



## **Orthopedic Associates** OF PORT HURON

### **Osteoporosis & Exercise**

The importance of general physical activity in the maintenance of bone density has been well established. The general relationships between the bone mineral content in the axial skeleton and the general physical performance capacity of older men and women have also been well supported in the literature.

The bones of normal older persons are less dense than those of younger individuals. Both the organic and the inorganic components of bone are progressively reduced with age. When this age-related bone loss is excessive, the situation is termed involutional osteoporosis.

In males, from the age of 35, there is a regular loss of bone at an average rate of approximately 0.5% per year. In females, loss of bone also occurs at this rate between the ages of 25 and 50. The rate for women increases to between 2.5% and 3.0% per year between the ages of 50 and 65. The rate for women slows back down to 0.5% per year after the age of 65. At all ages, the bones of females are less dense than those of males of similar age. The difference in bone density between males and females increases with increasing age.

Common characteristics in a typical patient who suffers from, or is predisposed to, involutional osteoporosis are: older, Caucasian women, slight build, sedentary occupation and lifestyle, moderate to heavy long-term smoking and high protein consumption.

Two separate mechanisms – muscle activity and weight bearing – have been identified as being important in the maintenance of normal bone mineral content. Weight-bearing exercises are those that require one to support one's entire body weight. These would include: walking, running, dancing, and games/sports such as badminton, bowling, tennis, basketball, volleyball, and soccer, etc... Resistance exercises that produce muscle activity involves moving objects or your own body weight to create resistance. The most common form of resistance exercise is weight training, done with barbells or dumbbells and/or various apparatus available at fitness centers. In addition to their effect on bone mass, muscular strengthening exercises will increase your coordination and

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balance, reducing the risk of falls and help to increase or maintain muscle mass, providing added protection if one should fall.

When beginning an exercise program one should always consult a physician to determine if any risk factors to exercise exist. The following exercise guidelines may be helpful when designing a fitness program to avoid osteoporosis.

*Frequency:* Moderate intensity exercise can be performed on a daily basis. Weight training or more intense exercise should be performed every other day in order to allow for enough time for your muscles to recover.

*Duration:* Try to exercise for approximately 30 minutes. The activity does not have to be continuous to derive good benefits. For example, one might walk 15 minutes in the morning and 15 minutes in the evening. Any weight-bearing activities throughout the day will be beneficial to your skeleton.

*Monitor discomfort:* Pain usually indicates that something is wrong. Although a minor injury may result in your not being able to do your activity for a time, ignoring this early warning sign may cause more serious injury. A basic guideline is not to go beyond the pain level in any of your exercises.

If you cannot talk during your activity, you may be exercising too intensely.

Although varied results have been reported in literature concerning changes in bone density that result from regular participation in activity programs, a number of generalizations may be made, including the following:

1. In almost all cases the patient's previous rate of bone loss is reduced;
2. In many cases the patient's rate of bone loss is reduced to the average for their age group;
3. In some cases bone loss may be halted completely;
4. In some cases the bone density may increase;
5. The intensity of exercises included in the activity program, the frequency of attendance, and the duration of the program all appear to be strongly and positively correlated with beneficial changes to the bone density;
6. Considerable improvement is noted in both general physical capacity and in the speed and contraction of the muscles well in advance of any detectable changes in bone density.

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