



# STRONG BONES

## START WITH KNOWLEDGE

Learn about the risk factors for osteoporosis and  
take a simple risk check

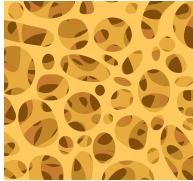


WorldOsteoporosisDay  
October20



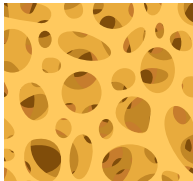
# WHY OSTEOPOROSIS MATTERS

OSTEOPOROSIS



**Osteoporosis is a common condition that weakens bones, making them fragile and more likely to break** – sometimes from something as simple as a minor fall, a bump, or even a sneeze. Worldwide, up to **1 in 3 women and 1 in 5 men over 50 will have a fracture caused by weak and fragile bones**. These fractures can be painful, disabling, and even life-threatening.

NORMAL BONE



Strong bones, together with strong muscles, help you stay active, independent, and mobile as you age. Your bone health can affect your quality of life more than you might think. For women over 45, fractures due to osteoporosis actually cause more hospital days than diabetes, heart attacks, or breast cancer.

## Fractures due to osteoporosis can have serious consequences

They often lead to the **need for care** and can **limit your independence**. Spine fractures can cause **chronic pain, reduced height**, and a **curved spine, affecting mobility and daily life**. Less than half of people who survive a hip fracture regain their previous level of activity, and sadly, about **1 in 4 may die within a year**.

### THE GOOD NEWS:

**Osteoporosis can be detected and treated.** Early prevention can start by understanding your risk. This is an important first step toward protecting your bones, maintaining your independence, and staying active in the years ahead.



# CAN OSTEOPOROSIS BE PREVENTED?

**Yes — often it can, especially if you take action early.** While some risk factors, like family history, are out of your control, there are practical steps you can take to protect your bones and fight this “silent” disease.

## BE PROACTIVE!

It's never too early — or too late — to adopt a bone-healthy lifestyle.

### Simple habits can make a big difference:

#### STAY ACTIVE

Do regular weight-bearing and muscle-strengthening exercises

#### MAINTAIN A HEALTHY BODY WEIGHT

Avoid being too thin: A Body Mass Index of less than 19 kg/m<sup>2</sup> (BMI 19) is linked to higher risk of osteoporosis

#### EAT WELL

Choose a balanced diet rich in calcium, protein, vitamin D, and other nutrients such as magnesium, vitamin K, among others

#### AVOID RISK FACTORS

Don't smoke and limit alcohol intake

**For people at high risk of fractures, a healthy lifestyle alone may not be enough.**

In these cases, your doctor may recommend medications to help strengthen your bones and reduce the risk of future fractures.



# 5 STEPS TO HEALTHY BONES AND A FRACTURE-FREE FUTURE



## 1. EXERCISE REGULARLY

**Weight-bearing, muscle-strengthening and balance-training** exercises are best.



## 2. ENSURE A DIET RICH IN BONE-HEALTHY NUTRIENTS

**Calcium, vitamin D and protein** are the most important for bone health. Safe exposure to sunshine will help you get enough vitamin D.



## 3. AVOID NEGATIVE LIFESTYLE HABITS

Maintain a healthy body weight, **avoid smoking and excessive drinking**.



## 4. FIND OUT WHETHER YOU HAVE RISK FACTORS

**Discuss risk factors with your doctor**, especially if you've had a previous fracture or have specific diseases and medications that affect bone health.



## 5. GET TESTED AND TREATED IF NEEDED

**If you're at high risk** you will likely need medication to ensure optimal protection against fracture.

One of the most important steps you can take to protect your future is recognizing whether you have risk factors for osteoporosis.

Identifying these risk factors early allows you to take preventive steps — helping you maintain healthier bones and reduce the chance of fractures as you age.

Here are some common **modifiable risk factors** — meaning you can change them to protect your bone health and lower your risk of osteoporosis and fractures:



## RISK FACTORS YOU CAN CHANGE

### SMOKING

We all know smoking is harmful — but many don't realize it increases the risk of fractures. Current or former smokers have a higher chance of breaking bones, with the **risk of hip fracture up to 1.8 times higher than nonsmokers.**

### EXCESSIVE ALCOHOL CONSUMPTION

Drinking more than 2 units of alcohol daily **raises the risk of osteoporotic fractures by 40%** compared to moderate or non-drinkers. Cutting back benefits not only your bones but your overall health.

