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In This Issue

This issue of the *Journal of Developmental Origins of Health and Disease* includes an editorial, a topical and timely review, and six original research articles. The original articles encompass studies of rats, microswine and sheep, as well as three studies examining human programming. We are pleased to have received an excellent response to the call for fast track publications following the international DOHaD meeting and will continue to publish the fast track papers with those of standard articles throughout this year.

Editorial

Metabolic programming of obesity *in utero*: is there sufficient evidence to explain increased obesity rates? Josefson provides a stimulating review, proposing that genetics alone is not sufficient to explain increased rates of obesity, whereas programming during pregnancy is certainly one component of the obesity risk. As most obese children are not exposed to an identified adverse uterine environment, additional research is required to examine mechanisms by which programming occurs.

Review Article

Prenatal exposure to diethylstilbestrol and long-term impact on the breast and reproductive tract in humans and mice. Newbold examines the effects of diethylstilbestrol (DES) exposure with regard to breast and reproductive tract consequences. DES may be one of the first recognized examples of developmental origins of disease, and likely acts via epigenetic programming. Newbold emphasizes the need for continued follow-up of both males and females from DES-exposed populations.

Original Articles

Altered expression and chromatin structure of the hippocampal IGF1r gene is associated with impaired hippocampal function in the adult IUGR male rat. Caprau and colleagues utilized a rat model of uteroplacental insufficiency induced intrauterine growth restriction (IUGR) and examined insulin-like growth factor 1 (IGF1) and IGF1r protein and mRNA in the hippocampus, in relation to spatial working memory testing. IUGR male rats performed poorer on the spatial working memory testing at P120, in association with a reduction in IGF1r expression. These findings suggest that intrauterine stress-associated alterations in the IGF1 system may result in long-term cerebral consequences.

Accelerated growth without prepubertal obesity in nutritionally programmed microswine offspring. DuPriest and co-authors utilized a model of perinatal maternal protein restriction to develop asymmetric growth-restricted offspring. The growth-restricted microswine demonstrated accelerated offspring growth, although with no evidence of obesity. The authors suggest that the microswine model may be valuable for investigating how programmed growth acceleration may occur independent of obesity.

Antenatal exposure to chorioamnionitis affects lipid metabolism in 7-week-old sheep. Vlassaks *et al*. hypothesize that chorioamnionitis (induced by intraamniotic lipopolysaccharide, LPS) can lead to postnatal inflammation-related liver injury and altered lipid metabolism. Following intrauterine injection of LPS in the second half of ovine gestation, newborns were assessed at term and at 7 weeks of age. Although hepatic inflammation had resolved by 7 weeks, there were abnormalities of liver triglycerides and plasma cholesterol, indicating that antenatal inflammation may have long-term effects on lipid metabolism.

Grip strength at 4 years in relation to birth weight. Dodds and colleagues utilized the Southampton Women's Survey birth cohort to examine grip strength and anthropometry in nearly 1000 children at 4 years of age. Although birth weight was positively associated with grip strength, the relationship was non-significant after adjustment for current height and weight. These findings suggest that both fetal growth and childhood growth may have significant impact on muscle development.

Developmental outcome in preterm infants <29 weeks gestation with ⩽Stage 3 retinopathy of prematurity (ROP): relationship to severity of ROP. Todd and co-authors examined extremely premature infants to assess the outcome and association to the severity of retinopathy of prematurity (ROP). The authors demonstrate that there was no association between ROP and developmental outcome, when one excludes Stage 4 or 5 ROP, as well as infants with periventricular leukomalacia or Grade III or IV intraventricular hemorrhage.

Vitamin B12 and folate during pregnancy and offspring motor, mental and social development at 2 years of age. Bhate and co-authors investigate the relationship between maternal B12 and folate nutrition during pregnancy and offspring development at 2 years of age in a cohort from Pune, India. Notably, 62% of women have low B12, although only one woman was folate deficient during pregnancy. At 2 years of age, motor development was associated with maternal folate levels, and pregnancy B12 and folate were positively associated with mental and social development quotients. This study suggests that pregnancy provides a window of opportunity to enhance fetal motor and mental development.

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