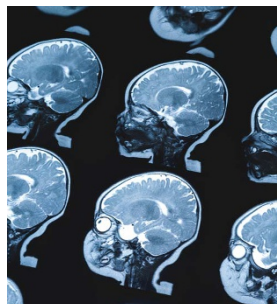


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## Gray matter and heart disease in newborns



feellife/Getty Images

Claessens and colleagues examined cortical gray matter growth and maturation in newborns with congenital heart disease (CHD). Patients underwent cerebral magnetic resonance imaging before and after surgery. Cortical gray matter volume, inner cortical surface, and median cortical thickness were extracted as measures of volumetric growth, and gyrification index as a measure of maturation. Among other findings, infants with severe CHD showed reduced cortical volumes compared with controls, with gyrification being delayed in univentricular heart malformation but not in 21-day transposition of the great arteries. [See page 668](#)

## Cytokine responses in RSV-infected infants

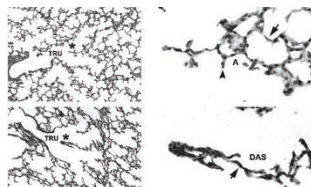


Burger/Getty Images

Christiaansen and coauthors hypothesized that severe respiratory syncytial virus (RSV) in infants is mediated by insufficient regulation of the host immune response of regulatory T cells (Tregs), resulting in immunopathology. Blood and nasal aspirates were collected from RSV-infected and control infants. Treg frequencies were determined via

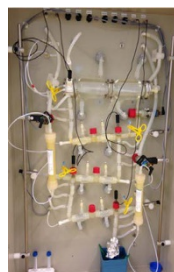
flow cytometry from peripheral blood mononuclear cells, and 24 cytokines were analyzed. The frequency of activated Tregs was significantly reduced in RSV-infected infants, suggesting that inability to control inflammatory response results in severe RSV infection. [See page 702](#)

## Restricted nutrition and alveolarization



Joss-Moore and coinvestigators hypothesized that restricted nutrition, but not sedation with pentobarbital, contributes to impaired indices of alveolar formation in preterm lambs managed by noninvasive support (NIS). Preterm lambs managed by NIS for 21 days were randomized into three groups: NIS control, NIS plus restricted nutrition, and NIS plus excess sedation with pentobarbital. The results indicated that restricted nutrition, but not excess sedation, contributes to impaired alveolar formation during the evolution of bronchopulmonary dysplasia in chronically ventilated preterm lambs. [See page 719](#)

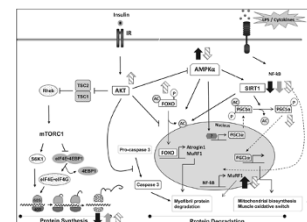
## EHEC pathogenicity and child's gut



Enterohemorrhagic *Escherichia coli* (EHEC) are major foodborne pathogens that constitute a serious public health threat, mainly in young children. Roussel and coauthors used the TNO Gastrointestinal Tract Model (TIM) for a comparative study of EHEC O157:H7 survival and virulence in adults and children. Expression levels of virulence

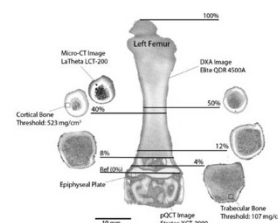
genes were found to be up to 125-fold higher in children. Differences in digestive physicochemical parameters may partially explain why children are more susceptible to EHEC infection than adults. [See page 734](#)

## Infection, insulin resistance, and muscle in piglets



Manjarin and colleagues investigated the effect of insulin on energy and substrate sensing in the skeletal muscle of infected newborn piglets. Piglets underwent cecal ligation and puncture or sham surgery to induce chronic infection for five days. Pancreatic-substrate clamps were then placed to obtain fasting or fed insulin levels while maintaining glucose and amino acids in the fasting range. The results in fasting and fed conditions show that energy and substrate sensing in skeletal muscle can be modulated by insulin in infected piglets. [See page 744](#)

## Colitis and bone health



Vassilyadi and colleagues aimed to determine whether the bone health of piglets could be conserved during colitis by maintaining adequate nutritional intake. Piglets with dextran sulfate sodium-induced colitis received either 100% macro-/micronutrient requirements or 50% macro-/100% micronutrient requirements. Analysis of their femurs showed that, regardless of diet, colitis compromised the bone structure and the strength of long bones in the piglets. [See page 753](#)