

## High Intensity Interval Training vs. Continuous Aerobic Training on Resting Blood Pressure in Young Sedentary Pre-Hypertensive Adults: A Randomized Controlled Trial

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### ABSTRACT

The prevalence of pre-hypertension is increasing in the younger generation due to factors such as physical inactivity, imbalanced diet and increased stress. The likelihood of a pre-hypertensive young adult developing hypertension has been steadily increasing over the past years. In addition to other strategies, aerobic exercise has been promoted widely amongst this population to reduce the blood pressure. However, the question remains which type of aerobic exercise can be more effective. Methods: 30 healthy sedentary young adults (age  $19.97 \pm 1.10$ ) were randomly divided into 3 equal groups; high-intensity interval training (HIIT), continuous training (CT) and control (CON). HIIT and CT groups underwent 4 weeks of aerobic training on treadmills with CON group not participating in any exercise. The HIIT protocol consists of 1:1 work to rest ratio of participants 80%-90% heart rate reserve (HRR) and 40%-60% HRR respectively for 20 minutes, CT group exercised at 40%-60% of HRR continuously for 20 minutes. Results: In HIIT and CT groups respectively SPB (pre  $122.3 \pm 3.29$  mmHg, post  $119 \pm 3.91$  mmHg, difference  $3.30 \pm 2.16$  mmHg,  $p=0.001$ ; pre  $125.13 \pm 3.92$  mmHg, post  $123.67 \pm 3.97$  mmHg, difference  $4.7 \pm 1.61$ ,  $p=0.018$ ) was significantly reduced, DBP was significantly decreased only in HIIT group (pre  $78.57 \pm 5.36$  mmHg, post  $75.73 \pm 4.9$  mmHg, difference  $2.83 \pm 2.25$  mmHg,  $p=0.003$ ). No significant difference in SBP (pre  $127.26 \pm 4.42$  mmHg, post  $127.05 \pm 5.14$  mmHg, difference  $0.21 \pm 3.79$  mmHg,  $p$ -value= $0.836$ ) DBP (pre  $73.91 \pm 5.28$ , post  $73.10 \pm 5.38$  mmHg, difference  $0.81 \pm 4.33$  mmHg,  $p$ -value= $0.395$ ) was observed in CON group. Conclusion: Both HIIT and CT helped to reduce the resting blood pressure but HIIT seems to yield more benefits. Based on the ease and preference, an individual can choose either one of them.