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In This Issue

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In This Issue

This issue of the Journal of Developmental Origins of Health and Disease contains ten articles. Among the topics are papers discussing the impact of pregnancy at high altitude, industrialized vs rural environments, and lifestyle interventions.

Protein restriction during peripubertal period impairs endothelial aortic function in adult male Wistar rats. De Souza et al. sought to examine whether protein restricted diet during the peripubertal period alters endothelial function in adulthood. Following the protein-restricted diet from postnatal day 30 until 60, adult males demonstrated endothelial dysfunction in response to phenylephrine. Mechanistic studies demonstrated that this response may be mediated via oxidative stress. These findings indicate the importance of adequate dietary protein in early life for the prevention of cardiovascular disease.

The co-occurrence and cumulative prevalence of hypertension, rheumatoid arthritis and hypothyroidism in preterm-born women in the Women's Health Initiative. Brewer and coauthors examine the prevalence of three female-predominant chronic health conditions in the Women's Health Initiative. Women born preterm were significantly more likely to have one or a combination of the three conditions with odd ratios of 1.12 to 1.28, with a composite odds ratio for all three conditions of 1.69. These data provide further evidence of the long term adverse consequences of preterm birth.

Potential long consequences from internal and external ecology: Loss of gut microbiota antifragility in children from an industrialized population compared with an indigenous rural lifestyle. G-Santoyo and colleague examined Mexico City and rural Mexico populations, demonstrating that the urban lifestyle produced a loss in antifragility of the microbiota similar to that observed due to parasitosis. The authors discuss the potential elements of the urban industrialized lifestyle which might impact on sensitive bacterial strains.

Preconception and prenatal maternal stress are associated with broad autism phenotype in young adults: Project Ice Storm. Li et al. examined women who were pregnant within three months of the 1990 Quebec ice storm crisis and assessed measured aspects of stress. The authors examined young adult offspring at age 19 to assess associations with broad autism phenotype. This prospective study suggests that aspects of maternal stress may have differential effects on components of broad autism traits in young adults.

Obese mothers supplemented with melatonin during gestation and lactation ameliorate the male offspring's pancreatic islet cellular composition and beta-cell function. Nagagata and coauthors examined male offspring of maternal mice assigned to a control or high-fat diet with and without supplemental melatonin. Whereas offspring of high-fat mothers showed higher body weight, glucose intolerance and insulin resistance, those offspring whose mothers were supplemented with melatonin showed improved glucose metabolism and weight loss. Offspring of high-fat mothers demonstrated increased beta-cell mass, but this was reduced in melatonin-supplemented offspring. The authors conclude that obese mothers supplemented with melatonin may benefit their offspring's islet cell remodeling and function.

Relationship between insulin and Netrin-1/DCC guidance cue pathway regulation in the prefrontal cortex of rodents exposed to prenatal dietary restriction. Batra and colleagues studied the Netrin-1/DCC guidance cue system which participates in the maturation of mesocorticolimbic dopamine circuitry. Pregnant dams were subjected to 50% food-restricted diet from gestational day 10 to birth. In adult rodent offspring insulin administration increased DCC mRNA levels in control, but not food-restricted rats. These findings suggest that food-restricted changes in insulin sensitivity may impact essential dopamine organization.

The impact of adversities across the lifespan on psychological symptom profiles in late-adulthood: A latent profile analysis. Hilberdink et al. performed a sex-stratified latent profile analysis to identify psychological symptoms in Dutch famine birth cohort members. The authors demonstrated sex differences, though significant effects between prenatal childhood and adult adversity, with psychological symptom findings. The authors conclude that the findings support a time-dependent and sex-specific impact of adversity on psychological health.

Preeclampsia and risk of maternal pulmonary hypertension at high-altitude in Bolivia. Salinas and colleagues examined women living at high altitude with and without evidence of preeclampsia at 35 weeks of pregnancy and six weeks following birth. The authors demonstrate that women who develop preeclampsia at high altitude are at greater risk of pulmonary artery hypertension and cardiovascular risk before and following birth.

Early neurodevelopment in the offspring of women enrolled in a randomized controlled trial assessing the effectiveness of a nutrition + exercise intervention on the cognitive development of 12-month-olds. Mortaji and colleague examined results from the Be Healthy in

Pregnancy randomized control trial to assess the impact of BMI, nutrition counseling and increased exercise during pregnancy. Expressive language and general adaptive composite scores were higher in infants of mothers receiving the lifestyle intervention, though there was no change in cognitive, receptive language, motor or socioemotional functioning. The authors discuss the potential improvement in expressive language and adaptive functioning from lifestyle interventions during pregnancy.

Relationships between the maternal prenatal diet and epigenetic state in infants: A systematic review of human studies. Fernando and coauthors performed a systematic literature search assessing how prenatal diet relates to the infant epigenetic state. Of the seven studies included, one was a randomized control trial and six were observational studies. The authors found inconsistent associations between maternal dietary measures and infant DNA methylation. They conclude that the evidence provides very low certainty that dietary patterns in pregnancy relate to infant epigenetic state.

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