**Title:** Behaviour change techniques and intervention characteristics in digital cardiac rehabilitation: A systematic review and meta-analysis of randomised controlled trials

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**Background:** Evidence suggests that digitally delivered cardiac rehabilitation (CR) is likely to be an effective alternative to centre-based CR. However, there is limited understanding of the behaviour change techniques (BCTs) and intervention characteristics included in digital CR programmes.

**Objectives:** This systematic review aimed to identify the BCTs and intervention characteristics that have been used in digital CR programmes and to study those associated with effective programmes.

**Methods:** PubMed, MEDLINE, EMBASE, CINHAL, PsycINFO and Cochrane Central Register of Controlled Trials were searched for randomised controlled trials of digital CR in patients with heart disease. Interventions were coded using the BCT taxonomy v1 and the Template for Intervention Description and Replication (TIDieR) checklist. Outcomes were synthesised in a series of meta-analyses.

**Results:** Twenty-five randomised controlled trials were included in the review. Digital CR was associated with significant improvements in daily steps, light physical activity, medication adherence, and functional capacity when compared to usual care. Interventions that were effective at improving behavioural outcomes frequently employed BCTs relating to feedback and monitoring, goals and planning, natural consequences, and social support. Completeness of reporting on the TIDieR checklist across studies ranged from 42% to 92%, with intervention material descriptions being the most poorly reported item.

**Conclusion:** Digital CR appears effective at improving outcomes for patients with cardiovascular disease. The integration of certain BCTs and intervention characteristics may lead to more effective interventions, however better intervention reporting is required.

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