Assessment of Strength Training Effects on Leg Composition in Older Men Using Magnetic Resonance Imaging (MRI)

B.F. Hurley FACSM, B.A. Redmond, K.H. Koffler, A. Menkes, J.M. Hagberg, FACSM, R.E. Pratley, J.W.R. Young, and A.P. Goldberg, Depts, of Kinesiology, Radiology, Medicine (Geriatrics) and Center on Aging, University of Maryland, College Park & Baltimore, Maryland 20742 & 21218.

OBJECTIVES:
Six healthy, untrained men, aged 50-75 years, were studied to determine the effects of a 14 week total body strength training program on the muscle and fat composition of the thigh. To assess the levels of muscle and fat at midthigh, Magnetic Resonance Imaging (MRI) was used before and after the training program. In addition, thigh circumference (size) and skinfolds (fat under the skin) were also measured at the same location.

RESULTS:
Lower body strength increased by ≈ 41% while there were no significant changes in body weight. The MRI analysis revealed an 8% increase in the muscle area of the midthigh and a 9% decrease in its subcutaneous fat, despite no significant changes in midthigh circumference or skinfold thickness.

SUMMARY:
Older adults can increase muscle and decrease fat with a strength training program, even when limb circumference is unchanged. This research provides data to share with the many senior women who avoid strength training because they equate increased strength with increased size. The results demonstrate that strength training can help seniors significantly increase their strength to more effectively respond to functional needs, without increasing limb size.

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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