### LOW BODY MASS INDEX (BMI)

Maintaining a healthy weight is important for bone health. **A BMI below 19 is considered underweight and increases osteoporosis risk.** Low BMI may also be linked to poor nutrition and insufficient intake of key bone-building nutrients.

## POOR NUTRITION

A diet rich in calcium, protein, as well as other nutrients contained in fruits and vegetables, supports bone and muscle health at all ages.

- **Malnutrition** is a particular concern in seniors, who are more vulnerable to osteoporosis, falls, and fractures.
- **Calcium supplementation** may be recommended for people who cannot reach the recommended amounts through diet alone.
- **Vegan and vegetarian** diets have been associated with a higher risk of fractures; therefore, individuals following these diets should ensure they are getting enough calcium and protein.

## VITAMIN D DEFICIENCY

Vitamin D is produced in the skin through **exposure to the sun's ultraviolet rays** and is essential for bone health because it helps the body absorb calcium. Few foods naturally contain vitamin D, and sunlight is not always a reliable source.

As a result, deficiency is common — especially in the elderly, those who stay indoors, or during winter at northern latitudes. The IOF recommends vitamin D supplements for at-risk individuals and for seniors aged 60 and over.

## FREQUENT FALLS

About **90% of hip fractures result from falls**. Poor eyesight, poor balance, neuromuscular dysfunction, dementia, immobility, and the use of sleeping pills — all common in older adults — significantly increase fall risk. Those prone to falls should “fall-proof” their homes and improve muscle strength and balance through targeted exercises.

## NOT ENOUGH EXERCISE

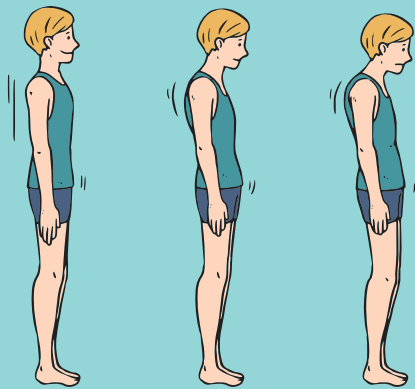
The saying “**move it or lose it**” highlights that inactivity leads to increased bone loss. Regular weight-bearing and muscle-strengthening exercise is therefore essential. **Adults with sedentary lifestyles lose bone more rapidly**, and studies show they are more likely to suffer a hip fracture than more active individuals.

## EATING DISORDERS

Conditions like **anorexia and bulimia**, which can cause extreme weight loss, are dangerous for bone health. In young women, they may lead to **estrogen deficiency** — similar to menopause — and severely reduced calcium intake, resulting in rapid bone mineral loss.

## TAKE OUT THE MEASURING TAPE!

**Height loss** of over 4 cm (just over 1 1/2 inch) may be a sign of osteoporosis-related vertebral (spine) fractures. Vertebral fractures may also cause a curved spine or humped back.



