Most of us rarely give our bones a second thought. We can’t see or feel what’s happening to our skeleton and we naturally assume it will support us for life. In most cases it will, but bone is a living tissue that needs as much looking after as the rest of our bodies.

Our bones are at their strongest in our mid-30s after which some thinning is inevitable with advancing years. The majority of us never notice the changes but for 1 in 3 women and 1 in 12 men over the age of 50 this progressive weakening leads to osteoporosis, where their bones become so fragile that they can break following the simplest knock or fall.

Osteoporosis can be a major cause of pain and disability but it doesn’t have to be inevitable and, to varying degrees, is both treatable and preventable. This booklet contains the information you need to understand osteoporosis and outlines the steps that you and your doctor can take to prevent it or, if you already have it, to minimise the impact that it will have on your day to day life.

The National Osteoporosis Society (NOS) is the only national charity dedicated to osteoporosis and I am a staunch supporter of its work. If, after reading this booklet, you need more information on any aspect of the condition then please phone its helpline on 0845 450 0230 and speak to a nurse. You can also visit the website at www.nos.org.uk

Look after your bones and they will look after you – it’s never too late to start.

Dr Mark Porter
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What is osteoporosis?

Osteoporosis literally means ‘porous bones’

The bones in our skeleton are made of a thick outer shell and a strong inner mesh filled with collagen (protein), calcium salts and other minerals. The inside looks like a honeycomb, with blood vessels and bone marrow in the spaces between struts of bone. Osteoporosis means some of these struts become thin or break and the bone becomes too porous. The bones then become fragile and can break without too much force. It often remains undetected until the time of this first fracture. The wrist, hip and spine are the sites at which fractures most commonly occur.

Strong, dense bone

Fragile, osteoporotic bone
What causes osteoporosis?

Bone is alive and constantly changing. Old, worn out bone is broken down by cells called osteoclasts and replaced by bone building cells, called osteoblasts. This process of renewal is called bone turnover.

In childhood, the cells that make new bone work faster, enabling the skeleton to increase in density and strength. During this period of rapid bone growth it takes the skeleton just two years to completely renew itself; in adults this takes seven to 10 years. Bones stop growing in length between the ages of 16-18 but continue to grow in strength into your mid-20s. By this age your bones have reached their maximum potential strength (peak bone mass). Up until the age of 35 a balance between bone breakdown and new bone formation means that bone density stays stable. After your mid to late 30s bone loss increases as part of the natural ageing process. This can lead to osteoporosis and an increased risk of broken bones.

Women are more at risk of developing osteoporosis than men. They have smaller bones, which are less dense, and they also experience the menopause, which greatly accelerates bone loss for several years. At the menopause (normally around the age of 50) the ovaries produce lower levels of the female hormone oestrogen, which has a protective effect on bones. This lack of oestrogen causes the increase in bone loss. Younger women can also be at risk of osteoporosis if they have low circulating levels of oestrogen. This can happen if they over-exercise or develop an eating disorder, such as anorexia nervosa. Both these can upset the normal hormone balance and lead to bone loss.

Men generally have bigger, denser bones than women and do not undergo the rapid bone loss associated with the female menopause. Osteoporosis in men is often the result of another health problem. Low levels of the male hormone, testosterone, can lead to osteoporosis. This can be due to a problem with the testes themselves or the pituitary gland, which controls hormone levels. There may be no obvious signs or symptoms but some men do find they need to shave less regularly, have a low sex drive and feel excessively tired.

In nearly half of all men with osteoporosis the cause is unknown (called idiopathic osteoporosis) and further research is needed to establish why this bone loss occurs.
Am I at risk?

There are many factors which can increase your risk of osteoporosis.

For women
A lack of oestrogen, caused by

- early menopause (before the age of 45).
- early hysterectomy (before the age of 45), especially if both ovaries are removed (oophorectomy)
- missing periods for six months or more (excluding pregnancy) as a result of over-exercising or over-dieting

For men

- Low levels of the male hormone, testosterone (hypogonadism)

For men and women

- long-term use of corticosteroid tablets (for conditions such as asthma)
- mother who had a broken hip
- medical conditions which affect the absorption of food, such as Crohn’s disease or ulcerative colitis, as well as gastric surgery
- medical conditions that leave people immobile for long periods of time
- heavy drinking
- smoking
- low body weight

If you think you may have one or more of these risk factors you are at increased risk of developing osteoporosis. You need to discuss your risk with your doctor and find out how to prevent and treat the disease.