



The Arizona Quarterly Spine  
SpineScottsdale Physical Therapy Newsletter  
Special Edition: Osteoporosis Prevention

Patient Edition

Summer 2011

### A note from Shane...

After being a physical therapist for 10 years...the last 5 years specializing in spine physical therapy, I noticed many of my spine patients indicated they have osteoporosis and/or osteopenia on their past medical history form.

I then became interested in developing an osteoporosis prevention program. It's common knowledge that you should perform weight-bearing exercises to prevent osteoporosis, however, that information was too generic for me. **I wanted to know what weight-bearing exercise you should perform.** After reviewing the literature, I learned about one of the largest studies to date on osteoporosis prevention: The Bone Estrogen Strength Training (BEST) study. This study not only told me what exercises patients with osteoporosis should perform, but how often you should perform the exercises and at what intensity the exercises should be performed.



This special edition newsletter discusses osteoporosis and highlights the BEST Exercise Program for Osteoporosis Prevention that SpineScottsdale Physical Therapy is now offering its patients. This 3 session program is covered by insurance and for those of you with high insurance plan deductibles or copays, the cost of this 3 session program is \$150, which is 33% off our normal cash pay policy. As a participant of the program, you will be educated on what exercises to perform, you will learn how to monitor your level of exertion, you will learn how to monitor your heart rate, you will receive an osteoporosis program workout journal, and you will receive a packet containing pictures and written descriptions of the BEST exercises for Osteoporosis prevention!

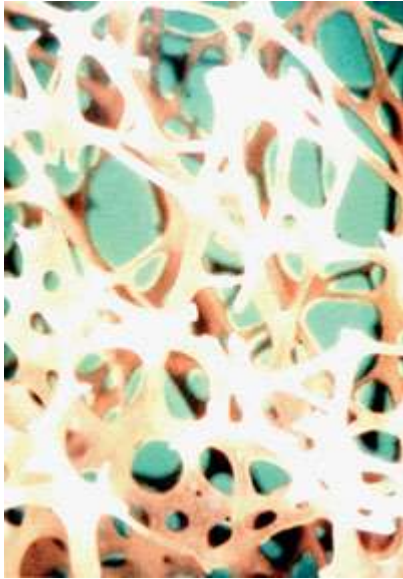
**Do you need a physician's referral to receive physical therapy services or to be educated on the BEST Exercise Program for osteoporosis prevention at SpineScottsdale Physical Therapy?**

Direct Access is your ability to obtain services from a licensed physical therapist where and when you choose without a referral from a physician. You may be surprised to learn that you can access physical therapy directly without a physician's referral, but under "direct access" in Arizona, you can. However, your specific insurance carrier may have specific restrictions. Our front office will call your insurance company to find out if you need a prescription from your doctor for insurance to cover your osteoporosis program.

Please email me at [shane@spinescottsdale.com](mailto:shane@spinescottsdale.com) should you have any questions or call 480-584-3334 to schedule an appointment.

**Inside this Edition...**

1. What is Osteoporosis?  
2. Fast Facts about Osteoporosis  
3. 10 Myths about Osteoporosis  
4. Osteoporosis Prevention: The SpineScottsdale Physical Therapy Osteoporosis Prevention Program

**Normal Bone****Osteoporotic Bone**

### **What is Osteoporosis?**

Osteoporosis means “porous bone.” If you look at healthy bone under a microscope, you will see that parts of it look like a honeycomb. If you have osteoporosis, the holes and spaces in the honeycomb are much bigger than they are in healthy bone. This means your bones have lost density or mass. It also means that the structure of your bone tissues has become abnormal. As your bones become less dense, they become weaker.

For some people affected by the disease, simple activities such as lifting a child, bending down to pick up a newspaper, bumping into furniture or even sneezing can cause a bone to break. A person with osteoporosis is most likely to break a bone in the hip, spine or wrist. However, other bones may also be affected by the disease.

If you’re age 50 or older and have broken a bone, you should talk to your doctor or other healthcare provider about getting a bone density test. This is the case, even if you break a bone after a serious accident. Broken bones are often related to osteoporosis, except for breaks in the fingers, toes, face and skull.

### **Fast Facts**

#### ***Definition***

- Osteoporosis, or porous bone, is a disease characterized by low bone mass and structural deterioration of bone tissue, leading to bone fragility and an increased susceptibility to fractures, especially of the hip, spine and wrist, although any bone can be affected.
- In simpler terms, osteoporosis is a condition in which the bones become weak and can break from a minor fall or, in serious cases, from a simple action such as a sneeze or bumping into furniture.

