

12-weeks of high-protein Mediterranean-style diet and resistance exercise improve Mediterranean-diet score and sarcopenia-related quality of life (SarQol) in cardiac rehabilitation participants

R. Kirwan^{1,2}, F. Perez de Heredia^{2,3}, M. Bazzi⁴, T. Butler^{5,6} and I.G. Davies^{1,2}

¹Research Institute for Sports and Exercise Sciences, Liverpool John Moores University, Liverpool, UK,

²Institute for Health Research, Liverpool John Moores University, Liverpool, UK,

³School of Biological and Environmental Sciences, Liverpool John Moores University, Liverpool, UK,

⁴Institute of Sports Science, Saarland University, Germany,

⁵Faculty of Health, Social Care and Medicine, Edge Hill University, Ormskirk, UK and ⁶Cardiorespiratory Research Centre, Edge Hill University, Ormskirk, UK

Individuals who suffer from, or at high risk of, a cardiac event may be referred to cardiac rehabilitation (CR)⁽¹⁾, a lifestyle intervention program focused on aerobic exercise, which may also include components such as dietary advice and weight management⁽²⁾ with the objective of reducing the risk of future cardiac events and improving quality of life (QOL)⁽³⁾. Sarcopenia, the age-associated loss of muscle mass and strength⁽⁴⁾, is correlated with increased risk of cardiometabolic disease⁽⁵⁾ and reduced QOL⁽⁶⁾. As such, augmenting muscle mass and strength may be a suitable strategy for reducing CVD risk and improving QOL in CR participants. Resistance exercise (RE) and elevated protein intake are widely used protocols for increasing muscle mass and strength in older adults⁽⁷⁾ and Mediterranean-style dietary approaches have shown promise for both primary and secondary prevention of CVD^(8,9). The aim of this study was to determine the feasibility of using a high-protein Mediterranean-style diet and resistance exercise in CR patients and to determine its effects on sarcopenia related QOL (SarQol) and Mediterranean diet (MedDiet) score.

Review and ethical approval was granted by the NHS Health Research Authority North West Research Ethics Committee (IRAS: 256927) and Liverpool John Moores University Research Ethics Committee (19/NW/0762). Cardiac rehabilitation participants (n = 12, 7 male) were recruited from CR phase-3 and self-selected their intervention for CR phase 4 (community-based CR): standard CR (control, n = 4) (predominantly self-selected aerobic exercise with basic healthy eating guidance), or a high-protein Mediterranean-style diet supplemented with 50g/day of dairy protein (Optimum Nutrition high protein shake) and 3 weekly sessions of progressively overloaded full-body resistance exercise (intervention, n = 8). MedDiet and SarQol scores were measured via questionnaire before and after the 12-week intervention. Data was analysed with IBM SPSS v27, using 2-way repeated measures analysis of variance (ANOVA) (time as within-subject condition × treatment as between-subject condition).

Eleven participants successfully completed the 12-week intervention successfully, with 1 dropout citing health issues unrelated to the intervention. SarQol score increased significantly at 12 weeks (F = 23.192, p < 0.001), with greater improvement in the intervention group (interaction time × treatment: F = 6.030; p = 0.036). The MedDiet score did not change significantly in the whole sample (F = 2.122, p = 0.179), but there was a significant interaction between time and treatment, with only the intervention group showing improvement (F = 5.164; p = 0.049).

These results indicate that guidance to follow a high-protein Mediterranean-style diet, including provision of 50g/day of dairy protein, and instruction to complete 3 weekly sessions of resistance exercise, leads to improved SarQol and MedDiet scores compared to standard phase-4 CR. Further research is warranted to investigate the wider benefits of such interventions in CR participants.

References

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