



**National Institutes of Health
Osteoporosis and Related
Bone Diseases ~
National Resource Center**

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Bed Rest and Immobilization: Risk Factors for Bone Loss

Like muscle, bone is living tissue that responds to exercise by becoming stronger. Young women and men who exercise regularly generally have greater bone mass (bone density and strength) than those who do not. For most people, bone mass peaks by the late 20s. After the age of 30, women and men can help prevent bone loss with, among other things, regular exercise. The best exercise for bones is weight-bearing exercise. This is exercise that forces you to work against gravity, such as walking, hiking, jogging, stair climbing, tennis, dancing, and lifting weights. Swimming and bicycling are examples of non-weight-bearing exercises.

While weight-bearing activities contribute to the development and maintenance of bone mass, weightlessness and immobility can result in bone loss. Space travel has provided significant research data on the subject of weightlessness and bone loss. Astronauts exposed to the microgravity of space experience significant bone loss, leaving their bones weak and less able to support the body's weight and movement upon return to Earth.

The Impact of Bed Rest and Inactivity

Some people can't perform weight-bearing activity. They include people who are on prolonged bed rest due to surgery, serious illness, or complications of pregnancy, for example, and people who are experiencing immobilization of some part of the body due to stroke, fracture, spinal cord injury, or other chronic conditions. These people often experience a significant bone loss and are at high risk for developing osteoporosis and having a fracture.

Bone loss typically occurs over several months and then gradually levels off as the bones adjust to the state of weightlessness.

Maintaining Bone Health

In general, healthy people who undergo prolonged periods of bed rest or immobilization can regain bone mass when they resume weight-bearing activities. Studies suggest that there is a good chance to fully recover the lost bone if the immobilization period is limited to 5 to 10 weeks. Additionally, even brief intervals of weight-bearing activity during periods of limited mobility or bed rest can help lessen bone loss.

The greatest concern is for people who cannot resume weight-bearing activities and therefore typically do not regain lost bone density. Studies suggest that taking an osteoporosis treatment medication and reducing or eliminating other risk factors for osteoporosis can help slow the rate of bone loss.

The Bottom Line

- A lifetime of weight-bearing exercise is important for building and maintaining bone mass, improving balance and coordination, and promoting overall good health.
- Weight-bearing exercise should be resumed and maintained after a prolonged period of bed rest or immobilization to help recover bone lost during disuse.
- Those who cannot resume weight-bearing exercise are at significant risk for osteoporosis. Researchers are investigating ways for this population to protect bone mass. Until scientists know more, the best advice is to reduce or eliminate other risk factors for osteoporosis, such as smoking and excessive alcohol consumption, and to eat a diet rich in calcium and vitamin D. Taking an osteoporosis medication may also be an option to minimize bone loss.

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For Your Information

For updates and for any questions about any medications you are taking, please contact the U.S. Food and Drug Administration at 1-888-INFO-FDA (1-888-463-6332, a toll-free call) or visit their Web site at www.fda.gov.