

The Effect of Amount of Physical Activity on Cardio Respiratory Fitness and Body Composition

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Abstract

The goal of this study was to assess the effects of amount of ergometer cycle training on VO_2max and body composition in overweight women. Forty-one sedentary premenopausal women, age 25 to 45 years, were randomly assigned in three groups. Cycle ergometer training consisted of one day per week for group A, two days per week for group B and three days per week for group C. Participants trained for 60 min in any session with moderate intensity (50-60% VO_2max) for 12 weeks. Participants were counseled not to change their diet during the study period. There were no significant differences among variables in three groups at baseline. Means (\pm SD) of weight, body fat, WHR, BMI and VO_2max in groups were $67.43\pm 9.54\text{kg}$, 31.56 ± 4.6 percent, 0.82 ± 0.05 , $25.54\pm 4.16 \text{ kg/m}^2$ and $31.72\pm 7.2 \text{ ml.kg}^{-1}\text{min}^{-1}$ respectively. After 12 weeks, ANOVA test indicated there were significant differences among mean body composition among the three groups. Use of Tukey post-hoc tests showed that difference in these groups is because of group C. Paired 't' test showed that there was significant difference between mean body composition ($p<0.01$) in group C. VO_2max in group B and C improved 12% and 21% ($p<0.01$) respectively with ergometer training. But in group A it was not changed significantly. These findings indicate that the three days in week with 60 min of moderate-intensity, cycle ergometer training is sufficient to improve body composition and VO_2max in overweight women. With two days training i.e. 120 min in a week only, VO_2max improved. The results indicate that two days regular training improves VO_2max in overweight women without change in body composition. With less of amount of physical activity neither body composition nor VO_2max improve significantly. These findings strongly suggest that, in the absence of changes in diet, a higher amount of activity is necessary for improving body composition and VO_2max .

Key words: Overweight, Body composition, Ergometer training, Cardiorespiratory fitness

Introduction

Obesity and over weight present significant public health concerns because of the link with numerous chronic health conditions (Jakicic, 2003). Also aerobic exercise capacity measured as maximal oxygen uptake (VO_2max) is a major predictor of all-cause mortality both in normal and cardiovascular disease subjects (Myers et al, 2002 & Gulati et al, 2003). Body fat content and VO_2max are both inversely associated with the risk of cardiovascular diseases and with all-cause mortality. Exercise is an important component of behavioral weight control and cardio respiratory fitness

interventions. Recent clinical and epidemiological studies suggest that beneficial effects of regular physical exercise may depend on intensity or amount of work performed during training (Gregg et al, 2003, Lee et al, 2003 & Rognmo et al, 2004).

Based on studies it is gathered that change in body composition is related more to frequency than to intensity of exercise (Bassulk, 2003 and Chambliss, 2003). Scientific literature indicate that at least 60 minutes of moderate-intensity of physical activity may be necessary to