Doppler ultrasound study.** Mivelaz *et al.* utilized a model of neonatal high oxygen exposure, which results in adult hypertension and vascular dysfunction. The authors utilized Echo-Doppler to measure pulse wave velocity, demonstrating increased aortic stiffness in adult rats exposed to hyperoxia as newborns. This methodology may be applicable for the assessment of aortic stiffness in both animal models and perhaps humans.

### Brief Report

**Cultured neonatal rat cardiomyocytes display differences in glucose uptake and sensitivity to dexamethasone related to maternal diet.** Austin and Langley-Evans utilized a model of low-protein diet in rat pregnancy, which is associated with adult cardiovascular disease. The authors cultured neonatal cardiomyocytes, demonstrating no differences between low protein and controls under basal culture conditions. However, in response to dexamethasone, insulin-stimulated glucose uptake was enhanced only in cardiomyocytes from low-protein rats. These findings indicate that sensitivity to endocrine signals may be permanently programmed by undernutrition.

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