

doi:10.1038/pr.2016.35

Participatory research in pediatrics



Haijes and van Thiel performed a systematic literature study to describe and assess the available knowledge on meaningful child participation in medical research. Overall, five groups of participatory methods for children could be distinguished: observational, verbal, written, visual, and active methods. Researchers conducting this type of research with children can use this systematic review to select the method best suited to the planned study. [See page 676](#)

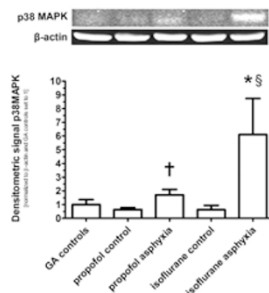
Prediction of metabolic syndrome



Asghari and colleagues investigated the relationship between metabolic syndrome (MetS) and energy-dense, nutrient-poor, solid-snack consumption among children and adolescents aged 6–18 years. Logistic regression, adjusted for age, sex, total energy intake, physical activity, dietary fiber, family history of diabetes, and body mass index (BMI), was used to assess the relationship between snacks and incident MetS. The findings show an impact of

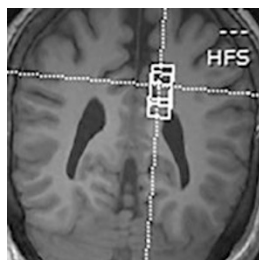
consumption of simple sugars, fructose, and fatty acids on the development of morbidity, independent of BMI. [See page 697](#)

Brain metabolites and cognition



The posterior cingulate region has an important role in cognitive function, but how this is affected by preterm birth is unknown. Cheong and colleagues compared brain metabolite ratios of neurons and cell membranes between 18-year-olds born extremely preterm and controls. In a regional cohort, these ratios were measured and correlated with tests of general intelligence, memory, and attention using linear or logistic regression. There appeared to be little evidence of developmental “catch-up” of brain metabolites in late adolescence. [See page 716](#)

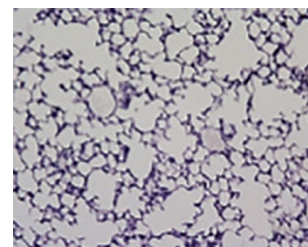
Propofol and the fetal lamb heart



Seehase and coinvestigators hypothesized that propofol administration could attenuate hypoxic myocardial injury after birth asphyxia. A total of 44 late-preterm lambs were subjected to either *in utero* umbilical cord occlusion, resulting in asphyxia and cardiac arrest, or sham treatment. After

emergency cesarean delivery, each fetus was resuscitated, mechanically ventilated, and supported under anesthesia, using the same anesthetic as the one received by its mother. The use of propofol resulted in less oxidative stress and was associated with less cytoskeletal damage of the contractile apparatus compared with isoflurane anesthesia. [See page 748](#)

Steroid effects on murine pulmonary vasculature



Perez and coauthors sought to determine the effects of hydrocortisone (HC) on pulmonary vascular development and phosphodiesterase type 5 (PDE5) in a neonatal mouse model of hyperoxic lung injury. Newborn mice were placed in either 21% or 75% O₂ and received either HC or vehicle. At 14 d, right ventricular hypertrophy, medial wall thickness, lung morphometry, and pulmonary artery PDE5 activity were assessed. The results showed that HC decreases hyperoxia-induced pulmonary vascular remodeling and attenuates PDE5 activity. [See page 759](#)

MicroRNAs from dried blood spots

The potential of microRNAs (miRNAs) as bedside biomarkers in selecting newborns with hypoxic-ischemic encephalopathy for neuroprotection has yet to be explored. Ponnusamy *et al.* demonstrate that it is feasible to extract miRNAs in newborns from a single 6-mm-diameter dried blood spot stored at room temperature; the miRNAs were of sufficient quality and in quantities significantly higher than in other common biosamples. [See page 799](#)