

Calcium supplements and blood tests

What is osteoporosis?

Osteoporosis occurs when the struts that form the mesh-like structure inside bones become thin. This causes the bone to become fragile and break easily, even after a minor bump or fall. You might hear these breaks described as 'fragility fractures'. The terms 'fracture' and 'broken bone' mean the same thing.

Fractures can occur in many parts of the body, but they are most common in the wrists, hips and spine. It's these broken bones that can cause pain, rather than osteoporosis itself. Spinal fractures can also cause height loss and a curved spine.

Adults need 700mg of calcium a day as part of a well balanced healthy diet but people taking osteoporosis drug treatments may be advised to have a daily intake of around 1000mg.

For more information about healthy eating for strong bones, including how much calcium you need at different ages, see our booklet, 'Better bone health for everybody', or visit our website at theros.org.uk/info. If you're a member, the information is in your book, 'All about osteoporosis'.

Will taking calcium supplements prevent osteoporosis and make my bones stronger?

Eating healthily for strong bones requires a balance of vitamins and other nutrients, including calcium. Osteoporosis is not a 'calcium deficiency' disease, however, and having a very high calcium intake or taking calcium supplements isn't a guarantee against osteoporosis.

Do I need to take a calcium supplement?

Calcium supplements are recommended when you cannot get sufficient amounts from your food and drink.

It is unlikely that taking extra calcium as a supplement will help strengthen your bones, unless you aren't getting enough – in which case, a supplement will increase your intake to recommended levels.

Doctors sometimes prescribe supplements if you are taking an osteoporosis drug treatment and they want to be certain you are getting enough. More recently health professionals are recognising it's usually best to check what you are getting naturally first, before prescribing supplements.

What dose of calcium should I take?

Try to calculate roughly how much you are getting from food and drink in a day, then work out how much supplement you may need. You can use our 'calcium rich food chooser' on our website at theros.org.uk/calcium, to see if you can get enough calcium from your diet. The page also has a link to a useful calcium calculator. There's also information about the amount of calcium in foods in our booklet, 'Better bone health for everybody'.

One or two tablets a day are usually recommended if necessary, to top up the amount that you get from your food and drink. Look at how much 'elemental' calcium (the actual amount of calcium) the supplement provides.

For instance, 1,250 mg of calcium carbonate provides 500mg of calcium. Supplements vary widely, but most provide between 300mg-1,000mg of elemental calcium.

If you aren't sure then speak with your doctor. With some medical conditions you may need specific advice about whether to take a supplement and how much you need.

Can I have too much calcium and what are the symptoms ?

If you are prescribed a calcium supplement then it will usually be 500 – 1,200mg a day. Taking more than about 2,500mg of calcium a day on a regular basis could lead to medical problems including a high level of calcium in the blood, known as milk alkali syndrome.

Too much calcium might also interfere with the absorption of other minerals such as iron and magnesium.

There are some medical conditions that cause high blood calcium levels (the body stops regulating levels in the blood in the normal way) which can make you very unwell and in this situation, you would be advised not to take supplements.

When and how should I take supplements to get the best out of them?

To help your body absorb your calcium supplements (as well as other supplements and medicines):

- 1 If you need two calcium supplements, you could take them at separate times such as after lunch and after supper when your digestive juices are stimulated. Dividing the dose in two may help with absorption although not all experts think this is necessary.
- 2 If possible, unless advised for other medical reasons, take your supplements away from very high fibre foods such as bran or foods containing oxalic acid such as spinach and rhubarb which might reduce calcium absorption. (The instructions with your supplement probably states three to four hours).

Don't worry too much about this though – you will probably be getting good amounts from your supplements even if the absorption is slightly reduced and it's important not to avoid high fibre foods as they are important for your general health.

Check the instructions with other drugs and supplements you are taking, for instance, iron tablets and levothyroxine (also called thyroxine) need to be taken a few hours before or after calcium supplements to make sure they are all absorbed properly.

Bisphosphonates (alendronic acid, ibandronate or risedronate) in tablet form need to be taken on a completely empty stomach to be properly absorbed.

On the day you take them, either miss your calcium supplement or take the supplement at the other end of the day.

Separating calcium supplements from bisphosphonate tablets is really important because you are unlikely to absorb any of the bisphosphonate tablet if you take it at the same time of the day as the supplement

- 3 If you have any concerns about the timing of your medications your local pharmacist will be happy to advise

Which is the best calcium supplement?

They are all much the same in terms of increasing your calcium intake so price and finding a product that suits you will be the key factors especially if you are buying a supplement.

Calcium citrate is slightly more easily absorbed than calcium carbonate so may suit some people who find they have gastric disturbances with other calcium supplements but, unless you have been advised by your doctor that you need this form of calcium, it probably won't make much difference which one you take.

Research has been unable to prove that one type is better for your bones than another.

Calcium carbonate is often the cheapest and you will only need to take one or two tablets per day. If you want a supplement without certain additives or with other nutrients they will often be more expensive and you might need to take several tablets to get the same dose of calcium.

Your doctor can prescribe different products – usually a fizzy drink (citrate); a caplet that you swallow or a chewable tablet. If one type is preferable for you then you can request it.

