

Calcium

Introduction

Calcium is an essential mineral we get from foods, which our body uses to build and maintain healthy bones and teeth.

Calcium is also essential for the regulation of many of the body's important functions, for example:

- Regulating muscle contraction, including your heartbeat
- Nerve function
- Keeping blood pressure normal
- Blood clotting
- Helping digestion

An adequate calcium intake is important throughout adult life. Getting enough calcium is important to prevent conditions such as osteoporosis.

You should be able to get all the calcium you need by eating a healthy balanced diet. If you need additional calcium the richest calcium containing foods are dairy products, so the easiest way to get more calcium is to include more of these in your diet.

Calcium can also be found in many other non-dairy foods. However non-dairy sources are not such a rich source and they are not absorbed so well. Therefore you will need to eat more of them. Sources are:

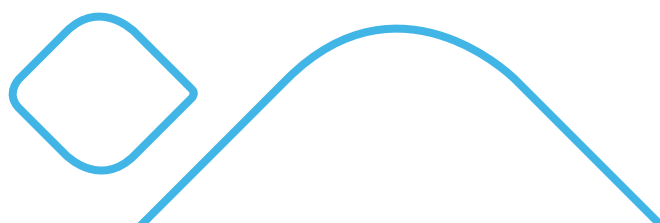
- Green leafy vegetables – such as broccoli, cabbage and okra, but not spinach
- Soya beans
- Calcium-set tofu
- Plant-based milks with added calcium
- Soya products with added calcium
- Nuts
- Bread and anything made with fortified flour
- Fish where you eat the bones – such as sardines and pilchards

Requirements – Dietary Reference Values

Calcium requirements vary during different stages of our life. Requirements are highest during periods of growth. The amounts are set by an expert committee*

Infants:

Cows' milk should not be used as a main drink under the age of 1 year.



Children/Adolescents: Requirements are high during periods of growth and development.

Adulthood: Maximum bone density attained at about 35 years old, we naturally begin to lose bone during adulthood. There is a marked increase of bone loss during the menopause for women.

Older people: Ability to absorb calcium decreases.

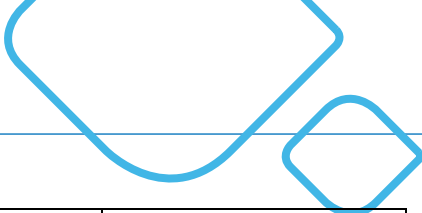
Age	Requirement mg/day *
Infant < 1 yr	525
1 - 3 yrs	350
4 – 6 yrs	450
7 – 10 yrs	550
11-18 yrs (female)	800
11-18yrs (male)	1000
Adults 19yrs +	700
<i>Coeliac Disease (adult)</i>	1000 – 1500
<i>Breastfeeding</i>	1250
<i>Women post menopause</i>	1200
<i>Osteoporosis</i>	1000

*Requirements: *Department of Health (1991) Dietary Reference Values for Food.*

Dairy Sources of Calcium

The following table provides a list of the foods rich in calcium.

Food	Serving Size	Approximate Calcium Content (mg)
Milk, all types	1 glass (200ml)	240-268
Goats milk	1 glass (200ml)	200
Sheep's milk	1 glass (200ml)	340
Chocolate milk	1 glass (200ml)	247
Evaporated milk (whole)	1 small can	525
Condensed milk (whole)	100g	290

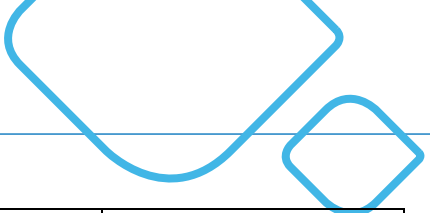


Greek yoghurt	1 carton (150g)	225
Drinking Yoghurt	200ml serving	200
Low-fat fruit yoghurt	150g pot	140
Low-fat yoghurt (plain)	150g pot	243
Fromage frais (plain)	1 carton (100g)	110
Dairy ice cream	75g portion	75
Cheddar cheese	Matchbox size piece (30g)	222
Parmesan	1 tablespoon (10g)	60
Camembert cheese	Matchbox size piece (30g)	105
Feta cheese	30g	108
Stilton	30g	98
Edam	30g	231
Cheese spread	1 triangle (17g)	70
Cottage cheese	40g serving	51
Macaroni cheese	1 small portion (220g)	374
Milk pudding	1 small can (200g)	260
Custard	120g portion	166
Milk chocolate	1 standard size bar (30g)	66
Dried skimmed milk powder	1 teaspoon (3g)	38
Single cream	100mls	89
Double cream	100mls	46
Crème Fraiche	100g	58
Imitation Cream	100mls	96
<i>Lactose free milks (below) are suitable for lactose intolerance – they still contain cow's milk protein</i>		
Lactose free milk	1 glass (200mls)	247
Lactose free cheese	1 serving (30g)	222

