Changes In Power With Resistance Training In Older And Younger Men And Women

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OBJECTIVES:
Research clearly demonstrates that older people and younger people exhibit similar gains in muscle strength through progressive resistance training (PRT). However, few studies have focused on changes in muscle power with age. This study examined the influence of progressive resistance training (PRT) on muscle power output in 17 men and women aged 56-66 years, and compared their responses to 15 men and women aged 21-30 years. Twice weekly for 12 weeks, all subjects performed PRT using five exercises, three sets per exercise at 80% of their one repetition maximum (1RM). Muscle power was measured (isotonically) on the knee extension and arm pull machines, at resistances equivalent to 40, 60, and 80% of the 1RM.

RESULTS:
All subjects independent of age or sex, increased arm pull power similarly at 40 and 60% of 1RM but did not exhibit a significant increase in arm pull power at 80% of 1RM. Older and younger subjects also had similar increases in leg extensor power at 40 and 60% of 1RM, but men responded with greater absolute gains than women at these percentages ($p < .05$). The increase in leg extensor power at 80% of 1RM was similar in all groups. In regard to strength, older and younger subjects increased similarly in all exercises except the left knee extension. Independent of age, men increased strength more than women in all exercises except the double leg press.

SUMMARY:
These results demonstrate that healthy older individuals, male and female, can significantly improve muscle power with progressive resistance training. These improvements are on the same magnitude as those realized by younger adults performing the same exercises. This is very significant research because previous studies have shown that leg muscle power is more important than leg strength in performing daily activities such as stair climbing, rising from a chair and walking. More research is needed to determine if training at 80% of 1RM is the optimal protocol for improving power.

KEISER PIECES USED:
Seated chest press, arm pull, unilateral knee extension, bilateral leg curl, bilateral leg press.

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