Many of the chewable calcium supplements contain sweeteners such as aspartame which some people tell us they wish to avoid.

They may prefer a swallowable caplet or to purchase a supplement from a health food shop.

However most tablets will contain something to improve their taste which will be either sugar or another sweetener. Most supplements will have additives (excipients) to bind the supplement together or make them easier to swallow.

If there are particular additives that you wish to avoid, you could ask your pharmacist about an alternative.

Do calcium supplements cause side effects? How do I avoid or reduce them?

Calcium supplements can cause nausea as well as other effects, such as constipation, diarrhoea or bloating of the stomach.

Although there are different brands or formulations of calcium supplement their side effects are often similar – but it is certainly worth discussing this with your doctor and possibly trying a different type.

Calcium citrate can sometimes cause diarrhoea but is more tolerable than carbonate for some people. Calcium gluconate is available from health food shops.

You may be able to increase the calcium you get from what you eat and drink so you can reduce the dose of calcium supplement you need, or stop them altogether.

Find out more about ways to increase your calcium intake through healthy eating.

Your doctor can always prescribe vitamin D on its own, if you are likely to be getting inadequate amounts, but don't need a calcium supplement.

I've heard that calcium supplements may cause heart attacks. What should I do?

There haven't been any research studies properly designed to answer this question – but to be on the safe side it makes sense to get calcium from healthy, balanced eating as far as possible and only supplement if necessary to top up to recommended levels.

A high calcium intake from food and drink doesn't seem to increase heart attack risks.

Some research studies have suggested you may have an increased risk of heart attack if you take high doses of a calcium supplement alone or calcium and vitamin D together, although the incidence of heart attack was still low.

It is unclear why this might be although some researchers that think there could be a risk, suggest one reason could be through a slow process of calcium being laid down in your blood vessels (called calcification) and because your blood calcium levels rise briefly after you take your supplements.

There is some uncertainty about the conclusions of these studies as other research has found that taking calcium and vitamin D supplements does not increase your heart attack risk.

The UK drugs regulatory organisation MHRA looked at the research findings and recommended that doctors still need to ensure you are getting sufficient calcium especially if you are taking osteoporosis drug treatments.

Supplements, the guidance says, should continue to be prescribed when necessary.

Is a 'calcium fortified' food the same as having a calcium supplement in relation to a possible heart attack risk?

It's difficult to know because, as explained, it's not certain why the possible heart attack risk occurs.

Calcium in fortified food is unlikely to be in such a concentrated form as in a supplement so is probably more like taking calcium in food than as a supplement.

I have a history of kidney stones. Should I avoid taking calcium supplements because of this?

Although a diet low in calcium is no longer recommended for someone with a history of kidney stones, research studies have shown a higher risk of some types of kidney stone in those who take calcium supplements.

Discuss this with your doctor – it probably makes sense to get the calcium you need from food and drink rather than supplements if you have had kidney stones unless advised otherwise.

Can I get a supplement suitable for a vegetarian or vegan?

Whilst many calcium supplements are vegetarian and possibly vegan, you will need to check with the manufacturer – some contain gelatin or lactose and, if you are very strict, many contain small amounts of magnesium stearate that might be animal derived.

Do I need to take both calcium and vitamin D? Can I get a vitamin D supplement without calcium?

Supplements are prescribed together if you need both. This may be because you are older and frailer and there is concern you might not be getting sufficient of either especially if you are living in a nursing or residential home.

You can buy, or be prescribed, either calcium or vitamin D separately if you don't need both.

If you are getting sufficient calcium in your diet but need extra vitamin D then you may be advised to take vitamin D supplements alone. (see our fact sheet on Vitamin D supplements and tests).

Will a calcium blood test show if I am getting enough calcium?

No, a calcium blood test will not measure whether you are getting enough calcium in your diet or whether you might need a supplement.

This is because your body works efficiently to regulate calcium blood levels and keep them within a required range so you could have normal results and still need to increase your intake.

Research studies have worked out how much calcium you need on average every day so ensuring you have a good daily intake from what you eat and drink is the sensible way to get what you need.

Checking for low or high calcium levels, either using a blood or urine test, is generally more useful to indicate whether you have another underlying medical condition that is affecting your bones.

Getting more information and support

We hope this fact sheet will help you feel more informed and more confident when discussing your bone health with your medical team.

For more information about osteoporosis and bone health, including fact sheets on all available drug treatments, please visit our website at theros.org.uk/info

If you need more information or support, talk to your healthcare professional.

You can also call our specialist Helpline nurses with any questions or concerns about bone health, for free, on **0808 800 035**, or email them at nurses@theros.org.uk

For more information about calcium and healthy eating for strong bones, see our booklet, 'Better bone health for everybody'.

Our website has a 'calcium rich food chooser' to help you get sufficient calcium from what you eat and drink, as well as a link to an online calcium calculator. Find these at theros.org.uk/calcium

For information about vitamin D, see our fact sheet, 'Vitamin D supplements and tests'.



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This information is based on the latest evidence and clinical practice. It should not replace advice from your own healthcare professionals.

To give us feedback on this fact sheet, email us at health.info@theros.org.uk

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To view or order more information about osteoporosis and bone health:



theros.org.uk/info



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