Acute And Chronic Anabolic Hormonal Responses To Resistive Exercise In Older Men

B.J. Nicklas, A.J. Smith, M.M. Smith, M.A. Rogers, FACSM, S.M. Harman*, M.R. Blackman*, M.A. Rabin, J.P. Miller, B.F. Hurley, FACSM,
The University of Maryland, College Park, MD.

OBJECTIVES:
Testosterone, growth hormone, and insulin-like growth factor I decline with age and may contribute to the age-related loss of muscle mass and strength. This study measured the testosterone (T) and growth hormone (GH) responses to a single session of strength training and T, GH, and insulin-like growth factor I responses to a 16-week progressive strength training program involving 13 men aged 50-75 years. There were also 9 inactive controls. A fasting blood sample was taken on 2 consecutive days before training and again for 2 days after the last day of the exercise program. To determine the effect of a single session of strength training, during the first week blood was also drawn immediately before and 10 minutes after an exercise session. During the last week of training a blood sample was drawn after an exercise session.

RESULTS:
No change in body composition or hormone variables were seen in the control group. In the exercisers, lean body mass increased by 3%, total body strength increased by 38%, and percent body fat decreased by 6%. Both before and after the 16 week training, beginning levels of all of the hormones were unaffected by strength training. However, the growth hormone level increased 18-fold after exercise, both at the beginning of the training program and after the 16 weeks.

SUMMARY:
In older men strength training does not appear to affect the beginning hormone levels over a 16 week period of time. However, a single session of strength training causes a substantial rise in growth hormone when tested immediately after the training session. This rise after a single bout was the same during the 2 days after the completion of the 16 week program as it was during the 2 days prior to the exercise program. Therefore the degree of the rise in growth hormone after a single session is not affected by strength training over a 16 week period. The growth hormone level does not appear to build to higher levels as the strength training program progresses, instead it appears to return to baseline shortly after training.

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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