

Testing hand-grip strength could be a simple, low-cost way to predict heart attack and stroke risk

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Credit: Public Domain

Weak grip strength is linked with shorter survival and a greater risk of having a heart attack or stroke, according to an international study involving almost 140000 adults from 17 culturally and economically diverse countries.

The study, published in *The Lancet*, also found that [grip strength](#) is a stronger predictor of [death](#) than [systolic blood pressure](#), and the authors suggest that it could be used as a quick, low-cost screening tool by doctors or other healthcare professionals to identify high-risk patients among people who develop major illnesses such as heart failure and stroke.

Reduced muscular strength, which can be measured by grip strength, has been consistently linked with early death, disability, and illness. But until now, information on the [prognostic value](#) of grip strength was limited, and mainly obtained from select high-income countries.

The current study followed 139691 adults aged between 35 and 70 years living in 17 countries from The Prospective Urban-Rural Epidemiology (PURE) study for an average (median) of four years. Grip strength was assessed using a handgrip dynamometer.

The findings show that every 5kg decline in grip strength was associated with a 16% increased risk of death from any cause; a 17% greater risk of cardiovascular death; a 17% higher risk of non-cardiovascular mortality; and more modest increases in the risk of having a heart attack (7%) or a stroke (9%).

These associations persisted even after taking into account differences in other factors that can affect mortality or heart disease such as age, education level, employment status, physical activity level, and tobacco and alcohol use.

A low grip strength was linked with higher death rates in people who develop cardiovascular (eg, [heart attack](#) or stroke) and non-cardiovascular diseases (eg, cancer), suggesting that muscle strength can predict the risk of death in people who develop a major illness.

According to lead author Dr Darryl Leong from the Population Health Research Institute, Hamilton Health Sciences and McMaster University, Hamilton, Canada, "Grip strength could be an easy and inexpensive test to assess an individual's risk of death and cardiovascular disease. Further research is needed to establish whether efforts to improve muscle strength are likely to reduce an individual's risk of death and cardiovascular disease."

Writing in a linked Comment, Professor Avan Aihie Sayer from the University of Southampton, Southampton, UK, and Professor Thomas Kirkwood from Newcastle University, Newcastle upon Tyne, UK discuss whether grip strength could be a new biomarker of ageing, writing that, "This is not a new idea, but findings from PURE add support. Loss of grip strength is unlikely to lie on a single final common pathway for the adverse effects of ageing, but it might be a particularly good marker of underlying ageing processes, perhaps because of the rarity of muscle-specific diseases contributing to change in muscle function."

More information: *The Lancet*, [www.thelancet.com/journals/lan ... \(14\)62000-6/abstract](http://www.thelancet.com/journals/lan/article/S0140-6736(14)62000-6/abstract)

Provided by Lancet

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