

Steroids ('glucocorticoids') and osteoporosis

Steroid medications are often prescribed to treat a range of conditions. But some forms of steroids can weaken bones and make it more likely that you might break a bone (fracture) more easily. The higher the steroid dose you take – especially if you are taking tablets – and the longer you take them for, the greater the possible effect on your bone strength.

Because of this, your healthcare professional may want to check your risk of breaking a bone. This may include having a bone density (DXA) scan. Depending on the results, you may need to take a bone-strengthening medication to help prevent or treat osteoporosis, and to lower your risk of breaking a bone.

Who is this fact sheet for?

This information may be helpful if you:

- take, or are about to start taking, a steroid medication
- want to understand how steroids might affect your bone health and increase your risk of broken bones.

It includes the following information:

- What are steroids?
- What is osteoporosis?
- How do steroids affect bone?
- Do I need a bone density scan?
- Will I need an osteoporosis medication to protect my bones?
- Common questions about steroids and osteoporosis
- What else can I do to help keep my bones healthy and strong?
- Getting more information and support

What are steroids?

Steroids, including glucocorticoids, are a type of hormone produced naturally by our bodies. They help to keep our cells healthy and affect our growth. They also control our responses to physical stresses, such as infection, injury and inflammation.

There are a number of steroid drug treatments that contain copies of these natural steroids. Examples include drugs such as prednisolone, dexamethasone, hydrocortisone and cortisone.

Steroid treatments have lots of uses. They can help to:

- reduce inflammation if you have a condition such as asthma, rheumatoid arthritis, lupus, inflammatory bowel disease, polymyalgia rheumatica (PMR) or giant cell arteritis (GCA)
- boost these hormones if your body isn't making enough due to an adrenal or pituitary disorder
- lower the risk of your body rejecting the new organ if you've had an organ transplant.

Steroid treatments are **not** the same as the anabolic steroids some athletes and body builders use to improve their physical performance.

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. These broken bones can cause pain. Spinal fractures can also cause height loss and a curved spine.

How do steroids affect bone?

The body’s ability to produce strong, dense bones is a balancing act between the process that builds up bone, and the process that breaks it down.

Steroid medications can affect your bone health in a number of ways. They may:

- activate the cells that break down bone
- slow down the activity of other cells, including the cells that build bone
- reduce the body’s ability to absorb calcium, meaning there is less calcium available for your bones
- affect the levels of sex hormones such as oestrogen and testosterone – this might affect bone loss, but we don’t yet know how much.

Overall, steroid medications can cause bone to break down faster than it is made. This can weaken bones and make you more at risk of osteoporosis and breaking a bone.

The thought that your medicine could cause side effects can be worrying. But it’s important to remember that all medicines have both benefits and possible risks. Not everyone gets weaker bones and has fractures. Your healthcare professional will make sure you are on the lowest possible dose needed to treat your condition and keep you well. This will help to keep the risk of side effects, including weaker bones, as low as possible.

A number of things can affect the extent to which your bone strength is affected. These include the type of steroid you are taking, the dose, and how long you’re taking it for.

Steroid tablets

Steroid tablets, such as prednisolone, are more likely to cause bone loss if you take them for more than three months, or if you often take a short course of them. The higher the dose, the sooner your bones might be affected.

Experts don’t yet know:

- the exact dose that is harmful to bone – studies suggest that even a low dose (for example, 2.5 to 7.5mg of prednisolone per day) may increase your risk of breaking a bone, and the higher the dose, the greater the risk
- how much a short course of steroid tablets might affect your bones.

Steroid injections

Into a vein or muscle

Intravenous (into a vein) and intramuscular (into a muscle) steroid injections can increase your risk of breaking a bone if you have them very regularly or at high doses.

Into a joint

Joint injections are sometimes used to reduce inflammation in the affected area if you have arthritis. When used in this way, only a small amount of the active drug is absorbed. This means that occasional joint injections won’t be a problem. But if you need many injections, this could affect your bone strength over time and increase your risk of breaking a bone.

Steroid inhalers

These are steroids that you breathe in. You may hear them called preventer inhalers. Most experts say they are less likely to cause bone loss than steroid tablets. But we don’t yet know for certain and need more research to understand their impact on bone health.

Some studies in adults suggest a link between long-term inhaled steroid use and an increased risk of breaking bones. But it isn’t clear whether steroids are to blame, as the increased risk may be partly due to the lung disease itself, or to related factors such as smoking or an inactive lifestyle.

Also, many people who use inhaled steroids for a long time need occasional courses of steroid tablets, which can cause bone loss.

