

In This Issue

This issue of the Journal of Developmental Origins of Health and Disease contains two excellent Reviews. David Barker *et al.* describe maternal-placental programming of chronic diseases and gender specificity, while Prins and Ho review the effects of early life estrogens on prostate cancer. The Brief Report and Original Articles encompass both animal and human reports. Two articles focus on the effects of prenatal environment on cardiac development and signaling pathways, while Szeto *et al.* examine the effects of multivitamin supplementation during pregnancy. Population studies span outcomes among African Americans, Indians and Chinese with outcomes including neurodevelopment, adiposity, insulin resistance and infant mortality.

Reviews

Beyond birthweight: the maternal and placental origins of chronic disease. In this review, Barker *et al.* correlate adult offspring blood pressure with placental weight and surface measurements. The authors demonstrate a remarkable interaction between maternal height, placental weight and the risk of hypertension. The assessment of placentas by analysis of growth along the major and minor axes provides insight into the relative contribution of placental function and growth to programming of adult disease.

Early-life estrogens and prostate cancer in an animal model. Prins and Ho review the relative roles of estrogen and androgens on prostate development and growth. The authors review the history of their studies of the effects of early estrogen exposure on rat prostate disease. Both high- and low-dose exposures to estradiol as well as environmentally relevant levels of bisphenol A may alter prostate epigenetics and potential susceptibility to prostate carcinoma. These studies provided an important parallel to the well-known effects of DES on the female reproductive tract.

Brief Report

Effect of a low-protein diet during pregnancy on expression of genes involved in cardiac hypertrophy in fetal and adult mouse offspring. Asopa *et al.* demonstrate that a low-protein diet in mouse fetuses results in hypertensive adult offspring with cardiomyocyte hypertrophy. The authors results suggest that Cyclin G1 and brain natriuretic peptide may contribute to programming of cardiac hypertrophy and hypertension.

Original Articles

Growth restriction before and after birth increases kinase signaling pathways in the adult rat heart. Wadley *et al.* utilize a model of bilateral uterine vessel ligation in pregnant rats to

produce growth-restricted offspring, which demonstrate adult male cardiac hypertrophy. Examining the kinase signaling pathways, the authors demonstrate altered phosphorylation of AMPK, MAPK and Akt, indicating that cardiac kinase signaling may be programmed by growth restriction in a gender-specific matter.

Multivitamin supplementation during pregnancy alters body weight and macronutrient selection in Wistar rat offspring.

Szeto *et al.* have previously demonstrated that offspring of Wistar rats fed a high multivitamin diet during gestation have increased food intake and develop metabolic syndrome. In this study, the authors examined effects of the high multivitamin diet on appetite regulatory mechanisms, demonstrating modifications of serotonin receptors and POMC in offspring hypothalamus.

Analysis of compliance, morbidities and outcome in neurodevelopmental follow-up visits in urban African-American infants at environmental risk. Perenyi *et al.* reviewed risk factors for compliance among infants at risk of adverse neurodevelopmental outcome. The authors demonstrate the highest compliance rate among the smallest and most immature infants, suggesting that parents of infants with morbidities or prolonged hospital stay may have a greater opportunity to learn and understand the infant's condition and result in greater compliance.

Adiposity, insulin resistance and cardiovascular risk factors in 9–10-year-old Indian children: relationships with birth size and postnatal growth. Krishnaveni *et al.* utilized a cohort of children born in Mysore, India. Lower birth weight and smaller birth arm and mid-arm circumference were associated with higher fasting glucose concentrations at 9.5 years of age. After controlling for current weight and height, there was an inverse association between birth weight and insulin concentration, systolic and diastolic blood pressure and plasma triglycerides. This study provides further evidence that smaller size at birth is a critical risk factor for the later development of diabetes and cardiovascular disease.

Bigger babies born to women survivors of the 1959–1961 Chinese famine: a puzzle due to survival selection? Huang *et al.* utilized data from a collaborative US–China project examining over 31,000 women born 1957–1963, during a period that coincided with the Chinese famine of 1959–1961. The results demonstrated that in rural, though not urban areas, exposure to famine was associated with an increased birth weight and body mass index. The authors postulate that the markedly increased mortality in rural areas during famine may have resulted in the selection of heartier mothers with greater potential, ultimately expressed in their offspring.

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