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5 Risk Factors at 50 Can Steal a Decade of Life

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Five classic risk factors for cardiovascular disease — high blood pressure, high cholesterol, obesity, diabetes, and smoking — at age 50 can reduce life expectancy by more than 10 years. This is the conclusion of an international study led by German researchers and presented at the 2025 American College of Cardiology Scientific Session.

"These five factors account for approximately 50% of the global burden of cardiovascular diseases. Our central question was how many additional years of life are possible if these factors are absent or modified in middle age," said Christina Magnussen, MD, PhD, deputy director of the Department of Cardiology at the University Medical Center Hamburg-Eppendorf, Hamburg, Germany, during her presentation in Chicago.

The findings, also published in *The New England Journal of Medicine*, show that lifestyle changes and risk management in middle age can make a significant difference. Lowering blood pressure and quitting smoking had the most significant impacts.

Lifestyle Changes

Experts praised the findings of this study. "The study shows that even at around age 50, individuals can make substantial changes to their lifestyle or prevention strategies on a personal level to significantly influence their life expectancy," said Holger Thiele, MD, PhD, director of the Heart Center Leipzig at the University of Leipzig, Leipzig, Germany, and president of the German Society of Cardiology.

Ulrich Laufs, MD, PhD, director of the Department of Cardiology at Leipzig University Hospital, added, “The study impressively confirms the importance of the five risk factors: Smoking, blood pressure, cholesterol, diabetes, and over- or underweight. With a simple examination at middle age — 50 years — the lifetime risk for cardiovascular diseases such as heart attack and stroke, as well as for all-cause mortality, can be predicted.”

Persistent Risk Factors

Magnussen’s research group analyzed data from over two million people across 39 countries. They examined whether participants had high blood pressure, high cholesterol, underweight or overweight/obesity, diabetes, or smoking habit at age 50. The participants were followed-up for up to 47 years. Magnussen noted that the study allows risk predictions up to age 90.

“The lifetime risk of cardiovascular disease was considerable, even when none of the five risk factors were present — 13% for women and 21% for men. When all five risk factors were present, it rose to 24% for women and 38% for men,” Magnussen reported.

For women with all five risk factors at age 50, cardiovascular events occurred 13 years earlier than in their peers without these risks, and for men, these events occurred nearly 11 years earlier.

The mortality risk followed a similar trend. Without risk factors, the risk of death was 53% in women and 68% in men. With all five risk factors, the risk increased to 88% for women and 94% for men. Women with all five risk factors had a decreased life expectancy of 14.5 years, while men experienced a decrease of nearly 12 years.

Key Interventions

The study also demonstrated that these outcomes are not predetermined. By modifying lifestyle and treating risk factors, the risks for cardiovascular disease and death can be reduced, even in middle age.

Magnussen highlighted blood pressure control and smoking cessation as the most effective interventions:

- Lowering high blood pressure between the ages of 55 and 60 years delayed cardiovascular events by an average of 2.4 years for women and 1.2 years for men
- Quitting smoking at this age added 2.1 years for women and 2.4 years for men

“The higher the number of risk factors that could be controlled in this short period, the higher the number of potential additional years of life. Modifying all five risk factors was associated with additional 5 years of life,” she said.

Limitations

Thiele emphasized the study’s strong methodology, supported by the large number of participants and the long follow-up period. He also noted the importance of analyzing data on differences between women and men.

However, Thiele pointed out the limited influence of cholesterol and body mass index in their study. “Here, U- or J-shaped curves show varying risks of developing cardiovascular diseases or death. This is certainly challenging to adjust for statistically,” he said.

Laufs added that the study’s global scope and the use of over two million datasets from around the world, while a strength, posed challenges. “The data were collected in very different ways and under varying conditions, requiring the authors to perform ‘harmonization,’ meaning mathematical adjustments based on assumptions.”

This could explain why the study differs from others in one aspect, that is, in the study, only approximately 50% of the risk was explained by the five factors, whereas other studies have shown a higher proportion. The relative importance of risk factors, such as body weight, differed from that of cholesterol. “However, this limitation stems from the strength of the global perspective and does not diminish the study’s core findings,” Laufs stated.

In her presentation, Magnussen also noted that the associations shown do not prove causation. Unmeasured factors such as physical activity, diet, education, income, and environmental influences could partly explain these results.

Focus on Prevention

These findings have significant implications for clinical practice. “Our findings call for targeted interventions addressing specific risk factors, particularly during the critical middle-aged decade. Hypertension and smoking should be the primary focus of primary prevention,” said Magnussen.

Thiele stressed the importance of these findings, particularly in the German population. “In Germany, the main risk factors examined in this study — smoking, overweight, diabetes, hypertension, and elevated cholesterol — are significantly more prevalent in the population compared to other European countries.”

Germany requires significantly more investment in both individual and community-based prevention. “The approach to the Healthy Heart Act was already moving in the correct direction. This now needs to be incorporated into a new coalition agreement and developed into a national cardiovascular strategy focusing on individual prevention with early detection measures and structural interventions,” noted Thiele.

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