

Effects of Strength Training And Detraining On Muscle Quality: Age And Gender Comparisons

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OBJECTIVE:

This study compares the influence of age and gender on muscle quality in response to strength training and detraining. Eleven young men (20-30 yrs), 9 young women (20-30yrs), 11 older men (65-75 yrs) and 11 older women (65-75 yrs) completed a 9 week unilateral strength training program followed by a 31 week detraining program. Muscle strength and quality were measured via 1 repetition maximum and MRI in the trained and untrained legs of the 42 subjects.

RESULTS:

The strength training program resulted in an increase in muscle strength and quality in all of the groups. It should be noted that the young women responded to strength training with a larger gain in muscle quality than the other three groups. After the 31 week detraining program all of the groups with the exception of the older women remained above their baseline measurements for strength and muscle quality. Aging does not appear to significantly impact training induced changes in muscle quality.

SUMMARY:

The results of this study demonstrate that non muscle mass adaptations to strength training account for a significant portion of the strength gains regardless of age or gender. In addition, these adaptations are retained for 31 weeks after discontinuing strength training, and are instrumental in preserving strength despite declining muscle mass during the same time frame. The authors suggest that some type of neuromuscular adaptation that enhances contractile properties may partially explain the increases in muscle quality with strength training. Finally, it is clear that prolonged interruptions in strength training exercise does not result in complete loss of muscle quality gains.

KEISER PIECES USED:

Leg extension machine.

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