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Muscle strength improves bone density, study finds

If you want to help your grandmother avoid a broken hip, buy her some weights and get her pumping iron a couple of times a week, a study suggests.

Post-menopausal women who trained intensively on exercise machines twice weekly for a year built up their bones, increased the size and power of their muscles and improved their balance, researchers said.

"The study shows for the first time that a single treatment can improve several risk factors for spine and hip fractures in older women," said study leader Miriam Nelson, a physiologist at Tufts University in Boston.

"Bone density is only one element in these fractures. It may be even more important to improve women's muscle strength and balance to prevent falls, which are the greatest risk factor for fractures in the elderly."

Fractures caused by osteoporosis – the thinning of bones that accompanies aging – strike more than 1.5 million North Americans annually, mostly women.

The researchers studied the effects of strength training on bone thinning in 39 post-menopausal women aged 50 to 70. The findings were published in the latest issue of the *Journal of the American Medical Association.*

In the study, 20 of the women underwent 40-minute strength-training sessions twice weekly with professional trainers. The other 19 women remained sedentary.

At the end of a year, the 20 women who had trained showed a one per cent gain in the density of leg and back bones, compared with a 2.5 per cent loss in the 19 women who did not train, researchers said.

Also, the trained women had stronger leg and back muscles and better balance.

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REFERENCE: Nelson, M.E., Fiatarone, M.A., Morganti, C.M., Trice, I., Greenberg, R.A. and W.J. Evans: Effects of High-Intensity Strength Training on Multiple Risk Factors for Osteoporotic Fractures: A Randomized Controlled Trial. *JAMA* **272**(#24): 1,909-1,914 (1994). [DC Library call number: PER R15.A48]

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