

Keep your **bones** strong and healthy

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BONES are a very important organ in our body and have many functions. Its role includes providing structure, protecting internal organs, anchoring muscles and storing calcium. They also facilitate movement and are important for blood cell formation. Therefore, maintaining bone health is very important for everyone.

Normal bone metabolism is the complex sequence of bone turnover (osteoclast activity) and bone formation (osteoblast activity). The bones are continuously changing, where the old bones are broken down and replaced by new bones. This process is regulated by hormones such as parathyroid hormones, calcitonin, oestrogen, androgens, growth hormone, thyroid hormones, Vitamin D and steroids such as glucocorticosteroids.

Consultant orthopaedic surgeon at MSU Medical Centre Dr Ruzaimi Md Yusoff says, “Most people reach their peak bone mass around the age of 30. After that, bone remodelling continues, but you lose slightly more bone mass than you gain because of a decrease in osteoblast activity.

“The higher the peak of bone mass, the less likely for us to develop osteoporosis at a younger age.”

What affects bone health

The following are the risk factors which can affect bone health. Modifiable risk factors are:

- **Diet.** A low calcium intake will cause low bone density and will lead to early bone loss causing a higher risk of fractures. Not getting enough vitamin D can also increase the risk of osteoporosis.
- **Physical activity.** Not exercising and not being active for long periods can increase the chances of getting osteoporosis.
- **Body weight.** Maintaining an ideal body weight is important for bone health. This is because an extremely thin individual will have lesser bone mass.
- **Smoking.** Research suggests that tobacco will increase the risk of osteoporosis. Women who smoke also go through menopause earlier than those who don't smoke.
- **Alcohol.** People who consume a lot of alcohol are more likely to get osteoporosis.
- **Medicines.** Certain medications can affect bone health. Prolonged usage of corticosteroid medications such as cortisone, prednisolone and dexamethasone can be damaging to the bone.

Non-modifiable risk factors are:

- Age. Advanced age causes thinning and weakening of the bone.
- Gender. Women have a greater risk of osteoporosis as they have less bone tissue than men. Women also lose bone faster than men because of hormonal changes that occur after menopause.
- Ethnicity. Caucasian and Asian women are more prone to osteoporosis.
- Family history. A strong family history of osteoporosis predisposes an individual to develop osteoporosis at an earlier age.

Maintaining healthy bones

Maintaining bone health is important to prevent or slow down the process of bone loss. Dietary calcium intake is extremely important. The recommended dietary allowance (RDA) of calcium for female adults aged 19 to 50 years and males aged 51 to 70 years is 1,000mg per day. The recommendation increases to 1,200mg a day for women aged 51 years and older and for men aged 71 years and older.

Good sources of calcium include dairy products, almonds, broccoli, kale, canned salmon with bones, sardines and soy products such as tofu.

Calcium supplements may also be prescribed by a doctor if needed.

Adequate vitamin D intake is important for calcium absorption. For adults aged 19 to 70 years, the RDA of vitamin D is 600 international units (IUS) a day. The recommendation increases to 800IUS a day for adults aged 71 years and older.

Good sources of vitamin D include oily fish such as salmon, trout, whitefish and tuna. Sunlight also contributes to the body's production of vitamin D. Supplements may also be prescribed if indicated.

Physical activity especially weightbearing exercises such as walking, jogging and climbing stairs can build strong bones and slow the process of bone loss. Last but not least, avoid smoking and limit alcohol intake to help delay osteoporosis.

Signs of bone health problems

There are some signs of osteoporosis that we should look out for:

- Receding gums. A dentist might be the first person to spot signs of osteoporosis. Research suggests that if there is significant bone loss in the jaw, it could be a sign of bone loss in other areas of your body.
- Chipped or brittle nails. Chipping a nail frequently could be a sign that other bones may also be brittle. Those who have low levels of collagen or calcium in their nails also do not have enough calcium in their bones.
- Weakened grip. Have you started to notice that you cannot turn the doorknob easily? The strength of the handgrip and the density of the bones in the arms, hips and spine are directly related.
- Fractured bones. The hips, spine and wrists are the most common body parts to fracture. Fractures occur from trivial trauma such as slight knocks, bending over or lifting items.

When to see a doctor

It's important to seek medical attention for any type of bone pain, especially if the pain is severe, persistent, worsening over time or associated with swelling, redness, warmth, a

fever, unintentional weight loss or a palpable mass or lump.

Since osteoporosis does not have any symptoms until a bone breaks, it is important to talk to your doctor about your bone health.

If your doctor feels that you are at risk for osteoporosis, a bone density test may be performed to measure the density of your bones, and assess for osteoporosis and risks of breaking a bone.

Doctors may prescribe medicine if your bones are weak and have a higher risk of osteoporotic fracture in the future. These include bisphosphonates, oestrogen agonists/antagonists, calcitonin, parathyroid hormone, oestrogen therapy and hormone therapy.