

Intro

Did you know that the Office of the Surgeon General estimates that more than half of Americans over the age of 50 are estimated to have osteoporosis? (2004) Osteoporosis is a degenerative condition in which bone density decreases over time, resulting in pain, loss of strength, and modification of activities of daily living (ADLs). Although osteoporosis officially cannot be reversed or cured, it can be substantially improved through bone-strengthening exercises.

In this article, we'll address the role of exercise in improving bone health and what types of exercise are best for building bone density.

What is the role of exercise in improving osteoporosis?

Exercise is key to improving osteoporosis as part of a holistic approach to treatment, along with well-balanced nutrition and the possible aid of supplements such as vitamin D, calcium, and magnesium. Both high-intensity and resistance training have been proven to be effective at building bone density, when done consistently over time. Research also suggests this is especially true for post-menopausal women. (Watson, 2019)

What kinds of exercises are best for improving bone health?

High-intensity training (particularly high-intensity interval training) and resistance training have long been understood to help build bone mineral density. This is particularly true in the case of bodyweight training, such as squats, push-ups, and planks. Balance and stability training also plays a large role in an overall training regimen focused on bone health. Because any good resistance training program will need to be done with good alignment of the bones and joints to maximize safety and efficacy, alignment-based training such as Pilates is also highly recommended.

While it's understandable that many older adults may want to avoid high-intensity exercise due to a number of factors, high-intensity doesn't necessarily mean high-impact. High-intensity training can refer to any activity done which raises the heart rate to 60-80% of its maximum, or strength/resistance training done at 60-80% of one-repetition maximum (i.e. the amount of weight you can lift one time without being able to do any more). This can look like going for a walk and then adding a 60-second interval of speed walking to raise your heart rate, or walking up a flight of stairs and taking every other step instead of each individual step.

What kinds of exercise should I avoid with osteoporosis?

Because alignment is so crucial to properly executing strength training exercises, anything that encourages poor alignment should be avoided. This includes spinal flexion exercises such as crunches, which have a tendency to overly strain both the lumbar and cervical spine.

What are some examples of bone strengthening exercises?

Here are 2 no-equipment-needed exercises which combine alignment training, bodyweight strength training, balance, and high-intensity training for building bone density.

Bird Dog

Start from a hands-and-knees/quadruped position with the shoulders stacked firmly above the wrists and the hips directly over the knees. If it's too uncomfortable to put weight on your knees, this exercise can be modified leaning over a chair with one hand on the seat for support. Press your hands into the floor, imagining you are pushing the floor down and away with your hands. Your upper back should feel strong and secure. Rotate your pelvis and tuck your tailbone under slightly, putting your pelvis and lumbar spine in a neutral alignment. Imagine a string running up the length of your spine and coming up through the crown of your head; tuck your chin slightly and "pull" on that string, elongating your spine. Your entire body should feel long, supported, and balanced.

Lift your right hand up from the floor, ideally to shoulder height. Imagine someone pulling your hands and fingers away from you, creating tension and length down your arm. At the same time, lift your left leg up from the floor, ideally up to hip height, kicking through your heel. Imagine someone pulling on your foot, creating length in your leg. Hold for a few seconds, then slowly reset to your starting neutral position. Switch sides. This exercise should be done slowly and with control, focusing on keeping your torso stable without arching your back. For an added challenge, try doing this exercise starting from a knee plank or even a full plank.

Bear Crawl

Start in the same position as Bird Dog, on your hands and knees, with hands pushing the floor away from you, spine long, and tailbone and toes tucked under.

Holding your torso stable, brace your deep abdominals and lift your knees up off the floor 1-2" and hover. If someone looked at you from the side, it should still look like you're in a hands-and-knees position rather than lifting your hips up into a pike position. If holding this position is challenging enough, practice holding it for five to ten seconds before taking a rest. If you'd like more of a challenge, crawl forward one arm and leg at a time, keeping your hips low and your knees hovering just above the floor. Try crawling both forward and backward, as well as side to side for an added challenge.