

Study finds strong genetic component to childhood obesity

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Previous research has shown that obesity runs in families, and twin studies suggest that this is largely due to genetic factors, with heritability estimates over 50%. 32 genes have been identified as risk factors for obesity but previous analyses suggest that these genes alone cannot fully explain the high level of heritability in childhood obesity, as together they explain only 2% of individual differences in childhood body weight. This has led to a problem of 'missing heritability'.

In this study, researchers used a new method called Genome-wide Complex Trait Analysis (GCTA), to investigate the molecular genetic heritability of body weight in children. GCTA takes advantage of the fact that some people are more genetically similar to one another than others, by chance; and looks to see whether individuals who just happen to be more genetically similar might also be more similar in weight. Using this approach, GCTA estimates the combined effects of all known common [genes](#) across the whole genome, associated with childhood body weight.

The study is based on data from a population-based cohort of 2,269 children aged between eight and eleven years old. Researchers looked at whether children who happen to be more genetically similar might also be more similar in body weight. Using the GCTA method, the researchers found that additive effects of multiple genes across the whole genome accounted for 30% of individual difference in childhood body weight.

Clare Llewellyn from UCL [Health Behaviour](#) Research Centre and lead author of the study, said: "These findings are important because they confirm that in children genes play a very important role in determining body weight. At present only a few genetic variants have been discovered, and these explain a very small amount of individual differences in body weight (~2%). These findings suggest there are hundreds of other genetic variants influencing body weight that are yet to be discovered".

This study underlines the importance of genetic effects in [childhood obesity](#), supporting the current thinking that children of obese parents are most at risk of becoming obese.

More information: 'Finding the missing heritability in paediatric obesity: The contribution of genome-wide complex trait analysis' is published online in the journal *International Journal of Obesity*.

Provided by University College London

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