

Most New Zealanders have been brought up to believe that only dairy products can make our bones strong and healthy. Yet there are many plant-based sources which can provide us with all the calcium we need for optimum nutrition and with better absorption too. Whilst information is widely available on calcium levels in dairy products, this leaflet looks at how to optimise calcium absorption from plant-based sources.



What does calcium do?

Calcium is a vital mineral which is important for healthy bones and teeth and for many other tasks including nerve and muscle function and blood clotting. It is virtually absent as a nutrient in meat.

Many plant foods contain calcium, but it is the balance of calcium with other minerals in the diet – plus good Vitamin D intakes and exercise - which offers optimum protection for good bone health. If dietary calcium is low, the body will take calcium from bones to be used for other critical body functions. Therefore, getting sufficient calcium is very important to avoid bone density problems.

Examples of plant-based calcium sources

Almonds (1/2 cup) 178mg
Apricots (8) 46mg
Blackstrap molasses (2 tablespoons) 400mg
Bok choy (1 cup) 158mg
Broccoli (1 cup) 70mg
Cabbage (1 cup) 70mg
Figs, dried (4) 168mg
Non dairy ice cream (1 scoop) 200mg (Lite Licks brand)
Rice milk (1 cup) 300mg (Vitasoy brand)
Soya milk (1 cup) 375mg (So Good Essential brand)
Soy yoghurt 48mg per 100g (Kingsland brand)
Tahini (2 tablespoons) 128mg
Tofu (1 cup/150gms) 315mg (Bean Supreme brand)
Wholemeal bread (2 slices) 70mg

Calcium balance

Calcium status is not simply a matter of calcium intake, but also of calcium balance. High intakes of calcium do not guarantee calcium absorption. Studies have shown that vegans have a similar calcium balance to non-vegans, even when their calcium intake is significantly lower¹. High protein intake, particularly animal protein which has an acidifying effect, has a negative impact on calcium balance. Plant-based diets tend to be more alkaline which is more favourable to calcium balance. Sodium (salt) and high consumption of caffeine drinks (such as coffee and cola) can also affect calcium balance.

Dairy and calcium

Whilst dairy companies continually promote dairy products for calcium and bone health, studies repeatedly show that drinking more cows' milk does not decrease fracture risks^{2,3}. New Zealand, a country with one of the highest rates of dairy intake in the world, is also the country with the highest rate of osteoporosis. Clearly, despite claims from the dairy companies, more dairy does not equal better bone health.

For optimum bone health

Don't forget weight bearing exercise is absolutely vital for building and maintaining bones.

Magnesium, Potassium, Vitamin C and Vitamin K

Magnesium, potassium, vitamin C and vitamin K are all required for good bone health. A healthy diet that includes at least five servings a day of fruit and vegetables should optimise the intake of these and other micronutrients required⁴.

Other issues arising from using dairy to obtain calcium include the associated high fat intake and the problem with absorption due to the acidifying effect of animal protein. Further, a recent study has found that those who consumed the highest quantity of cows' milk had a 60% increase in the risk of being diagnosed with Parkinson's disease⁵.

Vitamin D: the sunshine vitamin

Calcium and Vitamin D go hand-in-hand. Vitamin D assists in the absorption of calcium, and recent research suggests that calcium and Vitamin D in combination can reduce the risk of cancer by nearly 80%⁶.

The majority of New Zealanders are deficient in Vitamin D⁷. Plants do not contain useful amounts of Vitamin D, but some plant foods are fortified with this vitamin (e.g., Golden Canola Lite margarine and Rice Dream Original enriched rice milk).

Sunshine is usually seen as the best Vitamin D source. Try to obtain at least 15 minutes of sun exposure on the face and hands each day. Consider supplements if blood tests show Vitamin D levels are below the optimum status of 80 nmol/L.

Supplementation

If you are concerned that you are not managing your diet efficiently and wish to use supplements, choose tablets containing 500 milligrams of elemental calcium. Take one in the morning and one in the evening. If supplementing Vitamin D, a 1000 IU tablet can be taken daily with an extra one at weekends, or tablets of 50,000 IU can be obtained on prescription from a doctor which requires you to take only one tablet per month.

How much calcium do we need?

Age	Amount Required
Infants/children	
1-3 years	500mg
4-8 years	700mg
9-11 years	1,000mg
12-18 years	1,300mg
Men	
19-70 years	1,000mg
Over 70 years	1,300mg
Women	
19-50 years	1,000mg
Over 51 years	1,300mg

Recommended calcium daily intake (NZ Ministry of Health)

According to the Ministry of Health, pregnant or breast feeding mothers do not require more calcium than the amount already recommended for their age group.

NB. There is no international consensus on what the healthiest or safest amount of calcium we need is. New Zealand's recommended calcium daily intake is substantially higher than those of many other countries.

References

1. Kohlenberg-Mueller, K. *et al* (2003) 'Calcium balance in young adults on a vegan and lactovegetarian diet' *J.BoneMinMet*
2. Kanis, J.A. *et al* (2005) 'A meta-analysis of milk intake and fracture risk: low utility for case finding' *Ost.Intl*
3. Feskanich, D. *et al* (2003) 'Calcium, vitamin D, milk consumption, and hip fractures: a prospective study among postmenopausal women' *AmJ.ClinNut*
4. Nieves, J.W. (2005) 'Osteoporosis: the role of micronutrients' *AmJ.ClinNut*
5. Chen, H. *et al* (2007) 'Consumption of dairy products and risk of Parkinson's disease' *AmJ.Epid*
6. Lappe, J.M. (2007) 'Vitamin D and calcium supplementation reduces cancer risk: results of a randomized trial' *AmJ.ClinNut*
7. Scragg, R. *et al* (2007) 'Vitamin D: how do we define deficiency and what can we do about it in New Zealand?' *NZMedJ*.

Further information

Leaflet sets available from the NZ Vegetarian Society

Vegetarian families set
Reasons for vegetarianism set
Vegetarian nutrition set:

- Overview
- Iron
- Protein
- Vitamin B12
- Calcium and Vitamin D

Each set contains 5 information leaflets

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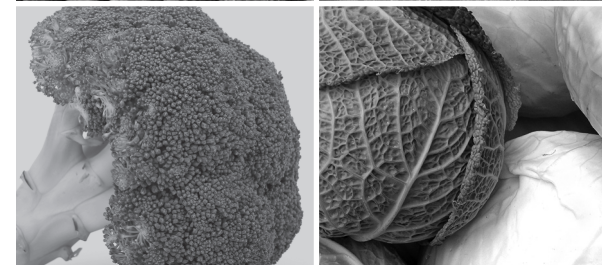
Websites

www.vegetarian.org.nz
www.vegan.org.nz
www.vegansociety.com
www.vrg.org
www.viva.org.uk

Well planned vegan and other types of vegetarian diets are appropriate for all stages of the life cycle, including during pregnancy, lactation, infancy, childhood, and adolescence. From: *Position of the American Dietetic Association and Dietitians of Canada: Vegetarian Diets*. 2003. Endorsed by the New Zealand Dietetic Association.

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calcium AND VITAMIN D



VEGETARIAN NUTRITION



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