

**THE EFFECTS OF INTERVAL TRAINING AND MODEST CALORIE RESTRICION  
IN THE TREATMENT OF OBESITY**

by

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Keywords: exercise, body fat, ? 3-hydroxyacyl CoA dehydrogenase, fat oxidation

# **THE EFFECTS OF INTERVAL TRAINING AND MODEST CALORIE RESTRICTION IN THE TREATMENT OF OBESITY**

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## **ABSTRACT**

Moderate intensity exercise (MIT) was compared to high intensity interval exercise (HIIT) as part of a nine week treatment strategy for 13 obese men. Both groups exercised three days per week beginning at 45%  $VO_2$ max. The MIT protocol progressed to 65%  $VO_2$ max by week eight. The HIIT protocol consisting of 16 short (30 s), 8 medium (90 s), and 4 long (180 s) intervals progressed to 110%  $VO_2$ max, 100%  $VO_2$ max, and 90%  $VO_2$ max, respectively, by week nine with low intensity intervals at 40%  $VO_2$ max. Exercise duration of the MIT group was adjusted to allow for energy expenditure equal to that of the HIIT group. Modest dietary restriction and weekly group nutrition education sessions were part of the treatment. Weight decreased similarly by 2.4% in the MIT group and 2.8% in the HIIT group ( $p < 0.05$ ). For the groups combined, exercise resulted in a 7% decrease in body fat percent (%BF) and a 9% decrease in fat mass (FM) ( $p < 0.05$ ). There was no difference in the change in %BF or FM for either group. There were no changes in fat free mass (FFM) over the treatment or between groups. Waist circumference decreased 2.8% overall with no differences between the two groups ( $p < 0.05$ ). There were no differences in waist-to-hip ratio (WHR) or waist-to-thigh ratio (WTR) due to the intervention. The activity of vastus lateralis 3-hydroxyacyl CoA dehydrogenase (HADH) increased 37% and 97% ( $p < 0.05$ ) for the MIT and HIIT groups respectively with a trend for differences between the two groups ( $p = 0.055$ ). The results show that an exercise program of

moderate or high intensity is effective to cause weight reduction. The data suggest that HIIT may be more effective over a longer treatment period if the observed trend for greater capacity for muscle fat oxidation translates into improved body fat loss.

Keywords: exercise, body fat, ? 3-hydroxyacyl CoA dehydrogenase, fat oxidation