

# Strength training normalizes resting blood pressure in 65- to 73-year-old men and women with high normal blood pressure.

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## Source

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## Abstract

### OBJECTIVE:

To determine the effects of heavy resistance strength training (ST) on resting blood pressure (BP) in older men and women.

### DESIGN:

Prospective intervention study.

### SETTING:

University of Maryland Exercise Science Laboratory.

### PARTICIPANTS:

Twenty-one sedentary, healthy older men (69 +/- 1 year, n = 11) and women (68 +/- 1 year, n = 10) served as subjects for the study.

### INTERVENTION:

Six months of progressive whole body ST performed 3 days per week using Keiser K-300 air-powered resistance machines.

### MEASUREMENTS:

One-repetition maximum (1 RM) strength was measured for seven different exercises before and after the ST program. Resting BP was measured on six separate occasions before and after ST for each subject.

### RESULTS:

Substantial increases in 1 RM strength were observed for upper body (UB) and lower body (LB) muscle groups for men (UB: 215 vs 265 kg; LB: 694 vs 838 kg;  $P < .001$ ) and women (UB: 128 vs 154 kg; LB: 441 vs 563 kg;  $P < .001$ ). The ST program led to reductions in both systolic (131 +/- 2 vs 126 +/- 2 mm Hg,  $P < .010$ ) and diastolic (79 +/- 2 vs 75 +/- 1 mm Hg,  $P < .010$ ) BP. Systolic BP was reduced significantly in men (134 +/- 3 vs 127 +/- 2 mm Hg,  $P < .01$ ) but not in women (128 +/- 3 vs 125 +/- 3 mm Hg,  $P < .01$ ), whereas diastolic BP was reduced following training in both men (81 +/- 3 vs 77 +/- 1, mm Hg,  $P = .054$ ) and women (78 +/- 2 vs 74 +/- 2 mm Hg,  $P = .055$ ).

## **CONCLUSIONS:**

Six months of heavy resistance ST may reduce resting BP in older persons. According to the latest guidelines from the Joint National Committee for the Detection, Evaluation, and Treatment of Hypertension, the changes in resting BP noted in the present study represent a shift from the high normal to the normal category.

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