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Prevent osteoporosis with calcium rich foods: Part 2

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Osteoporosis is a progressive systemic skeletal disease characterised by reduced bone mass/density and microarchitectural deterioration of bone tissue. Bone formation initially exceeds bone resorption, but by the third decade, this has reversed resulting in a net loss of bone mass. This leads to increased bone fragility and susceptibility to fracture (US, 2011). The big problem of osteoporosis emerged nowadays due to the consumption of junk food with high salt, preservatives and refined sugars with low calcium. Calcium is an essential mineral which cannot be produced by our body but is needed to be provided by the diet. In some cases, osteoporosis can be caused by medication side effects but is mostly caused by poor diets with low calcium. Highly consumption of calcium-rich foods will solve this silent chronic disease.

Animal source calcium rich foods

Calcium is a mineral that is most commonly linked with strong bones and teeth, but it also aids in blood clotting, muscular contraction, and the regulation of normal heart rhythms and neuron activities. About 99 per cent of the calcium in the body is stored in bones, with the remaining 1% in blood, muscle, and other tissues. Calcium is obtained in two ways by the body. One way is to consume calcium-rich foods or supplements, and the other is to draw calcium from the body. The body will eliminate calcium from bones if you don't eat enough calcium-rich foods. Table 1 shows a list of calcium-rich foods derived from animals that can be utilised to prevent osteoporosis. Calcium intake guidelines per day for adults are 1000 mg for men, 1000 mg for women, 1000 mg for pregnant women, and 1200 mg for lactating mothers. 500 mg for children aged 1-3

years, 550 mg for children aged 4-6 years, and 650 mg for children aged 7-9 years. 10-12-year-old girls and boys should take 850 mg, 13-15-year-old boys should take 1000 mg, and 16-18-year-old boys should take 1050 mg (ICMR-NIN, 2020).

Table 1: List of calcium rich foods from plant source

| S/N | Food | Calcium (mg/100 g) |
|-----|------------------------|--------------------|
| 1. | Parmesan cheese | 1250 |
| 2. | Swiss cheese | 1071 |
| 3. | Whey protein | 698 |
| 4. | American cheese | 526 |
| 5. | Sardines canned in oil | 382 |
| 6. | Cow's milk one cup | 300 |
| 7. | Goat's milk one cup | 300 |
| 8. | Yoghurt one cup | 285-448 |
| 9. | Cottage cheese | 88 |
| 10. | Chicken feet | 88 |
| 11. | Shrimp | 70 |
| 12. | Eggs | 56 |

CONCLUSION

Calcium is a big mineral that takes a long time to break down in the gut. The amount of calcium mentioned on a food's Nutrition Facts label is the amount of calcium in the food item, not necessarily the amount absorbed by the body. Calcium bioavailability refers to the quantity of calcium that is actually absorbed and utilised by the body. Some foods have a higher bioavailability of calcium than others. Dairy foods, for example, have a bioavailability of about 30 %, which means that if a food label for milk states 300 mg of calcium per cup, only about 100 mg will be absorbed and used by the body. Plant foods, such as leafy greens, have a lower total calcium content but a better bioavailability than dairy. For example, 1 cup of cooked bok choy contains roughly 160 mg of calcium but has a 50% bioavailability, so only about 80 mg is absorbed. As a result, 1 cup of cooked bok choy has nearly the same amount of accessible calcium as 1 cup of milk. The RDAs provided for your age group and gender will help you for scanning food labels to obtain a specified quantity of daily calcium. The RDAs are based on the food bioavailability of calcium. Keep in mind that the amount of calcium absorbed in the body varies from person to person depending on metabolism and other meals ingested at the same time. In general, consuming a wide range of calcium-rich meals can assist to compensate for any minor losses. Therefore, the authors recommended readers consume varieties of foods in Table 1 with consideration of bioavailability (30 %). For more complications of serious joint pain or weak bones seek medical advice.

REFERENCES

Alendronate, etidronate, risedronate, raloxifene, strontium ranelate and teriparatide for the secondary prevention of osteoporotic fragility fractures in postmenopausal women; NICE Technology Appraisals, January 2011.

Cauley, J. A., Chlebowski, R. T, Wactawski-Wende, J., Robbins, J. A, Rodabough, R. J, Chen, Z., Johnson, K. C, O'Sullivan, M. J., Jackson, R. D and Manson, J. E. 2013. Calcium plus vitamin D supplementation and health outcomes five years after active intervention ended: the Women's Health Initiative. *Journal of women's health*. **1:22**(11):915-29.

