Combined exercise effects on metabolic syndrome

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Introduction. Few randomized trials have examined the optimal mode of exercise or combination of modalities for specific cardiometabolic health benefits [1-3] . Therefore, questions remain unaddressed whether strength training or endurance training alone improves cardiometabolic health in overweight adults; whether a combination of both provides additional improvements [4, 5].

Objective. Our study attempts to match the volume and intensity of different training protocols in order to evaluate the impact of different exercise modes on risk factors and metabolic syndrome prevalence in overweight people.

Methods. 85 overweight subjects (18 - 50 years; BMI > 25 and < 29.9 kg/m2) were randomized into four groups: strength training (SG; n = 21), endurance training (EG; n = 25), a combination of EG and SG (SEG; n = 21), 3 times/wk for 22 wk, and control group (CG; n = 18). All groups followed the same dietary treatment. Measurements took place the first week (pre), and after 22 weeks of training in week 24 (post). All groups were evaluated for changes in risk factors in metabolic syndrome (MS) following ATP III expert panel evaluation guidelines [6]. A MS risk factor score using the ATP III guidelines was determined for each subject as a sum of the number of ATP III criteria met before and after the exercise intervention.

Results. SEG induced a significant improvement in the MSz-Score ($p<0.01$) with significant differences with EG ($p<0.05$), while EG alone failed to significantly alter the MSz-Score (EG pre: -0.48; SEG pre: -0.47; $p<0.01$; EG post: 0.73; SEG post: -1.51; $p<0.01$). All groups showed statistically significant decrease in MS score ($p<0.01$) between before and after intervention.

Conclusion. The protocol proposed for combination of strength and endurance training combined with a balance diet was the optimal strategy for the improvement of MetSyn risk in overweight adults.

References.

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