Diabetologia (2015) 58:204
DOI 10.1007/s00125-014-3432-4

ERRATUM

Erratum to: Metabolic response to 36 hours of fasting in young men born small vs appropriate for gestational age

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Published online: 13 November 2014
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Diabetologia
DOI 10.1007/s00125-014-3406-6

Unfortunately, an error was introduced into the Abstract. The complete Abstract is printed here, with the correction shown in red.

Abstract

Aims/hypothesis Being born small for gestational age (SGA) is associated with an increased risk of type 2 diabetes in an affluent society, but could confer an improved chance of survival during sparse living conditions. We studied whether insulin action and other metabolic responses to prolonged fasting differed between 21 young adults born SGA and 18 matched controls born appropriate for gestational age (AGA).

Methods A frequently sampled IVGTT and indirect calorimetry measurements were performed after a 36 h fast. Endogenous glucose production, insulin sensitivity (S_I), first-phase insulin secretion and glucose effectiveness were estimated by stable isotope tracer techniques and minimal modelling. Muscle and fat biopsies were obtained after 35 h of fasting.

Results During fasting, SGA individuals experienced a more pronounced decrease in serum insulin and lower plasma triacylglycerol levels compared with AGA individuals. In addition, energy expenditure decreased in SGA but increased in AGA individuals. After fasting, SGA individuals displayed lower fat oxidation than AGA individuals. Glucose effectiveness (S_G) was reduced in SGA compared with AGA individuals, whereas hepatic or whole body insulin action (S_I) did not differ between groups. SGA individuals had increased muscle *PPARGC1A* DNA methylation. We found no differences in adipose tissue *PPARGC1A* DNA methylation, muscle and adipose tissue *PPARGC1A* mRNA expression, or muscle glycogen levels between the groups.

Conclusion Compared with AGA individuals, SGA individuals displayed a more energy-conserving and potentially beneficial cardiometabolic response to 36 h fasting. The role of increased muscle *PPARGC1A* DNA methylation in mediating this response requires further study.

The online version of the original article can be found under doi:10.1007/s00125-014-3406-6.

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