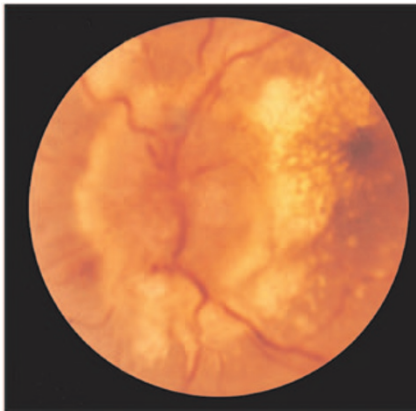


doi:10.1038/pr.2014.196

Integrated neuroendocrine insights

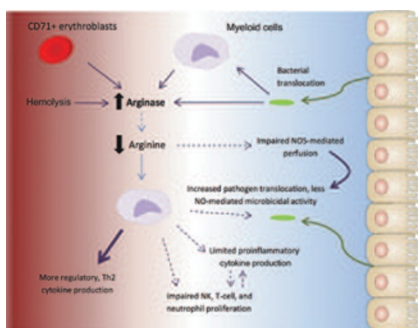


Nucleus Medical Art Inc/Alamy

Pseudotumor cerebri syndrome (PTCS) is defined by the presence of elevated intracranial pressure in the setting of normal brain parenchyma and cerebrospinal fluid (CSF), but the underlying mechanism is not known. Sheldon *et al.* posit that in PTCS patients mitochondrial metabolites and steroid hormones regulate CSF production and/or absorption.

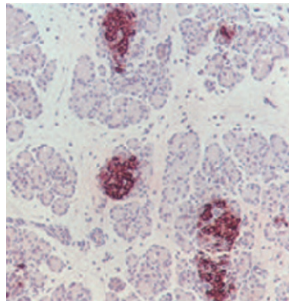
See page 282

Preterm newborn immunity



Preterm newborns are highly susceptible to bacterial infections. In this Integrated Mechanism Review, Badurdeen and coauthors argue that the immune vulnerability of the preterm neonate is critically related to arginine depletion. See page 290

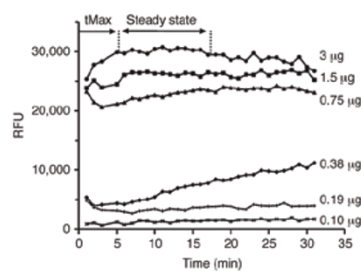
Gestational diabetes mellitus



Children exposed to gestational diabetes mellitus are at increased risk of obesity, diabetes, and hypertension. Blue and coinvestigators identified metabolic and hematopoietic alterations in rats after exposure to maternal hyperglycemia. Studies in offspring of diabetic and control mothers suggest that changes in glucose metabolism and hematopoiesis contribute to increased risk when combined with other risk factors, such as high-fat diet and aging.

See page 316

Surfactant film formation



Pulmonary surfactant provides an alveolar surface-active film that is critical for normal lung function. Danhaive and colleagues aimed to determine the *in vitro* film-formation properties of therapeutic and infant surfactants, as well as the influence of relative surfactant protein-B (SP-B) content on those properties. Film formation *in vitro* differed between therapeutic surfactants and appeared to be highly dependent on SP-B content. See page 340

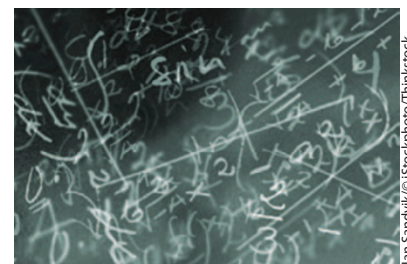
Insufficient vitamin D



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Deficiencies in vitamin D place obese youth and youth of color at risk for a range of health issues. Weishaar and Rajan used a recently published dosing formula and data from the National Health and Nutrition Examination Survey to calculate the supplemental dose of vitamin D required to meet target levels. They concluded that some individuals require a daily dose of up to 2,000 IUs of supplemental vitamin D. See page 370

Learning difficulties in preterm children



Jan Sandvik/© iStockphoto/Thinkstock

Children born very preterm are at high risk for mathematics-learning difficulties that are out of proportion to other academic and cognitive deficits. Simms and coinvestigators assessed achievement in mathematics, working memory, visuospatial processing, inhibition, and processing speed in very preterm children aged 8–10 years. Mathematics difficulties in very preterm children appear to be associated with deficits in working memory and visuospatial processing, not in numerical representations. See page 389