

Institute for Women's Health Research

Putting Women's Health First

May 2011

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Dear Friends,

May is National Osteoporosis Awareness and Prevention Month. It is estimated that 10 million Americans are currently living with the disease and nearly 34 million Americans have low bone density. A recent survey by the National Osteoporosis Foundation and Harris Interactive indicate that there is an increased awareness about risk factors and prevention but still 34% of the survey respondents had never heard about osteoporosis.

This month, the Institute for Women's Health Research is focusing its educational efforts on issues related to osteoporosis. Our monthly forum will address ways women can stay safely active even if they are pregnant or have bone and joint problems. We are featuring the benefits of calcium, vitamin D, and healthy eating on our blog. One of our Pioneer Awardees has found sex differences in the way osteoblasts (early bone cells) respond to hormones. This finding reinforces the need to look at sex differences across all body systems---even bones!

As we continue to advocate for more sex-based research, we hope that you will continue to increase your awareness about sex differences by following our [blog](#), [website](#) and newsletters!

The Institute Staff

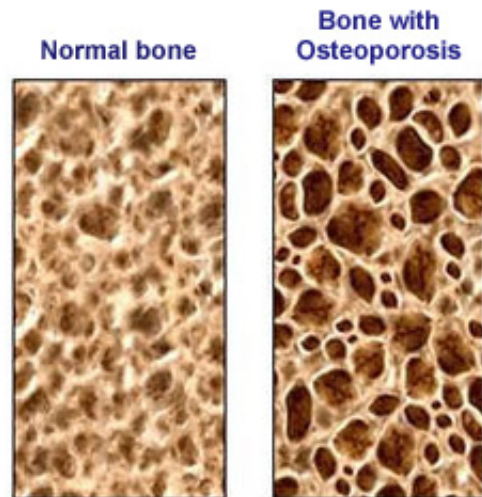


INSTITUTE FOR
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AT NORTHWESTERN UNIVERSITY

WHAT IS OSTEOPOROSIS?

Osteoporosis is defined as the loss of bone density over a period of time. As described by the National Osteoporosis Foundation (NOF), osteoporosis literally means "porous bone." When examined, bones contain a number of "pores" or spaces that can be identified microscopically. For someone diagnosed with osteoporosis, these holes within the bone are much more pronounced, reducing the bone density and subsequently the strength. The severity of osteoporosis often escalates silently, going undetected for years. When diagnosed early on, it is treatable and manageable, and injuries associated with the condition can be maintained. Still, it is often difficult to notice and diagnosis is frequently delayed until bone fractures occur.



Bones are living material, which is sometimes easy to forget, as they are not soft tissue like other organs. As we age, bone mass is constantly being lost and regained by new bone growth. When we are younger, bone growth is ahead of bone loss, and thus bone density increases until a certain point or peak. Research shows that this peak is between the ages of 18 and 25 for men and women. After this point, it is possible that the bone growth/bone loss dynamic will change, with bone loss being favored as we continue to age. During this time, it is critical to consider methods of preventing extensive bone density loss. While osteoporosis is not wholly unavoidable, methods of prevention are possible in dealing with this disease, which can severely affect one's quality of life.

WHAT ARE THE SYMPTOMS?

Symptoms of osteoporosis include:

- Loss of height
- Bone fractures, often of hips, wrists, and vertebrae
- Poor posture due to weakened bones
- Back pain
- Protruding abdomen

While these symptoms are common for advanced osteoporosis, it is important to note that early bone loss is not easily detected. Often, no pain is reported during early stages of osteoporosis, and thus it silently advances. However, bone density scans can detect early bone changes that generally precede osteoporosis. Guidelines for this test are discussed below.

RISK FACTORS FOR OSTEOPOROSIS

A number of factors contribute to the likelihood of an osteoporosis diagnosis. Some risk factors can be controlled while some are unavoidable. Common risk factors include:

- Low calcium levels
- Smoking or other forms of tobacco use
- Eating pathology such as bulimia nervosa or anorexia
- Lack of exercise

- Lack of exercise
- Use of certain medications such as aromatase inhibitors (often used in breast cancer treatment), SSRIs (anti-depressants), steroid medications (such as cortisone), and anti-acids with aluminum

SEX DIFFERENCES IN OSTEOPOROSIS

Though everyone is potentially at risk for osteoporosis, women are at greater risk than men. This is due primarily to women usually having smaller, thinner bones than men, and the role of estrogen in female bodies. Estrogen levels ebb and flow during the female reproductive cycle, but during and post-menopause, estrogen levels sharply decline. Because of this, bone density loss is a significant concern for women entering or going through menopause and during the post-menopausal years.

For women, there are additional risk factors for osteoporosis including having a family history of the disease or having a disorder that increases the risk of osteoporosis (such as arthritis or anorexia). Further, women with Premature Ovarian Failure (POF) are also at greater risk for osteoporosis. This is due to low levels of hormones that are usually produced by the ovaries. In women with POF, levels are lower than necessary for the maintenance of bone mass.

