BONE CARE FOR THE POSTMENOPAUSAL WOMAN *Fact Sheet*

International Osteoporosis Foundation

WorldOsteoporosisDay October20 | LOVE YOUR BONES

Why postmenopausal women are at greatest risk

- Between the ages of approximately 25 and menopause, bone resorption (breakdown) and formation are balanced to maintain total bone mass. After menopause, bone resorption exceeds bone formation, leading to a rapid decline in bone mass.
- Menopause-induced bone loss is most severe after surgical removal of the ovaries, or from the use of aromatase inhibitor therapy in cancer patients.

The burden of osteoporosis and fractures on postmenopausal women

- With the exception of lung cancer, fractures caused by osteoporosis account for more combined deaths and morbidity than any cancer type.
- Worldwide, one in three women aged over 50 years will suffer a fracture caused by osteoporosis.
- In women aged over 45 years, osteoporosis accounts for more days spent in hospital than many other diseases, including diabetes, myocardial infarction (heart attack) and breast cancer.

How women can reduce osteoporosis and fracture risk

- An individual's risk of developing osteoporosis and fragility fractures is determined by a number of factors, some of which can be changed (modifiable) while others cannot (non-modifiable).

MODIFIABLE RISK FACTORS

Exercise

See 'Exercise Tips' for more information

- Exercise maintains bone strength and increases muscle mass in order to improve balance and strength, which are important risk factors for falls and fractures.
- Individuals with a sedentary lifestyle are more likely to have a hip fracture than those who are more active.
- Exercises to improve posture and reduce rounded shoulders may reduce fracture risk, particularly at the spine.
- An exercise programme for people with osteoporosis should specifically target posture, balance, gait, coordination, and hip and trunk stabilization rather than general aerobic fitness.

Nutrition

See 'Nutrition Tips' for more information

Calcium

- Calcium is a major building block of our skeleton. Calcium in our bones acts as a reservoir for maintaining levels in the blood, which is essential for nerve and muscle function.
- Calcium needs change throughout life and are higher in the teenage years during the period of rapid growth, as well as in people aged over 50, as the body's ability to absorb calcium declines with advancing age.
- Recommended daily calcium intake varies country to country. World Health Organization/Food and Agriculture

Organization recommendations for postmenopausal women are 1300 mg daily.
- Diet should be the primary source of calcium. For people who cannot get enough through their diet, calcium (or calcium with vitamin D) supplements may be beneficial. Calcium supplements should however be limited to 500–600 mg per day.

Vitamin D

- Vitamin D is primarily synthesized in the skin after sun exposure and plays a crucial role in bone and muscle development, function and preservation.
- Vitamin D can contribute to reducing fracture risk by regulating calcium levels in the body, and by improving muscle performance and balance – thus reducing falls risk.
- IOF vitamin D recommendations are 800–1000 IU per day for fall and fracture prevention in adults aged 60 and older.
- Low levels of vitamin D in the population are a cause of concern around the world, with insufficiency prevalent globally.

Protein

- Body composition changes after middle age, including increases in fat mass and decreases in lean muscle mass.
- Studies show that participants with the highest protein intake lost 40% less lean mass than those with the lowest protein intake.
- In order for the beneficial effect of protein on bone mass density (BMD) to be realized, it should be accompanied with adequate calcium intake.

Acid-base balance of the diet

- Acidic environment may have negative effects on bone preservation. This occurs when the intake of acid-producing foods (cereal grains and protein), is not balanced by enough alkali-producing fruits and vegetables.
- Diets rich in fruit and vegetables have been shown to be associated with higher BMD and/or lower propensity for bone loss.

Lifestyle factors

- **SMOKING** current and past smokers are at increased risk of any fracture, compared to non-smokers. It is also associated with several risk factors for osteoporosis including early menopause and thinness.
- **ALCOHOL** long-term heavy alcohol use increases fracture risk and the risk of falls.
- **MAINTAINING A HEALTHY WEIGHT** people with a body mass index (BMI) of 20 kg/m^2 have a two-fold increased risk of fracture compared to people with a BMI of 25 kg/m^2.
- **PREVIOUS FRAGILITY FRACTURES** a prior fracture at any site is associated with a doubling of risk for future fracture. Postmenopausal woman who have suffered a fragility fracture should seek advice from a doctor on how to reduce their future risk.

NON-MODIFIABLE RISK FACTORS

- Family history of osteoporosis and fractures: genetics have a considerable influence on an individual's peak bone mass.
- Medications: patients taking any of the following medications should consult with their doctor about increased risk to bone health: glucocorticosteroids; certain immunosuppressants; excess thyroid hormone treatment; certain steroid hormones; aromatase inhibitors; certain antipsychotics, anticonvulsants or antiepileptic drugs; lithium; antacids; proton pump inhibitors.
- Glucocorticoid treatment is the most common cause of drug-induced osteoporosis, with rapid bone loss occurring in the first 6 months of treatment.
- Diseases of malabsorption.
- Rheumatoid arthritis.
- Premature menopause (before age 40 years) and early menopause (between ages 40–45 years).

Actions to take for a break-free future

- Menopause is a critical point in a woman's lifetime to discuss bone health with her primary care provider.
- Regardless of risk, women should take preventative action.
- Doctors should use fracture risk assessment calculators such as FRAX® to identify those individuals who are at increased risk of fracturing in the near future.
- Patients at high risk need drug therapies: the most commonly available drug therapies for the treatment of osteoporosis and prevention of fractures include bisphosphonates, denosumab, raloxifene, strontium ranelate, and teriparatide.
- Overall, the common medically approved therapies have been shown to be safe and effective. While it is important to be aware of possible adverse effects, patients and doctors should keep in perspective the risk of stopping treatment versus the rare occurrence of serious side effects.
- Patients must adhere to treatment plans: up to half of osteoporosis sufferers stop their treatment after only one year. By adhering to treatment, patients benefit from larger increases in BMD, lose less bone mass, and reduce their fracture risk.