



# OSTEOPOROSIS, Prevent and Treat through Sport

## KEYWORDS

Osteoporosis, Prevention, Sport

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**ABSTRACT** *Healthy bones at least partially reflect healthy living: taking regular exercise is the single most important action anyone can take to improve the strength of their bones.*

### OSTEOPOROSIS, PREVENT AND TREAT THROUGH SPORT

Osteoporosis means "porous bone". Until recently considered a normal condition of the elderly, osteoporosis is now considered a disease characterized by reduced bone mineral density associated with compromised trabecular bone structure, which predisposes bone fracture after a low-intensity trauma or even in the absence of. Osteoporotic bones do not look, at first glance, other than normal bones. However, they are less dense the bone loss, which is reflected in their internal structure, which is deeply affected - like an old fabric, warp thinned and sometimes broken.

After the age of 35 years continuously in the bone loses its substance, a normal and natural phenomenon with age. This loss, however, can become a serious problem if the original was too small or if bone loss is too fast. The result is an increased risk of fracture or failure with a normal, as in the case of the wrist or hip, or by lifting a moderate effort, as in the case of vertebrae. Osteoporosis a disease that affects over 40 percent of women and 20 percent of men (one of six women and one of eight men over the age of 50 years) being more common in women in the post-menopausal.

Osteoporosis is often the cause of many health complications progresses unnoticed over the years. Only after long periods of bone loss occurs early specific symptoms such as pain, back deformities and fractures.

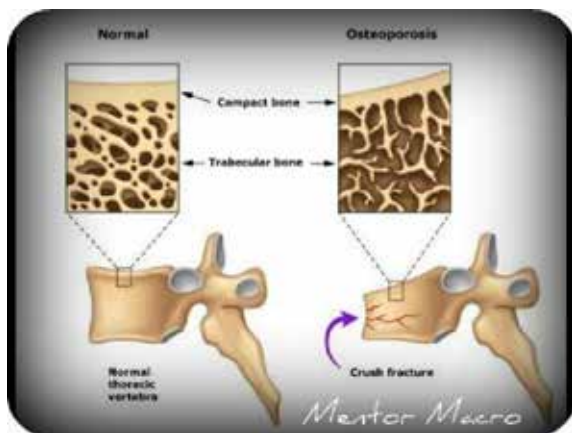


Figure 1-Bones density

#### Risk Factors

Almost anyone can make osteoporosis, but are prone to this especially females (aprox.80% tooth patients with osteoporosis are women), especially if you have already had menopause, and even more if they had before the age of 45 years.

Other risk factors: age over 65 years, chronic treatment with corticosteroids, inadequate intake of dietary calcium, insufficient physical activity, body weight too low. The maximum bone mass is recorded between 20 and 30 years. Bones reached in this period their maximum density and strength. Thereafter, gradually decreases bone reconstruction. For women, the greatest bone loss occurs following years of menopause, when estrogen levels declines.

#### Diagnosis

For reasons of objectivity diagnostics, osteoporosis is defined by the World Health Organization (WHO) as a decrease in bone mineral density more than 2.5 standard deviations from the average young person of the same sex as measured by DEXA. The diagnosis of osteoporosis can not put just by looking that person unless it has an acquired characteristic deformity of the spine or decreased obviously in height. Blood examination is usually normal, and radiographs can not only diagnose the disease in an advanced stage, for example by highlighting one or more vertebral fractures. The only way you can make the diagnosis of certainty for low bone density is densitometry.

NASA scientists together with scientists from Arizona State University believe they have found a way to detect bone loss in the early stages of osteoporosis installation. The new test, designed partly astronauts can lose bone mass due to microgravity in space, analyze traces of bone calcium in urine, reports BBC. The technique analyzes the various isotopes of atoms of the element calcium derived from bone, each with a specific number of neutrons. The balance between these different isotopes changes when bone is destroyed and formed, and therefore may indicate changes in bone density, since their inception. In order to test the technique, the researchers studied more on healthy volunteers who were kept on bed rest for 30 days. Prolonged bed rest causes bone loss. The technique was able to detect bone loss after more than a week of bed rest and long before changes in bone density are detectable with conventional medical methods such as osteodensitometry (DXA).



Figure 2-Effects of time

### Prevention

People diagnosed with osteoporosis can do quite a lot to stop the disease and prevent fractures:

- can use specific medication;
- can ensure an adequate intake of calcium and vitamin D;
- can increase their level of physical activity;
- can prevent falls;
- can use hip protectors;

### These methods are addressed more elderly and aim resolve issues:

- lighting: witches inaccessible, lack of lighting "lookout";
- floors and hallways: obstructions, objects placed on the floor, slippery floors, carpets worn, mobiles thresholds;
- bathroom and kitchen: no handles, shower, wet floors;
- staircases: the mains unstable or inadequate handrails, stairs slippery or damaged;
- furniture: chairs too low, without support for elbows too low or too high bed;
- access: shelves too low or too high.

Older people should resolve those medical problems that cause failures, such as those related to visual acuity, blood pressure, cervical spondylosis, etc. Hip protectors are basically foam cushions that cushion the impact at this level. There are very popular for aesthetic and comfort, but shown to be effective for preventing hip fractures. Regardless of sex and age, osteoporosis can be prevented by adequate physical activity and calcium intake accordingly.

