

Coeliac disease and osteoporosis

What is osteoporosis?

Osteoporosis occurs when the struts which make up the mesh-like structure within bones become thin causing them to become fragile and break easily, often following a minor bump or fall. These broken bones are often referred to as 'fragility fractures'. The terms 'fracture' and 'broken bone' mean the same thing. Although fractures can occur in different parts of the body, the wrists, hips and spine are most commonly affected. 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.

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 which strongly suggest you may have coeliac disease. It is, however, possible to have a negative blood test result and yet still have the disease. Following a positive test result or, if there are symptoms of coeliac disease, your GP would normally then refer you to see a specialist – a gastroenterologist – for a biopsy (small tissue sample) of the small bowel which will be taken at hospital. This biopsy is required to make a definite diagnosis and so it is usually recommended not to remove gluten from your diet until after the biopsy has been done.

Following the diagnosis a strict gluten-free diet would be suggested which will promote healing of your gut lining and usually relieve your symptoms. As this diet is important and needs to be continued throughout life you may be referred to see a dietician for individual advice. In the UK, people with coeliac disease can get gluten-free food on prescription. The foods on prescription are generally staples in the diet such as bread and pasta but many shops now have large ranges of special gluten-free foods available.

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 leading to an increased risk of broken bones is another important problem. One study showed half of those with coeliac disease had reduced bone strength even if they were on a gluten-free diet. This was especially so for those who were diagnosed later in life, were underweight or were post-menopausal women.

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 or not you need an osteoporosis drug treatment. Not everyone though will need a bone density scan but if you are a woman diagnosed with coeliac disease after the menopause or have other risk factors for fragile bones then measurement of 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 it is considered that your risk of fracture is high. Your risk is assessed based on a combination of factors including the presence of coeliac disease as well as your age, personal and family history of fractures, lifestyle factors such as alcohol intake and smoking as well as information about your bone density if a scan has been performed.

If you do need a drug treatment your doctor will discuss with you the medication options. For more information about the drugs prescribed for osteoporosis see our 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 if your bone density results were 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). For more information about calcium-rich foods see our leaflet *Healthy living for strong bones*.

Current guidelines suggest that if you have coeliac disease, a measurement of your vitamin D level is important (BSG 2014) and if your vitamin D level is low then it will need to be replaced. If there is continuing bone loss despite having an adequate gluten - free diet then it might be due to insufficient vitamin D replacement and measurement of your vitamin D level might be necessary again (BSG 2014).

In addition other general lifestyle factors can help you to maintain healthy bones and these include taking regular weight bearing exercise, avoiding smoking and keeping alcohol consumption to within the recommended limits.

Useful contacts

Coeliac UK

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

Tel: **0333 332 2033** (Helpline)
coeliac.org.uk

This information reflects current evidence and best practice but is not intended to replace the medical advice provided by your own doctor or other healthcare professional.

This is one of many information resources available about osteoporosis and bone health. View the range at theros.org.uk and order more by calling us on **01761 471 771** or emailing info@theros.org.uk

President: HRH The Duchess of Cornwall. Formerly known as the National Osteoporosis Society.
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Registered address: Camerton, Bath, England, BA2 0PJ

For osteoporosis information and support contact our free specialist nurse Helpline:

 nurses@theros.org.uk

 **0808 800 0035**

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