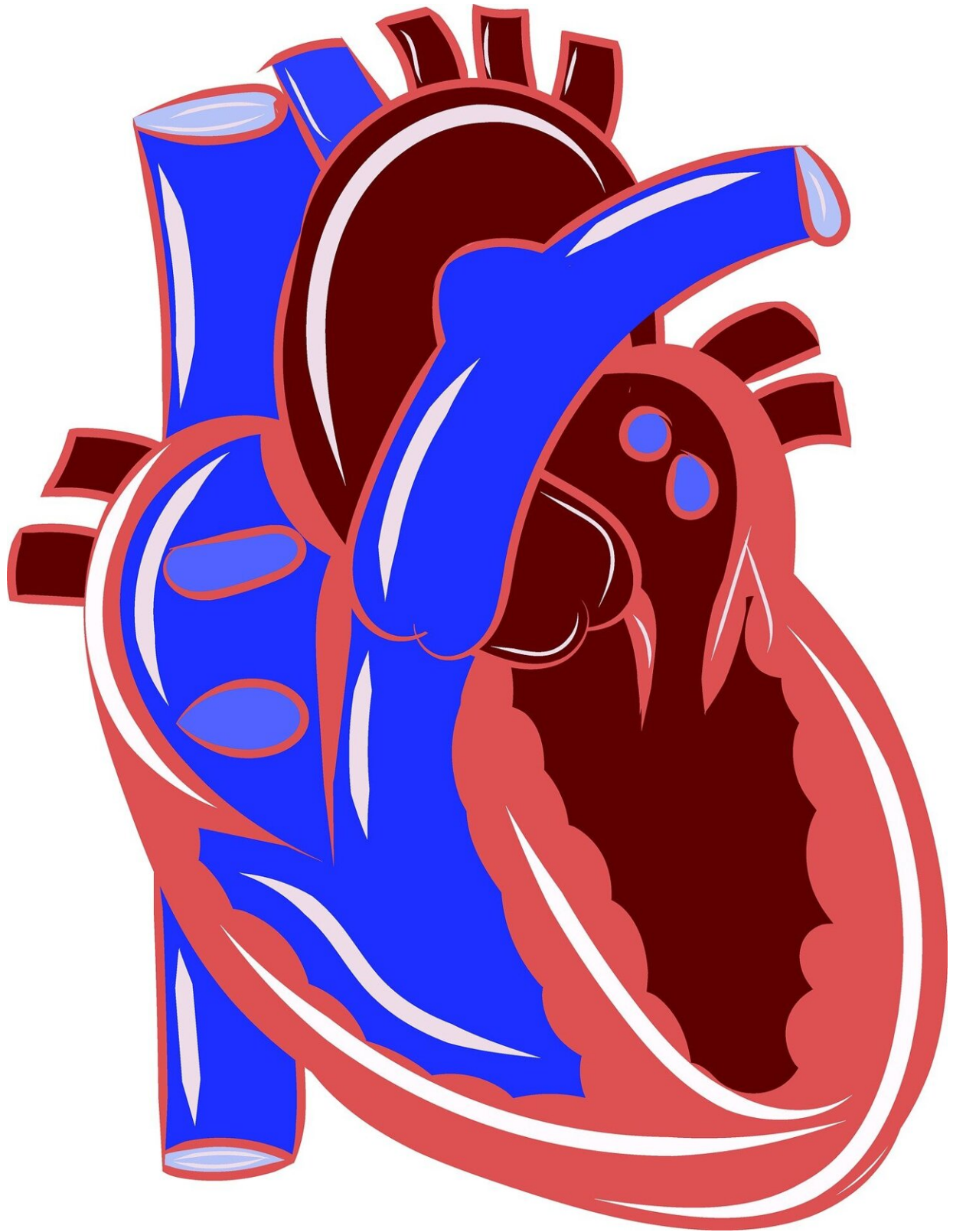


# **Cardiovascular disease with obesity associated with more illness, death and medical costs than obesity alone**

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Adults at high cardiovascular risk and living with overweight or obesity experience a higher number of cardiovascular events (such as heart attack and stroke), are at greater risk of dying prematurely, and have considerably higher health care costs than those living with obesity without cardiovascular disease, according to a study in over 420,000 adults living in North-West London, being presented at this year's [European Congress on Obesity](#) (ECO) in Dublin, Ireland (17–20 May).