#### ***Prevention***

- About 85-90% of adult bone mass is acquired by age 18 in girls and 20 in boys. Building strong bones during childhood and adolescence can help to prevent osteoporosis later in life.
- Together, the following five steps can optimize bone health and help prevent osteoporosis:
  1. Get the calcium and vitamin D you need every day.
  2. Do regular weight-bearing and muscle-strengthening exercises.
  3. Don’t smoke and don’t drink too much alcohol

4. Talk to your healthcare provider about your chance of getting osteoporosis, and ask when you have a bone density test.
  5. Take an osteoporosis medicine when it's right for you.
- A study of disease management in a rural healthcare population demonstrated that a preventive program was able to reduce hip fractures and save money.

### ***Prevalence***

- Osteoporosis is a major public health threat for an estimated 44 million Americans, or 55 percent of the people 50 years of age and older.
- In the U.S. today, 10 million individuals are estimated to already have the disease and almost 34 million more are estimated to have low bone density, placing them at increased risk for osteoporosis and broken bones.
- While osteoporosis is often thought of as an older person's disease, it can strike at any age.

### ***Osteoporosis Prevalence: Gender***

- Of the 10 million Americans estimated to have osteoporosis, eight million are women and two million are men.
- Eighty percent of those affected by osteoporosis are women.
- Twenty percent of those affected by osteoporosis are men.

### ***Osteoporosis Prevalence: Race/Ethnicity***

- Significant risk has been reported in people of all ethnic backgrounds.
- Twenty percent of non-Hispanic Caucasian and Asian women aged 50 and older are estimated to have osteoporosis, and 52 percent are estimated to have low bone density.
- Seven percent of non-Hispanic Caucasian and Asian men aged 50 and older are estimated to have osteoporosis, and 35 percent are estimated to have low bone density.
- Five percent of non-Hispanic black women over age 50 are estimated to have osteoporosis; an estimated additional 35 percent have low bone density that puts them at risk of developing osteoporosis.
- Four percent of non-Hispanic black men aged 50 and older are estimated to have osteoporosis, and 19 percent are estimated to have low bone density.
- Osteoporosis is under recognized and under-treated not only in Caucasian women, but in African-American women as well.
- Ten percent of Hispanic women aged 50 and older are estimated to have osteoporosis, and 49 percent are estimated to have low bone density.
- Three percent of Hispanic men aged 50 and older are estimated to have osteoporosis, and 23 percent are estimated to have low bone density.
- When compared with other ethnic/racial groups, risk is increasing most rapidly among Hispanic women.
- Experts predict that costs related to osteoporotic fractures among Hispanics will increase from an estimated \$754 million in 2005 to \$2 billion per year in 2025.

### ***Cost***

- In 2005, osteoporosis-related fractures were responsible for an estimated \$19 billion in costs.
- By 2025, experts predict that these costs will rise to approximately \$25.3 billion.

## ***Symptoms***

- People cannot feel their bones getting weaker. They may not know that they have osteoporosis until they break a bone. A person with osteoporosis can fracture a bone from a minor fall, or in serious cases, from a simple action such as a sneeze or even spontaneously.
- Vertebral (spinal) fractures may initially be felt or seen in the form of severe back pain, loss of height, or spinal deformities such as kyphosis or stooped posture. In many cases, a vertebral fracture can even occur with no pain.
- Women can lose up to 20 percent of their bone density in the five to seven years after menopause, making them more susceptible to osteoporosis.

## ***Risk Factors***

- Certain people are more likely to develop osteoporosis than others. Factors that increase the likelihood of developing osteoporosis and broken bones are called "risk factors." Many of these risk factors include:
  - Being female
  - Older age
  - Family history of osteoporosis or broken bones
  - Being small and thin
  - History of broken bones
  - Low sex hormones
    - Low estrogen levels in women, including menopause
    - Missing periods (amenorrhea)
    - Low levels of testosterone and estrogen in men
    - Diet
      - Low calcium intake
      - Low vitamin D intake
      - Excessive intake of protein, sodium and caffeine
    - Inactive lifestyle
    - Smoking
    - Drinking too much alcohol
    - Certain medications such as steroid medications, some anticonvulsants and others
    - Certain diseases and conditions such as anorexia nervosa, rheumatoid arthritis, gastrointestinal diseases and others

