

Study links aerobic fitness to fewer hospital admissions

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People who maintain or increase their aerobic fitness are at less risk of being hospitalized in the future, particularly if they were hospitalized previously. These are the findings of a study conducted at the University

of Gothenburg.

Regular physical activity has several [health benefits](#), including a reduced risk of developing and dying from cardiovascular disease. However, there has been little research into the link between the development of [aerobic fitness](#) and the likelihood of being hospitalized.

The study published in the *European Journal of Preventive Cardiology* includes 91,140 individuals who underwent two repeated health profile assessments in the occupational health service. These assessments include bicycle [fitness](#) tests, weight, height, and blood pressure measurements, and questions about lifestyle and health experiences.

The study compared changes in aerobic fitness between the two health profile assessments with data on subsequent hospital admissions from national registry data. The study looked at hospitalizations in general and specifically for cardiovascular disease for seven years on average.

"Maintaining aerobic fitness" related to changes of up to plus or minus one percent per year. Significant differences were classified as improved or poorer aerobic fitness. The average time between participants' tests was just over three years.

Significant links to aerobic fitness

The results show that the group that maintained aerobic fitness had 7 percent fewer hospitalizations for any reason during the follow-up period, and those with improved aerobic fitness had 11 percent fewer hospitalizations compared to those whose aerobic fitness deteriorated.

The difference was more significant for participants who had previously been hospitalized. When aerobic fitness was maintained or improved in this group, hospitalizations for any reason were 14 percent lower during

the follow-up period compared to participants whose aerobic fitness deteriorated.

For hospital admissions due specifically to cardiovascular disease, maintaining aerobic fitness was associated with 9 percent fewer admissions, and increasing aerobic fitness was associated with 13 percent fewer admissions compared to participants whose aerobic fitness deteriorated. There was a 20 percent reduction in entries due to [cardiovascular disease](#) during the follow-up period among participants previously hospitalized and maintained or increased their aerobic fitness.

All results are adjusted for diet, smoking, and perceived stress levels.

Results with a precise bearing on health care

Sahlgrenska Academy and the Department of Food and Nutrition and Sport Science at the University of Gothenburg, the Center for Lifestyle Intervention at Sahlgrenska University Hospital Östra, the Swedish School of Sport and Health Sciences (GIH), and HPI Health Profile Institute, which is responsible for the database of health profile assessments conducted by the occupational health service, are leading the study.

The lead author for the study is Frida Griffin, a public health officer and doctoral student in molecular and clinical medicine at Sahlgrenska Academy at the University of Gothenburg.

"The results suggest that improving aerobic fitness is an important goal that needs to be included in preventive health care measures," she says.

Co-author Sofia Paulsson, a physician and medical director at HPI Health Profile Institute, contributed fitness data from 1986 to 2019.

"The large volume of data involving repeated aerobic fitness tests from the same individuals has allowed us and the occupational health service to contribute to this research, with results demonstrating important clinical links," she says.

Elin Ekblom Bak, Associate Professor of Sport Science at the Swedish School of Sport and Health Sciences (GIH), said this.

"The links show not only potential benefits for the health of individuals but also an opportunity to influence societal and [health care costs](#), as an average hospitalization costs just under SEK 100,000 per instance," she notes.

Mats Börjesson is a Professor of Sports Physiology at the University of Gothenburg, senior physician and director of the Center for Lifestyle Intervention, and senior study author.

"Increased [physical activity](#), especially among people who have been hospitalized, can reduce readmissions and hence the greatly increased burden expected in [health](#) care going forward," he concludes.

More information: Frida Griffin et al, Maintaining or increasing cardiorespiratory fitness is associated with reduced hospital admission rate, *European Journal of Preventive Cardiology* (2023). [DOI: 10.1093/eurjpc/zwad367](#)

Provided by University of Gothenburg

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