Both aerobic endurance and strength training programs improve cardiovascular health in obese adults.


Background: Regular exercise training is recognized as a powerful tool to improve work capacity, endothelial function, and cardiovascular risk profile in obesity, but it is unknown which of high- or moderate-intensity aerobic exercise or strength training is optimal mode of exercise. Design: 40 subjects were randomized to high-intensity interval-, continuous moderate-intensity aerobic training, or maximal strength training programs for 12 weeks, 3 times/week. Methods: The high intensity group performed aerobic interval walking/running at 85-95% of maximal heart rate, whilst the moderate training group exercised continuously at 60-70% of maximal heart rate; protocols were isocaloric. Strength training group performed "high intensity" leg press, abdominal and back strength training. Results: Maximal oxygen uptake and endothelial function improved in all groups, but most after high-intensity training and equally after moderate and strength training. Only high intensity and strength training was associated with increased PGC-1alpha and improved Ca 2+ transport in the skeletal muscle, whereas only strength training improved antioxidant status, and also together with moderate aerobic training reduced oxidized low density lipoproteins. Only aerobic training reduced body weight and diastolic blood pressure. Conclusions: High-intensity aerobic interval training was better than moderate-intensity aerobic training for improving aerobic work capacity and endothelial function. An important contribution toward improved aerobic work capacity, endothelial function and cardiovascular health originates from strength training, which may serve as a substitute when whole-body aerobic exercise is contra-indicated or difficult to perform.

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