



Thyroid 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 does the thyroid gland do?

The thyroid gland can be found in the neck just in front of the windpipe (trachea) and its main function is to produce a hormone known as thyroxine.

This hormone regulates the rate of the body's metabolism, which is the process of turning food into energy. It is also necessary for normal mental and physical development and for maintenance of good health generally.

What is hyperthyroidism ('overactive thyroid')?

Hyperthyroidism is frequently referred to as an 'overactive thyroid' and is a condition where too much of the hormone thyroxine is released by the thyroid gland. This can cause symptoms such as weight loss, nervousness and anxiety, hyperactivity, palpitations, tiredness and increased sweating. In some people a swelling of the thyroid gland known as a goitre may develop in the throat.

How is hyperthyroidism diagnosed and treated?

A diagnosis of this condition is made following a full clinical assessment by the doctor and some simple blood tests, known as thyroid function tests, will confirm any suspicion.

Generally patients diagnosed with hyperthyroidism are referred to a specialist for treatment. There are three main treatment options – drug treatments that stop the thyroid gland from producing too much thyroxine hormone, radioactive iodine treatment which helps to reduce the thyroid activity and finally surgery to remove part or all of the thyroid gland.

What is hypothyroidism ('underactive thyroid')?

Hypothyroidism is frequently referred to as an 'underactive thyroid' and means that the thyroid gland is not producing enough of the hormone thyroxine. Children born with this problem and adults who develop it will need lifelong treatment. It may also occur as a long term consequence of previous thyroid surgery. This condition can cause symptoms such as tiredness, lethargy, weight gain and feeling the cold as well as depression and muscle aches.

How is hypothyroidism diagnosed and treated?

Again a diagnosis is made following a clinical assessment by the doctor and then the thyroid function blood tests would once again confirm the diagnosis. This condition is treated by taking daily thyroid hormone replacement tablets, with levothyroxine being the most widely used preparation. It can take a little while to get established on the right dose of levothyroxine so regular blood tests are necessary at the start of treatment. On-going monitoring is also needed to make sure that the hormone levels stay within the recommended range.

Thyroid Disease and Osteoporosis

Does hyperthyroidism cause osteoporosis and fractures?

Bone is continuously being broken down and replaced by cells known as osteoclasts and osteoblasts. Each cycle of bone 'turnover' takes about 200 days and excess thyroid hormone will hasten this rate of bone turnover. If this process is happening too rapidly the bone building cells (osteoblasts) are not able to replace your bone fast enough, thus the overall rate of bone loss is increased.

If your thyroid hormone levels stay too high for too long, there is an increased risk of developing low bone density and osteoporosis, particularly if you are a post-menopausal woman and research has shown a potential increased risk of breaking your hip.

Hyperthyroidism can also be associated with muscle weakness and loss of lean body mass, which can be quite severe in some cases. This can then lead to an increased risk of falling and subsequent broken bones.

If I have hyperthyroidism should I have a bone density scan?

A bone density scan provides information about the strength of your bones and helps your doctor determine whether or not you have a high risk of breaking bones. It is important to discuss your individual risks for osteoporosis with your doctor. Hyperthyroidism is one of a number of conditions that can cause a reduction in bone density. Once your thyroid problem is controlled, bone density usually recovers. Your doctor will assess your need for a bone density scan based on your risk factors and refer you for a scan if necessary.

Does hypothyroidism cause osteoporosis and fractures?

Hypothyroidism itself is not a risk factor for osteoporosis as it does not lead to bone loss. However, if you have hypothyroidism and are on too much replacement therapy to treat the condition then this may result in bone loss. To prevent this, the thyroxine replacement (levothyroxine) must be carefully monitored to ensure levels do not become too high. This seems to be particularly important if you are elderly as research is indicating an increased risk of hip fracture in those over 70 who are taking high doses of levothyroxine.

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

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I have had thyroid problems. What else can I do to prevent osteoporosis and fractures?

Factors which can help to maintain healthy bones include a well-balanced diet with adequate calcium rich foods; safe sunlight exposure to get adequate vitamin D; regular weight bearing exercise; avoiding smoking and keeping alcohol consumption within the recommended limits.

Useful contacts

British Thyroid Foundation

Suite 12, One Sceptre House
Hornbeam Square North
Hornbeam Park
Harrogate HG2 8BP

Tel: 01423 810093
btf-thyroid.org

Thyroid UK

32 Darcy Road. St Osyth. Clacton On Sea
Essex CO16 8QF

Tel: 01255 820407 (10am-2.30pm)
thyroiduk.org.uk

Further Information is available from:

Patient UK: patient.co.uk

NHS Choices: nhs.uk

Society for Endocrinology
'You and your hormones':
yourhormones.info

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

 nurses@theros.org.uk

 **0808 800 0035**

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Content reviewed: April 2017 version 2