

Age and Gender Responses to Strength Training and Detraining

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OBJECTIVES:

The purpose of this study was to examine the effects of age and gender on the strength response to 9 weeks of strength training and 31 weeks of detraining. Eighteen young (20-30yr) and 23 older (65-75yr) men and women trained one leg (dominant) while the other was left untrained as a reference. Muscle strength was measured by 1 repetition maximum and isokenetic peak torque in the trained and untrained leg. Five sets of unilateral knee extensions of the dominant leg were performed three times a week for 9 weeks on a Keiser k-300 leg extension machine.

RESULTS:

In all age and gender groups 1 repetition maximum strength significantly increased with 9 weeks of training and significantly decreased after 31 weeks of detraining. No significant differences in strength gains or losses between men and women or either age group were observed. All subject groups maintained 1 RM strength at 12 weeks of detraining, however significant losses occurred ($6 \pm 2\%$ and $13 \pm 2\%$) in the young and older groups during weeks 12 -31. Young subjects demonstrated a significantly greater increase in 1 RM strength ($34 \pm 3\%$) than older subjects ($28 \pm 3\%$) and experienced significantly smaller losses in 1 RM, ($8 \pm 2\%$ and $14 \pm 2\%$) respectively after 31 weeks of detraining.

SUMMARY:

The results of this study show that age affects the changes in 1 repetition maximum strength during both strength training and detraining, whereas gender does not. However, older individuals responded well to strength training and were able to maintain muscular strength as well as the young individuals for at least 12 weeks after training had ceased. This study reinforces earlier studies showing that strength training effectively improves strength for both young and older individuals.

KEISER PIECES USED:

Leg extension machine.

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