Abstract: Reduction of mechanical stress on bone inhibits osteoblast-mediated bone formation and accelerates osteoclast-mediated bone resorption, and leads to what has been called disuse osteoporosis. Prolonged therapeutic bed rest, immobilization due to motor paralysis from injury of the central nervous system or peripheral nerves, application of cast to treat fractures, a common causes of disuse osteoporosis. Imaging diagnosis shows coarse trabecular pattern and thinning of cortical bones. Bone metabolism markers have been used to evaluate bone metabolism. From the viewpoint of bone metabolism, antiresorptive agents should be administered to inhibit bone resorption. Rehabilitation, including bed positioning, therapeutic exercise and electrical stimulation, should be prescribed to subject the atrophied bone to an appropriate level of mechanical stress. In spite of these aggressive and continuous treatments, most cases of disuse osteoporosis require a long time for bone to recover its bone mineral density and strength. Hence, we have to keep in mind that there are no treatments better than prophylaxis of disuse osteoporosis.

Keywords: Disuse, osteoporosis, bone metabolism, treatment, prophylaxis
Characteristic physical findings of disuse osteoporosis

S. Takata et al.

Disuse Osteoporosis
Plain X-ray film

Dual energy X-ray absorptiometry
Computed tomography and biophyric evaluation
Markers of bone metabolism

The Journal of Medical Investigation Vol. 48 2001
Rehabilitation

Rehabilitation is a multidisciplinary field that aims to help individuals who have experienced physical, mental, or emotional impairments due to illness or injury. The goal of rehabilitation is to improve the quality of life for these individuals by enabling them to perform daily activities as independently as possible. Rehabilitation services can include physical therapy, occupational therapy, speech therapy, and mental health counseling.

In the context of medical investigation, rehabilitation research often focuses on developing new treatments and interventions to improve patient outcomes. For example, studies may examine the effectiveness of different rehabilitation strategies for patients with specific conditions such as stroke or spinal cord injury.

The Journal of Medical Investigation Vol. 48 2001
S. Takata et al.  
Disuse Osteoporosis