This means it's hard to know how much inhaled steroids might affect the bones. In fact, some studies that have accounted for these extra factors suggest inhaled steroids may not harm your bones at all.

Steroid creams

Steroid creams or gels don't usually affect the bone, as little of the active drug is absorbed into your blood. But if you use them for a long time, or at a high dose, you might absorb more of the medication and have a higher risk of side effects.

Steroid eye drops

Steroid eye drops usually give a low dose of steroids and are very unlikely to cause bone loss.

Steroid replacement

If you're having steroid treatment to help manage a condition such as Addison's disease or a pituitary disorder, this shouldn't harm your bones as long as you are receiving the right amount of steroid. It's important that this is monitored, as receiving more steroid than you need could cause bone loss.

Never stop taking your steroid medicine suddenly.

It's important not to suddenly stop taking steroids, as this could make you very unwell. If you're worried about your bone health or any other possible side effects of your medication, speak to your GP.

Do I need a bone density scan?

You may do. This type of scan, also known as a dual energy X-ray absorptiometry (DXA) scan, measures your bone density. It can help your doctor understand how strong your bones are and if you might need an osteoporosis drug treatment.

If your doctor can already tell you're at high risk because you have other risk factors – such as being over 75 years old, or having already broken bones easily – then you may not need a scan.

You can read more in our fact sheet, '**Bone density scanning and osteoporosis**'.

Will I need an osteoporosis medication to protect my bones?

It's important for you and your doctor to discuss your bone health when you're first prescribed a steroid, and to start treatment for osteoporosis as early as possible, if you need it.

Your doctor may advise you to take an osteoporosis medication if you:

- are older (usually over 75 years)
- are taking steroids for more than three months
- have had a scan that shows you have low bone density
- have broken bones easily.

Osteoporosis drug treatments aim to help prevent osteoporosis and reduce your risk of broken bones. Most available drug treatments for osteoporosis have been specifically tested to ensure they benefit people taking steroids. This includes risedronate, alendronic acid, zoledronic acid, denosumab and teriparatide.

Your doctor may also suggest you take calcium and vitamin D supplements.

Common questions about steroids and osteoporosis

I am young, will I need an osteoporosis treatment?

There's no definite answer to this, as it's harder to work out the risk to bone health in children and younger people who are taking steroids.

Some younger people are advised to take an osteoporosis treatment. This is more likely if your bone density is very low, particularly if you've already broken a bone, or if you need long-term, high-dose steroids. Your doctor may refer you to a specialist to discuss osteoporosis drug treatments.

What if I've used steroids in the past?

Previous steroid use may reduce bone strength. If you are worried, ask your doctor whether you should have a bone health assessment, including a bone density scan.

Do I need to keep having an osteoporosis drug treatment if I'm no longer on steroids?

Your doctor may say you can stop the osteoporosis medication if you were only prescribed it because you were taking steroid tablets.

But if your risk of breaking a bone is still higher, your doctor may suggest staying on an osteoporosis medication for longer, before possibly having a pause in treatment after five years. This pause in treatment – sometimes called a ‘drug holiday’ – will only be suitable if you’re on a bisphosphonate drug, such as alendronate.

Can I pause my osteoporosis medication after five years if I’m still taking steroids?

No. You may need the beneficial effect of your osteoporosis medication for as long as you’re on steroids.

Should I stop my steroid treatment or reduce the dose to protect my bones?

No. It’s very important to keep taking your steroid medication until your doctor says it is safe to stop. It can be very dangerous to suddenly stop taking steroids, and you could become very ill.

For most people, the benefits of taking steroids will outweigh any harmful effect on their bones. It’s very important to take them as prescribed.

What else can I do to help keep my bones healthy and strong?

Having enough calcium and vitamin D is important, as steroids can increase calcium loss by the kidneys. A healthy, varied and balanced diet can provide good amounts of calcium, but your healthcare professional may suggest you take a supplement as well, to make sure you’re getting enough calcium and vitamin D.

It’s important to do regular physical activity, including weight-bearing exercise. This is any activity where your bones have to support your body’s weight, such as walking. You should also try to maintain good posture and avoid trips and falls, which could lead to broken bones.

Other ways to keep your bones healthy include not smoking, and not drinking more than the recommended amount of alcohol.

Getting more information and support

We hope this fact sheet will help you understand the possible impact of steroid treatment on your bones.

For more information about osteoporosis and bone health, including fact sheets on drug treatments, please visit our website at theros.org.uk/info or order more of our printed publications.

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 or living with osteoporosis, for free, on **0808 800 035**, or email them at nurses@theros.org.uk



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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.

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