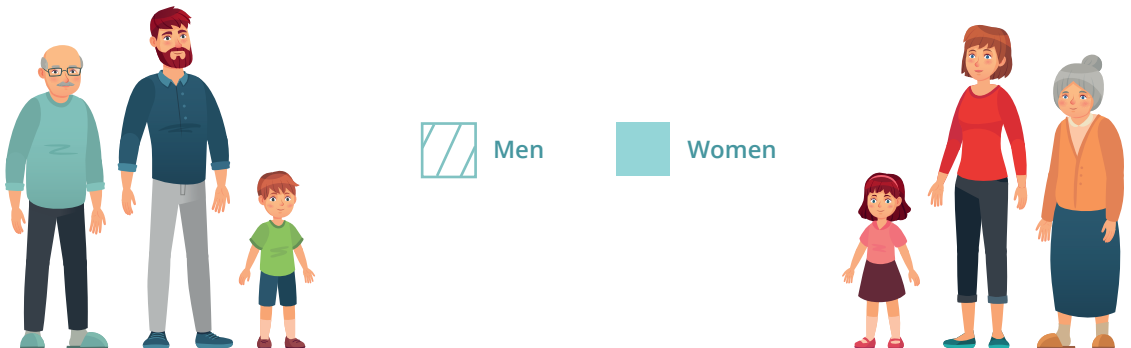
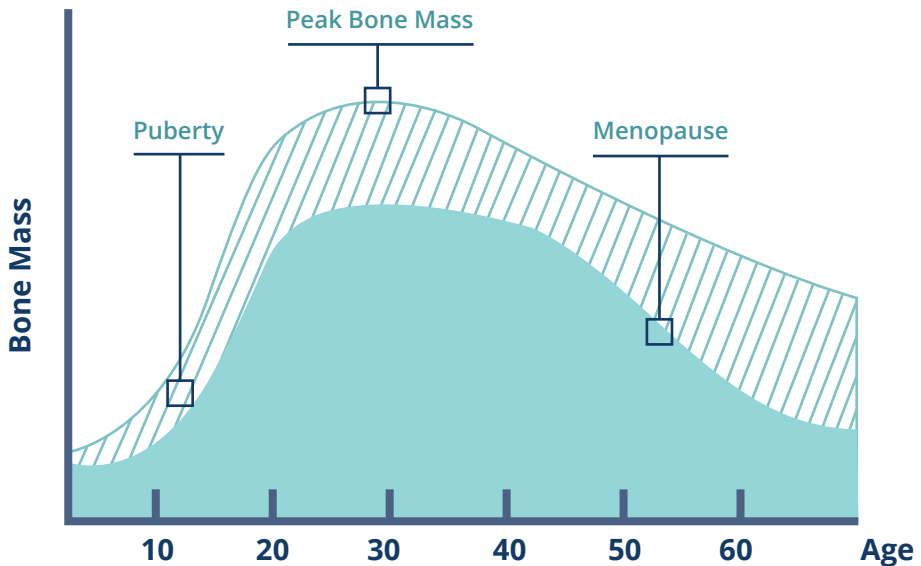


## RISK FACTORS YOU CAN'T CHANGE

Your risk of osteoporosis is **influenced by age, gender, and ethnicity**. Generally, the **older you are, the higher your risk**. **Women** are more prone to bone loss than men, especially during the rapid bone loss that occurs at menopause.

However, **men too may develop osteoporosis**—about 20–25% of hip fractures happen in older men, who also face a higher risk of disability and death following a fracture. Osteoporosis is also **more common in people of Caucasian and Asian descent**, likely due to differences in bone mass and size.

### BONE MASS ACROSS THE LIFESPAN





## THE FOLLOWING RISK FACTORS SHOULD PROMPT YOU TO **SEEK A BONE HEALTH ASSESSMENT:**

### **AGE**

The risk of osteoporosis increases with age. Even if you have no other clinical risk factors, if you are a woman aged 60 years or over, or a man aged 70 years or over, you should discuss bone health at your next check-up.

### **FAMILY HISTORY**

Genetics and shared lifestyle and dietary factors will contribute to your peak bone mass and the rate of bone loss at older age. If one of your parents has had a broken bone, especially a broken hip, you are at higher risk of osteoporosis.

### **PREVIOUS FRACTURE**

People who have already sustained an osteoporotic fracture are almost twice as likely to have a second fracture compared to people who are fracture free. If you've broken a bone after the age of 50 years you should be assessed for osteoporosis. In most cases treatment should be prescribed to prevent the high likelihood of future fractures.



1<sup>ST</sup> FRACTURE  
OCCURS



TALK TO  
YOUR DOCTOR



2<sup>ND</sup> FRACTURE  
AVOIDED





## CERTAIN MEDICATIONS

Some medications may have side effects that directly weaken your bones or increase the risk of fractures due to falls.

Patients taking any of the following medication should consult with their doctor about increased risk to bone health:

- **Glucocorticoids**, often known as “steroids”, used to treat inflammation in various disorders (*e.g. prednisolone tablets for 3 months or longer*)
- **Aromatase inhibitors** used to treat breast cancer
- **Androgen deprivation therapy** used to treat prostate cancer
- **Thiazolidinediones** used to treat diabetes (*e.g. pioglitazone*)
- **Immunosuppressants** used after transplantation surgeries (*e.g. calcmodulin/calcineurin phosphatase inhibitors*)
- **Antidepressants** used to treat depression, obsessive compulsive disorder etc. (*e.g. selective serotonin reuptake inhibitors (SSRI) like fluoxetine, fluvoxamine and paroxetine*)
- **Anticonvulsant or antiepileptic drugs** used to treat seizures (*e.g. phenobarbital, carbamazepine and phenytoin*)
- **Proton pump inhibitors (PPI)**

