

Exercise and Physical Activity in relation to Kinesiophobia and Cardiac Risk Markers in Coronary Artery Disease

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Avhandlingen baseras på följande delarbeten:

- I. Bäck M, Wennerblom B, Wittboldt S, Cider Å. **Effects of high frequency exercise before and after elective percutaneous coronary intervention.** Eur J Cardiovasc Nurs. 2008 Dec; 7(4):307-13.
- II. Bäck M, Cider Å, Gillström J, Herlitz J. **Physical activity in relation to cardiac risk markers in secondary prevention of coronary artery disease.** Int J Cardiol. 2012 Oct; doi: 10.1016/j.ijcard.2012.09.117.
- III. Bäck M, Jansson B, Cider Å, Herlitz J, Lundberg M. **Validation of a questionnaire to detect kinesiophobia (fear of movement) in patients with coronary artery disease.** J Rehabil Med. 2012 Apr; 44(4):363-9.
- IV. Bäck M, Cider Å, Herlitz J, Lundberg M, Jansson B. **The impact on kinesiophobia (fear of movement) by clinical variables for patients with coronary artery disease.** Int J Cardiol. 2012 Feb; doi: 10.1016/j.ijcard.2011.12.107.

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ABSTRACT

Coronary artery disease (CAD) is the leading cause of death worldwide. Patients who have survived a coronary event are the highest priority for secondary prevention. In the secondary prevention of CAD, strong evidence of the beneficial effects of exercise-based cardiac rehabilitation is confirmed. The positive effects of physical activity are well established in primary prevention, but the question of whether these effects also relate to patients with CAD still remains to be explored. It is theoretically possible that kinesiophobia, fear of movement, may prevent successful cardiac rehabilitation. The impact on kinesiophobia by rehabilitation outcomes in patients with CAD has not previously been investigated.

The **overall aim** of this thesis was to study the impact of exercise and physical activity in relation to kinesiophobia and cardiac risk markers in patients with CAD.

Study I evaluated the effects of high-frequency exercise before and after an elective percutaneous coronary intervention (PCI).

Study II examined the level of physical activity in patients with CAD and investigated the association between physical activity and cardiac risk markers.

Study III investigated the validity and reliability of the Tampa Scale for Kinesiophobia Heart (TSK-SV Heart), a brief questionnaire to detect kinesiophobia, in patients with CAD.

Study IV described the occurrence of kinesiophobia in patients with CAD and investigated the impact on kinesiophobia by clinical variables with an influence on rehabilitation outcomes.

The main findings were that high-frequency exercise improved the maximum aerobic capacity and muscle function in patients treated with PCI, which may have clear advantages when it comes to preventing the progress of CAD. A relatively high level of physical activity was found among patients with CAD, six months after the cardiac event. After adjustment for confounders, statistically significant, yet weak, associations were found between physical activity and several cardiac risk markers. Support was found for the TSK-SV Heart as a reliable, valid questionnaire for measuring kinesiophobia in patients with CAD. A high level of kinesiophobia was found in 20% of patients with CAD, six months after the cardiac event. In addition, an impact on kinesiophobia was identified by clinical variables with an influence on rehabilitation outcomes in patients with CAD, representing medical variables, all components of the International Classification of Functioning, Disability and Health (ICF) and health-related quality of life.

In conclusion, high-frequency exercise in patients treated with PCI improved their aerobic capacity and muscle function. Significant, yet weak, associations were identified between physical activity and cardiac risk markers in patients with CAD. Several important clinical findings with an impact on rehabilitation outcomes were found to be associated with a high level of kinesiophobia. Kinesiophobia therefore needs to be considered in cardiac rehabilitation and would benefit from future research.

Keywords: coronary artery disease, percutaneous coronary intervention, exercise, physical activity, cardiac rehabilitation, cardiac risk markers, kinesiophobia, psychometrics, International Classification of Functioning, Disability and Health

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