

# High Velocity Power Training Increases Skeletal Muscle Peak Power in Older Women

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## **BACKGROUND:**

Peak muscle power is a strong physiologic predictor of functional limitations and disability in the elderly. It also declines more abruptly than strength with advancing age. However, many studies demonstrating large gains in strength with progressive resistance strength training show significantly smaller gains in muscle power.

## **OBJECTIVE:**

The researchers compared changes in skeletal muscle power and strength in thirty women with self-reported disability (aged 73+- 1 yrs), following either 16 weeks of high velocity power training (POW) or standard slow velocity progressive resistant training (STR). Both groups trained 3 times per week with subjects completing 3 sets (8-10 reps) of knee extension (KE) and leg press (LP) exercises at 70% of the 1 RM.

## **RESULTS:**

Leg press and knee extension relative training force and total work were similar between both groups ( $p>0.05$ ). However, POW generated significantly higher power during training sessions compared to STR for leg press (3.7-fold greater,  $p<0.001$ ) and knee extension (2.1-fold greater,  $p<0.001$ ). Leg press and knee extension 1 RM muscle strength increased similarly in both groups as a result of the training. Leg press peak power increased significantly more in POW than in STR (267 W. vs. 139 W,  $p<0.001$ ). Furthermore, POW resulted in a significantly greater improvement in leg press power at 40, 50, 60, 70, 80, 90% of the 1 RM compared to STR ( $p<0.05$ ).

## **SUMMARY:**

The improvements in peak power following the POW intervention were 84% greater for leg press and 34% greater for knee extension when compared to STR in older women. POW and STR demonstrated similar improvement in 1 RM strength. Since improvement in lower extremity peak power may exert a greater influence on age-associated reductions in physical function than other exercise, training interventions could be designed to more closely maximize the capacity to improve peak power in older individuals.

## **KEISER PIECES USED:**

Knee extension, Bi-lateral leg press

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