Effects of Strength Training on Muscle Hypertrophy and Muscle Cell Disruption in Older Men

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OBJECTIVES:
Thirty-five sedentary men aged 50-69 years, were studied to determine whether a total body, heavy strength training program can significantly increase muscle strength and size without muscle cell injury and soreness. Twelve of the men did not strength train to serve as inactive controls. Before and after a 16 week heavy strength training program muscular strength and size were tested. To assess possible muscle cell injury, levels of serum creatine kinase (an indicator of injury) and perceived soreness were also determined before and after the training program.

RESULTS:
In the strength training group, strength increased by 43%, and mid-thigh muscle size increased by 7.2%. There were no significant changes in strength or muscle size in the inactive control group. The indicator of muscle cell injury (peak serum creatine levels) were substantially reduced at the end of the 16 week training. There was virtually no muscle soreness reported. Please note that Keiser equipments pneumatic resistance is very low-impact and may be responsible for the lack of soreness and muscle cell injury. Similar studies done on weight stack equipment may not produce the same results.

SUMMARY:
These results indicate that middle-aged and older men can safely participate in a total body strength training program, intense enough to produce substantial increases in muscle strength and size, without promoting muscle soreness or injury. Furthermore, in older individuals, the risk of muscle injury during strength training is reduced at the end of a training program to levels similar to those reported in younger individuals.

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

Published in International Journal of Sports Medicine, vol.16, no.6, pp. 378-384, 1995.