
This chapter is dedicated to older
adults who would like to live
actively and independently and
maintain their quality of life.

Chapter 17

Managing Osteoporosis and Arthritis

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Two conditions that affect many people as they age are osteoporosis and arthritis.

FACTS ABOUT OSTEOPOROSIS

Osteoporosis (or porous bone) is a progressive loss of bone density; bones become brittle and are prone to fracture. Known as "the silent disease," it's characterized by low bone mass (osteopenia) and deterioration of bone tissue that leads to bone fragility and an increased susceptibility to fractures. According to the National Osteoporosis Foundation, the areas that are most vulnerable are the hip, spine and wrist.

More than 44 million Americans are affected by osteoporosis or low bone mass and 80% of those who have the disease are women; more than half of the people who are 50 years of age or older are at risk of developing osteoporosis and related fractures. In 1996, more than 900,000 residents of New Jersey had osteoporosis or low bone mass, resulting in a total medical cost of more than $496 million. This cost is expected to grow to $660 million by the year 2025.

Osteoporosis is an under-diagnosed and under-treated condition. This is particularly alarming given the fact that osteoporosis is a progressive disease; it gets increasingly worse without intervention. Here are additional facts about osteoporosis:

- **Each year, there are 1.5 million osteoporotic fractures in the United States.**
- **Each year, women have more osteoporotic fractures than stroke, heart attack and breast cancer combined.**
- **50% of all women and 20% of all men will have an osteoporosis-related fracture in their lifetime.**
- **In the United States, about $38 million is spent on osteoporotic and associated fractures each day and the cost is rising.**

There and many risk factors for osteoporosis. These are the ones that you cannot change:

- **Gender. Women are at greater risk for developing osteoporosis due to a lower peak bone mass and the loss of bone at menopause. Women have an even higher risk if they're no longer menstruating (including both early or surgically induced menopause via removal of the ovaries) or have an abnormal absence of menstrual periods (amenorrhea). Men can and do get osteoporosis as well (especially those who have low levels of testosterone).**

- **Family history.** If someone in your family has or had osteoporosis, you have a greater risk of developing the disease. However, a family history doesn't necessarily mean that you'll develop it.
- **Personal history.** The first symptom of osteoporosis is often a fracture. Those with a single vertebral fracture are 5-25 times more likely to have another spine fracture. A non-impact broken bone may be a sign of osteoporosis.
- **Age.** Bone loss occurs over time. The risk of osteoporosis is significant for both men and women as they advance in age, especially over the age of 50.
- **Ethnicity.** People of Caucasian or Asian descent are at greater risk than members of other ethnic groups (although Hispanic Americans and African Americans also have a high risk). Regardless of heritage, osteoporosis can happen to anyone.
- **Body Frame.** Having small bones, a thin frame or a bodyweight less than about 125 pounds are risk factors for both men and women. Remember, though, that people who are heavier or have a larger frame can still have the disease.

The good news is that some of the risk factors for osteoporosis can be changed. If you're at increased risk for osteoporosis, you can modify those factors if you . . .

- are physically active
- quit smoking
- drink no more than two alcoholic beverages a day
- consume a diet that's high in calcium

You also have an increased risk for osteoporosis if you currently take medicine for asthma, arthritis or cancer, have anorexia nervosa, bulimia or other malabsorption disorders such as celiac disease (also known as non-tropical sprue or gluten enteropathy). In these cases, talk with your physician about appropriate treatments including bone-building medications, nutrition interventions, appropriate exercise and other considerations.

Increasing Bone Mass

As a preventive measure against osteoporosis, it's important to increase bone mass. These are some steps that you can take to build your bone mass:

- Get plenty of calcium, vitamin D and physical activity early in life.
- Maintain your bone mass as you get older by eating foods that are high in calcium.
- Do weight-bearing and strength-training activities.
- Live a healthy lifestyle by exercising regularly, limiting your intake of alcohol and not smoking.
- Speak with your doctor about specific steps to take to keep your bones strong, including medications that you can use to prevent the disease.

Guidelines for Exercise/Activity

According to the National Institutes of Health, Osteoporosis and Bone-Related Diseases National Resource Center, one of the best ways to develop bone health is to stay active. Clearly, engaging in physical activity throughout life can help to prevent osteoporosis. And if you already have osteoporosis, exercise can help you to maintain bone strength. Even after an osteoporotic fracture, experts recommend that people continue to be active.