Non-Dairy Sources

(Remember to check that dairy alternatives are fortified with calcium)

Food	Serving Size	Approximate Calcium Content (mg)
Milk/dairy alternatives		
Soya milk with added calcium	1 glass (200ml)	244
Rice Dream with added calcium	1 glass (200ml)	240
Almond, hazelnut, coconut, hemp, oat milk with added calcium e.g. Kara, Oatley	1 glass (200ml)	240
Chocolate soya milk with added calcium	1 glass (200ml)	240
Soya yoghurt or desserts with added calcium	1 carton (100g)	96 -120
Carbohydrates		
Hot oat cereal e.g. Ready Brek (fortified) (check labels)	Dry weight (30g)	400
Rice Krispies Multigrain / Golden Grahams	1 serving (30g)	137
Weetabix Crunchy Bran	1 serving (40g)	138
Cheerios / Curiously Cinnamon	1 serving (30g)	80
Coco pops / Honey Loops / Frosties	1 serving (30g)	136
Nestle Clusters	1 serving (30g)	104
Oats and More	1 serving (40g)	175
Muesli, Swiss	Medium bowl (60g)	65
Muesli, No added sugar	Medium bowl (60g)	28
White bread	1 large slice (35g)	39
White bread with added fibre	1 large slice (35g)	53
Wholemeal bread	1 large slice (35g)	19
Pitta bread/chapatti	65g x 1	60
Calcium enriched bread e.g. Hovis Best of Both	1 slice (40g)	190
Gluten free bread	2 slices	70
Plain fruit scone	1 scone (48g)	86



Fruit bread	1 slice (30g)	26
Malt Loaf	1 slice (35g)	39
Chocolate cake	1 piece (100g)	60
Pasta	1 serving (180g)	26
Protein		
Scampi in breadcrumbs	6 pieces	190
Pilchards with bones	½ tin 60g serving	150
Tinned Sardines in tomato sauce (with bones)	½ tin 60g serving	258
Tinned Salmon (with bones)	½ small tin (52)	47
Whitebait	50g	130
Baked beans*	½ large can (205g)	109
Kidney beans*	½ large can (205g)	146
Tofu	Portion (60g)	306
Eggs scrambled with milk	2 eggs (120g)	76
Houmous	1 tablespoon (50g)	21
Brazil nuts *	4 brazils (20g)	34
Almonds*	6 almonds (13g)	31
Sesame seeds*	2 tablespoon	170
Tahini paste	1 heaped teaspoon	129
Fruit and vegetables		
Orange juice with added calcium e.g. Tropicana good for bones	1 glass (200ml)	244
Dried figs*	2 figs (40g)	100
Orange	Medium (160g)	75
Dried apricots*	4 apricots (32g)	23
Broccoli (cooked)	3 tbsp (80g)	32
Spinach (cooked)*	3 tbsp (80g)	124
Kale	3 tbsp	120

*These foods should not be relied upon as main calcium sources as they are poorly absorbed.

All of the values given are averages and vary by brand, therefore it is worth checking the label.

Tap water in hard water areas is also a good source of calcium.

Suggestions to Increase Calcium Intake

- Eating 3 servings a day from the dairy group (milk, yoghurt, and cheese) will provide a good calcium intake. Remember that lower-fat dairy products contain just as much calcium as full-fat ones.
- Sprinkle some grated cheese on top or add pulses to soup.
- Slices of wholemeal toast or a jacket potato with melted cheese and herbs.
- Make mashed potato with milk instead of butter or margarine.
- Serve low-fat fruit yoghurt or milky pudding for dessert.
- Try a milk shake, fortified plant-based milk drink or yoghurt drink instead of soft drinks, tea or coffee.
- Use canned salmon instead of tuna in your sandwich, but as the calcium is in the bones make sure you mash the bones into the flesh.
- Add 5 tablespoons of milk powder to a pint of milk to make enriched milk and increase the calcium content by 576mg.
- Add hummus or tahini paste as a sandwich filling