Calcium and Vitamin D. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK56056/> Accessed 12/5/2022.

Curhan, G. C., Willett, W. C., Speizer, F.E., Spiegelman, D., Stampfer, M. J. 1997. Comparison of dietary calcium with supplemental calcium and other nutrients as factors affecting the risk for kidney stones in women. *Annals of internal medicine*. **1:126**(7):497-504.

Curhan, G. C., Willett, W. C., Rimm, E. B., Stampfer, M. J. A prospective study of dietary calcium and other nutrients and the risk of symptomatic kidney stones. *New England Journal of Medicine*. 1993 Mar 25;328(12):833-8.

Dickinson HO, Nicolson DJ, Cook JV, Campbell F, Beyer FR, Ford GA, Mason J. Calcium supplementation for the management of primary hypertension in adults. *Cochrane Database Syst Rev*. 2006 Apr 19;(2):CD004639.

Institute of Medicine (US) Committee to Review Dietary Reference Intakes for Vitamin D and Calcium; Ross AC, Taylor CL, Yaktine AL, et al., editors. Dietary Reference Intakes for Calcium and Vitamin D. Washington (DC): National Academies Press (US); 2011. 5, Dietary Reference Intakes for Adequacy: Kopecky SL, Bauer DC, Gulati M, Nieves JW, Singer AJ, Toth PP, Underberg JA, Wallace TC, Weaver CM. Lack of evidence linking calcium with or without vitamin D supplementation to cardiovascular disease in generally healthy adults: a clinical guideline from the National Osteoporosis Foundation and the American Society for Preventive Cardiology. *Annals of internal medicine*. 2016 Dec 20;165(12):867-8.

ICMR-NIN. 2020. Nutrient requirements for Indians – India Council of Medical Research and National Institute of Nutrition, 2020 - Metabolic Health Digest. Retrieved on 18.06.2022

Kahwati LC, Weber RP, Pan H, Gourlay M, LeBlanc E, Coker-Schwimmer M, Viswanathan M. Vitamin D, calcium, or combined supplementation for the primary prevention of fractures in community-dwelling adults: evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2018 Apr 17;319(15):1600-12.

Osteoporosis: assessing the risk of fragility fracture, NICE Clinical Guideline (August 2012)

Song M, Garrett WS, Chan AT. Nutrients, foods, and colorectal cancer prevention. *Gastroenterology*. 2015 May 1;148(6):1244-60.

Sorensen MD, Kahn AJ, Reiner AP, Tseng TY, Shikany JM, Wallace RB, Chi T, Wactawski-Wende J, Jackson RD, O'Sullivan MJ, Sadetsky N. Impact of nutritional factors on incident kidney stone formation: a report from the WHI OS. *The Journal of urology*. 2012 May;187(5):1645-50.

Tang BM, Eslick GD, Nowson C, Smith C, Bensoussan A. Use of calcium or calcium in combination with vitamin D supplementation to prevent fractures and bone loss in people aged 50 years and older: a meta-analysis. *The Lancet*. 2007 Aug 25;370(9588):657-66.

Wactawski-Wende J, Kotchen JM, Anderson GL, Assaf AR, Brunner RL, O'sullivan MJ, Margolis KL, Ockene JK, Phillips L, Pottern L, Prentice RL. Calcium plus vitamin D supplementation and the risk of colorectal cancer. *New England Journal of Medicine*. 2006 Feb 16;354(7):684-96.

Weingarten MA, Zalmanovici A, Yaphe J. Dietary calcium supplementation for preventing colorectal cancer and adenomatous polyps. *Cochrane Database Syst Rev*. 2008 Jan 23;(1):CD003548.

World Cancer Research Fund/American Institute for Cancer Research. Continuous Update Project Expert Report 2018. Diet, nutrition, physical activity and colorectal cancer. <https://www.wcrf.org/sites/default/files/Colorectal-cancer-report.pdf>. Accessed 12/21/2019.

Yao P, Bennett D, Mafham M, Lin X, Chen Z, Armitage J, Clarke R. Vitamin D and calcium for the prevention of fracture: a systematic review and meta-analysis. *JAMA network open*. 2019 Dec 2;2(12):e1917789-.