Strength Training Increases Nonoxidative Glucose Metabolism In Older Men

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OBJECTIVES:
Strength training has been shown to increase insulin sensitivity in older individuals. This study tries to determine whether the increase is due to improvements in glucose metabolism. Before and after a 16 week strength training program, 7 healthy, sedentary men aged 50-75 years underwent a 2-step glucose test consisting of high & low glucose. A caloric measurement was taken at the same time. Subjects trained 3x/week using Keiser K300 machines.

RESULTS:
Strength increased by 37%, but there were no significant changes in weight, fat free mass or aerobic capacity. However, body fat decreased by approximately 2%. Total glucose uptake was measured in the beginning of the study and 24 hours after the last strength training session. It increased at both the low and high insulin infusion rates of the 2-step glucose test. Strength training did not change oxidative (with oxygen) glucose metabolism, but non-oxidative (without oxygen) glucose metabolism increased 45% during the high insulin infusion.

SUMMARY:
These results suggest that the increase in insulin sensitivity (efficiency of use) is primarily due to increased non-oxidative glucose metabolism. An increase in insulin sensitivity has implication for diabetes prevention and control in older adults.

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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