



**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 twenties. After the age of 30, women and men can help prevent bone loss with 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, climbing stairs, playing tennis, dancing, and lifting weights. Swimming and bicycling are examples of non-weight-bearing exercises.

Although 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, for example, people who are on prolonged bed rest because of surgery, serious illness, or complications of pregnancy; and those who are experiencing immobilization of some part of the body because of stroke, fracture, spinal cord injury, or other chronic conditions. These people often experience 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 a good chance of fully recovering the lost bone if the immobilization period is limited to 5 to 10 weeks. 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 also may be an option to minimize bone loss.

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For Your Information

This publication contains information about medications used to treat the health condition discussed here. When this fact sheet was printed, we included the most up-to-date (accurate) information available. Occasionally, new information on medication is released.

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

For updates and questions about statistics, please contact the Centers for Disease Control and Prevention's National Center for Health Statistics toll free at 800-232-4636 or visit its Web site at www.cdc.gov/nchs.

Recognizing the National Bone and Joint Decade: 2002–2011