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In this issue

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This issue of JDOHaD includes themed issue articles from the 2018 Australia/New Zealand DOHaD Scientific meeting, as well as the publication of one brief report, one review, and five original articles. I encourage all to read the accompanying editorial of Dr. Reynolds and Dr. Morrison in which they review the success of the conference and the published manuscripts.

Brief report

Atrazine induces penis abnormalities including hypospadias in mice

Govers *et al.* examine the sexual development effects of the herbicide atrazine, which is still widely used in the USA and Australia. Consistent with its effect on blocking and altering sex steroid production, supra-environmental doses shortened the penis structure and increased the incidence of hypospadias in mice. These studies raise concern for the increasing incidence of hypospadias in the USA and Australia.

Original articles

Early-Life exposures and cardiovascular risk among Ghanaian migrant and home populations: the RODAM study

Boateng and colleagues examined the association between markers of early-life exposures, including leg length and sitting height, with adult cardiovascular disease in sub-Saharan populations in both Europe and Ghana. Sitting height was inversely associated with the 10-year risk of atherosclerosis, suggesting that early-life nutritional exposures may contribute to long-term cardiovascular risk.

Iron deficiency during pregnancy and lactation modifies the fatty acid composition of the brain of neonatal rats

Rees and colleagues examined the effect of iron-deficient diets during gestation and lactation in rats. Iron-deficient diets resulted in a decrease in the proportion of offspring saturated fatty acids and an increase in monounsaturated fatty acids, with a reduction in long-chain N-6 polyunsaturated fatty acids. As changes occurred both in the offspring stomach content and the neonatal brain, these findings suggest that maternal iron deficiency during lactation may have a critical effect on the fatty acid composition of the offspring brain.

Maternal folic acid supplementation does not counteract the deleterious impact of prenatal exposure to environmental pollutants on lipid homeostasis in male rat descendants

Navarro *et al.* sought to determine if prenatal folic acid supplementation can ameliorate the deleterious effects of prenatal exposure to organic pollutants on lipid homeostasis and inflammation. The results demonstrated that persistent organic pollutants impact the paternal lineage plasma lipids through the F2 male generation. However, folic acid supplementation did not have significant beneficial effects.

The effects of dietary fatty acids in the physiological outcomes of maternal high-fat diet on offspring energy homeostasis in mice

Mamounis and coauthors compared the effects of maternal high-fat diet (preconception through lactation) with coconut oil or vegetable oil containing high linoleic acid. The authors demonstrated that obesity was primarily affected by offspring high-fat diets in males, though in females maternal high-fat diet potentiated the effects of offspring high-fat diet. Studies of metabolic activity suggest that differences in weight gain and glucose metabolism may be due to reduction in basal metabolic rate in high-fat diet fed offspring.

The loss of ERE-dependent ERα signaling potentiates the effects of maternal high-fat diet on energy homeostasis in female offspring fed an obesogenic diet

Roepke and colleagues previously reported that the loss of ERα signaling partially blocks the effects of maternal high-fat diet in female offspring fed a standard diet. In the present study, they examined the effects of maternal high-fat diet on offspring fed a postnatal high-fat diet

for 20 weeks. The results suggest that the loss of ERE-dependent ERα signaling sensitizes females to the adverse effects of maternal high-fat diet on offspring energy regulation and glucose metabolism.

Review article

Strength of nonhuman primate studies of developmental program: review of sample sizes, challenges, and steps for future work

Huber *et al.* review studies of developmental programming in nonhuman primate models, including maternal overnutrition and undernutrition, focusing on macaques and baboons. As a result of logistic and cost challenges in nonhuman primate studies, sex-based analyses are performed with group size minimums as low as four and as high as eight per sex. The authors suggest that future studies should increase offspring age range, consider sex as a biologic variable, and explore intergenerational effects.

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