## ***Fractures***

- Approximately one in two women and up to one in four men over age 50 will have an osteoporosis-related fracture in their remaining lifetime.
- Fractures due to osteoporosis are most likely in the hip, spine and wrist, but any bone can be affected.
- According to estimated figures, osteoporosis was responsible for more than 2 million fractures in 2005, including approximately:
  - 297,000 hip fractures
  - 547,000 vertebral fractures
  - 397,000 wrist fractures
  - 135,000 pelvic fractures
  - 675,000 fractures at other sites
- The number of fractures due to osteoporosis is expected to rise to more than 3 million by 2025.
- Women with a hip fracture are at a four-fold greater risk of a second one.
- Fractures due to osteoporosis lower a patient's quality of life.

- The rate of hip fractures is two to three times higher in women than men; however, the one year mortality following a hip fracture is nearly twice as high for men as for women.
- A woman's risk of a hip fracture is equal to her combined risk of breast, uterine and ovarian cancer.
- In 2005, about 293,000 Americans age 45 and over were admitted to hospitals with a fracture of the femoral neck, a common type of hip fracture. Osteoporosis was the underlying cause of most of these injuries.
- An average of 24 percent of hip fracture patients aged 50 and over die in the year following their fracture.
- One in five of those who were ambulatory before their hip fracture requires long-term care afterward.
- At six months after a hip fracture, only 15 percent of hip fracture patients can walk across a room unaided.
- In addition to hip fractures, vertebral fractures are also linked to an increased risk of death.
- Caucasian women aged 65 or older have twice the incidence of fractures as African-American women.
- Many people break a bone from osteoporosis after a fall. In 2005, a total of 15,802 persons aged >65 years died as a result of injuries from falls.

### **Diagnosis**

- Specialized tests called bone density tests can measure bone density in various sites of the body. Experts recommend a type of bone density test using a central DXA (which stands for dual energy x-ray absorptiometry).
- A bone density test performed by a central DXA can:
  - Tell if a person has low bone density before a fracture occurs
  - Tell if a person's bones are losing bone density or staying the same when the test is repeated at intervals of one year or more
  - Predict the chances that a person will have a fracture in the future
  - Help a person and his or her healthcare provider decide if treatment is needed
  - Medicare reimburses for bone density testing every two years.
  - An increase in bone density testing and osteoporosis treatment was associated with a decrease in hip fracture incidence.
  - Bone density is an important determinant of fracture risk even in nursing home patients.
  - There has been a five-fold increase in office visits for osteoporosis (from 1.3 to 6.3 million) in the past 10 years.
- Low bone density, in a person with no symptoms, predicts future fracture risk as well as high cholesterol or high blood pressure predicts the risk of heart disease or stroke.
- Some DXA machines are now able to provide a report that gives a person's absolute fracture risk or FRAX<sup>®</sup> score. FRAX incorporates a person's bone density, age and some of the risk factors for osteoporosis and broken bones. The information in this report helps to predict a person's risk of breaking a bone in the next 10 years. For people with low bone density (osteopenia), this information can help guide decisions about whether to begin treatment with an osteoporosis medicine.

### **Top Ten Myths About Osteoporosis**

When you think about staying healthy, you probably think about making lifestyle changes to prevent cancer and heart disease. Keeping your bones healthy may not be at the top of your wellness list. The following osteoporosis myths may make you think again.

#### **Myth 1**

**Most people don't need to worry about osteoporosis.** Osteoporosis is a condition that causes broken bones in millions of Americans. 44 million Americans have low bone density or osteoporosis. In fact, about one in two

women and up to one in four men over the age of 50 will break a bone due to osteoporosis. By 2020, half of all Americans over age 50 are expected to have low bone density or osteoporosis.

### ***Myth 2***

**Osteoporosis is only a problem for older Caucasian women.** While osteoporosis is common among white women, men and women of all races can have the disease. Also, while the disease is more common in older people, it can strike at any age.

### ***Myth 3***

**You don't need to worry about osteoporosis if you break a bone from a serious fall or accident.** Broken bones in people over the age of 50 can be the first sign of low bone density or osteoporosis. Broken bones from serious falls or accidents are often related to osteoporosis.

### ***Myth 4***

**People with osteoporosis can feel their bones getting weaker.** Osteoporosis is commonly called a "silent disease." Often, breaking a bone is the first clue you have osteoporosis. Some people learn that they have osteoporosis after they lose height from one or more broken bones in the spine. These broken bones can even occur without any noticeable pain.

