

Promoting and Maintaining Bone Density

What do you know about bone density? Has your physician recently recommended you get a bone density test? Bone density refers to a measurement of the amount of calcium and other minerals in a segment of bone. A higher mineral content indicates higher bone density and strength. The test is used to detect osteopenia and osteoporosis or monitor their treatment.

Bone is a living, growing part of the body. Throughout one's lifetime, new bone cells grow and old bone cells break down to make room for new, stronger bone. When a scan of a person's bone density shows osteoporosis, it means the old bone is breaking down faster than new bone can replace it. As this happens, the bones lose minerals such as calcium. This makes bones weaker and more likely to break, even after a minor injury such as a bump or a fall. Osteopenia refers to bone density that is lower than normal peak density but not low enough to be classified as osteoporosis.

Suggestions for Maintaining/Promoting Bone Density:

- Various studies have shown that exercise, especially running and jumping which involve impacting/contacting with the earth are more effective than swimming and low impact bicycling.
- Weight bearing exercise works against gravity and stimulates bone formation. Exercise interventions that stress or mechanically load bones (when bones support the weight of the body or when movement is resisted when using weights) include aerobics, strength training, walking and tai chi. The creation of ground forces through the body stimulate bone to add density.
- Popular forms of weight bearing exercise (e.g., walking, jogging, climbing stairs, tennis and dancing) are recommended for people with osteopenia as well as high impact exercises such as sprinting and hopping and certain types of weight lifting/resistance exercises. The Cochrane Collaboration found that aerobics, weight-bearing exercise, and resistance exercises all helped build bone density in the spine, while walking improved bone density in the spine and hip. Impacts with the ground create strong muscular contractions, which is a plus factor in maintaining bone density.

A study reported in Lancet in 2005 showed that “women ages 25 to 50 who leaped like fleas at least 10 times in a row, twice per day for four months, significantly increased the density of their hipbones. In another, more elaborate experiment from 2006, women who hopped and also lifted weights improved the density of their spines by about 2 percent compared to a control group, especially if the weight training targeted both the upper body and the legs. Women whose weight training focused only on the legs did not gain as much density in their spines.”

Remember the bones in the spine and lower body are designed to support the body's weight. Give yourself opportunity in your busy schedule to combine weight-bearing exercises with resistance training with free weights, a weight machine, or elastic bands. If you haven't engaged in resistance exercises recently, start with exercises that can be easily repeated eight to 12 times. Then add to the routine. Three to four times a week is recommended with at least one day off between sessions. Add only a pound or two at a time. Be sure to maintain good body posture/alignment when doing exercises so that the back and neck are supported.

A few resources: <https://www.ncbi.nlm.nih.gov/pubmed/16876495>
<https://www.ncbi.nlm.nih.gov/pubmed/?term=osteoporosis+weight+bearing+exercise>
http://www.cochrane.org/CD000333/MUSKEL_exercise-for-preventing-and-treating-osteoporosis-in-postmenopausal-women