Physical activity offers greater health benefits to those with naturally low fitness levels

July 7 2016

Credit: University of Glasgow

The benefits of being physically active are far greater for those who are naturally unfit, according to scientists at The University of Glasgow.

In a study of almost 500,000 participants from the UK Biobank, the researchers found that the benefits of being physically active, including decreased risk of mortality and heart disease, were far greater for those

with low levels of fitness or poor grip strength.

The study, which is published today in the *European Heart Journal*, found that those with high fitness or strength levels were at low risk of premature mortality and cardiovascular disease whether had high or low levels of physical activity.

A high level of fitness – the ability of the body to deliver oxygen to the muscles so that they can do work – and a high level of strength are both known to be associated with reduced risk of mortality.

Current UK guidelines suggest that all adults should engage in 150 minutes of moderate or 75 minutes of vigorous physical activity per week, and public health strategies currently target everyone who is inactive to increase their physical activity level.

However the researchers, from the Institutes of Cardiovascular and Medical Sciences and Health and Wellbeing, suggest that a more targeted campaign at those who are unfit or have low grip strength could increase the clinical, and potentially cost, effectiveness of interventions.

Dr Jason Gill from the Institute of Cardiovascular and Medical Sciences, said: "We wanted to determine whether somebody's level of fitness or grip strength influenced the effect of physical activity on risk of mortality and cardiovascular disease.

"Our data showed that the benefits of being physically active were far greater in those with low levels of fitness or grip strength. Those with high fitness or strength were at low risk whether or not they had a high level of physical activity."

It is well established that physical activity reduces risk of mortality and a number of diseases including heart disease.

However this research suggests that there is a strong genetic component at play, which allows for people who are naturally fit or strong to gain some of the benefits of low risk of mortality and low risk of heart disease irrespective of whether they engage in physical exercise or not.

Dr Carlos Celis-Morales said: "Our findings suggest that targeting on the basis of strength, and possibly fitness, could greatly improve our ability to identify those individuals who could benefit most from increased physical activity, thereby increasing the clinical and cost effectiveness of physical activity interventions.

"Grip strength – the force applied by the hand to pull on or suspend from objects – is easy to measure and can be done quickly in health care and community settings, so this screening has potential for implementation."

The authors add that is possible that those with low fitness or strength may enjoy physical activity less than those who are naturally fit and strong, so it may be important to develop strategies to also help support their engagement in physical activity.

More information: Carlos A. Celis-Morales et al. The association between physical activity and risk of mortality is modulated by grip strength and cardiorespiratory fitness: evidence from 498 135 UK-Biobank participants, *European Heart Journal* (2016). DOI: 10.1093/eurheartj/ehw249

Provided by University of Glasgow