

# Increased body weight in adolescent boys linked with heart attack before 65

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A study in nearly 1.7 million 18-year-old boys has found that higher body mass index (BMI) is linked with greater risk of a heart attack before 65 years of age. The research is presented today at ESC Congress 2019 together with the World Congress of Cardiology.

Study author Dr. Maria Aberg of the University of Gothenburg, Sweden said: "We show that BMI in the young is a remarkably strong risk marker that persists during life. Our study supports close monitoring of BMI during puberty and preventing obesity with [healthy eating](#) and physical activity. Schools and parents can play their part by encouraging teenagers to spend less [leisure time](#) in front of a screen and providing [healthy food](#)."

The study included all Swedish men born between 1950 and 1987 and enlisted for mandatory military service at the age of 18. When enlisting, all 1,668,921 men underwent extensive physical and psychological examinations, such as BMI, [blood pressure](#), IQ, and tests of cardiovascular and muscular fitness. Men were followed up between 1969 and 2016 for a maximum follow-up of 46 years. Swedish patient and death registries were used to record how many had a fatal or nonfatal [heart attack](#) later in life.

There were 22,412 [heart](#) attacks which occurred at an average age of 50 (maximum age 64). Rising BMI in 18-year-olds was associated with an elevated risk of a heart attack before age 65, even after adjustment for age, year of conscription, comorbidities at baseline, parental education, blood pressure, IQ, [muscle strength](#), and fitness.

The increase in risk started at BMI 20 kg/m<sup>2</sup>, a level considered normal, then rose gradually, culminating in a nearly 3.5-fold elevated likelihood of heart attack in the severely obese (BMI 35 or higher). Compared to adolescents with BMI of 18.5 to 20.0 kg/m<sup>2</sup>, hazard ratios for the risk of heart attack were 2.64 and 3.05 for BMIs of 27.5 to 29.9 and 30 to 34.9, respectively.

Commenting on why risk started even at healthy BMIs, Dr. Aberg said: "This is an exploratory, population-based study meaning we report associations, but can only speculate on mechanisms. It is possible that

altered lipid metabolism, inflammation, and oxidative stress contribute to atherosclerosis at BMIs over 20. In addition, reference values for normal BMI in late adolescence may need to be reconsidered."

She noted that since the study only included men, the results cannot be extrapolated to women.

Dr. Aberg concluded: "Our finding of a link between adolescent BMI and heart attack in adulthood supports our previous results for heart failure. As the prevalence of overweight and obesity in young adults continues to escalate, we may start to see correspondingly higher rates of heart attacks and strokes in the future. Urgent action is needed by parents, schools, and policy makers to halt the obesity epidemic in children and young people."

**More information:** "Body weight in adolescent men in Sweden and risk of an early acute coronary event" ESC Congress 2019.

Provided by European Society of Cardiology

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