### ***Myth 5***

**An osteoporosis test is painful and exposes you to a lot of radiation.** Experts recommend a bone mineral density test using a central DXA (dual energy x-ray absorptiometry) machine. It is simple, painless, takes 5-10 minutes and uses very little radiation. You are exposed to 10-15 times more radiation from flying in a plane roundtrip between New York and San Francisco.

### ***Myth 6***

**Children and teens do not need to worry about their bone health.** Children and teens can build strong bones and prevent osteoporosis by being physically active and getting enough calcium and vitamin D.

### ***Myth 7***

**If you drink a lot of milk and exercise, you are not at risk for osteoporosis.** Even if you drink plenty of milk and exercise, you still may be at risk for osteoporosis. There are many reasons why people get osteoporosis. Some of these include:

- Having a family history of broken bones
- Being small and thin
- Smoking
- Drinking too much alcohol
- Taking certain medications
- Having certain medical conditions.

You should ask your healthcare provider if you have any risk factors for osteoporosis.

**Myth 8**

**Osteoporosis isn't serious.** Broken bones from osteoporosis can be very painful and serious. Broken bones can affect physical, mental and emotional health, and in some cases, result in death. It is important to take steps throughout your life to protect your bones.

**Myth 9**

**Taking extra calcium supplements can help prevent osteoporosis.** Taking more calcium than you need does not provide any extra benefits. Estimate the amount of calcium you get from foods on a typical day. This will help you to figure out whether a supplement is right for you and how much calcium you should take. Adults under age 50 need 1,000 mg of calcium from all sources every day. Adults age 50 and older need 1,200 mg of calcium from all sources every day.

**Myth 10**

**Most people do not need to take a vitamin D supplement.** Vitamin D helps your body use calcium. If you don't get enough vitamin D, or if your body doesn't absorb it well, you are at greater risk for osteoporosis. Your skin makes vitamin D when it is exposed to the sun. It is also available in a few foods. Many people need a vitamin D supplement. Adults under age 50 should get between 400 and 800 International Units (IU) of vitamin D every day. Adults age 50 and older should get between 800 and 1,000 IU of vitamin D every day. Your healthcare provider may also give you a blood test to check your vitamin D levels. This is a test of 25-hydroxyvitamin D.

**Prevention**

**SpineScottsdale Physical Therapy is now offering The BEST Exercise Program for Osteoporosis Prevention.**

The Bone Estrogen Strength Training (BEST) study was conducted between 1995 and 2001 with funding from the National Institute of Arthritis Musculoskeletal Diseases (National Institute of Health) and Mission Pharmacal Company. The study involved an interdisciplinary team of researchers in the Departments of Physiology and Nutritional Sciences at the University of Arizona. The study results showed that weightbearing and resistance exercises over a one-year period, combined with Citracal calcium supplementation, significantly improved bone mineral density at skeletal sites at risk for fractures in postmenopausal women.

The study was completed on 266 healthy, nonsmoking, postmenopausal women, average age 55.6 years, half of whom were currently taking hormone replacement therapy (HRT) and half of whom were not. All of the women received calcium citrate supplements that provided 800 mg a day and were instructed to take the supplements in two 400 mg doses spaced throughout the day. These women were followed for one year with their bone density measured at the hip, spine, arm, and total body, and their calcium supplement compliance was monitored regularly.

The women in the exercise group performed supervised aerobic, weightbearing, and weightlifting exercises, three times per week in community-based exercise facilities. To encourage and maintain interest in exercise for one year, the women participated in social support programs that resulted in a high level of adherence. The participants had not lifted weights before and as a result of the study became much stronger. The study demonstrated that a

combination of adequate calcium intake and increased physical activity of a specific type prevents bone loss in both women taking and not taking HRT. The key to achieving the goal of improved bone health is in the intensity of the workout and the level of resistance training performed on a regularly weekly schedule. These findings underline *The BEST Exercise Program for Osteoporosis Prevention*, which was developed to provide guidelines for exercise that will make a difference in bone health.

### **Osteoporosis Exercise Program**

- The Osteoporosis Exercise Program at SpineScottsdale Physical Therapy for preventing osteoporosis is based on one of the largest studies on exercise and bone density in postmenopausal women.
- The following is an outline of the workout.

### **Osteoporosis Exercise Program**

Cardio warm-up  
Strength training exercises  
Cardio-weightbearing activity  
Small muscle exercises  
Cool-down

- The Osteoporosis Exercise Program is designed to be safe, effective, and beneficial based on the frequency, intensity, time, and type of exercise.

