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Prevent osteoporosis with calcium rich foods: Part 1

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Osteoporosis is a public health problem with more than 200 million people suffering from osteoporosis worldwide, which occurs when bone tissues become structurally deteriorated and bone mass becomes fragile, resulting in an increased risk of fracture. This can lead to a decrease in bone strength that can increase the risk of fractures (broken bones). Osteoporosis is a “silent” disease because occurs without symptoms and you may not even know you have the disease until you break a bone. Osteoporosis is the major cause of fractures in postmenopausal women and in older men. Fractures can occur in any bone but happen most often in bones of the hip, vertebrae in the spine, and wrist. Beginning in childhood and into old age, a diet low in calcium and vitamin D can increase your risk for osteoporosis and fractures. Excessive dieting or poor protein intake may increase your risk for bone loss and osteoporosis. Osteoporosis may limit mobility, which often leads to feelings of isolation or depression. Additionally, twenty per cent of adults who break a hip die within one year from either complications related to the broken bone itself or the surgery to repair it. Many patients require long-term nursing home care. Therefore, having a problem of osteoporosis is not permanent we can prevent/cure it with calcium rich foods Find the list of calcium richest foods to rescue the problem of osteoporosis.

Plant source calcium rich foods

Calcium is an essential nutrient that plays a vital role in neuromuscular function, many enzyme-mediated processes, blood clotting and providing rigidity to the skeleton by

virtue of its phosphate salts (FAO/WHO 2001). There are plenty of foods rich in calcium from plant sources. These foods may be good news, particularly for vegetarians and people who are lactose intolerant and cannot fully digest dairy products. The recommended daily intake for calcium for adult men is 1000 mg, women 1000 mg, pregnant women 1000 mg and lactating women 1200 mg. Children in the age group of 1-3 years are recommended 500 mg, 4-6 years 550 mg and 7-9 years 650 mg. Girls/boys of the age group of 10-12 years are recommended 850 mg, 13-15 years 1000 mg while 16-18 years 1050 mg (ICMR-NIN, 2020).

Table 1: List of calcium rich foods from plant source

S/N	Food	Calcium (mg/100 g)	References
1.	Chia seeds	631.00	USDA, 2018
2.	Soy milk	41.82-45.78	Ugochi <i>et al.</i> , 2015
3.	Almond seeds	234 -290	Yada <i>et al.</i> , 2013
4.	Dried figs	241	https://nuts.com/driedfruit/figs/
5.	White beans	160.40	Alayande <i>et al.</i> , 2015
6.	Sunflower seeds	78	https://fdc.nal.usda.gov/fdc-app.html#/food-details/170562/nutrients
7.	Broccoli rabe	108	
8.	Kale	2.60-1970	Acikgoz, 2011
9.	Sesame seeds	975	http://en.wikipedia.org/wiki/Sesame_oil
10.	Broccoli	47	Mukherjee and Mishra, 2012
11.	Okra	84	Akintoye <i>et al.</i> , 2011

CONCLUSION

The foods presented in Table 1 are the richest in calcium and if taken in recommended amounts daily they will solve the problem of osteoporosis in children as well as adults. Some of the factors that can reduce calcium in your bones and lower your bone density (weaken your bones) include a high-salt diet, more than 6 drinks per day of caffeine-containing drinks, for example, coffee, cola and energy drinks (and a lesser extent, tea), excessive alcohol intake, very low body weight (undernutrition), very high intakes of fibre (more than 50 g per day, from wheat bran), low levels of physical activity, low levels of vitamin D - people who are housebound or cover their bodies completely when they are outside are at increased risk and smoking. Antinutritional factors from unproper processed foods are another factor to consider during the preparation of calcium rich foods Soymilk is richest in calcium but soybean contains antinutritional factors such as phytic acid, protease inhibitors, polyphenols, saponins and hemagglutinin which hinder the absorption of calcium and protein to amino acid. Hemagglutinin causes red blood cells to clump together and can result in clotting. Phytate binds minerals such as iron, Ca, and Zn making them unavailable to the body. Different processing technique is recommended such as soaking, germination, boiling,

roasting, steam blanching or fermentation to remove antinutritional factors from different foods to enhance the absorption and utilization of nutrient in the body. Apart from soybean, other foods also contain antinutritional factors such as caffeine in coffee, the tannins in black tea leaves, hydrogencyanide in cassava, solanine in potatoes, gossypol in cotton seeds, oxalates in brassica family vegetables etc. Authors strongly recommended readers to avoid high salt foods and soft drinks which contain caffeine and tannins. We are also recommended to go for medical checkups regularly to keep the bones strong and healthy.

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