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 **Hypertension**

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In Hypertension, Strong Men Live Longer

By Todd Neale, Staff Writer, MedPage Today
Published: April 26, 2011
Reviewed by [Robert Jasmer, MD](#); Associate Clinical Professor of Medicine, University of California, San Francisco.

[FEEDBACK](#)

Hypertensive men with the most muscle strength appear to have a lower risk of dying than their weaker counterparts, researchers found.

Even after controlling for cardiorespiratory fitness level and other potential confounders, men in the upper third of muscle strength were 34% less likely to die during an average follow-up of about 18 years (HR 0.66, 95% CI 0.45 to 0.98), according to Enrique Artero, PhD, of the University of Granada in Spain, and colleagues.

The men with the greatest reduction in mortality risk were those who had the most muscular strength and high fitness (HR 0.49, 95% CI 0.30 to 0.82), the researchers reported in the May 3 issue of the *Journal of the American College of Cardiology*.

Although the researchers urged caution in interpreting the results because of the low number of deaths (183), the findings are consistent with previous studies in nonhypertensive individuals.

"The apparent protective effect of muscular strength against risk of death might be due to muscular strength in itself, to respiratory muscular strength and pulmonary function, to muscle fiber type or configuration, or as a consequence of regular physical exercise, specifically resistance exercise," Artero and his colleagues wrote.

"Hypertensive men should follow current physical activity guidelines and engage in muscle-strengthening activities that involve major muscle groups, not only to reduce resting blood pressure but also to potentially reduce long-term mortality risk," they wrote.

The researchers noted that the physical activity guidelines from the U.S. Department of Health and Human Services encourage adults to perform muscle-strengthening activities that involve major muscle groups at least two days a week, with supervision from a healthcare professional for individuals with chronic medical conditions.

To find out whether previously observed inverse relationships between muscular strength and all-cause and cancer mortality applied to men with hypertension, Artero and his colleagues turned to the Aerobics Center Longitudinal Study, which followed patients treated at the Cooper Clinic in Dallas.

The analysis included 1,506 men, ages 40 and up, who had a resting blood pressure of at least 140/90 mm Hg or had received a hypertension diagnosis from a physician. All underwent muscular strength tests -- a bench press and a leg press -- and fitness testing on a treadmill at baseline. The men were mostly white, well educated, and in the middle and upper classes.

During an average follow-up of 18.3 years, 183 men (12.2%) died.

The age-adjusted death rates per 10,000 person-years rose linearly across increasing tertiles of muscular strength -- 81.8, 65.5, and 52.0 ($P<0.05$ for trend).

After adjustment for age, physical activity, smoking, alcohol intake, body mass index, blood pressure, total cholesterol, diabetes, abnormal electrocardiogram, and family history of cardiovascular disease, the risk of dying during follow-up decreased with

Action Points

- Explain that hypertensive men with the most muscle strength appear to have a lower risk of dying than their weaker counterparts.
- Note that the men with the greatest reduction in mortality risk were those with the most muscular strength and high cardiorespiratory fitness.

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increasing muscular strength ($P=0.02$ for trend).

Although additional adjustment for cardiorespiratory fitness rendered the trend nonsignificant, men with the most muscular strength still had a significantly lower risk of death than those with the least (HR 0.66).

The authors noted that the small number of deaths did not allow for an assessment of the relationship between muscular strength and disease-specific mortality.

Additional limitations included the lack of sufficient information on diet or medication use and the use of measures of muscular strength and fitness at baseline only.

The study was supported by the NIH, the National Institute of Diabetes and Digestive and Kidney Diseases, the Coca-Cola Company, the Spanish Ministries of Education and Science and Innovation, the Swedish Heart-Lung Foundation, and the Swedish Council for Working Life and Social Research.

The authors reported that they had no conflicts of interest.

Primary source: Journal of the American College of Cardiology

Source reference:

Artero E, et al "A prospective study of muscular strength and all-cause mortality in men with hypertension" *J Am Coll Cardiol* 2011; 57: 1831-1837.



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Does the new policy strike the right balance between discouraging abuse while retaining access for patients who need these drugs?

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