



Short Communication

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# High-Intensity Training: Not Only for Building Muscles!

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Exercise has been shown to reduce glucose concentrations in blood [1]. In fact, one week of aerobic exercise has been shown to reverse type II Diabetes [1]. Traditionally, it has been assumed that the best way to reduce blood glucose concentrations in insulin resistance is with moderate intensity long duration exercise. More recently, the utility of high-intensity short duration exercise has been realized [2]. For example, *Ryan, et al.* [2] reported that 10, one-minute bouts of exercise at 90% of heart rate maximum for 12weeks resulted in significant and similar improvement in insulin sensitivity as 45min of exercise at 70% of heart rate maximum. Four sessions per week were performed in each group. Likewise, *Naufahu, et al.* [3] reported that one, one hour session (6x30s Wingates with 9.5min rest in between each 30s bout) was superior at improving insulin sensitivity and area under the glucose curve in pre-diabetic individuals than exercise at 90% of the lactate threshold. In an excellent review article, *Consitt, et al.* [4] has detailed the beneficial effects of resistance exercise which involves short duration high-intensity bouts of exercise interspersed with rest periods on insulin action. These benefits are at least as effective as the effects of long duration moderate intensity exercise [4]. The operative mechanism for the short-term effects of high-intensity training are likely increases in Glut-4 protein as work from Tabata's group showed that 280s of intermittent high-intensity swimming in rats led to similar increases in Glut-4 protein as 6h of training at low intensity [5]. Each group exercised 8 days in a row. Very practical data, from John Kirwan's group [6,7] suggest that 15-20minute

Cross-Fit high-intensity workouts for 6weeks are sufficient to improve insulin sensitivity.

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