

Effects Of Strength Training On Glucose And Chromium Metabolism In Males 53-63 Years Of Age

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OBJECTIVES:

The purpose of this study was to determine the effects of 16 weeks of strength training on body composition, glucose tolerance, insulin response and chromium metabolism in healthy, sedentary males 53-63 years of age. Before training blood levels of glucose and insulin were measured twice; after a 12 hour fast, and during an oral glucose tolerance test. These tests were repeated approximately 20 hours after the last training session. A metabolic tracer was used to measure levels of Chromium metabolism through urine samples. Samples were taken pre and post training both after a single session of strength training and after the full 16 week program. Using Keiser machines, subjects strength trained 3 times per week, exercising all major muscle groups at 90% of their 3 repetition maximum.

RESULTS:

Strength increased 41%, body weight and maximum aerobic capacity did not change. Fat free mass increased 2.6% and body fat decreased 1.6%. Strength training did not change fasting glucose or the area under the glucose curve. Fasting insulin levels were not different, however insulin was used significantly more efficiently and blood insulin levels at 30 and 90 minutes were reduced. There was no significant correlation between body composition and insulin response. Strength training did not significantly effect urinary excretion of chromium.

SUMMARY:

The improvement in insulin response appears to be independent of changes in body composition and urinary chromium excretion. It is clear however that strength training promotes more efficient distribution and utilization of insulin which has implications for prevention and management of diabetes.

KEISER PIECES USED:

Leg press, chest press, leg curl, leg extension, lat pull down, shoulder press, upper back, hip abductor, triceps and abdominal machines.

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