



## Stimulation of New Bone Tissue for the Maintenance of Healthy Life

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### DESCRIPTION

Bone density refers to the amount of mineral content, particularly calcium and phosphorus, in bone tissue. It is an important indicator of bone health and strength, as bones with low density are more susceptible to fractures and other bone-related injuries. Bone density is determined by a variety of factors, including genetics, age, gender, diet, physical activity, and hormonal balance.

Bone density is typically measured through a non-invasive test known as a Dual-Energy X-ray Absorptiometry (DEXA) scan. This test uses low-level radiation to measure the mineral content in specific areas of the body, such as the hip and spine. The results of a DEXA scan are expressed in terms of a T-score, which compares the patient's bone density to that of a healthy young adult of the same gender. A T-score of -1.0 or higher is considered normal, while a score between -1.0 and -2.5 indicates osteopenia (low bone density) and a score of -2.5 or lower indicates osteoporosis (severe bone loss).

Low bone density is a common health issue, particularly among women and older adults. Women are at higher risk for low bone density due to hormonal changes that occur during menopause, which can cause a decrease in estrogen levels. Estrogen helps to regulate bone turnover, so a decrease in this hormone can lead to a loss of bone density. Men can also experience low bone density due to age-related hormonal changes or certain medical conditions.

In addition to hormonal changes, low bone density can also be caused by a variety of other factors. One of the most significant risk factors is a lack of physical activity. Bones become stronger when they are subjected to stress, so individuals who lead sedentary lifestyles are at higher risk for low bone density. A diet that is low in calcium and vitamin D can also contribute to low bone density, as these nutrients are essential for building and

maintaining strong bones. Other risk factors include smoking, excessive alcohol consumption, and certain medical conditions, such as celiac disease, hyperthyroidism, and kidney disease.

Maintaining healthy bone density is important for overall health and quality of life. In addition to reducing the risk of fractures and other bone-related injuries, strong bones also support good posture and balance, which can reduce the risk of falls and other accidents. There are several steps that individuals can take to promote healthy bone density throughout their lives.

One of the most important steps is to engage in regular weight-bearing exercise. This includes activities such as walking, jogging, dancing, and weightlifting, all of which subject the bones to stress and stimulate the growth of new bone tissue. Maintaining a balanced diet that contains enough calcium and vitamin D is also crucial. Calcium is found in a variety of foods, including dairy products, leafy green vegetables, and fortified foods such as orange juice and cereal. Vitamin D is found in fatty fish, eggs, and fortified foods, but it is also synthesized in the skin through exposure to sunlight.

In addition to diet and exercise, there are several medications that can be used to treat low bone density. These include bisphosphonates, which help to slow bone loss, and Selective Estrogen Receptor Modulators (SERMs), which mimic the effects of estrogen in the body. Hormone Replacement Therapy (HRT) can also be effective in treating low bone density, particularly in postmenopausal women.

While low bone density is a common health issue, it is also a highly preventable one. By engaging in regular exercise, maintaining a healthy diet, and taking steps to reduce other risk factors, individuals can promote healthy bone density throughout their lives. In addition, regular monitoring through DEXA scans can help to identify any issues early on and allow for prompt treatment and management.

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