

Coeliac disease and osteoporosis

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.

What is coeliac disease?

Coeliac disease is a condition which affects the part of the bowel called the small intestine. It is an auto-immune disease where the immune system mistakenly attacks its own cells in a reaction to gluten (a protein that is present in wheat, rye and barley). This results in the lining of the small intestine becoming inflamed and a reduced ability to absorb food properly.

Foods containing gluten may cause diarrhoea, weight loss or, in children, vomiting and a failure to thrive. As a result, minerals (such as calcium) and vitamins may be poorly absorbed from food. It is worth remembering that some foods such as oats may be processed alongside other grains and might become gluten-contaminated during manufacturing.

Some people with coeliac disease have few or no symptoms except perhaps anaemia and excessive tiredness and the condition may sometimes go undetected for many years. As a consequence Coeliac UK estimate there might be nearly half a million people who have coeliac disease but aren't yet diagnosed.

How is coeliac disease diagnosed and treated?

A simple blood test organised by your GP can pick up antibodies that strongly suggest you may have coeliac disease. But it is possible to have a negative test result and still have the disease. After a positive result, or if you have symptoms of coeliac disease, your GP will usually refer you to see a hospital specialist – a gastroenterologist – for a biopsy (small tissue sample) of the small bowel. This is needed to make a definite diagnosis, so you will usually be asked not to remove gluten from your diet until after the biopsy.

Following a diagnosis, you'll be advised to follow a strict gluten-free diet. This should help your gut lining to heal and help to relieve your symptoms. This diet is important and needs to be continued for life, so you may be referred to a dietitian for advice. In the UK, people with coeliac disease can get gluten-free food on prescription. These will generally be staples in the diet, such as bread and pasta, but many shops now sell large ranges of special gluten-free foods.

What long-term problems are associated with coeliac disease?

If undiagnosed and left untreated, coeliac disease can lead to problems such as anaemia, tiredness, itchy skin, infertility and miscarriage. Due in part to poor absorption of calcium, osteoporosis and an increased risk of broken bones can also be a problem. One study showed half of those with coeliac disease had reduced bone strength, even if they had a gluten-free diet. This was especially so for those who were diagnosed later in life, were underweight or were post-menopause.

Early diagnosis and treatment of coeliac disease can give you the best chance of improving your bone density to average levels, although some studies have shown that those with coeliac disease still have lower than average bone density despite following a strict gluten-free diet.

How does coeliac disease cause osteoporosis and fractures?

There are a number of ways in which coeliac disease may increase the likelihood of developing osteoporosis. Poor absorption (malabsorption) of calcium, especially in early

life, as a result of coeliac disease may mean that bones don't reach their maximum strength. Calcium malabsorption probably leads to increased levels of parathyroid hormone, which helps to regulate calcium in the body. A higher parathyroid hormone level can speed up the process of bone removal or bone 'turnover'.

Vitamin D absorption from food may also be affected. Vitamin D is needed to absorb calcium from food and levels may be reduced in coeliac disease. Severe cases of vitamin D deficiency may lead to a lack of calcium in the bone, osteomalacia (soft bones) or rickets in children. Low vitamin D can be diagnosed by a blood test.

People with coeliac disease tend to have a smaller build which may increase their risk of osteoporotic fractures. Coeliac disease can also lead to low levels of sex hormones which may also contribute to bone loss and fractures.

Thyroid disease is slightly more common in those with coeliac disease and in particular an overactive thyroid gland may be associated with an increased risk of osteoporosis.

If I have coeliac disease should I have a bone density scan?

Depending on your age and other factors, your bone health may need to be monitored. A bone density (DXA - dual energy x-ray absorptiometry) scan provides information about the strength of your bones and can help in deciding whether you need an osteoporosis drug treatment. Not everyone will need a DXA scan. But if you were diagnosed with coeliac disease after the menopause, or have other risk factors for weak bones, then measuring your bone density may be required as part of your management.

Do I need to take an osteoporosis drug treatment to strengthen my bones?

The aim of an osteoporosis drug treatment is to reduce the risk of broken bones and treatments will usually be recommended if your risk of fracture is considered to be high. Your risk is assessed based on a combination of factors including a diagnosis of coeliac disease, your age, personal and family history of fractures, lifestyle factors

such as alcohol intake and smoking, and information about your bone density if you've had a scan.

If you do need a drug treatment, your doctor will discuss options with you. For more information about osteoporosis drug treatments, see our other information resources.

I have coeliac disease. What else can I do to prevent osteoporosis and fractures?

A strict gluten-free diet that is rich in calcium can significantly improve your bone density (detectable within a year), especially if you are very young and your bone density was low to start with.

Adequate calcium in your diet will help maintain healthy bones. Current guidance for adults with coeliac disease recommends at least 1,000mg of calcium per day (British Society of Gastroenterology (BSG) 2014). To find out more, see our booklet, '**Better bone health for everybody**'.

The guidelines also say that if you have coeliac disease, it's important to get your vitamin D level checked. If your vitamin D level is low, then it will need to be replaced. If bone loss continues despite following a gluten-free diet, then you may not be taking enough vitamin D and you might need to have your vitamin D level measured again.

In addition, certain lifestyle changes can help you maintain healthy bones. These include doing regular weight-bearing exercise, not smoking, and limiting alcohol consumption.

You may find the following organisation helpful:

Coeliac UK

3rd Floor, Apollo Centre
Desborough Road
High Wycombe
Buckinghamshire
HP11 2QW

Website: coeliac.org.uk

Helpline: 0333 332 2033



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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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