

# The Effect of Concurrent Training Order and Whey Protein Supplementation on Serum Follistatin to Myostatin Ratio, Body Composition, Anaerobic Power, Strength and Muscle Cross Sectional Area in Young Bodybuilders

Poster Presentation

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## Abstract

The purpose of this study was to compare the effect of exercise sequence with protein supplementation on serum follistatin and myostatin ratio, body composition, anaerobic power, strength, and muscle cross-section of young bodybuilders. 48 of young bodybuilders were randomly divided into four equal groups: a) resistance-endurance + supplement (n=12) b) endurance-resistance + supplement (n=12) C) Resistance-endurance (n=12) d) Endurance-resistance (n=12) were divided. The device (body composition) was used to evaluate the body composition and their fasting blood samples were taken by a specialist for relevant examinations. After grouping, at the beginning and end of the study, in order to determine anaerobic power (ergojump test) and for strength (squat, dead lift and chest press) were taken and recorded. The subjects included endurance training consisting of 30 to 38 minutes of aerobic exercise on a treadmill, which started with 65 to 70% of maximum heart rate and will reach 80 to 85% of maximum heart rate in the final week. Strength training included forward thigh, back thigh, chest press, lap stretching, back arm pull, and forearm movements. Each movement started in three sets with 65 to 70% of the maximum strength of the person and 7 to 12 repetitions and 5% was added to the load per week. How to take his protein supplement was that the subjects received supplemental groups of 0.5 grams per kilogram of body weight of protein daily. Muscle Tech protein was prepared. The other two groups received the same amount of carbohydrates, which was equivalent in energy (130 kcal). After the exercises, the test (body composition) as well as blood sampling was performed by a specialist and the necessary factors were measured in the laboratory. The results of repeated measures analysis of variance test showed that muscle strength, anaerobic power, muscle mass, follistatin to myostatin ratio and muscle cross-section in supplement groups significantly increased compared to control groups and fat percentage decreased significantly. According to the results of the study, it can be stated that taking protein

supplements along with simultaneous exercise has a positive effect on anabolic status and muscle growth and also improves athletic performance.

### Keywords

[Whey protein](#)"; [power](#)"; [strength](#)"; "; [male athletes](#)"