**What Happens to Our Bones When We Workout**

**Exercise for Your Bone Health**

*How does exercise improve bone health?*

As people get older, their risk of osteoporosis rises. [Osteoporosis](https://www.niams.nih.gov/health-topics/osteoporosis) is a disease that causes bones to become weak and brittle, which increases the risk of fractures (broken bones). Older adults also tend to lose muscle (a condition called sarcopenia). We need strong muscles to help us balance and reduce the risk of falling and breaking bones.

Exercise in adults and children of any age offers many benefits for bone, such as:

* Builds strong bones in [children](https://www.niams.nih.gov/health-topics/kids-and-their-bones).
* Strengthens both muscles and bones in children and adults.
* Prevents bone loss in adults.
* Makes bone denser and replaces old bone with new bone.
* Improves balance and coordination.
* Helps prevent falls and fractures.
* Helps prevent osteoporosis.

*Which exercises are best for keeping bones healthy?*

If you have [low bone density](https://www.niams.nih.gov/health-topics/bone-mineral-density-tests-what-numbers-mean) (a condition sometimes called osteopenia), osteoporosis, or other physical limitations, talk to a health care provider before starting an exercise program. They can help you choose types of physical activity that are safe for you and good for your bone health.

A combination of these types of exercise is best for building and maintaining healthy bones and preventing falls and fractures:

* Weight-bearing exercises. These exercises produce a force on bones that makes them work harder. Examples are:
	+ Brisk walking (3 to 4 miles per hour).
	+ Jogging or running.
	+ Tennis, badminton, ping pong, pickleball, and other racket sports.
	+ Climbing stairs.
	+ Dancing.
* Resistance training exercises (weight lifting), which add resistance to movement to make muscles work harder and become stronger. These exercises put stress on bones, so they can make bones stronger as well. Strength-training exercises can involve:
	+ Weight machines.
	+ Free weights.
	+ Resistance bands.
	+ Use of your own body weight (such as pushups or pullups).
* Balance training, which is especially important for older adults. It can improve balance and help prevent falls. Examples are:
	+ Walking on an unstable surface (e.g., a foam mat or wobble board).
	+ Tai chi.
	+ Walking backwards.
	+ Step-ups.
	+ Lunges.
	+ Shifting your body weight backward and forward while standing with both feet together or on one foot.

How much exercise do we need to keep bones healthy?

**For all adults:** According to the U.S. Department of Health and Human Services, adults of all ages should aim to get the following amounts of exercise:

* At least 150 minutes (2.5 hours) a week of moderate-intensity exercise OR at least 75 minutes a week of vigorous-intensity exercise.
* For additional benefit, muscle-strengthening activities of at least moderate intensity at least twice a week.

**For older adults:** The weekly 150 minutes of exercise for older adults should include a mix of balance training, aerobic, and muscle-strengthening exercises every week. If they cannot do 150 minutes a week of moderate-intensity physical activity because of their health, they should be as physically active as their health allows.

**For pregnant women and women who have just given birth:** During pregnancy and after delivery, women should spend at least 150 minutes a week on moderate-intensity exercise. Ideally, they should spread this activity throughout the week. Pregnant women should consult a health care provider about whether and how they need to adjust their exercise during their pregnancy and after their baby is born. For more information, see [Pregnancy, Breastfeeding, and Bone Health](https://www.niams.nih.gov/health-topics/pregnancy-breastfeeding-and-bone-health).

**For adults with chronic health conditions or disabilities:** If they are able, these adults should do at least 150 to 300 minutes a week of moderate-intensity exercise or 75 to 150 minutes a week of vigorous-intensity exercise. If they can, they should do muscle-strengthening exercises of at least moderate intensity that involve all major muscle groups at least twice a week. If they cannot do this much exercise because of their health, they should be as physically active as possible.

**For children and teens:** Children and teens also need regular exercise. Recommendations for them are:

* Young children (age 3 to 5 years) should be physically active throughout the day. Adults should encourage them to do a variety of types of activities while they play.
* Children and teens age 6 to 17 should spend at least 1 hour every day exercising. Most of this exercise should be moderate or vigorous intensity. They should use some of this time for muscle strengthening exercises at least 3 days a week. They should also use some time for bone-strengthening exercises at least 3 days a week.

**SOURCE:** National Institute of Health

<https://www.niams.nih.gov/health-topics/exercise-your-bone-health>

**Cleveland Clinic**

**Tendon**

Tendons link your muscles to your bones. They let your bones move as your muscles tighten and relax. Overuse, injury, aging and health conditions, such as arthritis, can damage your tendons. You can lessen the chances of tendon problems with a balanced exercise routine.

**What is a tendon?**

A tendon is a cord of strong, flexible tissue, similar to a rope. Tendons connect your muscles to your bones. Tendons let us move our limbs. They also help prevent muscle injury by absorbing some of the impact your muscles take when you run, jump or do other movements.

Your body contains thousands of tendons. You can find tendons from your head all the way down to your toes. The Achilles tendon, which connects your calf muscle to your heel bone, is the largest tendon in your body.

Tendons are highly resistant to tearing but aren’t stretchy. This means they can be easily injured when strained (stretched to point partial tearing of rope fibers) and may take a long time to heal.

**FUNCTION**

**What does a tendon do?**

When you contract (squeeze) your muscle, your tendon pulls the attached bone, causing it to move. Tendons essentially work as levers to move your bones as your muscles contract and expand.

Tendons are stiffer than muscles and have great strength. For instance, the flexor tendons in your foot can handle more than eight times your body weight. (Coincidentally, tendons take a long time to heal if they are damaged due to less blood supply.)

**ANATOMY**

**Where are your tendons?**

Tendons are located all over your body. For instance, tendons connect your muscles to your bones in your elbow, heel, knee, shoulder and wrist.

**SOURCE:** Cleveland Clinic

<https://my.clevelandclinic.org/health/body/21738-tendon>