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About this booklet

This booklet has been produced for anyone interested in finding out more about osteoporosis. You may be suffering from the condition, or you may be a friend or relative of someone with osteoporosis. Whatever reason you have for reading this, we hope you will find it useful.

We want to explain as much as we can about osteoporosis, what causes it, how it can be prevented and how it can be treated.

Unfortunately we cannot hope to answer all your questions, because everyone is different and this is no substitute for individual consultation with a doctor. If you want to find out more after reading this booklet, the addresses on page 11 may be helpful.

What is osteoporosis?

The word ‘osteoporosis’ literally means ‘porous bone’. It is a condition where a person gradually loses bone material so that his or her bones become gradually more fragile. As a result, they are more likely to break.

What causes osteoporosis?

Our bones grow during childhood and adolescence and are at their strongest in the late 20s. As middle age approaches the bones – while remaining strong – very gradually begin to lose their density. This loss or thinning of the bones continues as we get older.

The process speeds up in women in the ten years after the menopause. This is because the ovaries stop producing the female sex hormone oestrogen – and oestrogen is one of the substances that helps keep bones strong. Men suffer less from osteoporosis, because their bones are stronger in the first place and they do not go through the menopause.

Normal bone (top)
Bone affected by osteoporosis (bottom)

Bone is made of fibres of a material called collagen filled in with minerals – mainly calcium salts – rather like reinforced concrete. The bones of the skeleton have a thick outer shell or ‘cortex’ inside which there is a meshwork of ‘trabecular’ bone.
Who is at risk?

All of us are at risk of developing osteoporosis as we get older, which is why elderly people are more likely to break bones when they fall. But there are some people who are more at risk of osteoporosis than others. These are some of the factors which can make a difference:

- **Oestrogen deficiency** Someone who has had an early menopause (before the age of 45), or a hysterectomy where one or both ovaries have been removed, is at risk.

- **Lack of exercise** Exercise keeps the bones strong — both as they are developing and throughout adulthood. So anyone who does not exercise, or has an illness or disability which makes it difficult, will be more prone to losing calcium from the bones, and so more likely to develop osteoporosis.

- **Poor diet** A diet which does not include enough calcium can encourage osteoporosis (see page 6).

- **Heavy smoking** Tobacco lowers the oestrogen level in women and may cause early menopause.

- **Heavy drinking** A high alcohol intake reduces the ability of the body’s cells to make bone.

- **Steroids (cortisone)** If someone takes prednisolone or cortisone over a long period of time, it can cause osteoporosis.

- **Family history** Osteoporosis runs in families. This is probably because there is some inherited factor which affects the development of bone.

- **Previous fractures** People who have had a low impact fracture are at greater risk of having another. Men and women who become shorter due to crush fractures of the bones in the spine (see page 9) are also more at risk.
Can you prevent osteoporosis?

There is a great deal which can be done at different stages in your life to guard against the condition.

- **Healthy diet** Children and adults need a diet which contains the right amount of calcium. The best sources of this are milk, cheese and yoghurt and, as shown below, foods such as tinned sardines. If you are watching your weight it's worth knowing that skimmed milk actually contains more calcium per pint than full-fat milk. We recommend a daily intake of calcium of 1000 milligrams (mg) or 1500 mg if you are over 60. A pint of milk a day, together with a normal amount of other foods which contain calcium, will do the trick. The table below may be useful.

<table>
<thead>
<tr>
<th>Food</th>
<th>Calcium Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3 pint (0.2 litre) whole milk</td>
<td>220 mg</td>
</tr>
<tr>
<td>1/3 pint (0.2 litre) semi-skimmed milk</td>
<td>230 mg</td>
</tr>
<tr>
<td>1 oz (28 g) hard cheese</td>
<td>190 mg</td>
</tr>
<tr>
<td>1 carton low-fat yoghurt</td>
<td>285 mg</td>
</tr>
<tr>
<td>2 oz (60 g) sardines (including bones)</td>
<td>310 mg</td>
</tr>
<tr>
<td>3 large slices brown or white bread</td>
<td>100 mg</td>
</tr>
<tr>
<td>3 large slices wholemeal bread</td>
<td>55 mg</td>
</tr>
<tr>
<td>4 oz (115 g) cottage cheese</td>
<td>80 mg</td>
</tr>
<tr>
<td>4 oz (115 g) baked beans</td>
<td>60 mg</td>
</tr>
<tr>
<td>4 oz (115 g) boiled cabbage</td>
<td>40 mg</td>
</tr>
</tbody>
</table>

**Approximate calcium content of some common foods**

- **Children's exercise** Children should actively participate in sports or other forms of exercise to help strengthen their bones.

- **Adult exercise** For the same reason, adults should keep physically active all the way into retirement. Choose 'weight-bearing' exercises — any activity which involves walking or running.
- **Smoking** Avoid smoking.
- **Drinking** Avoid drinking too much alcohol. The recommended daily maximum for a woman is 2–3 units. For a man it is 3–4 units. A unit is a single measure of spirits, or half a pint of normal-strength beer or lager, or a standard-size glass of 8% alcohol by volume wine.
- **Hormone Replacement Therapy (HRT)** Women who have been through the menopause may want to consider Hormone Replacement Therapy, since this can be a very good way of preventing osteoporosis. Talk it over with your doctor, because all treatments have risks as well as benefits and HRT does not suit everyone. The main advantages of long-term HRT are that the loss of bone is slowed down and it also helps prevent heart disease. The main disadvantages are that monthly periods may return, and that there can be a temporary tenderness around the breasts and some temporary nausea. There is a very slight increase in the risk of breast cancer after some years.

How can osteoporosis be detected?

There are no obvious, physical signs of osteoporosis, because no one can see the bones get 'thinner'. Osteoporosis can therefore go unnoticed for years. Quite often the first indication that someone has a problem is when he or she breaks one of their bones, in what would normally have been a minor accident. Relatively minor fractures of the spinal bones can cause a person to become round-shouldered and to lose height.