

Diet or Exercise on Peak Oxygen Consumption and Quality of Life in Diastolic Heart Failure?

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Introduction

Exercise for patients with cardiovascular disease is recommended by practice guidelines, and includes multifaceted interventions to improve atherosclerotic risk, lifestyle, exercise capacity, quality of life (QOL), increases life expectancy, suppresses hospitalization frequency and has been shown to be cost-effective [1-5].

Kitzman and colleagues evaluated a total of 92 participants. The study design was a randomized, attention-controlled, 2 × 2 factorial trial. The intervention consisted of 20 weeks of diet, exercise, or both; attention control consisted of telephone calls every two weeks. The study investigators randomized participants to exercise, diet, exercise + diet, and control. The main outcome measures were peak oxygen consumption (POC) and QOL measured by the Minnesota Living with Heart Failure Questionnaire [6].

Exercise attendance was 84% (standard deviation [SD], 14%) and diet adherence was 99% (SD, 1%). Using main-effects analysis, the study investigators found POC consumption increased significantly with both interventions: exercise, 1.2 ml/kg body mass/min (95% confidence interval [CI], 0.7-1.7; $p < 0.001$); diet, 1.3 ml/kg body mass/min (95% CI, 0.8-1.8; $P < 0.001$). The combination of exercise + diet + additive (complementary) for POC (joint effect, +2.5 mL/kg/min substantially greater than the accepted clinically meaningful increase of 1.0 ml/kg/min). The study investigators found statistically significant change in the Minnesota Living With Heart Failure overall score with exercise and diet with (main effect: exercise, -1 unit [95% CI, -8 to 5], $p = 0.70$; diet, -6 units [95% CI, -12 to 1], $p = 0.008$). The change in POC positively correlated with the percent

change in lean body mass ($r = 0.32$; $p = 0.003$) and the change in thigh muscle: intermuscular fat ratio ($r = 0.27$; $p = 0.02$). Body weight decreased by 7% (7 kg [SD 1]) in the diet group, 3% (4 kg [SD 1]) in the exercise group, 10% (11 kg [SD 1]) in the exercise + diet group, and 1% (1 kg [SD, 1]) in the control group [6].

In obese older patients with clinically stable diastolic HF, caloric restriction or aerobic exercise training increased exercise capacity, and neither intervention had a significant effect on QOL.

References

1. Roever L (2015) Exercise training versus drug interventions on mortality outcomes: the research evidence. *Epidemiology (Sunnyvale)* 5: e119.
2. Roever L, Borges ASR (2015) Pulmonary hypertension and exercise training: evidence based studies. *Lung Dis Treat* 1: e103.
3. Roever L (2015) Exercise training and heart failure with preserved ejection fraction: what the evidence of the studies show? *Transl Med* 5: e134.
4. Roever L, Bastos EMRD, Resende ES (2015) Cardiac rehabilitation in patients after acute myocardial infarction. *J Cardiovasc Dis Diagn* 3: e109.
5. Anderson L, Thompson DR, Oldridge N, Zwisler AD, Rees K, et al. (2016) Exercise-based cardiac rehabilitation for coronary heart disease. *Cochrane Database Syst Rev* 1: CD001800.
6. Kitzman DM, Brubaker P, Morgan T, Haykowsky M, Hundley G, et al. (2016) Effect of caloric restriction or aerobic exercise training on peak oxygen consumption and quality of life in older obese patients with heart failure with preserved ejection fraction: a randomized clinical trial. *JAMA* 315: 36-46.