

CORRESPONDENCE

Reducing health risks of physical inactivity by cardiac rehabilitation

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In her Research Highlight (King, A. Public health: Health risks of physical inactivity similar to smoking. *Nat. Rev. Cardiol.* **9**, 492 [2012]),¹ Alexandra King refers to the impact of health risks related to physical inactivity. Lack of physical exercise accounts for approximately 1 in 10 deaths annually, and up to 10% of noncontagious diseases such as type 2 diabetes mellitus, coronary heart disease, and breast or colon cancer.² Physical inactivity is a risk factor for many diseases. However, even a formerly inactive patient who has been diagnosed with a disease such as chronic heart failure (CHF) can substantially benefit from becoming physically active, which is of particular relevance for cardiac rehabilitation. As a physician in a rehabilitation hospital, I regularly see patients who used to be physically inactive making their first steps towards lifestyle changes such as engaging in physical exercise during hospitalization.

Both the Research Highlight by King¹ and studies published in the medical literature have important practical implications for cardiac rehabilitation. For example, a prospective cohort study involving healthy participants in Taiwan demonstrated that even a small amount of regular exercise (92 min per week) led to a significant increase in life expectancy.³ In addition, evidence exists that supervised exercise results in better outcomes than primary stenting in patients with peripheral artery disease.⁴ This finding supports an association between exercise

and improved vascular endothelial function owing to reduced intima-media thickness.⁵ Anabolic effects and improved muscular function have been demonstrated with exercise in patients with advanced CHF.⁶ Additional evidence stems from an exercise-related reduction of E3 ubiquitin-protein ligase TRIM63 (also known as MuRF-1) in the setting of CHF.⁷ MuRF-1 contributes to proteolysis in muscle wasting,⁷ to which patients with CHF are particularly vulnerable. Evidence also exists that exercises incorporating balance and strength training lead to a significant reduction in the number of falls among healthy elderly people (aged ≥ 70 years).⁸ Balance and strength training will also prevent muscular atrophy, osteoporosis fractures, and secondary illness owing to inactivity after a fall.

In my daily clinical routine, I frequently make the discovery that formerly physically inactive patients with insulin-dependent type 2 diabetes require fewer insulin units after they start exercising. Similarly, patients participating in individualized exercise programs tend to show improvements in the 6-min walk test, pulse oxymetry, and arterial blood gases. Therefore, supporting patients in the continuation of physical exercise after their release from the rehabilitation hospital is a vital component of care.

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Competing interests

The author declares no competing interests.

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