

# Cluster of slightly unhealthy traits linked with earlier heart attack and stroke

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Middle-aged adults with three or more unhealthy traits, including slightly high waist circumference, blood pressure, cholesterol and glucose have heart attacks and strokes two years earlier than their peers, according to research presented at [ESC Congress 2023](#).

"Many people in their 40s and 50s have a bit of fat around the middle

and marginally elevated blood pressure, cholesterol or glucose but feel generally well, are unaware of the risks and do not seek [medical advice](#)," said study author Dr. Lena Lönnberg of Västmanland County Hospital, Västerås, Sweden. "This scenario, called [metabolic syndrome](#), is a growing problem in Western populations where people are unknowingly storing up problems for later in life. This is a huge missed opportunity to intervene before heart attacks and strokes that could have been avoided occur."

It is estimated that up to 31% of the global population has metabolic syndrome. Previous studies have shown that people with metabolic syndrome are at higher risk of diabetes, [heart disease](#), [stroke](#) and premature death. This study investigated the link between asymptomatic metabolic syndrome in midlife and cardiovascular disease and death up to three decades later.

The study enrolled 34,269 adults in their 40s and 50s who attended a cardiovascular screening program in 1990 to 1999 in the Swedish county of Västmanland. Participants went to their primary health care center for a [clinical examination](#) by a nurse, which included measurements of height, weight, blood pressure, total cholesterol, [blood glucose](#), and waist and hip circumference. They also completed a questionnaire about lifestyle habits, previous history of [cardiovascular disease](#) and diabetes, and socioeconomic factors such as education.

Individuals were classified as having metabolic syndrome if they had three or more of the following: 1) waist circumference of 102 cm or above for men and 88 cm or above for women, 2) total cholesterol 6.1 mmol/l or above, 3) 130 mmHg or higher systolic blood pressure and/or 85 mm Hg or higher diastolic blood pressure, 4) fasting plasma glucose 5.6 mmol/l or higher.

Participants with metabolic syndrome were matched for age, sex and

date of health examination to two individuals without metabolic syndrome who served as controls. Data on cardiovascular events ([myocardial infarction](#) and stroke) and death were collected from national and local registers. The researchers analyzed the associations between midlife metabolic syndrome and nonfatal cardiovascular events and all-cause mortality after adjusting for age, sex, smoking, physical inactivity, education level, body mass index, hip circumference and living alone or with family.

A total of 5,084 individuals (15%) met the criteria for metabolic syndrome and a [control group](#) of 10,168 individuals without metabolic syndrome was identified. Some 47% of participants were women. During a median follow-up of 27 years, 1,317 (26%) participants with metabolic syndrome died compared with 1,904 (19%) controls—meaning that those with metabolic syndrome were 30% more likely to die during follow-up than their counterparts without metabolic syndrome.

Non-fatal cardiovascular events (myocardial infarction and/or stroke) occurred in 1,645 (32%) participants with metabolic syndrome and 2,321 (22%) controls—corresponding to a 35% greater risk of heart attack and stroke in the metabolic syndrome group. The median time to the first non-fatal heart attack or stroke was 16.8 years in the metabolic syndrome group and 19.1 years in the control group—a 2.3 year difference.

Dr. Lönnberg said, "As metabolic syndrome is a cluster of risk factors, the level of each individual component does not have to be severely raised. In fact, most people live with slightly raised levels for many years before having symptoms that lead them to seek health care. In our study, middle-aged adults with metabolic syndrome had a heart attack or stroke 2.3 years earlier than those without the collection of unhealthy traits. Blood pressure was the riskiest component, particularly for women in

their 40s, highlighting the value of keeping it under control."

She concluded, "The results underline the importance of early detection of risk factors through health screening programs so that preventive actions can be taken to prevent [heart attack](#), stroke and premature death. As a general rule of thumb, even if you feel well, check your [blood pressure](#) every year, avoid smoking, keep an eye on your waist circumference, and last but definitely not least, be physically active every day."

**More information:** The abstract "Early screening for metabolic syndrome opens a window of opportunity learnings from a long-term, population-based study" will be presented during the session [Risk factors and prevention: epidemiology \(2\)](#) which takes place on Friday 25 August from 09:15 to 10:00 CEST at Station 10.

Provided by European Society of Cardiology

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