Dr. Jonathan Pearson-Stuttard from Lane Clark & Peacock, London, U.K., led the study together with colleagues from Novo Nordisk, Denmark, a manufacturer of diabetes and obesity medications and sponsor of the study.

"These findings illustrate the substantial impact of living with both overweight or obesity and heart and circulatory diseases on individuals, [population health](#) and health care systems more broadly," says Dr. Pearson-Stuttard.

"As the prevalence of obesity increases, so too are the frequency of obesity-related complications, such as [heart disease](#) and stroke, in this group. This increased risk of adverse outcomes can be prevented and managed through a combination of improving key risk factors such as poor diet and smoking alongside effective management of blood pressure, cholesterol, and glucose. Doing so would not only improve the numbers of years lived in [good health](#) but would also reduce health care costs and improve economic productivity."

For the study, researchers analyzed at least 10 years of deidentified health care data from 429,358 adults (aged 18 or older) in the Discover database, which holds information on 2.8 million patients from linked primary and secondary care records in North-West London, who had

been diagnosed with obesity or were living with overweight and obesity and at high [cardiovascular risk](#) between 2004 and 2019.

They extracted data on 27,313 adults at high cardiovascular risk and raised BMI (aged 45 years or older with a BMI of 27 kg/m<sup>2</sup> or more and having had at least one prior [heart attack](#), stroke, or peripheral artery disease).

Adults with obesity were divided into class 1 (BMI of 30–35 kg/m<sup>2</sup>; 278,782 individuals, average age 43 years, 51% women), class II (BMI of 35–40 kg/m<sup>2</sup>; 80,621 individuals, average age 43 years, 61% women), or class III (BMI of 40 kg/m<sup>2</sup> or more; 42,642 individuals, average age 41, 65% women).

Researchers compared the incidence of cardiovascular events, death, and health care costs (standardized to 2019 prices) in individuals living with obesity and those at high cardiovascular risk. All outcomes were age-standardized to the European Standard Population (per 100,000 person years).

Between 2015 and 2019, adults at high cardiovascular risk had a much higher incidence of stroke, heart attack, major adverse cardiovascular events and acute heart failure events than any of the individual obesity groups.

For example, adults at high cardiovascular risk were five times as likely to experience a stroke than those living with class III obesity (1,148 per 100,000 person years vs. 238 per 100,000 person years), and five times as likely to have a major adverse cardiovascular event than those with class 1 obesity (2,812 person years vs. 513 per 100,000 person years).

However, the frequency of all cardiovascular events increased in each successive obesity class.

Similarly, the study found that cardiovascular-related mortality contributed to over a quarter (27%) of overall deaths in the high cardiovascular risk group, but only around a fifth (17%–20%) of total deaths in the obesity groups.

Moreover, death from any cause was four times higher in the high cardiovascular risk group compared with the class I obesity group, and more than double that of class III obesity.

The analysis also found that annual health care costs for an individual at high cardiovascular risk were more than twice that of an individual with class I or class II obesity (£2,856 vs. £1,182 and £1,390, respectively); and 75% higher than an individual living with class III obesity.

Inpatient admissions and use of prescription drugs were the main drivers of health care costs in all groups—making up 71% of total costs in adults at high cardiovascular risk and 61% in adults with class 1 obesity.

"Like overweight and [obesity](#), [cardiovascular disease](#) and its complications are largely preventable," says Dr. Pearson-Stuttard. "The COVID-19 pandemic highlighted the value of the population's health to economic prosperity. Our analyses highlight that risk of adverse outcomes is not equal within populations. Targeted efforts to more effectively manage chronic diseases and prevent complications would materially help reduce demand for acute health care services and lead to improved health and prosperity in communities."

The study has several limitations, including that it was observational and can't prove causation and it can't rule out the probability of selection bias, which is a common limitation of real-world evidence. For example, the influence of race and ethnicity on the risk of developing CVD may have influenced the results. Finally, the COVID-19 pandemic severely interrupted health systems and the analysis period was truncated at the

end of 2019.

Provided by European Association for the Study of Obesity

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