

## A Short Note on the Role of Nutrition in Bone Health

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### DESCRIPTION

Bones are alive and continuously ever-changing over time, even in adults. We regularly hear regarding diet and lifestyle decisions that affect our overall health, however, these are necessary factors for bone health. This is often very true when bones are growing throughout childhood, dilution with age, or attempting to heal a fracture after an injury. The role of nutrition in bone health is extremely important. Adopting a diet, rich in nutrients, minerals, and vitamins will contribute considerably to bone health. Proper nutrition is a necessary parameter of skeletal health, taking part in the prevention and also treatment of bone diseases [1]. A chronic vegetarian diet will cause issues of osteoporosis. Heredity, impaired hormonal secretion, physiological condition and lactation, nutrition, exercise, and varied diseases (such as respiratory disease, anorexia, and corticosteroids) have an effect on the attainment of peak bone density. Osteoporosis will simply cause fractures. A patient suffering from osteoporosis should have calculated the anticipated fracture risk, or this risk is increased. A good nutritional program will prevent osteoporosis and regulate alternative nutrient deficiency issues and, consequently, prevent fractures. The health and strength of our bones suppose a diet and a steady stream of nutrients- most significantly, calcium and vitamin D.

Calcium may be a mineral that individuals require to build and maintain strong bones. It is conjointly important for alternative physical functions, like muscle control and blood circulation. Calcium isn't built within the body- it should be absorbed from the foods we have eaten. To effectively absorb calcium from food, our bodies require vitamin D. If we don't have enough calcium in our diets to stay our bodies functioning, calcium is taken from wherever it's stored in our bones [2]. Over time, this causes our bones to grow weaker and will cause osteoporosis, a disorder within which bones become terribly fragile. Postmenopausal women are most liable to osteoporosis. Though the loss of estrogen is the primary reason for this, poor calcium and vitamin D intake, moreover lack of exercise, play a role in the development of osteoporosis.

The two most vital nutrients for bone health and fracture healing are calcium and vitamin D. Each will be found in

abundance in milk; however, there are several alternative dietary sources as well. An adequate calcium dietary intake, the fundamental component of bone, will considerably reduce the loss of bone. Adequate dietary intake of calcium is important to fill the mandatory daily calcium losses. In conditions of reduced intake, the body is forced to extend the method of osteolysis to take care of calcium homeostasis [3]. Calcium is derived from dairy and fortified foods (e.g., fruit juice, tofu, and soy milk) and from certain green vegetables (bok choy, broccoli, and kale). The absorption of calcium is usually increased, when calcium is well solubilized and is inhibited in the presence of agents that bind calcium or form insoluble calcium salts. Oxalic acid and phytic acid interfere with calcium absorption and also the food supply containing them is taken into account to be a poor supply of calcium. Foods with high levels of oxalic acid include spinach, sweet potatoes, rhubarb, and beans whereas foods high in phytic acid include fiber-containing whole-grain products and wheat bran, beans, seeds, nuts, and soy isolates.

Vitamin D, additionally called calciferol, contains a set of fat-soluble secosterols and has 2 major forms: D<sub>2</sub> and D<sub>3</sub>. Vitamin D<sub>2</sub> (ergocalciferol) is basically human-made and supplemental to foods whereas vitamin D<sub>3</sub> (cholecalciferol) is synthesized within the skin, from 7-dehydrocholesterol, and it may be additionally taken dietarily via animal-based foods. There each synthesized commercially and located in dietary supplements or fortified foods. Adequate vitamin D intake through food could be an essential part of the avoidance of postmenopausal bone loss [4]. The absorption of calcium from the intestinal tract by transport and also the consumption of calcium by the kidney is predicated principally on the action of 1,25-dihydroxycholecalciferol or calcitriol (active vitamin D). Vitamin D deficiency decreases calcium absorption from the intestinal tract and also the kidneys will increase Parathyroid Hormone (PTH) concentration, which results in osteolysis, which over time could cause a fracture. Additionally, vitamin D deficiency causes a decrease in muscle strength and increased risk of falling, hence, increasing the risk of hip fracture.

Calcium together with vitamin D in dietary supplements is found to reduce the incidence of osteoporotic hip fractures. The relationship between sodium intake and bone health cannot be

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studied simply alone, as sodium interacts with further nutrients (such as potassium) and processes, like urinary calcium excretion [5]. Excessive sodium intake, as translated by salt consumption, could be a risk for osteoporosis. Phosphorus is another part of the bone which is situated in most foods and by that, a daily intake of 1000-1200 mg is ensured.

Nutrition holds a dominant role in skeletal health, each in reaching the highest bone density, from infancy till the thirtieth year of life, and in maintaining bone health for the rest of adult life. A diet that covers the daily caloric desires and also the needed daily intake of calcium and vitamin D could be a fundamental component in achieving peak bone mass throughout the transition from infancy to adulthood and reducing the rate of bone loss among the elder.

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