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IN BRIEF

NUTRITION

Sex-specific effects of an *IRS1* allele on risk of T2DM

The rs2943641 allele near the *IRS1* gene is associated with a reduced risk of type 2 diabetes mellitus (T2DM). Ericson *et al.* examined the interaction between diet composition and the reduction in risk of T2DM conferred by the rs2943641 allele. The researchers collected dietary data for 15,227 women and 9,614 men aged 45–74 years without diabetes mellitus. During 12 years of follow-up, the investigators identified 1,567 incident cases of T2DM. In women, the rs2943641 allele was associated with decreased risk of T2DM only if they had low carbohydrate intake, whereas in men the allele was associated with decreased risk of T2DM only if their fat intake was low.

Original article Ericson, U. *et al.* Sex-specific interactions between the *IRS1* polymorphism and intakes of carbohydrates and fat on incident type 2 diabetes. *Am. J. Clin. Nutr.* doi:10.3945/ajcn.112.046474

GENETICS

Genetic links between birth weight and adult-onset disease

The mechanisms involved in associations between birth weight within the normal range and adult-onset diseases remain unclear. Horikoshi *et al.* carried out a genome-wide association meta-analysis and follow-up study of birth weight in up to 69,308 individuals. They identified seven loci associated with birth weight, which accounted for a proportion of variance in birth weight similar to that reported for maternal smoking. Two of these loci are associated with type 2 diabetes mellitus (*ADCY5* and *CDKAL1*), one with adult blood pressure (*ADRB1*) and two with adult height (*HMGA2* and *LCORL*).

Original article Horikoshi, M. *et al.* New loci associated with birth weight identify genetic links between intrauterine growth and adult height and metabolism. *Nat. Genet.* **45**, 76–82 (2012)

OBESITY

Adolescent obesity and ChREBP expression in adipose tissue

In 53 adolescents with obesity, Kursawe and co-workers examined interactions between glucose tolerance, insulin sensitivity and the expression of lipogenic genes in abdominal subcutaneous adipose and liver tissue. Adipose tissue expression of ChREBP, a protein involved in the control of glycolysis and *de novo* lipogenesis, predicted insulin resistance in these individuals and might contribute to regulation of glucose tolerance.

Original article Kursawe, R. *et al.* Decreased transcription of ChREBP-α/β isoforms in abdominal subcutaneous adipose tissue of obese adolescents with prediabetes or associations with insulin resistance and hyperglycemia. *Diabetes* doi:10.2337/db12-0889

METABOLISM

Hepatic glucokinase and obesity predisposition

Tsukita *et al.* show that high-fat feeding rapidly upregulates hepatic glucokinase in mice, especially in obesity-prone mice. This induction downregulates thermogenesis-related genes in brown adipose tissue and, hence, decreases adaptive thermogenesis. Furthermore, the effects of leptin are antagonised. This liver-to-brown-adipose-tissue system could have a role in obesity predisposition, Tsukita *et al.* conclude.

Original article Tsukita, S. *et al.* Hepatic glucokinase modules obesity predisposition by regulating BAT thermogenesis via neural signals. *Cell Metab.* **16,** 825–832 (2012)