Body Fat Hardens Arteries After Middle Age

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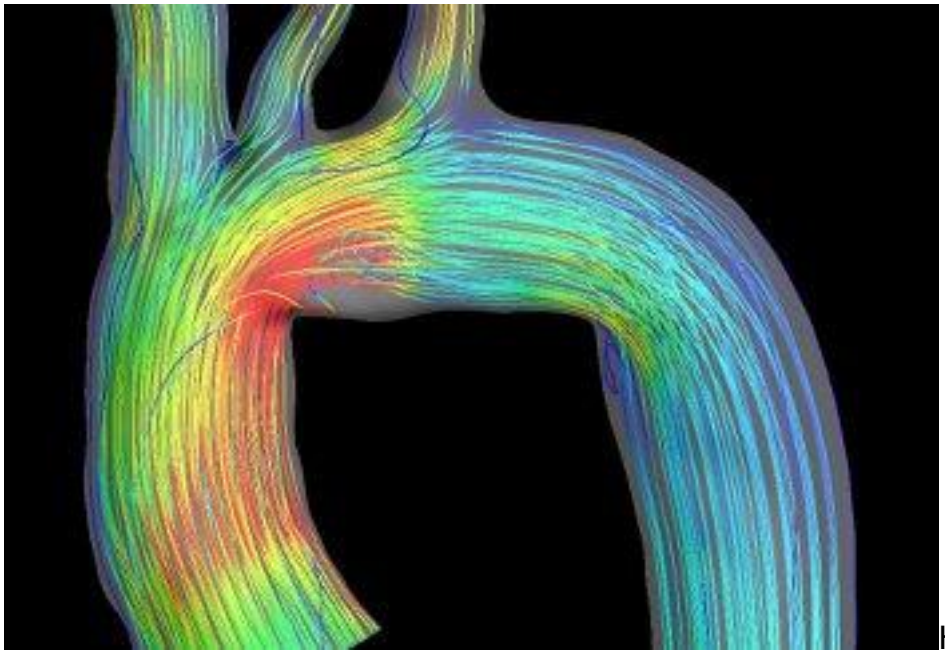

Having too much body fat makes arteries become stiff after middle age, a new study has revealed.

In young people, blood vessels appear to be able to compensate for the effects of obesity. But after middle age, this adaptability is lost, and arteries become progressively stiffer as body fat rises – potentially increasing the risk of dying from cardiovascular disease.

The researchers suggest that the harmful effects of body fat may be related to the total number of years that a person is overweight in adulthood. Further research is needed to find out when the effects of obesity lead to irreversible damage to the heart and arteries, they said.

Obesity is known to be a major risk factor for heart disease, but the reasons for this are not fully understood.

Researchers at the Medical Research Council (MRC) Clinical Sciences Centre [1] at Imperial College London scanned 200 volunteers to measure the speed of blood flow in the aorta, the biggest artery in the body. Blood travels more quickly in stiff vessels than in healthy elastic vessels, so this allowed them to work out how stiff the walls of the aorta were using an MRI scanner.

In young adults, those with more body fat had less stiff arteries. However, after the age of 50 increasing body fat was associated with stiffer arteries in both men and women.

Body fat percentage, which can be estimated by passing a small electric current

through the body, was more closely linked with artery stiffness than body mass index, which is based just on weight and height. Men are on average about 21 per cent fat and women 31 per cent fat.

The research was funded by the MRC [2], the National Institute for Health Research (NIHR) Imperial Biomedical Research Centre [3], and the British Heart Foundation [4], and published in the journal Hypertension [5].

Dr Declan O'Regan [6], who led the study, said: "The effects of having more fat seem to be different depending on your age. It looks like young people may be able to adapt to excess body fat, but by middle age the cumulative exposure to years of obesity may start to cause permanent damage to the arteries. One implication is that the potential beneficial effects of weight loss may depend on your age and how long you have been overweight. This is something we plan to study further.

"We don't know for sure how body fat makes arteries stiffer, but we do know that certain metabolic products in the blood may progressively damage the elastic fibres in our blood vessels. Understanding these processes might help us to prevent the harmful effects of obesity."

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