

## Six weeks of high-intensity interval training reduces fat mass in healthy males

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### Introduction

High-intensity interval training (HIIT) has been shown to improve numerous health parameters including improvements in body composition (Gillen *et al.*, 2013; Terada *et al.*, 2013; Hazell *et al.*, 2014) as well as glucose tolerance and insulin sensitivity (Babraj *et al.*, 2009). Creatine supplementation has been shown to play a role in improving body composition (Gualano *et al.*, 2010). This study aims to examine the effects of a 6-week HIIT programme, both independent of and combined with creatine supplementation, on body composition.

### Methods

Twenty-eight male participants ( $23.2 \pm 5.8$  y;  $1.78 \pm 0.10$  m;  $78.7 \pm 14.4$  kg;  $24.8 \pm 2.7$  kg/m<sup>2</sup>) made a single fasted visit to the laboratory, pre and post a 6-week HIIT and/or supplementation intervention, where they underwent a whole body DXA scan (Hologic Discovery A, Hologic Inc., Bedford, MA, USA). HIIT involved repeated 30-second sprints (4 in weeks 1 & 2, 5 in weeks 3 & 4 and 6 in weeks 5 & 6) with resistance set at 7.5% body mass. Supplementation involved 5 g/day of either Creatine Monohydrate (CreaPure, AlzChem, Trostberg, Germany) or Placebo (Microcrystalline Cellulose, Blackburn Distributions Ltd, Lancashire, UK). A factorial analysis of covariance (SPSS v20, an IBM Company, New York, USA), with baseline values used as a covariate was used, with data combined when no interaction effects between HIIT and Creatine was observed.

### Results

HIIT caused significant reductions in sub-total ( $-5.85$  -v-  $0.75\%$   $p < 0.05$ ), and lower limb ( $-6.80$  -v-  $-1.34\%$   $p < 0.05$ ), fat mass with no observed effects on lean mass compared with non-exercising controls. Creatine supplementation had no effect on body composition.

### Discussion.

This study supports the use of short duration high intensity interval training as a potent method of reducing fat mass. This coupled with metabolic adaptations seen in glucose tolerance and insulin sensitivity (Babraj *et al.*, 2009) means that HIIT has potential clinical adaptations, however the optimum intervention protocol needs to be established. The lack of adaptation due to creatine supplementation suggests that interventions of greater than six weeks in duration are needed in order to induce changes in body composition.

### References

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