

# BONE HEALTH

Maintaining strong bones across the lifespan is important for our overall health, independence and quality of life.

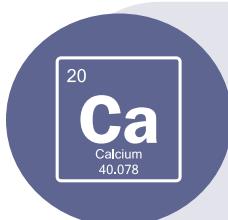


## The Basics

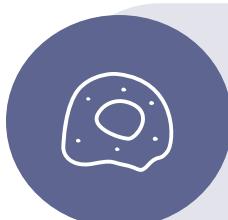
Our bones provide structure to the body, protect our internal organs, allow movement and store essential minerals, like calcium. Bones are made up of protein, minerals and bone cells.



Collagen is a **protein** that gives bones structure and flexibility, so they can absorb stress without breaking.



**Minerals** like calcium and phosphorus bind to collagen to add strength and hardness to bones.



**Bone cells** create, maintain and remodel bones in response to pressures from our environment.

Peak bone mass is determined by both our **genetics** and **lifestyle factors**.



**Genetics** play a key role in determining the structure, size and density of our bones.



**Lifestyle factors** play a crucial role in whether we reach our *optimal* peak bone mass.

The choices we make in our youth have a big impact on whether we reach our optimal peak bone mass.



## Bone Loss

After we reach peak bone, the processes of bone breakdown slowly start to outpace bone regrowth, leading to a natural decline in bone mass as we age.

Bone loss typically accelerates after **age 65 for men**, and around the time of menopause – typically **age 50 – for women**.

## Osteoporosis

Osteoporosis is a condition where bones lose too much density and become weak, making them more likely to break.

Osteoporosis can occur at any age but is most common in adults over 50.

## Bone Remodelling

Bones are **living tissues**. Our bones are constantly being broken down and rebuilt through a process called **remodelling**.

Bone remodelling allows our bodies to adapt to stress, recover from injury, maintain mineral balance in our bloodstream, and grow throughout our childhood and adolescence.

## Peak Bone Mass

Most people reach their maximum bone size and strength, or **peak bone mass**, between the ages of 25 and 30.

# Risk Factors

Risk for osteoporosis is influenced by several factors. Some of these factors can be modified through healthy lifestyle habits, while others, like age, gender and family history, are beyond our control.



**Age:** While osteoporosis can occur at any age, our risk increases as we get older.



**Sex:** Women are at higher risk due to lower peak bone mass and hormonal changes.



**Genetics:** If you have a family history of osteoporosis, you're more likely to develop it.



**Hormone changes:** Low estrogen (due to menopause or an absent period) is a big risk factor.



**Medical conditions:** Certain conditions, like diabetes and rheumatoid arthritis, increase risk.



**Medications:** Long-term use of some medications, like prednisone, speeds up bone loss.



**Nutrition:** Insufficient intake of calcium and vitamin D has a negative impact on bone health.



**Substances:** Smoking and excessive alcohol intake both contribute to bone loss.

Being proactive about osteoporosis prevention is the key to maintaining strong bones and reducing the risk of bone fractures as we age.

# Bone Mineral Density

Osteoporosis is diagnosed with a **bone mineral density test**, also known as a **DXA scan**. This is a special X-ray test that measures how strong your bones are.

A bone mineral density test usually takes about 5-20 minutes to complete. You will lie on a table and a scanner will move over the body to take x-rays of the lower spine, hip and forearm.

## Results

Your bone mineral density test result is given as a numbered score, called a **T-score**. A T-score compares your bone mineral density to the average peak bone mass of a healthy young adult of the same sex.

Your result will fall into one of three categories:



**Normal:** A T-score of -1 or higher means that your bones are healthy.



**Low:** A T-score of -1 to -2.5 means that you have low bone density (osteopenia).



**Osteoporosis:** A T-score of -2.5 or lower means you have osteoporosis.

## Treatment

Treatment recommendations are based on your overall risk of fracture within the next 10 years. Treatment may include medication to help slow bone loss, physical activity, and lifestyle changes aimed at protecting bone health.