

10. Conclusion

Osteoporosis is a disease of older age (women greater than 65 years and men more than 70 years of age) where there are weak and spongy bones that break easily. Osteoporosis can occur at a younger age if:

- **Dietary intake of calcium is low-** Lack of natural plant foods and more factory-made foods.
- **Inadequate exposure to Sunlight-** A preference for an indoor lifestyle
- **Inactive lifestyle-** Strong muscles build strong bones.
- **Too much salt in the diet--** leads to excessive loss of calcium in the urine
- **Use of Acid- Reflux medications** -Protonix, Prilosec, Nexium, which interfere with calcium absorption in the stomach
- **Excess of acidic foods** such as meat, dairy, refined sugar, coffee, Tea, and Cola drinks

Blood levels of vitamin D give an insight into deficiency, but calcium does not because most calcium resides in the bones. A DEXA scan assesses the calcium in the bones. The ideal way to manage Osteoporosis is to prevent it by food and lifestyle change. The strong bones at a younger age is a fixed deposit towards solid bones in old age. So to improve bone health, the first essential step is the natural solution.

- Eat foods rich in calcium-Green leafy vegetables, Lentils, Legumes, Seeds, and Nuts. Consume dairy in moderation and minimize dense dairy foods (cheese, paneer, and milk-based sweets)
- Get natural Vitamin D via sunlight exposure (can provide 80% of the body requirements)
- Exercise regularly
- Avoid acid reflux medications, use natural solutions- see YouTube video on Acid Reflux disease; – www.foodlifestylebalance.com

*Calcium and Vitamin D Supplements--*Take Calcium and Vitamin D supplements judiciously in smaller amounts rather than large doses. Large doses of calcium and Vitamin D can cause significant side effects- digestive upset, dizziness and falls, kidney stones, and a slight risk for heart attack. The doses considered significant are:

Calcium Supplements- 1000 to 1500 mg tablets

Vitamin D Supplements- Greater than 1000 units/ day—Amounts like 10,000 Units/ week and 60,000 units/ month . Large doses can cause toxic blood levels of vitamin D.

Safe Doses of Calcium and Vitamin D Supplement are:

- *Calcium citrate 500mg/ day*
- *Vitamin D3 up to 1000 units/ day.*

The ideal calcium supplement is calcium citrate because it is absorbed 25% better and one can take it on an empty stomach.

The ideal Vitamin D supplement is Vitamin D3, as it produces higher blood levels than Vitamin D2. Plant based Vitamin D3 preparations from Algae that are suspended in virgin coconut oil are ideal for absorption because Vitamin D is a fat soluble vitamin and fat in the oil improves its absorption.

Medical remedies to stop bone loss are required only when someone has severe Osteoporosis (DEXA Scan score lower than -2.5 with history of spinal fractures, kyphosis (bone bending), loss of height of greater than one inch over a year, etc. Several medications are available for preventing bone loss or for rebuilding bone mass. Unfortunately, most drugs have significant side effects and require administration under close medical supervision.

References :

1. Chiodini I, Bolland M J: Calcium Supplementation in Osteoporosis: Useful or harmful? European Society of Endocrinology; 178:4; D13-D25.
2. Heravi A S et al.: Vitamin D and Calcium supplements: Helpful, Harmful, or Neutral for cardiovascular risk? Review: John Hopkins School of Medicine. Journal. Houston Methodist.ORG; 15 (3), 2019: 207-213.
3. Cormick G et al.: Calcium Intake and Health.Review.Nutrients, 11, 1606; 2019.
4. Pilz S et al. Vitamin D testing and treatment: A narrative review of current evidence. Review. Endocrine Connections: published by Bioscientifica Ltd.2019, R27-R43.
5. Van der Velde R Y: Review article. Calcium and Vitamin D Supplementation: state of the art for daily practice. Food and Nutrition Research 58: 21796; 2014.

6. Briganti SR: Proton Pump Inhibitors and fractures in adults: A critical appraisal and review of the literature. International Journal of Endocrinology; Vol 2021, article ID 8902367 (15 pages), 2021.
7. Jackson R D et al. Calcium plus Vitamin D Supplementation and the risk of fractures.N. Eng. Journ. Med. 354 ; 2006: 669-683.

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