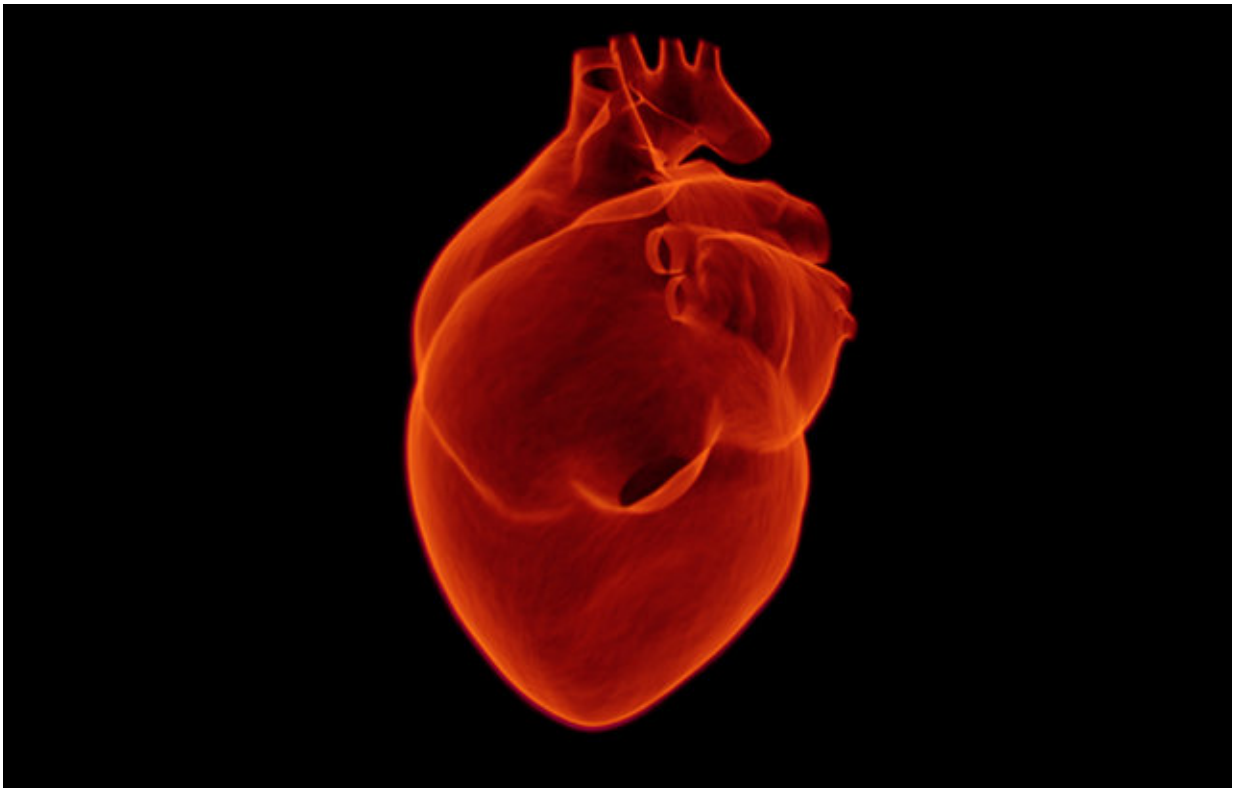


High BMI and blood pressure create a heavy heart

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Credit: Queen Mary, University of London

Being overweight or obese creates damaging changes to the structure of the heart, according to new research led by Queen Mary University of London (QMUL).

The new research, published in the journal *PLoS ONE*, uses UK Biobank data to reveal – for the first time – the direct damage that carrying extra weight has on the heart's weight and size, and implicates a range of other modifiable risk factors including high [blood pressure](#).

The British Heart Foundation-funded research, which included academics from University of Oxford, used cardiac magnetic resonance imaging to carefully study the structure and function of the hearts of 4,561 people from the UK Biobank database - an international health resource following the health and well-being of 500,000 volunteer participants.

After adjusting for risk factors that can't be modified, the team were able to measure the effects of a range of [lifestyle risk factors](#), including blood pressure, smoking status, body mass index (BMI), exercise, cholesterol, alcohol intake and diabetes, on the four chambers of the heart. They showed that risk factors could all have varying effects on the heart, but an overall increased heart weight was linked to overweight and obese individuals.

Previous studies have definitively proven the link between high BMI and [heart disease](#) but have predominantly shown how it increases blood pressure, cholesterol and the risk of developing diabetes, which are all independent risk factors for heart disease. This new study was able to see and measure the direct damage that modifiable [risk factors](#) have on the structure and function of the heart.

'The silent impact of being overweight'

Professor Steffen Petersen, lead author at QMUL's William Harvey Research Institute, said: "We all know that our lifestyle has a big impact on our heart health – particularly if we're overweight or obese. But researchers haven't fully understood how exactly the two things are

linked.

"With this research, we've helped to show how an unhealthy lifestyle increases your risk of heart disease. BMI and blood pressure in particular led to heavier and bigger hearts, which increases the risk of heart problems, including heart attacks."

Professor Sir Nilesh Samani, Medical Director of the British Heart Foundation, said: "This research shows the silent impact of being overweight and having [high blood pressure](#) on the structure and function of the heart, which over time may lead to heart disease and heart failure.

"The important message is that these are things we have the power to change before they result in irreversible [heart](#) damage."

More information: Steffen E. Petersen et al. The impact of cardiovascular risk factors on cardiac structure and function: Insights from the UK Biobank imaging enhancement study, *PLOS ONE* (2017). [DOI: 10.1371/journal.pone.0185114](https://doi.org/10.1371/journal.pone.0185114)

Provided by Queen Mary, University of London

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