

Exercise and Bone Health

Most people are familiar with many of the benefits of exercise, such as reducing the risk for heart disease and stroke, and preventing obesity. Perhaps not as well understood is the importance of regular physical activity in building and maintaining healthy bones.

With aging, bones can become very weak and fragile – a condition called osteoporosis. It often occurs in women after menopause, and in men in older age. This bone-thinning disease puts people at a greater risk for broken bones, which can seriously limit mobility and independence.

Exercise is important for building strong bones when we are younger, and it is essential for maintaining bone strength when we are older. Exercise works on bones much like it works on muscles – by making them stronger. Because bone is a living tissue, it changes in response to the forces placed upon it. When you exercise regularly, your bone adapts by building more cells and becoming more dense.

Another benefit of exercise is that it improves balance and coordination. This becomes especially important as we get older because it helps to prevent falls and the broken bones that may result.

Exercises for Strong Bones

There are many different types of exercises and all of them offer health benefits. The two types of exercise that are most effective for building strong bones are weightbearing exercise and strength-training exercise.

Weightbearing Exercise

Weightbearing describes any activity you do on your feet that works your bones and muscles against gravity. When your feet and legs carry your body weight, more stress is placed on your bones, making your bones work harder.

Examples of weightbearing exercise include:

- Brisk walking and hiking
- Jogging/running
- Dancing
- Jumping rope



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- Tennis
- Team sports, such as basketball and soccer
- Stair climbing

Higher impact activities, such as jogging and jumping rope, increase the weight on bones and provide more bone-strengthening benefits. However, people who are frail or who have already been diagnosed with thinning bone should talk to their doctors about the types of physical activity that would be best for them.

Strength-Training Exercise

During strength-training activities, resistance is added to movement in order to make muscles work harder and, over time, become stronger. The most common strength training methods include using weight machines, working with free weights, or doing exercises that use your own body weight (push-ups, for example).

Although these resistance exercises focus on increasing muscle mass, they also put stress on bones and have bone-building capacity.

Other Forms of Exercise

Non-impact exercises, such as yoga or tai chi, are not as effective at strengthening bone, but provide significant flexibility and balance training benefits. Non-weightbearing exercise, such as swimming and cycling, do not increase bone mass, but are excellent choices to strengthen your heart and lungs.

If musculoskeletal health conditions, like arthritis, prevent impact or weightbearing activities, these are good alternatives.

Starting a Program for Bone Health Fitness

An effective exercise program for bone health includes 30 minutes of weightbearing activity, 4 or more days a week. To help you stay motivated, choose an activity that you enjoy. There are a wide range of activities that will get you on your feet and moving. Your 30 minutes of exercise can be done all in one stretch or broken up into shorter intervals. A 10-minute brisk walk three times a day is a great way to get started.

A general guideline for strength training is to exercise each major muscle group at least twice a week. Be sure to rest for a full day in between strength sessions.



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To really reap the benefits of exercise, you need to add flexibility and balance training to the mix. All exercise sessions should end with stretching – and not just for the mental relaxation benefits. Increasing your flexibility improves your ability to move easily and can reduce your risk for injury.

Age and Bone Health Fitness

Adolescents and Young Adults

Building strong bones begins in childhood. The best time to build bone density is during years of rapid growth – in fact, you develop the bone that must last your lifetime when you are between the ages of 10 and 18 years old.

Weightbearing exercise during the teen years is essential to reach maximum bone strength. At least 3 to 4 days each week, a teen's physical activity should include 20 to 30 minutes of weightbearing exercise.

Older Adults

In the elderly physical activity no longer increases bone mass, but it can slow bone loss, maintain muscle mass to preserve and strengthen surrounding bone, and decrease the risk of falling.

Falls often result in fractures, with long-term consequences that may include permanent disability. The most common breaks in older people occur in the wrist, spine, and hip.

Balance training and tai chi have been shown to decrease falls by 47% and reduce the risk of hip fracture by approximately 25%. In addition, men who participate in vigorous physical exercise tend to have a lower risk of hip fracture.

Body Weight and Bone Health

When people lose weight, they also lose bone. Having low body weight at any age puts you at greater risk for bone problems and fractures.

Very low body weight has increased consequences for women. Sports and exercise are healthy activities for girls and women of all ages. However, a female athlete who focuses on being thin or lightweight may eat too little or exercise too much. The result may be long-term health problems and bone damage.

Young women who exercise excessively can lose enough weight to cause hormonal changes that stop menstrual periods (amenorrhea). This loss of estrogen – the hormone that is necessary for bone rebuilding – can cause bone loss at a time when young women should be adding to their peak bone mass.

See your doctor right away if you miss several menstrual periods, suffer a stress fracture in sports, or you are continuously focused on your weight, the need to be thin, and/or have a dissatisfied image of your body.

Conclusion

Although exercise has been shown to have bone-building effects, it is just one element of a total program to prevent bone loss. Understanding your individual risk for osteoporosis, such as genetic factors and family history, is essential. A balanced, calcium-rich diet and a healthy lifestyle are also key ingredients for lifelong bone health.

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