

Appraisal

Critically appraised paper: Home-based versus centre-based cardiac rehabilitation have similar outcomes

Synopsis

Summary of: Anderson L, Sharp GA, Norton RJ, Dalal H, Dean SJ, Jolly K, et al. Home-based versus centre-based cardiac rehabilitation. *Cochrane Database Syst Rev.* 2017;6:CD007130.

Objective: To review the evidence of whether home-based and centre-based cardiac rehabilitation have similar outcomes in patients with heart disease. **Data sources:** Cochrane Central Register of Controlled Trials, MEDLINE, Embase, PsycINFO and CINAHL, searched up to September 2016. This search was supplemented by searching of trials registers and citation tracking. **Study selection:** Randomised controlled trials involving patients with recent myocardial infarction, revascularisation or heart failure, in which home-based and centre-based cardiac rehabilitation were compared. Outcome measures were mortality, cardiac events, exercise capacity, health-related quality of life, program completion, modifiable cardiac risk factors, adherence and cost. **Data extraction:** Two reviewers extracted data, and discrepancies were resolved by discussion. Methodological quality was assessed using the Cochrane Risk of Bias tool. **Data synthesis:** Of 10 482 studies initially identified by the search, 23 with a total of 2890 patients were included in the review. A number of trials provided insufficient detail to assess methodological quality, contributing to a low-to-moderate level of evidence overall. The majority of home-based programs used walking with phone support, while centre-based programs typically incorporated supervised cycle and treadmill exercise. Based on the

pooled data, there were no differences in the effects of home-based and centre-based programs on: mortality up to 12 months (RR 1.19, 95% CI 0.65 to 2.16, 11 studies, 1505 participants, very low-quality evidence), exercise capacity up to 12 months (SMD -0.13, 95% CI -0.28 to 0.02, 22 studies, 2255 participants, low-quality evidence), and health-related quality of life up to 24 months (in 61/67 domains, 14 studies, 2079 participants, moderate-quality evidence). Similarly, there were no between-group differences in cardiac events, total cholesterol, low-density lipoprotein cholesterol, blood pressure, proportion of smokers at follow-up, and costs. Small differences in favour of centre-based programs were demonstrated for high-density lipoprotein cholesterol and triglycerides. Conversely, there were marginally higher levels of program completion (RR 1.04, 95% CI 1.00 to 1.08, 22 studies, 2615 participants, low-quality evidence) and adherence in home-based programs. **Conclusion:** Home-based programs represent an alternative to widen access and improve completion of cardiac rehabilitation.

Provenance: Invited. Not peer reviewed.

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Commentary

Traditionally, cardiac rehabilitation is delivered face-to-face in hospitals, universities or community centres, with participants attending a median of 20 sessions (two sessions/week over 9 weeks).¹ While cardiac rehabilitation is recognised as a beneficial and cost-effective mitigation strategy,² participation remains sub-optimal.³ Interest in home-based programs has increased because of their potential to widen access and improve participation. These home-based programs may involve self-help manuals, supervised or unsupervised exercise, and use of technology such as video-based telerehabilitation. The majority of patients who need exercise-based rehabilitation are willing and confident to use such technology for telerehabilitation in their homes.⁴⁻⁶ It is therefore helpful to have this review to confirm the effectiveness of home-based cardiac rehabilitation.

This review used robust methods, including the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach and assessment of small study and publication biases. One limitation is that most of the included trials were conducted in high-income countries so it may be difficult to generalise the results. Furthermore, it is unclear if these short-term effects are sustainable, as only three trials reported outcomes beyond 12 months. Lastly, inconsistent reporting of some trials may hinder the confidence in and generalisability of the results.

Home-based programs represent an alternative to widen access and improve completion of cardiac rehabilitation. These programs offer patients an opportunity to exercise in the comfort of their homes, while alleviating transport barriers. There appears to be similar effectiveness in improving

clinical and health-related quality of life outcomes between the two programs in patients with heart disease. This finding, in conjunction with a lack of between-group difference in healthcare costs, supports that the program choice should be based on local resources and patient preferences. With advances in technology, there are growing opportunities to deliver home-based programs as demonstrated by recent studies in telerehabilitation.^{7,8} Future studies should continue to expand on innovative models for home-based cardiac rehabilitation.

Provenance: Invited. Not peer reviewed.

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