Many individuals with osteoporosis will experience postural changes as well as muscle and soft-tissue tightness that require hands-on treatment from a physical therapist. These professionals can design exercise programs that are safe and appropriate for both the prevention and treatment of osteoporosis. Moreover, physical therapists are trained to teach the proper way to perform daily activities to reduce the risk of fracture. (Your physician or healthcare provider can make a referral to a physical therapist.)

A comprehensive osteoporosis exercise program should include weight-bearing, strength-training, flexibility, postural and balance activities. Let's take a closer look at weight-bearing and strength activities.

As the name suggests, weight-bearing activities use the weight of the body to load the bones. Your bones respond to this load by growing stronger. Weight-bearing activities are recommended for all ages. Walking, jogging, dancing, hiking and stair climbing/stepping are examples of weight-bearing activities. (Although they're good activities, biking and swimming aren't weight-bearing activities). Your ultimate goal should be to get 45 minutes or more of your preferred activity per session about 3-5 times per week.

Another activity that is especially important for increasing bone (and muscle) strength is doing strength-training exercises. Strength training is recommended for most people who are age 14 and older. You can use free weights, machines and resistance bands to perform this type of activity. Do one to three sets of eight to ten repetitions and rest about one to two minutes between your sets. Start with lighter weights that are manageable and, as you become stronger, gradually increase the amount. Strength training should be done 2-3 times a week, but not on consecutive days.

Here are some general guidelines for an osteoporosis exercise program:

- **Check with your physician concerning any restrictions that you may have before beginning an exercise program.**
- **Avoid any exercise or activity that causes or increases pain.**
- **Stop exercising if you feel dizzy or have shortness of breath.**

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The Good News

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- **Refrain from holding your breath when exercising.**
- **Keep your body in alignment when exercising.**
- **Avoid forward flexion of your spine (such as bending forward to do toe touches, sit-ups/crunches and so on). Done incorrectly, these exercises can increase the incidence of vertebral fractures.**
- **Avoid violent and/or repetitive twisting movements (such as windmill toe touches). These put excessive loads on your spine.**
- **Ask your physician if it's okay for you to do activities such as jogging and high-impact aerobics. These activities jar the spine and might increase your risk of spinal factures.**
- **Do strength-training exercises. Make sure that you maintain proper form and remember that high-weight/low-repetition sets and/or moving the weight too quickly can be dangerous.**
- **Wear shoes with good support and cushion when exercising. Replace your shoes when the cushioning begins to wear.**

Here are some additional guidelines for exercise/activity and posture:

- **Lift your chest.**
- **Keep your head erect and look forward.**
- **Keep your shoulders back and lightly "pinch" shoulder blades.**
- **Tighten your abdominal muscles and buttocks.**
- **Walk or climb the stairs whenever possible. Always use the handrail when climbing stairs.**
- **Bend from your hips and knees, not from your waist.**
- **Walk/exercise on surfaces that aren't slippery.**
- **Refrain from wearing backless bedroom slippers or shoes with slippery soles.**
- **Use good posture when standing, walking or sitting at a desk.**
- **Sit in firm, upright chairs that have arms. Avoid deep, cushioned chairs or couches that cause you to sink. If you cannot rest your feet flat on the floor, place them on a footstool.**
- **Move slowly rather than quickly.**
- **Avoid sports/activities that require violent twisting of the spine such as swinging a golf club.**
- **Stop activities/tasks if you feel pain, fatigue or shortness of breath.**
- **Move around. Don't sit in a chair or stay in bed for extended periods of time. One of the worst things for osteoporosis is inactivity.**

Nutrition and Osteoporosis

Bone mass can be influenced by nutrition. In general, it's best to consume a balanced diet that contains a variety of foods. Two

micronutrients have a major impact on bone health: calcium and Vitamin D.

Calcium

Besides its role in building strong bones, calcium is also needed for your heart, muscles and nerves to function properly and for your blood to clot normally. The body loses calcium daily through urine, feces and sweat as well as the skin, hair and nails. Normally, lost calcium is replaced in the diet. If the diet doesn't contain enough calcium, the body breaks down bone to release the calcium that's needed by the body. For adults, the National Academy of Sciences recommends a daily intake of 1,000-1,300 milligrams (mg) of calcium. Your body can only absorb about 500 mg of calcium at a time so it's best not to consume any more than that at once.