### Areas with risk factors for osteoporosis

Although genetic factors play an important role in determining whether a person has a high risk of osteoporosis, factors related to lifestyle can influence bone development in youth, and the rate of bone loss later. Preventing osteoporosis is not just the diet, along with quitting smoking and limiting alcohol consumption, but also through regular exercise. It has been shown that sport increases bone density, so delay the onset of disease.

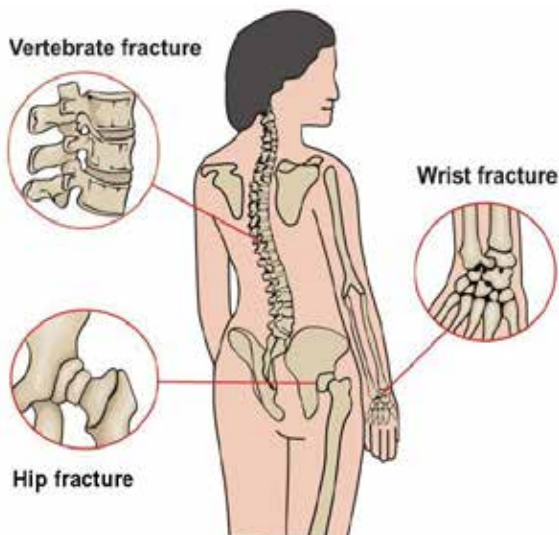


Figure 3-Areas with risk factors for osteoporosis

### Types of activities

Weight exercises are vital for bone health. Added weight to the foot encourages bone formation, creating a more powerful, thus presenting less risk to be broken. In addition to training with weights, running, walking, dancing, aerobics stimulates bones than other sports such as swimming for example. Dance movement that emphasizes the legs is the main activity for the prevention of osteoporosis representing a form

of aerobic because it requires arm movements, leg and hip movements, thereby improving the circulation of blood and muscle tonics. All this leads to strengthening body resistance and better flexibility of the joints. A study in 2008 by Catherine Sherrington demonstrated the effectiveness of exercise in preventing falls in that frequency falls can be decreased by up to 42 % by doing regular exercises.

Flexibility exercises help improve joint mobility. Good flexibility to ensure prevention of accidents and improving their posture. These exercises are stretching after warming up prior to the muscles. There must execute sudden movements, bending at the waist. No need to practice golf, tennis, bowling.

So, among the advantages of sport are that it helps to fulfill daily activities, improves posture, helps relieve pain, improves mood. We can say that the movement is an important part not only prevention but also the treatment of osteoporosis. Through exercise we can stop the process of bone loss, improves blood circulation and keep good physical condition, which, in turn, improves the quality of life. Exposure to mechanical impact physical force as momentum boost skeleton, forcing it to adapt by increasing bone mass and strength. Ensure proper circulation required intake of minerals (calcium). Trained muscles will give a position and a posture will ensure balance and mobility and prevent falls.

ASPOR - Association for the Prevention of Osteoporosis in Romania organized the 2010 World Osteoporosis Day event scale, which tried to make known the benefits of sport in preventing and treating this disease. "Move it or lose it" was the slogan of World Osteoporosis Day last year that have involved athletes from all over the world to alert the individual and determined to introduce movement, physical exercise schedule. Consequently, ASPOR organized a pan-event: discos, in three major cities. The first door was wide open disco in Bucharest, where among the guests there were Mrs. Simina Mezincescu spokeswoman and chief of protocol of the royal court, and tennis player Ilie Nastase.

ASPOR has created successful groups in many cities, organizes symposia and courses osteoporosis lecture of patient associations, where they held discussions in plenary and workshops on topics of interest such as fractures and their prevention, raising funds, vitamin D and exercise, thus supporting those who feel affected by the disease.

### Do not forget!

- Move to your health! Bone mass and exercise are vital interrelated.
- Invest in your own bones! Children should carry more exercise to ensure peak bone mass.
- Exercise, along with good nutrition and a healthy lifestyle can maintain bone density and slow osteoporosis process.
- By improving balance, strength and agility exercises help prevent falls that lead to fractures.
- Exercise is an adjunct to recovery. It's never too late to start an exercise program, but you should consult your doctor before you choose the level and type of exercise.
- Programs brief but intense are the most effective in bone formation. Short sprints are better than running slow.
- Two short episodes of exercise at intervals of 8 hours is better than a long one.
- If you have reduced the time to exercise, it is recommended to reduce the duration of each session, only the number of meetings per week.
- Exercises that improve posture and balance will prevent falls and the risk of suffering a fracture.
- Maintain good nutrition and a balanced lifestyle-not only through exercise can prevent osteoporosis. Also, calcium and vitamin D are needed to build and maintain bone mass, and smoking and excess alcohol are factors in bone loss. In some cases, we need to take prescription

drugs to control bone loss.

- Start with a simple program to strengthen the resilience.
- People osteoporosis and those who have suffered fractures should be aware of certain limitations and to take preventive measures during exercise. For example, avoid sudden movements and wheelwright, avoid high impact movements, avoid crunches, avoid bending forwards (the waist), avoid lifting heavy objects.
- Women and young girls performing excessive exercise are at risk of amenorrhea (absence of menstruation) due to lack of estrogen. Estrogen deficiency in young girls like that contribute to bone loss in postmenopausal.
- Excessive exercise can lead to stress fractures or joint disorders.
- Elderly and osteoporotics fracture risk exposure if suddenly begin strenuous exercise regime. First consult a doctor. Gradually improving exercise program.
- Some sports and exercise, by their nature, pose a risk of fracture. Therefore, the type of exercise that you choose should be appropriate personal skills and environmental conditions in which they are executed.

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