



Nutritional Approaches to Osteoporosis Prevention

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DESCRIPTION

Osteoporosis is a condition characterized by reduced bone mass, abnormal osseous tissue micro-architecture and subsequently increased bone fragility and fracture susceptibility. It is classified as a general bone metabolism disease. As osteoporosis fractures do not manifest any symptoms before to their development, it is referred to as a silent epidemic. This condition which affects millions of individuals worldwide and has severe physical and psychosocial repercussions is regarded as a societal disease and is one of public health concern. When it comes to women the incidence frequency rises with age, going from 2% at age 50 to 25% at age 80.

Maintaining the right nutritional state of the body is necessary for the osteoporosis diet prevention. This is made possible by eating 4-5 balanced meals per day at regular intervals that are balanced in both acid and base forming nutrients. Slaughter animals, venison, poultry, fish and their byproducts as well as eggs and grains are acid-forming substances. The ones that form bases are milk, dairy products, vegetables and fruits.

The food should be organized in accordance with the dietary pyramid for elderly people where water is the cornerstone especially for post-menopausal women. Additionally, aged persons are more susceptible to dehydration due to hypodipsia a lack of water supply decreased kidney function and an increase in the amount of water released *via* the skin. It is first advised to drink non-carbonated water in order to fully hydrate the body. Similar to carbonated, sweetened and colored drinks, drinking carbonated water should be minimized (orthophosphoric acid negatively affects calcium and magnesium assimilation).

The daily consumption of cereal goods as a primary source of energy are fruits and vegetables as a priceless supply of vitamins and mineral salts is necessary for proper nutrition in osteoporosis prevention. A maximum of 10% of the daily calorific requirement should come from carbs with 55% to 60% coming from monosaccharides. It is important to keep in mind that a diet low in carbohydrates leads to the synthesis of keton molecules as a result of the difficult breakdown of acetyl-CoA and that acidity of the body promotes osteoporosis.

A balanced diet rich in milk and milk products which are the most

readily available calcium sources in food can help to ensure the recommended amount of calcium. In addition to ensuring adequate calcium intake it's crucial to avoid dietary elements that hinder calcium absorption from the digestive tract and increase urination. These include inadequate vitamin D intake, excessive iron, zinc and magnesium intake, the presence of phytinians or oxalates or an excess of fat acids in meals, excessive consumption of alcohol, protein and caffeine, an incorrect calcium-phosphorus ratio in the diet and the presence of the insidious bacteria. Phytinians, oxalates and tannins are anti-nutritious chemicals that naturally occur in food and combine with bivalent ions to generate insoluble complex salts that have an impact on the bioavailability of other dietary components.

One of the key osseous proteins, osteocalcin benefits from vitamin K's favorable effects on its functions. The recommended daily consumption of vitamin K is 65 g for men and 55 g for women, according to the dietary standards. Similar to the case of magnesium, vitamin K deficiencies are uncommon because it is frequently present in food and is synthesized by microorganisms found in the human gastrointestinal tract. Vitamin K reduces the osseous mass and increases reverse calcium absorption in the kidneys in postmenopausal women which lowers the risk of osteoporosis fractures. A problem in the bone mineralization process is brought on by a vitamin K deficiency.

Iron and calcium are absorbed with the help of vitamin C. The recommended daily dosage for vitamin C is 90 mg for men and 75 mg for women. There are some advantages to increase dietary intake of the C vitamins for mineral bone density when an adequate calcium intake is maintained. The effects of taking extra vitamin C were equivalent.

A lack of B vitamins notably folic acid can raise homocysteine levels which can stimulate osteoclasts or cause a disruption of the collagen cross-linking process, which is associated with an increase in bone fragility. Consuming protein is a crucial aspect in meeting the need for the vitamin B6 (optimal ratio should be 0.02 mg of vitamin B6 for 1 g of protein). Although the amount of cellulose in the diet is typically insufficient for such an effect to occur there is evidence that the cellulose components have a favorable influence on calcium absorption from the gastrointestinal system.

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Received: 02-Jun-2022, Manuscript No. JNDT-22-17534; **Editor assigned:** 06-Jun-2022, PreQC No. JNDT-22-17534 (PQ); **Reviewed:** 21-Jun-2022, QC No JNDT-22-17534; **Revised:** 28-Jun-2022, Manuscript No. JNDT-22-17534 (R); **Published:** 05-Jul-2022 DOI: 10.35248/2161-0509.22.12.191.

Citation: Frank A (2022) Nutritional Approaches to Osteoporosis Prevention. J Nutr Disorders Ther. 12:191.

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