The best source of calcium is food and there are many sources for this mineral, including dairy products, calcium-fortified juices, cereals and breads, almonds, beans and some green, leafy vegetables. Individuals who cannot get enough calcium in their diet may need a supplement. Remember, though, that calcium supplements should only be taken on the advice of a physician or healthcare provider. Different calcium supplements are best taken before, during or after a meal. (Note: increasing the intake of calcium isn't enough to protect someone against bone loss that's caused by estrogen deficiency, an inactive lifestyle, smoking, alcohol abuse or various medical disorders or treatments.)

Vitamin D

As noted earlier, Vitamin D has an important role in bone health. Another major function of this vitamin is in calcium absorption. Vitamin D allows calcium to leave the intestine and enter the bloodstream. This vitamin also works in the kidneys to reabsorb calcium. Adults need a daily intake of 400 – 800 International Units (IU) of Vitamin D. Adults who are older or housebound may have a greater requirement.

The major source of vitamin D is manufactured in the skin as a result of direct exposure to sunlight. Usually ten to 15 minutes exposure of the hands, arms and face 2-3 times a week is enough to fulfill the body's requirement for Vitamin D. Very few foods contain vitamin D but it's found in fortified dairy products, cereals, egg yolks, saltwater fish and liver. Many multivitamins and/or calcium supplements also contain vitamin D.

Finding the Right Program

Check with your county Office on Aging, local public-health department or hospital to find out about low-cost or free programs in your community. In New Jersey, you can

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reach any Office on Aging by calling 877-222-3737. (A complete listing of local health departments can be found at www.nj.gov/health.)

When you visit a program location or facility, a checklist will help you to determine if it's the right place for you. Here are some of the questions that should be on your checklist:

- **Is the staff friendly and caring?**
- **Is it easy to get to the facility and, if you drive, is the parking lot accessible and well lighted?**
- **Are the hours and schedule of the program flexible?**
- **Does the facility or program offer free trial memberships?**
- **Are signs visible and easy to understand?**
- **Does the organization belong to a professional fitness association that specializes in fitness for older adults?**
- **Does the aerobic equipment have age-friendly features such as easy-to-read display panels and slow starting speeds, user-friendly operation/adjustments and easy access?**
- **Does the facility offer programs that are designed to meet the needs of those with a variety of chronic conditions such as osteoporosis, arthritis, cardiovascular disease and diabetes?**
- **Is there a screening and assessment process?**
- **Will the staff work hand-in-hand with your physician if you have a health issue?**
- **Does the facility offer a free orientation class to help you become familiar with your surroundings?**
- **Does the facility offer ongoing staff assistance and training?**
- **Is the staff knowledgeable about the impact that different types of medication can have on exercise ability?**

State Programs

One exercise and education program for people who are at risk or have osteoporosis is Project Healthy Bones. This 24-week program is offered at community sites throughout New Jersey.

The curriculum includes exercises that target the body's larger muscle groups to improve strength, balance and flexibility. Participants are educated on the importance of exercise, nutrition, safety, drug therapy and lifestyle factors as they relate to osteoporosis. The education portion of the class is interactive with leaders facilitating the exchange of information.

Older adults serve as peer leaders who guide and support the participants as they exercise and learn. Leading the class in pairs, the peer leaders provide both classroom

instruction and individualized assistance. Peer leaders improve their own health and well-being while serving as role models for others. More than 2,000 older New Jerseyans have participated in the program as either a peer leader or class member. Many classes continue to meet after completing the 24-week cycle.

Project Healthy Bones is provided through a partnership between the New Jersey Department of Health and Senior Services, the North Jersey Regional Arthritis Center, the Southern New Jersey Regional Arthritis Center and two departments within the Saint Barnabas Health Care System. (To learn more about Project Healthy Bones, visit www.state.nj.us/health and look under "osteoporosis.")

Another state program is the Live Long, Live Well Walking Program. This statewide program encourages adults who are age 50 and older to walk at least 30 minutes per day, 4-5 days each week. Walking logs are available to help you track your progress. (A log can be obtained at www.nj.gov/health/senior/walking/index.shtml.)

