Physiological and Perceptual Responses During Self-Regulated Exercise in Men with Coronary Artery Disease

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Purpose: Physiologically based exercise prescriptions normally involve identifying an intensity range that elicits a predetermined VO_2 or heart rate. In many instances prescribed exercise that exceeds an individual's preferred level of intensity may establish a negative attitude toward physical activity. Longitudinal studies report that participants tend to deviate from physiologically based prescribed levels of intensity in favour of their apparently preferred levels. Self regulated exercise intensity may increase enjoyment and promote adherence by allowing individuals successfully complete an activity within their perceptual preference range and without undue physiological strain. This study examined the physiological and perceptual responses during self-regulated exercise in men with CAD.

Methods: Eight men with CAD (65.7 ± 4.5 yr, VO_2max 18.6 ± 4.1 ml/kg/min, BMI 29.7±3.3 kg/m^{-2}) exercised on a treadmill for 20 min at a self regulated intensity. They were allowed to change the velocity and grade every 5 min. Respiratory metabolic and gas exchange variables were measured continuously using open circuit spirometry. Heart rate was continuously recorded using telemetry, and undifferentiated RPE (RPE-O) was recorded every 5 min using the Borg 15-category scale.

Results: Perceptual and physiological responses remained stable after the first 5 min of exercise. Subjects exercised at 65.7 ± 14.2 % VO_2max and 94 ± 5.0 % HRpeak during the final 15 min of self regulated exercise. This equates to a treadmill velocity of 5.3 ± 0.9 km/h, and a grade of 0.7 ± 1.1. The RPE-O was 12.0 ± 2.0, and falls between the verbal descriptors of fairly light and somewhat hard.

Conclusion: When allowed to self-regulate their exercise intensity, men with CAD select an intensity that is perceived to be fairly light to somewhat hard, and elicits a physiological response likely to improve cardiovascular health.

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