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In This Issue

This issue of the Developmental Origins of Health and Disease (DOHaD) contains five manuscripts resulting from the First Annual Ibero-American DOHaD Society Meeting, one review article, which discusses neonatal health outcomes resulting from oocyte donation, seven original articles and an important commentary from Barker *et al.*. Paulo Mathias has included an introduction describing the process of the Ibero-American DOHaD meeting and inviting all DOHaD members and others to the Second Annual Ibero-American Meeting in November 2016.

Themed Issue: Ibero-American DOHaD Society

The fetal programming of food preferences: current clinical and experimental evidence. Dalle Molle *et al.* provide a review of experimental studies demonstrating that food preferences are likely programmed *in utero*. When combined with programmed appetite, a preference for higher energy foods may contribute importantly to a developmental predisposition to obesity and metabolic syndrome.

Childhood obesity: a (re) programming disease? Paes *et al.* examine the current literature with regards to the concept that programmed development of childhood obesity may be linked to early exposure to environmental factors, which may epigenetically modulate obesogenic predisposition. The authors referenced 50 quality studies, illustrating the breadth and depth of studies examining programming of childhood obesity.

Pre-gestational overweight in guinea pig sows induces fetal vascular dysfunction and increased rates of large and small fetuses. Krause *et al.* examined fetuses of overweight pregnant guinea pig sows. The authors demonstrated that fetuses from high weight sows had femoral arteries demonstrating an increased contractile response to KCL, and an increased relaxation response to acetylcholine. These results demonstrate the programming of vascular reactivity that may potentially be associated with long-term cardiovascular risk.

Beverage intake and obesity in early childhood: evidence from primary healthcare clients in Northwest Argentina. Alderete *et al.* examined 16 public health clinics throughout Northwest Argentina to assess children's beverage intake. The likelihood of childhood obesity increased with the intake of carbonated soft drinks, providing important evidence for reducing the intake of carbonated soft drinks and promoting water consumption as part of public health policies.

New challenges beyond nutrition: C-section, air pollution and domestic violence. In this brief report, Ferraro *et al.* discuss potential exposures which may contribute to postnatal disease, focusing on non-nutritional factors. The authors demonstrate that delivery by C-section, prenatal exposure to air pollution and domestic violence during pregnancy each have important health consequences to the offspring.

DOHaD Issue Articles

A meta-analysis of neonatal health outcomes from oocyte donation. In this review, Adams *et al.* provide a structured search of the literature to assess the perinatal health outcomes of offspring resulting from donor oocytes. Donor oocyte newborns were demonstrated to be at increased risk of low birth weight, very low birth weight and preterm. These findings remain significant when controlled for multiple deliveries, raising important considerations for counseling of infertile patients.

Prenatal smoking and childhood behavior problems: is the association mediated by birth weight? Parker examined the association between maternal smoking during pregnancy and childhood behavior in nearly 500 maternal–child pairs. Maternal smoking during pregnancy was associated with child's (aged 5–12 years) externalizing behavior and behavioral problems (aggressive behavior, attention problems). Importantly, these associations were either attenuated or absent in mothers that quit smoking in early pregnancy, offering an important opportunity for smoking prevention programs.

High maternal sodium intake alters sex-specific renal renin–angiotensin system components in newborn Wistar offspring. Maia *et al.* utilized high-sodium-fed Wistar rats to assess the impact of the high sodium diet on offspring renal regulatory systems. The findings demonstrate that a maternal high sodium diet induces low birth weight and sex-specific alterations in the renin–angiotensin aldosterone system of offspring.

Maternal high-fat feeding in pregnancy programs atherosclerotic lesion size in the APOE*3 Leiden mouse. Tarling *et al.* examined the effects of high-fat feeding to APOE*3 Leiden transgenic mice on offspring atherosclerosis. Offspring from high-fat-fed mothers had nearly two-fold larger atherosclerotic lesions, demonstrating that maternal hypercholesterolemia may program offspring susceptibility to atherosclerosis.

The influence of dexamethasone administered prenatally on cartilage of newborn spiny mouse *(Acomys cahirinus)* offspring. Iwaniak *et al.* assessed the effects of prenatally administered dexamethasone on femur histomorphometry in spiny mice. Maternal steroid treatment resulted in a significant decrease in newborn birth weight and a reduction in the thickness of the femur growth plate and number of cells in the articular cartilage. These findings demonstrate that exposure to glucocorticoids alters cartilage development, perhaps by accelerating maturity of collagen fibers and the growth plate.

Early growth and changes in blood pressure during adult life. Sandboge *et al.* examined women and men from the Helsinki Birth Cohort Study to assess the association between conditional growth and blood pressure. These authors, in contrast to previous studies, demonstrated an inverse association between childhood growth and adult blood pressure at 66 years of age, though not at 61 years of age. The authors propose that beneficial effects of a more rapid than expected childhood growth may become more apparent with increasing age.

Body adiposity and bone parameters of male rats from mothers fed diet containing flaxseed flour during lactation. Da Costa *et al.* studied male Wistar rats to determine if pregnancy exposure to flaxseed flour diet altered offspring phenotype. The results indicated that flaxseed flour intake during lactation promoted adipocyte hypertrophy down-regulation and contributed to pup bone quality at weaning. Potentially, the linolenic acid-rich diet of flaxseed flour may have important protective effects on adipose tissue and bone development.

The effect of maternal and post-weaning low and high glycemic index diets on glucose tolerance, fat deposition and hepatic function in rat offspring. Gugusheff *et al.* examined Wistar rats fed either high or low glycemic index diets during pregnancy and lactation. The results suggest that a low glycemic index diet during pregnancy and lactation may improve glucose tolerance and reduce visceral adiposity in female offspring at weaning.

Commentary

Preconception and pregnancy: opportunities to intervene to improve women's diets and lifestyles. Barker *et al.* present an informative commentary describing the challenges of improving diet and lifestyle during pregnancy. The authors propose an intervention design to engage women in motivational processes for diet change, which can hopefully carry through the pregnancy and extend to lifelong lifestyle improvements.

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