

# Causal relationship between adiposity and heart failure, and elevated liver enzymes

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New evidence supports a causal relationship between adiposity and heart failure, and between adiposity and increased liver enzymes, according to a study published this week in *PLOS Medicine*. The study, conducted by Inga Prokopenko, Erik Ingelsson, and colleagues from the ENGAGE (European Network for Genetic and Genomic Epidemiology) Consortium, also provides additional support for several previously shown causal associations such as those between adiposity and type 2 diabetes, metabolic syndrome, dyslipidemia, and hypertension.

The authors investigated whether adiposity is causally related to various cardiometabolic traits using a Mendelian randomization analysis, in which the variation in genes associated with conditions is used to assess the causal relationship between conditions. It is known that a genetic variant (rs9939609) within the genome region that encodes the fat-mass- and obesity-associated gene (FTO) is associated with increased BMI. Using genetic and health data collected in 36 population-based studies of nearly 200,000 individuals of European descent, the authors measured the strength of the causal association between BMI and cardiometabolic traits and found that higher BMI had a causal relationship with heart failure, [type 2 diabetes](#), metabolic syndrome, [dyslipidemia](#), hypertension, increased blood levels of liver enzymes, and several other cardiometabolic traits.

As with all Mendelian randomization studies, the reliability of the causal associations reported here depends on several assumptions made by the researchers. The authors report, "The present study addressing the role

of BMI in 24 traits in up to 198,502 individuals provides novel insights in the causal effect of obesity on heart failure and increased liver enzymes levels."

They also say that this study "provides robust support to the [causal relationship](#) between obesity and a number of cardiometabolic traits reported previously. These results support global public prevention efforts for obesity in order to decrease cost and suffering from [type 2 diabetes] and [heart failure](#)."

**More information:** Fall T, Hägg S, Mägi R, Ploner A, Fischer K, et al. (2013) The Role of Adiposity in Cardiometabolic Traits: A Mendelian Randomization Analysis. PLoS Med 10(6): e1001474. [doi:10.1371/journal.pmed.1001474](https://doi.org/10.1371/journal.pmed.1001474)

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