

CALCIUM RICH FOODS AND BONE HEALTH

What is osteoporosis?

Osteoporosis literally means 'porous bones'. Our bones are made up of a thick outer shell and a strong inner mesh which looks like a honeycomb made up of tiny struts of bone. Osteoporosis means some of these struts become thin or break, making bones more fragile and prone to fracture. It often remains undetected until a bone is first broken, which commonly occurs in the wrists, hips and spinal bones. It is these broken bones or fractures which can lead to the pain associated with osteoporosis. Spinal fractures can also cause loss of height and curvature of the spine.

How much calcium do I need?

The Government's Committee on the Medical Aspects of Food and Nutrition Policy (COMA), now replaced by the Scientific Advisory Committee on Nutrition, sets recommended levels for nutrient intake (Reference Nutrient Intakes) for the UK population. The lower reference nutrient intake (LRNI) for calcium is 400 mg and the RNI is 700 mg for adults. This means that your calcium intake must be over 400 mg and it is recommended that your intake be above 700 mg to be compatible with bone health in the normal population, as based on current evidence. There is inconclusive evidence that more calcium may be needed but further research is necessary.

COMA calcium recommendations	
Age	RNI*
0 - 12 months (non breast fed infants only)	525 mg
1 - 3 years	350 mg
4 - 6 years	450 mg
7 - 10 years	550 mg
11 - 18 years boys / girls	1000 / 800 mg
19 + years	700 mg
Pregnant women	700 mg
Breastfeeding women	700 + 550 mg **

* RNI - Reference Nutrient Intake

** COMA notes that the additional increment may not be necessary with more recent evidence.

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If you have been diagnosed with osteoporosis and are on one of the prescribed drug treatments, you may need to boost your calcium levels to approximately 1200 mg for adults and consequently may be given a calcium supplement with your treatment. In the trials that have shown bisphosphonates to reduce fractures, the calcium supplementation used was 500 - 1000 mg. Therefore, extra calcium may be taken as part of the diet or as a supplement but the upper limit must not be exceeded.

Can I have too much calcium?

It is recommended that you do not exceed more than 2000 - 2500 mg of calcium a day. Exceeding the upper limit of 2000 - 2500 mg calcium could lead to medical problems including a high level of calcium in the blood and may interfere with the absorption of other minerals such as iron.

Does it matter if I do not meet the exact daily amount?

It is important to remember that calcium intake should be looked at over a period of monthly intake rather than daily. A low calcium intake on one day, when most days you achieve more, will not have a detrimental effect on your bone density.

Do I need to supplement my diet with any other nutrients?

Other nutrients and minerals are also important but a well balanced, mixed diet including fresh fruit, vegetables, adequate protein and carbohydrate foods should contain sufficient amounts of the necessary nutrients. Some individuals may feel that they are not obtaining the calcium they need from their diet and there is no way that this can realistically be achieved. In such cases, supplemental calcium may be useful. Your local pharmacist is often an excellent source of information on over the counter products. There is evidence that older people can benefit from supplemental calcium and vitamin D and this is a useful treatment for osteoporosis in this age group.

What else can affect my risk of osteoporosis?

Dietary issues are just one of a variety of important components, which together, can influence an individual's osteoporosis risk. These include exercise levels, hormonal status, corticosteroid use, body stature, strong family history and previous minimal trauma fracture.

Factors that can help to maintain healthy bones are a well balanced diet with adequate calcium rich foods, regular weight bearing exercise, avoiding smoking and keeping alcohol consumption within the recommended limits. Further details are contained within other NOS booklets – see the NOS Publications leaflet.

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Food	Quantity	Mg of calcium
Dairy Products		
Milk skimmed	100 mls	122
Milk semi skimmed	100 mls	120
Milk whole	100 mls	118
Milk soya **	100 mls	89
Cream double	3½ oz/100 g	49
Cream single	3½ oz/100 g	91
Cream whipping	3½ oz/100 g	58
Cheese cheddar	3½ oz/100 g	739
Cheese low fat (hard)	3½ oz/100 g	840
Cheese Camembert	3½ oz/100 g	235
Cheese Cottage	3½ oz/100 g	127
Cheese Edam	3½ oz/100 g	795
Yoghurt fruit low fat	3½ oz/100 g	140
Yoghurt fruit	3½ oz/100 g	122
Fromage frais fruit	3½ oz/100 g	86
Ice Cream dairy	3½ oz/100 g	100
Ice Cream non dairy	3½ oz/100 g	72
Custard from powder	3½ oz/100 g	140
Rice pudding	3½ oz/100 g	88
Fish		
Pilchards in Tomato Sauce	3½ oz/100 g	250
Sardines in Tomato Sauce	3½ oz/100 g	430
Sardines in oil	3½ oz/100 g	500
Whitebait fried	3½ oz/100 g	860
Salmon tinned	3½ oz/100 g	91
Tuna in oil tinned	3½ oz/100 g	12
Vegetables		
Curly kale boiled	3½ oz/100 g	150
Okra stir fried	3½ oz/100 g	220
Spinach boiled	3½ oz/100 g	160
Spring Greens boiled	3½ oz/100 g	75
Watercress	3½ oz/100 g	170

* may be calcium enriched

** different products vary considerably

Please note, the calcium contents (with the exception of milk and bread), have been calculated per 100 g and are therefore not portion size. This has been done to make comparisons between various foods easier.

Pulses Beans & Seeds		
Red kidney beans	3½ oz/100 g	71
Tofu steamed **	3½ oz/100 g	510
Green/French beans	3½ oz/100 g	56
Baked beans	3½ oz/100 g	53
Sesame seeds	3½ oz/100 g	670
Tahini (sesame paste)	3½ oz/100 g	680
Cereal products		
White bread *	3½ oz/100 g	177
Wholemeal bread	3½ oz/100 g	106
Muesli Swiss style	3½ oz/100 g	110
Special K	3½ oz/100 g	70
Ready Brek	3½ oz/100 g	1200
Fruit		
Apricots dried	3½ oz/100 g	73
Figs dried	3½ oz/100 g	250
Currants	3½ oz/100 g	93
Mixed Peel	3½ oz/100 g	130
Olives in brine	3½ oz/100 g	61
Orange	3½ oz/100 g	47
Convenience Foods		
Lasagne frozen	3½ oz/100 g	73
Sausage low fat grilled	3½ oz/100 g	130
Cornish pasty	3½ oz/100 g	60
Omelette cheese	3½ oz/100 g	287
Quiche cheese & egg	3½ oz/100 g	262
Macaroni cheese	3½ oz/100 g	170
Pizza cheese & tomato	3½ oz/100 g	210

Ref: McCance and Widdowson's "The Composition of Foods" Sixth Summary Edition 2002. Compiled by The Food Standards Agency and Institute of Food research.

To obtain other NOS publications and Information Sheets, go to www.nos.org.uk or telephone 01761 471771.

To contact the NOS osteoporosis nurses, telephone the NOS Helpline on 0845 450 0230 or e-mail them on nurses@nos.org.uk

For regular updates on osteoporosis, join the NOS on-line today www.nos.org.uk or telephone 01761 473117 / 473119 to speak to one of our Membership Co-ordinators.