Journal of Developmental Origins of Health and Disease

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In this issue

Cite this article: Ross MG. (2018) In this Issue. *Journal of Developmental Origins of Health and Disease* **9**: 563. doi: 10.1017/S2040174418000946

In This Issue

This issue of J. DOHaD contains six themed content papers from the proceeding of the French DOHaD Society. We encourage all to review the Editorial written by Drs. Abdennebi-Najar and Simeoni in which they present the accomplishments of the French DOHaD and introduce the excellent selection of themed manuscripts. In addition, this issue contains a review article discussing the strategies to address consequences of programmed non-communciable diseases and four original manuscripts, which are highlighted below.

Review article

Strategies to reduce non-communicable diseases in the offspring: negative and positive in utero programming. Rodriguez-Caro and Williams provide an analysis of the in utero programming of non-communicable diseases (NCDs), addressing potential mechanisms and potential strategies for prevention and treatment.

Original articles

Maternal preconception weight trajectories, pregnancy complications and offspring's childhood physical and cognitive development. Adane et al utilized the Austalian Longitudinal Study on Women's Health and the Mothers and their Children's data to examine children's physical and cognitive development. The authors demonstrated that children born to chronically obese women were more likely to be classified as developmentally vulnerable on gross and fine motor skills, communication skills and general knowledge, confirming the importance of excessive
weight gain prevention throughout the reproductive stage of life.

The role of the tumor necrosis factor (TNF)-related weak inducer of apoptosis (TWEAK) in offspring exposed to prenatal hypoxia. Reyes and coauthors advanced a series of studies exploring the effect of prenatal hypoxia on offspring cardiomyocyte proliferation in rats. Cardiomyocytes from prenatal hypoxic male, but not female, offspring had decreased proliferation compared with controls, though this effect was not due to changes in the Fn-14 pathway. These findings confirm the long term consequences of in utero hypoxia.

Sex-specific effects of maternal and postweaning high-fat diet on skeletal muscle mitochondrial respiration. Khamoui and colleagues examined muscle mitochondrial respiration in male and female mice exposed to maternal high fat diet (HF) in utero and/or postweaning. Maximal adenosine diphosphate-stimulated respiration (complex I OXPHOS) was decreased by maternal HF diet in female but not in male offspring, and sexually divergent responses were exacerbated in offspring weaned to HF diet. These results suggest that maternal HF diet affects offspring skeletal muscle respiration in a sex-dependent manner, and these differences are exacerbated by HF diet in adulthood.

In vivo and in vitro bisphenol A exposure effects on adiposity. Desai et al
examined effects of in vivo maternal BPA and in vitro BPA exposure on newborn adipose tissue at the stem-cell level. Maternal BPA-induced offspring adiposity, hypertrophic adipocytes and increased adipose tissue protein expression of pro-adipogenic and lipogenic factors. Consistent with in vivo data, in vitro BPA exposure induced a dose-dependent increase in preadipocyte proliferation and increased adipocyte lipid content. These findings contribute to the evidence of BPA as an important environmental obesogen.

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Journal of Developmental Origins of Health and Disease (J DOHaD)

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https://doi.org/10.1017/S2040174418000946 Published online by Cambridge University Press