

Low fitness in youth associated with higher risk of cardiometabolic diseases in middle age: Study

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An extended [follow-up study](#) conducted at the University of Jyväskylä and now published in *Scandinavian Journal of Medicine & Science in Sports* shows that low cardiorespiratory fitness in adolescence is associated with higher risk for cardiovascular and metabolic diseases in middle age. The study provides real-life evidence for the far-reaching consequences of deteriorating fitness in youth.

The 45-year study combined the same participants' fitness test data from adolescence (12–19 years) with information on diabetes, hypertension, and [coronary heart disease](#) as well as self-measurements of waist circumference from the ages of 37 to 44 and/or 57 to 64 years. The associations of cardiorespiratory, muscular and speed-agility fitness with the [health conditions](#) were investigated separately and by combining the diseases and [risk factors](#) into a cardiometabolic risk score to indicate the burden of the conditions.

The results showed that low [cardiorespiratory fitness](#) in adolescence was associated with a higher burden of cardiometabolic conditions up to the age of 57 to 64 years. Moreover, in females, low adolescent cardiorespiratory fitness increased the risk of hypertension in middle age, and in males, low speed-agility was associated with increased waist circumference in late [middle age](#).

"Other common cardiometabolic disease risk factors such as age and body mass index were controlled for in the analyses, so we can conclude that cardiorespiratory fitness is an independent early indicator for cardiometabolic health later in life," says Ph.D. student Perttu Laakso.

The findings supplement previous evidence regarding mostly male participants from, for example, a study on the data in the conscription register of the Swedish military.

"There have been publicly discussed concerns over how the deteriorating

fitness of young people will affect the future labor force," Laakso says. "This study gives us some [scientific evidence](#) to support that concern."

"Unfortunately, there is little sign of this concern being alleviated, given that the cardiorespiratory fitness level among today's adolescents has been shown to be significantly lower than that of the adolescents examined in this study."

Laakso emphasizes that it is necessary to tackle all the barriers to young people's physical activity, whether that means investing in an environment that encourages [physical activity](#) or human resources for organized youth sports.

"The economic cost of these investments will be far lower than the related health care or disability expenses caused by cardiometabolic diseases."

Finally, Laakso wants to stress that all is not lost even though a person's physical fitness in adolescence would not have been ideal: "The evidence shows that exercising at all ages lowers the risk for cardiometabolic diseases."

More information: Perttu T. T. Laakso et al, The association of adolescent fitness with cardiometabolic diseases in late adulthood: A 45-year longitudinal study, *Scandinavian Journal of Medicine & Science in Sports* (2023). [DOI: 10.1111/sms.14529](https://doi.org/10.1111/sms.14529)

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