Effects of High-Intensity Interval Training versus Moderate-Intensity Continuous Training on Peak Oxygen Consumption (VO₂) in a Group of Phase II Cardiac Rehabilitation Patients

Meghan Long¹, Dalynn Badenhop², Todd Keylock¹, and Matthew Laurent¹

¹Bowling Green State University, Bowling Green, OH
²University of Toledo Medical Center, Toledo, OH

Introduction

Peak VO₂ is a valid measure of functional capacity in cardiac rehab patients. Peak VO₂ is also a predictor of prognosis in this group of patients.

Purpose

The purpose of the current study is to evaluate if high intensity interval training (HIIT) leads to greater improvements in peak VO₂ when compared to moderate intensity continuous training (MCT) in a group of phase II cardiac rehab (CR) patients.

Design

A trial of a group of phase II cardiac rehab patients randomized to undergo different exercise training protocols.

Methods

Participants: Phase II CR patients (N=18)
- Males (n = 16) Females (n = 2)
- Patients completed a 2-week run in period
- Patients then completed a cardiopulmonary exercise (CPX) test to assess baseline peak VO₂.
- Patients were then randomized into the HIIT or MCT exercise group and completed 8 weeks of training.
- Post CPX testing was completed to compare changes in peak VO₂.

Baseline Statistics:
- Independent t-tests were used to determine if the continuous variables (age, sex, height, weight, body mass index, peak VO₂, or ejection fraction) varied at baseline

Results

- At baseline there was no significant difference between the exercise training groups except for height (p<0.001).
- MCT and HIIT had a baseline peak VO₂ of 18.6 ml/kg/min and 22.0 ml/kg/min, respectively.
- MCT and HIIT increased peak VO₂ by 2.25 ml/kg/min and 2.94 ml/kg/min, respectively.
- Statistical analysis confirmed that there was no significant difference in the improvement of peak VO₂ between the two groups (p = 0.173)
- Independent t-tests were used to determine significance
- p ≤ 0.05

Conclusion

- The results of this study suggest that HIIT in a group of Phase II cardiac rehab patients didn’t show greater improvements in peak VO₂ when compared to MCT.
- HIIT and MCT can be used to improve functional capacity and prognosis in phase II cardiac rehab patients.