

# Assessment of the effectiveness of a phase IV cardiac rehabilitation programme

Steve Atkins, Sian Holland, Paul John Taylor, Jonathan Sinclair

## Background

Cardiovascular rehabilitation is a low-cost, effective mechanism for the enhanced health and wellness of sufferers of cardiac diseases. There is little information on the effectiveness of such programmes. The purpose of this study was to assess the effectiveness of a phase IV cardiac rehabilitation programme on selected health, fitness, and psychological variables.

## Methods

We used existing data generated over 10 years by the Heartbeat Northwest Cardiac Centre, UK, from patients engaged on a phase IV cardiac rehabilitation programme. Key variables were cardiovascular risk score quantified by the Framingham Risk Score, cardiorespiratory fitness levels, body-mass index, and measures of anxiety and depression measured by the Hospital Anxiety and Depression Scale. Measurements were taken before and after the programme (mean duration 48 weeks). Changes in target dependent variables were assessed with mixed ANOVA.

## Findings

Data from 1129 patients were analysed. Mean risk score was significantly higher before than after the programme (19.10 [SD 10.91], 95% CI 18.12–20.07 vs 10.12 [7.06], 9.49–10.75;  $p < 0.01$ ) and mean aerobic fitness was lower (20.60 mL/min per kg [17.20], 19.59–21.60 vs 27.14 [16.19], 22.11–33.18;  $p < 0.01$ ), though no main effect was identified between the sexes. Similar changes before and after the programme were found for mean scores of both depression (4.57 [SD 3.17], 4.29–4.85 vs 3.48 [2.64], 3.25–3.72;  $p < 0.01$ ) and anxiety (6.65 [3.75], 6.31–6.99 vs 5.50 [3.38], 5.20–5.80;  $p < 0.01$ ), again with no differences by sex. No significant effects were identified for body-mass index.

## Interpretation

This study confirms the benefit of engagement in cardiac rehabilitation programmes for moderating adverse risk profiles. We suggest that further investigation of continuing improvements in health, via structured follow-up after the programme has finished, should be done to identify whether phase IV

cardiac rehabilitation can truly effect positive behavioural change. Follow-up assessment of the fairly small changes in body-mass index and body size is also recommended.