Know your bones: Osteopenia & Osteoporosis

Did you know that every hour around 60 people in the UK fracture a bone due to osteoporosis, with around 500,000 occurring annually?[1] Two thirds of these fractures occur in women over the age of 50.

We don't think much about our bones, but there are silent changes that happen to them as we age, and in particular around menopause, that can see post-menopausal women at higher risk of fractures. In fact, 1 in 3 women over the age of 50 will experience a bone fracture – usually in the wrist, hip or spine. If this is the result of a fall from a standing height, it's called a 'fragility fracture' and it can be an indicator of osteopenia or osteoporosis – conditions where the bone mineral density (BMD) is low, and the bones have become weaker and are at greater risk of breaking.

A bone fracture may not sound like much but with age they can cause significant pain and disability, and even premature death at a rate of around 114/100,000 people over the age of 50[2].

BMD is what gives our bones strength. It reaches its peak at around the age of 30 but then it slowly declines until we reach late perimenopause, when the rate accelerates dramatically as our oestrogen levels drop and our periods become less frequent or further apart. This rapid loss, according to the SWAN study, starts 2-3 years before the final menstrual period and continues for 3-4 years after it[3]. During this transition period a woman can lose 10-20% of her BMD[4]. After that the rate of loss slows again. (See the graph below.)

What are osteopenia & osteoporosis?

Osteopenia is a condition where bone density is lower than the 'normal' reference range. It is often described as a 'precursor' to osteoporosis where the bone density is very low and the risk of a fracture is much higher. Even though it's described as a precursor, not everyone who has osteopenia will develop osteoporosis.

How is Bone Mineral Density Measured?

Bone Mineral Density is measured using a very low dose of x-rays called as a DEXA scan. It looks at the lumbar spine and the hip and gives two scores. The first is the T Score which is a rating that compares your bone with that of 30-year-old so that you can see how far away you are from the 'normal' reference range when bones were at their peak strength.

If your T Score is:
- above -1 your bone is healthy
- –1 to –2.5, you may have osteopenia
- –2.5 or lower, you may have osteoporosis.

The other is a Z score. This score compares you to people of your own age group, gender and ethnicity. A score of -2 or lower could also indicate osteoporosis.
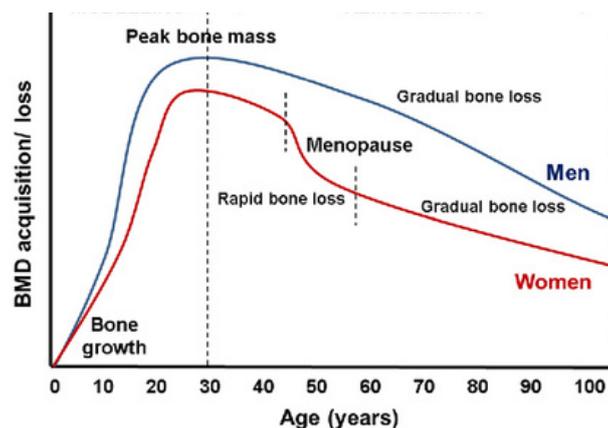
How do I know if I should have a scan?

A bone density scan, also known as a DEXA scan, is recommended for individuals with increased risk of osteoporosis, particularly those over 50 with risk factors, or younger individuals with additional risk factors. It's a quick and painless way to assess bone density and diagnose or monitor osteoporosis.

What are the risk factors for osteopenia & osteoporosis?

Risk factors for osteoporosis include:

- A low BMI – below 18 kg/m2
- A family history of osteoporosis or fractures
- Having had a previous fracture
- Smoking
- Drinking more that 2-3 standard alcohol drinks per day*
- Not getting enough calcium in your diet (1000-1300mg/day)*
- Having a low level of vitamin D
- Not doing weight bearing exercise
- Premature menopause. Women who have gone early menopause under the age of 40 are at greater risk.

(* recommendations vary between countries.)

Certain medical conditions or medications can increase the risk, such as:

- Diabetes
- Conditions that affect gut absorption such as Coeliac disease
- Thyroid conditions
- Autoimmune conditions like rheumatoid arthritis
- Treatments for breast cancer that block oestrogen
- Long-term prednisone or cortisone steroid use
- Some treatments for epilepsy
- Long-term use of SSRIs or Proton pump inhibitors.

What can help reduce the risk?

- Staying active with weight bearing/resistance training
- Quitting smoking
- Decreasing alcohol intake
- Ensuring you get enough calcium in the diet (if not consider calcium supplementation - speak to your health professional)
- Taking a vitamin D supplement in from late Spring to Autumn if you live in a country with limited sunshine or regular supplementation if you have been diagnosed with a vitamin D deficiency. Speak to your health professional and remember you can ask to have a blood test to measure your Vitamin D level.

Is osteoporosis reversible?

Changes in lifestyle may help slow the process of bone loss and in some cases, there have been improvements, but osteoporosis is not 'curable'. It can be improved but it is unlikely to return to what is considered the healthy bone range. What will help if I have been diagnosed with osteopenia or osteoporosis?

What else helps if I have been diagnosed with osteopenia or osteoporosis?

In addition to diet and exercise, there are some medications that can help slow bone loss.

- HRT/MHT – hormone replacement therapy/menopause hormone therapy has been shown to be very effective in slowing, maintaining and even reversing osteoporosis. The British Menopause Society says this is the preferred choice for menopausal women under the age of 60 and has the added benefit of reducing other menopause symptoms.[5] For women with premature or early menopause - it is very important that they are offered HRT/MHT at least until the age of 51 for prevention of osteopenia.

- Tibolone and Raloxifene are medications which may also be considered as they mimic the action of oestrogen.

- Bisphosphonates are another type of medication that can be taken orally or given as an injection every few years.

- Denosumab is yet another choice. It is a 6-monthly injection.

All medications have risks, side effects and benefits and different treatments may be the first line option for different individuals based on their medical history and choice - so speak to your health professional about which is the most appropriate one for you for long-term use.

Useful resources

The Royal Osteoporosis Society (https://theros.org.uk/)
The NHS (https://www.nhs.uk/conditions/osteoporosis/)
The National Osteoporosis Guideline Group (https://www.nogg.org.uk/full-guideline/section-2-introduction-osteoporosis-and-fragility-fractures)
The Osteoporosis Foundation(https://www.osteoporosis.foundation/)
The Jean Hailes Foundation (https://www.jeanhailes.org.au/health-a-z/bone-health/osteoporosis-and-osteopaenia)

References:

1] https://www.osteoporosis.foundation/sites/iofbonehealth/files/scope-2021/UK%20report.pdf

[2] https://www.osteoporosis.foundation/sites/iofbonehealth/files/scope-2021/UK%20report.pdf

[3] Neer RM; SWAN Investigators. Bone loss across the menopausal transition. Ann N Y Acad Sci. 2010 Mar;1192:66-71. doi: 10.1111/j.1749-6632.2009.05233.x. PMID: 20392219; PMCID: PMC3198834.

https://pmc.ncbi.nlm.nih.gov/articles/PMC3198834/#S3

[4] Endocrine Society
https://www.endocrine.org/patient-engagement/endocrine-library/menopause-and-bone-loss

[5] https://thebms.org.uk/publications/consensus-statements/prevention-and-treatment-of-osteoporosis-in-women/

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