FACTS ABOUT ARTHRITIS

Arthritis is the general term for conditions that affect the joints, cartilage and surrounding tissues. There are more than 130 forms of arthritis, the most common of which is osteoarthritis. (Because the terms sound so similar, people often confuse osteoporosis and osteoarthritis. As you'll soon see, however, they're very different diseases that are managed with different strategies for physical activity and nutrition.)

Most forms are chronic or repetitive, meaning that there are periods of remission and flare-ups. Although there's no cure for most forms of the disease, joint replacement is often used to reduce pain and improve mobility. But arthritis can usually be managed through proper treatment programs, including proper nutrition and exercise.

About 43 million Americans have doctor-diagnosed arthritis and 23 million have possible chronic joint symptoms. According to the National Arthritis Foundation, 300,000 children in the United States have a form of juvenile arthritis including juvenile rheumatoid arthritis, lupus and scleroderma. Arthritis costs our country $86 billion annually, including $51 billion in direct medical costs. Arthritis is New Jersey's leading cause of disability, affecting an estimated 2.5 million residents. The annual cost to the state is more than $3 billion in medical care and lost productivity. Medical treatment for people with arthritis can cost 3.5 times that of the general population.

Although there's no known cure for arthritis, there are some preventive measures that you can implement.

Take Action

Although there's no known cure for arthritis, there are some preventive measures that you can implement. The North Jersey Regional Arthritis Center recommends taking these steps to limit the impact of arthritis:

- **Recognize joint pain.** **If you have joint pain that lasts for more than two weeks, see your doctor.**
- **Get a specific diagnosis.** **Different forms of arthritis require different treatments. Work with your doctor on a comprehensive treatment plan.**
- **Shed excess weight.** **If you're overweight, losing just ten pounds can reduce joint pain and help prevent some forms of arthritis by 50%.**
- **Get active.** **Regular exercise protects joints by strengthening the muscles around them. Spending 30 minutes per day doing a physical activity that you enjoy will lessen the pain, increase your range of movement and reduce fatigue.**
- **Eat a healthy, balanced diet.** **Antioxidants may help to reduce the risk of osteoarthritis.**
- **Think big.** **Protect your joints, using the largest and strongest joint possible to complete the task. Carry large items close to your body, using your arms instead of your hands to reduce the risk of injuries.**
- **Modify job tasks.** **Repetitive motion increases the risk of developing arthritis. Alternate job tasks and avoid using the same joints repeatedly. Take frequent breaks to stand and stretch stiff joints and sore muscles.**
- **Quit smoking.** **Smoking can reduce bone mass, increase the risk of complications from several forms of arthritis and prolong recovery from surgeries.**
- **Take control.** **Even small changes can result in big payoffs in preventing or controlling arthritis.**

Choosing the Right Activity

Range-of-motion exercises help to maintain normal joint movement, relieve stiffness and improve flexibility. Strength-training exercises increase muscular strength and can be helpful for people who have painful joints. Aerobic activities such as biking, walking and swimming strengthen the heart and lungs and are good for overall fitness and stamina.

Your doctor and/or physical therapist can help you to determine the right type and amount of exercise. The National Arthritis Foundation offers these general principles for exercising with arthritis:

- **Make a conscious effort to move your joints daily.**

- **Do a warm up that consists of slow movements prior to exercising to minimize the stress on the joints.**
- **Perform arthritis exercises in a slow, steady rhythm without bouncing.**
- **Exercise an inflamed joint gently through its range of motion. Move only until you feel a slight stretch. Range-of-motion exercises may improve flexibility and help to prevent further restriction.**
- **Breathe in a normal, deep, rhythmic pattern. Counting out loud or singing will keep you from holding your breath while exercising.**
- **Use heat to relax your joints and muscles and to help relieve pain. Prior to exercise, taking a warm (not hot) shower may help a person to exercise more easily. Cold air drafts in the dressing and exercise area can lead to muscle tension and should be avoided.**
- **Listen to your body and don't overdo it. If an exercise or activity hurts, stop; if you get tired, rest. You should stop exercising if you have chest pain, shortness of breath, dizziness or nausea.**
- **Seek supervision from a physical therapist when lifting weights.**

PROGRAMS/RESOURCES

A number of programs are available for people with arthritis. Here are a few that are fun and can help you feel better:

The Arthritis Foundation Aquatic Program (AFAP)

This recreational water exercise program offers people the opportunity to do gentle activities in warm water. This is an especially good medium for people with arthritis because they can exercise without putting excess strain on their joints and muscles. Moreover, exercising in water can provide relief from arthritic pain and stiffness. All of this is accomplished in a fun and relaxing atmosphere. Participants don't need to know how to swim and won't even get their hair wet. Many participants wear comfortable shorts and T-shirts rather than swimsuits.