#### **Frequency**

- Clients should perform the workout \_\_\_\_ times per week on an every-other-day basis.

#### **Intensity**

- During the aerobic aspect of the workout, each client should exercise within his or her exercise heart rate zone (60-80% of estimated maximal heart rate).
- For the strength training portion of the program, clients perform \_\_\_\_ sets of \_\_\_\_ repetitions of each exercise.

#### **Time**

- The workout lasts approximately \_\_\_\_ minutes per exercise session.

#### **Type**

- The workout is a combination of strength training, weightbearing activity, small muscle development exercises, stretch and balance exercises, combined with aerobic activity.

#### **Training Tips**

- Perform exercises with perfect spinal alignment.
- Perform exercises with proper technique
- Exhale during the lifting phase of the exercise and inhale on the lowering phase
- Lift and lower weight using a slow, rhythmic pattern
- Decrease the amount of weight and/or the number of repetitions if you're sore more than 48 hours after a workout.

## Using the Internet

SpineScottsdale is now using the internet to connect with the community. We are on Facebook, Twitter, Posterous, and Yelp! You can learn more about these internet sites below...



### Facebook: Are you a fan?

Perhaps you have heard of this social networking site that is gaining popularity...FACEBOOK. Well, SpineScottsdale has decided to be a part of the trend. You can find a link at our website, [www.spinescottsdale.com](http://www.spinescottsdale.com), to become a fan. You can post comments, view pictures, read articles, and tell your friends.



### Twitter: Providing your patients tips on how to keep your spine healthy

Every day, millions of people use Twitter to create, discover and share ideas with others. Now, SpineScottsdale is turning to Twitter as an effective way to provide you and members of the community tips on how to keep your spine healthy. You can find a link to our Twitter page at: [www.spinescottsdale.com](http://www.spinescottsdale.com)



### Posterous: Evidence-based blog designed for health care professionals

Are you interested in medical spine research? If so, I've created a blog page. I will be posting a weekly blog discussing the most recent evidence-based material on spine related issues. You can view this blog by going to: [spinescottsdale.posterous.com](http://spinescottsdale.posterous.com) and read my blogs that talk about the most recent evidence-based material on spine related issues.



### Yelp: The purpose of YELP is to connect people with great local businesses.

1. Yelp was founded in 2004 to help people find great local businesses.
2. As of May 2010, more than 32 million people visited Yelp in the past 30 days.
3. Yelpers have written over 11 million local reviews.
4. You can find out what other patient's are saying about their experience at SpineScottsdale Physical Therapy at [www.yelp.com](http://www.yelp.com)

**What are our patients saying?**

“I want to express how satisfied I am with Shane’s care and treatment protocols. He has demonstrated an innate ability to provide the most effective rehabilitation program while having a genuine concern for my well being. I am feeling almost 100% in less than a month from seeing Shane.”

-George

“This was my first experience with physical therapy. Shane communicated very clearly which led to a relaxed and positive experience.”

-Marcia

“Shane is fantastic. Not only did he correct my immediate problem of lower back pain, he has taught me how to be proactive in maintaining back health. I highly recommend him.”

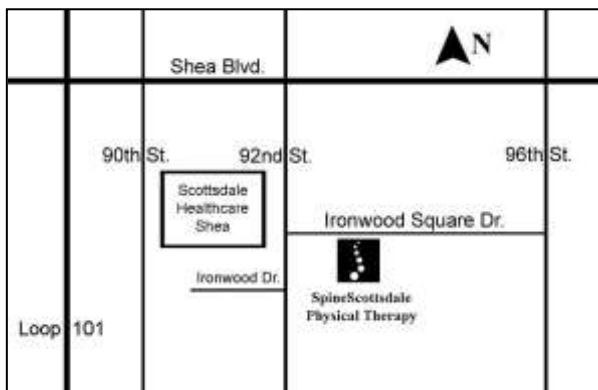
-Denise

“This has been a great experience and the results have been outstanding. Thank you for giving me my mobility back and relieving my pain. I would recommend Shane without exception!

-Stephanie

“I have been coming here for a few months. I could hardly stand when my therapy started and had major pain in both legs and lower back. Within a short time the pain in my legs is gone and the back feels great. Everyone on staff is friendly and makes it a fun time. I have been to other doctors for physical therapy and Shane and the staff has helped more than anywhere else.

-Jason



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