Although the prevalence of osteoporosis diagnoses is higher for women, men also suffer. Nearly 25% of men over age 50 will suffer fractures or breaks due to osteoporosis, and in this same age group, men are more likely to receive a diagnosis for osteoporosis than for prostate cancer. Main risk factors for men include insufficient amounts of exercise, tobacco use, excessive alcohol consumption, and low calcium intakes.

Interestingly, it is not only adult men and women who are at risk for osteoporosis. Children and teenagers are at risk, specifically overweight or underweight teens. Researchers found that overweight teenage girls were at greater risk for lower bone density than were their average-weighted peers (Hage, et al. 2010). Yet another study found that disordered eating habits and the associated stress was also related to low bone density (Schvey, et al. 2008). While childhood and teenage years are usually characterized by significant bone density increases and bone growth, various pathologies associated with weight can impede proper bone development and contribute to the risk of osteoporosis.

DIAGNOSING AND TREATING OSTEOPOROSIS

Since osteoporosis is a serious problem, proper diagnosis and treatment is imperative. A bone density scan is necessary to confirm osteoporosis. Typical scans usually measure density in areas of the body most likely to be affected by osteoporosis—the hips, wrists, and spine. The NOF recommends a bone density scan for the following:

- Women who have experienced early menopause
- Men and women over age 50 with history of bone breaks/fractures
- Postmenopausal women that have recently stopped hormone therapy
- Postmenopausal women with at least one risk factor for osteoporosis
- Men between the ages of 50 and 70 with at least one risk factor for osteoporosis
- Anyone taking medications that are associated with the risk of osteoporosis

Previous recommendations suggested women over 65 years have their bone density checked every two years. However, researchers believe that most women who have a normal density scan at age 67 do not need a scan that often unless there is a change in her risk profile or medication status. A medical history is usually taken as a part of

diagnosing osteoporosis, and healthcare providers will typically assess factors such as exercise, calcium intake, family history of broken bones, testosterone levels, estrogen levels, and stage of menopause for women.

Many drug options are currently available to treat osteoporosis in men and women. For women in particular, healthcare providers usually consider age, severity of bone loss, and stage of menopause. A combination of these components will usually determine the types of medicines prescribed to treat and manage osteoporosis.

-Guest author Heather Pieske, BA

Sources:

Hage, et al. (2010). Bone Mineral Content and Density in Obese, Overweight, and Normal-Weighted Sedentary Adolescent Girls. [Journal of Adolescent Health](#)

[Mayo Clinic](#)

[National Institute of Arthritis and Musculoskeletal and Skin Disease](#)

[National Institute of Child Health & Development](#)

[National Osteoporosis Foundation](#)

[National Women's Health Information Center](#)

Schvey, et al. (2008). Disordered-Eating Attitudes in Relation to Bone Mineral Density and Markers of Bone Turnover in Overweight Adolescents [Journal of Adolescent Health](#)

UPCOMING EVENTS

May 10, 2011

Institute for Women's Health Research Monthly Forum:

[Staying Active Across the Female Lifespan](#)

Prentice Women's Hospital, Chicago, Illinois

May 12, 2011

Reproductive Justice and Health Care Reform:

[The Impact of Reform on the Reproductive Health of Underserved Women and Youth](#)

International House, University of Chicago, Chicago, Illinois

May 12, 2011

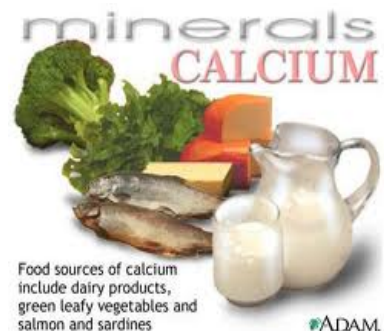
[Mindfulness and Eating Lunch n' Learn](#)

Prentice Women's Hospital, Chicago, Illinois

HEALTH TIP

If you cannot tolerate dairy products here are some options that are calcium rich:

- Leafy greens (spinach, kale, collards, bok choy)
- Beans
- Canned salmon and sardines
- Fortified soy products like tofu and soy milk
- Calcium fortified juices and breakfast cereals



To maintain healthy bones, the NOF suggests that:

- Adults age 50 and older need a total of 1200 milligrams of calcium and 800-100 international units (IUs) of vitamin D every day.
- Adults under age 50 need a total of 1000 milligrams of calcium and 400-800 IUs of vitamin D per day.

This includes the total amount of calcium you get from both food and supplements.

[Illinois Women's Health Registry News](#)

The Illinois Women's Health Registry has surpassed the 6,000 participants mark and continues to grow! The newest initiative, designed to open the Registry to even more women in Illinois, is the launch of the Spanish language registry website and survey. The Spanish version launches officially on Monday, May 9, in celebration of National Women's Health Week, but you can check it out early at <https://whr.northwestern.edu/es>! Be sure to tell all your Spanish-speaking friends, relatives, and colleagues about how great it feels to do your part to improve women's health in our state!

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