TO EXAMINE THE EFFECTIVENESS OF PSYCHOLOGICAL OUTCOMES IN CARDIOVASCULAR PATIENTS USING AN INTERNET-BASED CARDIAC REHABILITATION APPLICATION COMPARED WITH A CONVENTIONAL CARDIAC REHABILITATION PROGRAMME OR A COMBINATION OF BOTH

Aim To compare the exercise outcomes of a TCR programme, a web-based programme using the myHeart platform (WB-CR), and a group using a combination of both (COMBI-CR).

Methods We recruited 57 low-moderate risk, patients with coronary heart disease randomly allocated to either TCR, WB-CR or COMBI-CR for a period of eight weeks. TCR was delivered in a hospital setting and patients completed one session per week, plus an education day. WB-CR completed exercise and educational sessions using the myHeart app, and the COMBI-CR group used the myHeart app, alongside TCR. Exercise capacity (Metabolic equivalent [METs] and heart rate walking speed index [HRWSI]) were recorded from the incremental shuttle walk test (ISWT) at baseline, and 8 weeks. Outcomes were analysed within, and between groups using Statistical Package for the Social Sciences (Version 28).

Results Fifty-four patients completed the study. Statistically significant improvements were observed for METs across all three groups after 8 weeks of CR based on the pre and post ISWT results. TCR +1.5 METs, COMBI-CR +1.4 METs and WB-CR +0.9 METs (P<.001). HRWSI also demonstrated a significant decrease across all groups after intervention TCR -1.1 (P=.003), COMBI-CR -1.2 (P=.005), WB-CR -1.4 (P=.005) which equates to a reduction in heartbeats for every 100m walked of 11, 12 and 14 respectively.

Conclusion This study demonstrates the potential benefits of using a digital platform, to increase exercise capacity. All groups showed an improvement in METs and HRWSI after eight weeks of intervention, confirming that there is no apparent difference in clinical outcomes with alternative modes of CR delivery.

WHICH AFFECTS REDUCED AEROBIC POWER MORE IN PATIENTS WITH CHD AND ATRIAL FIBRILLATION, AGE OR BODYWEIGHT?

Background Obesity is a key risk factor for atrial fibrillation (AF) and CHD patients with AF are normally older than those patients without AF. Ageing and body mass both have an impact on an individual’s aerobic functional capacity (aerobic power; VO2max/peak).

Aim The aim of the study was to evaluate the proportional influences of both age and body mass on VO2 peak in CHD rehabilitation (CR) participants with and without AF.

Methods Retrospective analysis of cardiopulmonary exercise test data from previous studies, involving CR participants with and without persistent AF, were analysed in relation to age, body mass, relative VO2 peak (ml/kg/min) and absolute
VO₂peak (ml/min). Differences between the two populations were assessed via independent t-tests with alpha set at p < .05, calculated in SPSS software version 23.

Results CR participants with AF (n = 30; 70.7 years) vs. those without AF (n = 68; 56.9 years) were 14 years older (p <0.0001), had a greater body mass (94.6 vs 80.5 kg; p = 0.001) and a lower VO₂peak (relative VO₂peak: 17.8 vs 26.7 ml/kg/min; absolute VO₂ peak: 1684 ml/min vs 2149 ml/min; p <0.0001). The relative and absolute VO₂peaks in AF participants vs non-AF participants were lower by 33% and 22%, respectively. Given that ageing is known to contribute to a 1% per year decline in aerobic power, the AF participants would already be expected to have a 14% lower VO₂peak than the non-AF participants.

Conclusion Compared to non-AF the age-corrected aerobic power of the AF participants explained two-thirds of their lower aerobic power. Whilst it is important to focus on weight-management of AF populations, their observed lower functional capacity was still more strongly related to their older age than their body mass. These results support the prime importance of increased physical activity over weight-loss to mitigate the loss of ‘true’ aerobic power in those with CHD and AF.

Abstract 8 Table 1 Primary outcome: METS

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-Exercise (SD)</th>
<th>Post-Exercise (SD)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>4.80(0.8)</td>
<td>5.40(0.9)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Group 2</td>
<td>4.30(0.9)</td>
<td>4.80(0.9)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>p value</td>
<td>0.015</td>
<td>0.015</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion Patients with multiple co-morbidities had a lower baseline for functional capacity and less favourable body composition, but still benefited from CR. However, all patients benefited from CR. Although multimorbidity may be a challenge for traditional CR services, referral to CR should be encouraged for all patients, either with or without comorbidities.

Background The 2019 UK NACR reported that approximately 50% of all 6,502 patients referred for cardiac rehabilitation (CR) had two or more comorbidities. Patients with multiple co-morbidities are at higher risk of dying prematurely, hospital admissions, increased length of stay in hospital and having poor health-related quality of life than patients with only one chronic medical condition.

Aim To explore the efficacy of exercise rehabilitation in patients with coronary heart disease plus multimorbidity attending a CR programme in an area of deprivation.

Methods Using a repeated-measures t-test, and an independent t-test, retrospective 2021/22 data from 72 patients completing a phase 3 CR exercise programme was analysed to compare outcome measures pre and post an 8-week course of super-intensive exercise based cardiac rehabilitation (EBCR) in North East Wales.

Results Both groups had a significant improvement in METS post exercise (Table 1). However, Group 2 had significantly lower METS on submaximal exercise tolerance test (SETT) at baseline and post exercise (Table 1). There was a significant improvement in Duke Activity Status Index scores in both groups (Group 1: A1 21.10, A2 35.30, p < .001; Group 2: A1 19.80, A2 31.10, p < .001) post exercise intervention. There were no differences between groups. Group 2 had significantly higher BMI pre (Group 1 28.0 kg/m², Group 2 31.1 kg/m²; p = .036) and post (Group 1 28.1 kg/m², Group 2 30.8 kg/m²; p = .048) exercise intervention.

Conclusion EBCR can have positive improvements on patients’ health and self-confidence, not only improvements in physical fitness. Data shows us that our current EBCR is patient-centred and effective in improving patient’s confidence and knowledge around exercise.