Examples of High Calcium Meals

Breakfast

- Glass of calcium enriched fruit juice
- Choose a breakfast cereal fortified with calcium served with milk or a calcium enriched non-dairy alternative with a handful of dried fruit

Approximately 910mg Calcium

Lunch

- Calcium enriched bread served with low fat cheddar cheese or cottage cheese or canned salmon with the bones or tinned sardines or hummus and roasted vegetables
- Yoghurt or non-dairy calcium enriched dessert
- An orange

Approximately 560mg Calcium

Dinner

- Homemade vegetable and pulse soup sprinkled with cheese
- Whitebait with potatoes, broccoli and spinach
- Baked apple with custard

Approximately 820mg Calcium

Evening

- Milky chocolate drink

Approximately 200mg Calcium

Snacks

- A small handful of dried fruit, nuts or seeds e.g. 4 brazil nuts and 4 dried apricots



Approximately 57mg Calcium

Does Eating More Calcium Prevent Osteoporosis?

Excessive intakes will not necessarily make bones stronger, but the following will help your bone health:

- Ensure adequate calcium intake from foods
- Regular weight-bearing exercise such as
- Safe exposure to sunlight for vitamin D production

If you are only eating small amounts of food or not keen on many of the calcium sources, you may not be having enough calcium. You may therefore require a calcium supplement.

If you take calcium supplements ensure your total intake does not exceed 1500mg a day as it can cause stomach pains and diarrhoea.

Contact your GP for further advice.

Some of the Factors Increasing the Risk of Osteoporosis

- Cigarette smoking
- Excessive alcohol consumption
- High salt consumption – sodium increases urinary losses of calcium
- Reduced physical activity
- Being underweight

How to Improve your Bone Health:

Healthy bones are not just about calcium, vitamin D and exercise are important too.

Vitamin D

- Vitamin D is obtained from sunlight and is needed to help absorb calcium.
- Dietary sources include fortified fat spreads and breakfast cereals, eggs, cheese and oily fish such as mackerel, pilchards and sardines.
- It can be difficult to obtain enough vitamin D from food, it is therefore recommended that everyone takes a 10µg supplement of vitamin D daily throughout the year. If you get good sun exposure between the end of March to end of September by exposing skin (arms, hands, face or legs) for 15 minutes two or three times per week before applying sunscreen, you may not need to take the supplement during these months.
- Avoid taking multiple sources of Vitamin D as this can be harmful. Vitamin D will be contained in multi-vitamin and mineral supplements so you may not need an additional Vitamin D supplement. It will also be in calcium supplements prescribed by your GP to prevent or treat osteoporosis. Things like fish oils/ cod liver oil may contain Vitamin D check the label. People should not take more than 100micrograms of Vitamin D each day. See NHS information on www.nhs.uk/conditions/vitamins-and-minerals/vitamin-d/

Exercise

- Regular weight bearing exercise with impact (e.g. walking, dancing, climbing stairs and running) combined with weight bearing exercise helps to increase bone strength and reduce age-related bone loss.
- Variety is good for bones, which you can achieve with different movements, directions and speeds - in an activity like dancing for example. Short bursts of activity may be best, such as running followed by a jog, or jogging followed by a walk. For more information on the frequency and type of exercise that is required, please visit the Royal Osteoporosis Society website.
- In older people, weight bearing exercise and muscle- strengthening exercise can also help to prevent falls

For further information:

- The British Dietetic Association; BDA food facts sheets www.bda.uk.com
- The Dairy Council www.milk.co.uk
- Royal Osteoporosis Society www.theros.org.uk - The Royal Osteoporosis Society has a free telephone helpline service run by nurses with specialist knowledge of osteoporosis and bone health.
Call 0808 800 0035. You can also email them at nurses@theros.org.uk.
- Coeliac UK www.coeliac.org.uk

If you have any queries contact:

Nutrition and Dietetic Services

Tel: (01225) 824398 (RUH), Tel: (01225) 833916 (St Martin's)

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If you would like this leaflet in email form, large print, braille or another language, please contact the Patient Support and Complaints team on 01225 825656.

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