

HEART

Midriff bulge linked to heightened risk of sudden, often fatal, heart malfunction

Those with highest waist to hip ratio twice as likely to be affected as those with ratio in the normal range

[Obesity related risk of sudden cardiac death in the atherosclerosis risk in communities study doi 10.1136/heartjnl-2014-306238][Editorial: Obesity and sudden death: visceral response? doi 10.1136/heartjnl-2014-306921]

A persistent midriff bulge, otherwise known as central obesity, is linked to a heightened risk of a sudden, and often fatal, malfunction of the heart's electrical circuitry, suggests research published online in the journal **Heart**.

Those with the largest waists and hips combined are twice as likely to be affected as those with measurements in the normal range, the findings indicate.

Sudden cardiac death, or SCD for short, occurs without warning, and is caused by a sudden unexpected loss of heart function, which rapidly reduces blood flow around the body, including to the brain. It is distinct from a heart attack, and kills around 300,000 people in the USA every year.

Obesity has long been associated with various unfavourable changes in cardiovascular health, including SCD. But the researchers wanted to find out if a persistent midriff bulge may carry a greater risk of SCD than general obesity as the evidence suggests this body fat distribution may be more dangerous.

They therefore studied almost 15,000 middle aged men and women (45-64 years of age), all of whom were taking part in the Atherosclerosis Risk in Communities (ARIC) study.

ARIC has been tracking the causes of artery narrowing in middle aged Americans since 1987.

All the participants (55% women; 26% African American) underwent a detailed health assessment in 1987-9, and then again in 1990-92, 1993-5, 1996-8, and 2011-13. This included measurements of weight, height, waist circumference, and the waist to hip ratio.

During the monitoring period, which averaged 12.5 years, 253 SCDs occurred. Those affected were in their mid-fifties, on average; one in three was female; and four out of 10 were of African American heritage.

Unsurprisingly, those who died suddenly tended to have a higher prevalence of known risk factors for cardiovascular disease, such as high blood pressure and high cholesterol.

They also had a higher BMI (body mass index), larger waist circumference, and a larger waist to hip ratio—an indicator of central obesity—than those who did not sustain an SCD.

The risk of SCD was associated with general obesity, but only in non-smokers. And of the measures of obesity—BMI, waist circumference, and waist to hip ratio—waist to hip ratio was the most strongly associated with SCD risk after taking account of other influential factors.

Those with the highest waist to hip ratio had double the risk of SCD of those with a normal ratio.

And unlike BMI and waist circumference, the association between waist to hip ratio was independent of existing coronary heart disease, diabetes, or high blood pressure and other known risk factors.

This is an observational study so no definitive conclusions can be drawn about cause and effect, added to which the precise mechanisms for the association between SCD and central obesity are not known, say the researchers.

But fat around the midriff is thought to be more critical than fat stored elsewhere in the body, because of its influence on inflammation.