The AFAP Core Program consists of a warm up, joint range of motion exercises for flexibility and strength and a cool down as well as games and activities. The AFAP Deep Water Program has the same components of the core program but is designed to provide a greater challenge for participants in both shallow and deep water.

Arthritis Self-Help Course (ASHC)

For people with arthritis, living the most active life with the least amount of pain,

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fatigue and disability involves becoming an active partner with their healthcare providers to learn how to manage arthritis on a day-to-day basis. The ASHC is a group-education program that's designed to help people with arthritis to learn and practice the different skills that are needed to build an individualized self-management program and gain the confidence to carry it out. Furthermore, the ASHC is meant to complement the professional services that are provided by a healthcare team. The course allows individuals with arthritis to share experiences thereby providing the opportunity to help others and learn from people who, like themselves, have arthritis. The courses are led by trained volunteers, many of whom have arthritis or fibromyalgia.

People with Arthritis Can Exercise (PACE®)

This exercise program uses gentle activities to increase joint flexibility and range of motion. In addition, the activities help to maintain muscular strength and increase stamina. Because there are many different types of arthritis and related conditions, various levels of fitness and degrees of limitation, two levels of PACE® classes are available: basic and advanced.

The techniques learned in the AFAP and PACE® programs are meant to complement – not replace – the therapeutic exercises that are prescribed by a physical therapist.

Tai Chi

The Tai Chi Program from the Arthritis Foundation is designed to improve the quality of life of people who have arthritis. It consists of 12 movements (six basic and six advanced), a warm up and a cool down using the Sun style of Tai Chi exercises. Reversing the direction of the movements provides continual challenges.

To locate AFAP, ASHC, PACE® and Tai Chi Programs in your community and/or learn more about them, contact:

- **The Arthritis Foundation, New Jersey Chapter (serving Atlantic, Cape May, Hunterdon, Middlesex, Mercer, Monmouth, Ocean, Somerset and Warren Counties) at 888-467-3112 or www.arthritis.org/Communities/Chapters.**
- **North Jersey Regional Arthritis Center at Atlantic Health System (serving Bergen, Morris, Union, Essex, Passaic, Hudson and Sussex Counties) at 877-973-6500 or www.atlantichealth.org.**
- **Southern New Jersey Regional Arthritis Center at Virtua Health (serving Burlington, Camden, Gloucester, Salem and Cumberland Counties) at 856-325-3511 or www.virtua.org.**

Nutrition and Arthritis

While there's no specific diet for arthritis, it's important to maintain a healthy weight and eat a well-balanced intake of foods. Evidence shows that symptoms of certain types of arthritis and related conditions may be influenced by excessive weight and diet. For example, some types of arthritis such as gout have specific food restrictions.

Everyone who has arthritis can benefit from eating a variety of foods that includes plenty of vegetables, fruits and whole-grain products while keeping their intake of sugar, salt and fat (especially saturated fat that's found in animal products) in moderation. Doing this will provide you with the recommended daily amounts of vitamins and minerals that are necessary for a healthy lifestyle.

ONLINE RESOURCES

Bone Health and Osteoporosis: A Report of the Surgeon General. U. S. Department of Health and Human Services: www.surgeongeneral.gov/library/bonehealth

Centers for Disease Control and Prevention: www.cdc.gov/nccdphp/dnpa/bonehealth

Health Compass: www.healthcompass.org

National Arthritis Foundation: www.arthritis.org

National Osteoporosis Foundation: www.nof.org

National Institutes of Health, Osteoporosis and Bone-Related Diseases National Resource Center: www.osteo.org

New Jersey Department of Health and Senior Services, Division of Aging and Community Services, Community Education and Wellness – Osteoporosis: www.state.nj.us/health/senior/osteo

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