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Is cardiac rehabilitation after heart valve surgery redundant? Long-term results from the randomized CopenHeartVR trial

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Background: Cardiac rehabilitation is recommended in patients after heart valve surgery despite limited evidence. The CopenHeartVR trial found a positive effect on physical capacity after 4 months weeks, but no effect on mental health. However, the long term effects of cardiac rehabilitation is yet unknown.

Purpose: To assess the long term effect of comprehensive cardiac rehabilitation versus usual care for patients after heart valve surgery on physical capacity and mental health.

Methods: 147 participants were included in the CopenHeartVR trial. After valve surgery, the participants were randomly allocated 1:1 to either cardiac rehabilitation (intervention group) or “usual care” without physical exercise (control group). In this follow-up study, we assessed the outcomes: peak oxygen uptake measured by cardiopulmonary exercise testing at 12 months, and self-assessed mental and physical health using the Short Form-36 questionnaire, Mental Component Scale (MCS) and Physical Component Scale (PCS) 24 months after inclusion, respectively. Groups were compared using mixed model analysis.

Results: Participants were mainly men (76%), mean age 66.0 years with aortic valve surgery (65%). We found no effect in VO₂ peak at 12 months follow-up (intervention group vs control group: 24.5 (standard deviation (SD)±1.7) vs. 25.8 (SD±1.2) ml/kg/min, p<.85). Further, we found no significant difference between groups in self-assessed mean mental or physical health at 24 months (MCS: 55.5 (SD ±1.2) vs. 54.0 (SD ±1.3), p=0.78; PCS: 50.1 (SD ±1.0) vs. 50.7 (SD±1.1), p=0.93).

Conclusions: Undertaking exercise-based cardiac rehabilitation after heart valve surgery positively impacts VO₂ peak short term, but no long term benefit was found, indicating that successful cardiac rehabilitation requires long follow-up. Further, guidelines should consider including an individualised approach after surgery with needs assessment as part of follow up in a heart valve clinic.