

**Osteoporosis** is a condition that causes bones to become weaker and more fragile. It affects over 3 million people in the UK and increases the risk of fractures occurring; most commonly in the wrist, hip and vertebra (spinal bones) by 15% (Chan et al, 2003). It also has an effect on a person's posture, causing a stooped or flexed posture. This blog will inform you further on osteoporosis and the role APPI Pilates can play in effective management following diagnosis. Bones are constantly changing throughout our lives. There are 2 main sets of cells that aid regeneration of bone (bone turnover): osteoclasts break down old bone, and osteoblasts replace the bone. Between our mid 20s and 30s our bone mass density (BMD) remains relatively stable, but after the age of 35, there is a natural gradual loss of bone. This loss becomes more rapid following menopause hence why osteoporosis is more common in women over the age of 50. This is due to the falling levels of oestrogen that causes the osteoclasts to work harder than the osteoblasts.

**Other factors that increase the risk of developing osteoporosis include:**

- early menopause or hysterectomy
- long term use of high dose oral steroids or other medicines that affect bone strength or hormone levels
- other medical conditions e.g. inflammatory/hormone-related/malabsorption conditions
- a family history of osteoporosis
- having a low body mass index (BMI)
- heavy alcohol intake and smoking

If you suspect that you have osteoporosis then it is important to discuss this with your GP. They can assess your risk level using an online programme called FRAX. This enables them to calculate the 10 year probability of you suffering a fracture of your spine, hip, shoulder or forearm. They will also review the need to refer you for a DEXA scan which measures your BMD. There is also a condition called osteopenia which means that your BMD is not as low as what would be considered osteoporosis, but it is important for you to be aware of this diagnosis and to act to improve your BMD.

Your GP may prescribe medication to improve your levels of calcium and vitamin D. Calcium is important in enabling bone to be rebuilt and vitamin D is imperative for the body to be able to absorb calcium. Other ways to improve these levels include a healthy diet including foods rich in calcium and vitamin D (e.g. dairy products, dark leafy greens, nuts and fish), using supplements, maintaining a healthy lifestyle and enjoying some safe sun (always using sun screen as appropriate).

Exercise, including Pilates, is very important when a diagnosis of osteoporosis or osteopenia is made. The benefits of exercise are maintaining bone mass, improving strength and flexibility, and improving balance which in turn reduces the risk of falls and therefore risk of fractures. Weight bearing (3-5 times per week) and resistance/strength exercise (2-3 times per week) help increase BMD by stimulating bone growth. Resistance/strength training is particularly important in increasing BMD and therefore reducing the risk of fractures occurring (Senderovich et al, 2017). Exercises for osteoporosis focus on extension (bending backwards) and rotation, and minimise the use of flexion (bending forwards) to reduce the pressure on the vertebra (Meeks, 2004). Balance focused exercises have been shown to reduce a person's risk of falls by 25% (NIH consensus development conference statement, 2000).

Below is one exercise That is recommended More to come.....

### Breast Stroke Prep Level 1 - for upper spinal strength (extension)

- Lying down on your front, rest your forehead on a small cushion/folded towel. Keep the back of the neck long and rest your arms by your sides with palms upwards. Slightly tuck your tailbone underneath you (imagine you are tucking a tail between your legs)
- Inhale to prepare
- Exhale, slide the shoulder blades down towards your hips and lift the arms to hover 1-2" from the floor
- Inhale and hold the position
- Exhale, relax the shoulders and arms to return to the starting position
- Repeat 10 times

