Age and Gender Responses to Strength Training

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OBJECTIVES:
To determine age and gender responses to strength training, the researchers studied the effects of a 9 week, unilateral (one leg) knee extensor program on the trained quadriceps muscle group in 44 subjects. Each subject trained with one leg while the other leg was left untrained to act as a reference measure. 22 subjects were identified as young (20-30 years) and 22 were older (65-75 years). There were an equal number of men & women in each group. Muscular strength, thigh fat free mass, and total volume of the quadriceps muscle group were measured by 1 repetition maximum, DEXA, & MRI in the trained and untrained legs of the 44 subjects. Four sets of heavy strength training was performed 3 times per week on a Keiser K-300 leg extension machine.

RESULTS:
The strength training program increased 1 repetition maximum strength, thigh fat free mass, and quadriceps muscle volume in all age and gender groups. There was a greater increase in thigh fat free mass and muscle volume in the young men compared to the young women. The older men only showed a greater increase in thigh fat free mass when compared to the older women. There were no significant differences in the increases of either thigh fat free mass or muscle volume between the older and younger groups.

SUMMARY:
In contrast to previous reports, these results show that the increased muscle size in response to strength training is greater in men than in women regardless of age. It also suggests that increased muscle size in response to strength training is not significantly different in a younger verses an older group.

KEISER PIECES USED:
Leg extension machine.

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