**Note:** *GLP-1 receptor agonists are increasingly prescribed for the treatment of diabetes and obesity. While the impact of weight loss is usually negative for bone and muscle mass, this may not necessarily be true for these medications and the impact on the likelihood of fracture is unclear. Combining adequate exercise exposure and increased protein intake is often recommended to prevent or minimise any negative effects on bone and muscle. Please discuss with your prescriber.*

## CERTAIN MEDICAL DISORDERS

Some diseases, as well as the medications used to treat them, may weaken bones and increase the risk of fractures. Among the more common diseases and disorders that may place you at risk are:

- **Rheumatoid arthritis**
- **Digestive tract diseases** (*inflammatory bowel disease - IBD, coeliac disease*)
- **Prostate or breast cancer**
- **Diabetes**
- **Chronic kidney disease**
- **Thyroid or parathyroid gland disorders**
- **Lung disorder** (*chronic obstructive pulmonary disease - COPD*)
- **Low testosterone** (*hypogonadism*)
- **Early menopause**, periods stopped, or ovaries removed (*low estrogen levels due to hypogonadism*)
- **Prolonged immobility/paralysis** (*e.g unable to walk unaided*)
- **HIV**

## EARLY MENOPAUSE/ HYSTERECTOMY

**Estrogen helps protect your bones, but after menopause the body produces much less, and bone loss speeds up.** Women who experience early menopause or have their ovaries removed before age 45 without taking hormone replacement therapy (HRT) are at higher risk of osteoporosis. Similarly, women who have not had a period for 12 months or more (other than due to pregnancy) are also at increased risk. For some women HRT may help slow down bone loss, when initiated before the age of 60 years or within 10 years after menopause.

## PRIMARY/SECONDARY HYPOGONADISM IN MEN

**Hypogonadal young men with low testosterone levels often exhibit reduced bone density, which can be improved with testosterone replacement therapy.** Regardless of age, acute hypogonadism — such as that induced by orchiectomy for prostate cancer — accelerates bone loss at a rate comparable to that seen in menopausal women. This post-orchiectomy bone loss is rapid over the first few years, and treatment is generally recommended for prevention.

# HAVE RISK FACTORS?

## TALK TO YOUR DOCTOR AND ASK FOR TESTING

Complete the **IOF Osteoporosis Risk Check** on the following pages (or online at <https://riskcheck.osteoporosis.foundation>. QR Code available on the last page).

The Risk Check asks 8 simple questions, which will alert you to key risk factors you may have.



If you are over the age of 50 years and have one or more risk factors you should ask your doctor for a bone health assessment.

### To help assess your bone health status your doctor may use:



An online fracture risk assessment tool, for e.g. **FRAX®**, which estimates your risk of having a major osteoporotic fracture within the next 10 years.



Depending on your level of risk, or on your age and other personal clinical factors, you may be given a **bone mineral density (BMD) test**. The most commonly used test is DXA (dual-energy X-ray absorptiometry), a low radiation X-ray capable of detecting very small percentages of bone loss.

# EFFECTIVE TREATMENT OPTIONS TO PROTECT YOUR FUTURE

Based on your clinical assessment, your doctor may recommend: calcium and vitamin D supplementation, other supplements, exercise, falls prevention strategies, and **possibly pharmacological treatment with ongoing follow-up.**



**Patients at high risk of fractures** often need medication to protect their bones effectively. Today, there is a wider range of treatment options than ever before. The choice of therapy depends on your individual risk profile, including the type of fracture you are at risk for, any other medical conditions, and medications you may already be taking.

**Approved treatments** have been shown to be safe and effective at reducing the risk of osteoporosis-related fractures. Like all medications, they may cause side effects. For people at high risk of fracture, the benefit of a treatment in decreasing the risk of fracture far outweighs the rare occurrence of serious side effects. If you have any concerns, be sure to discuss them with your doctor.

## TALK TO YOUR DOCTOR

If you are prescribed medication, it's crucial to take it as advised. Talk to your doctor if you experience any difficulties.

**After all, no treatment can work if it isn't taken correctly.**



# OSTEOPOROSIS RISK CHECK

## 1. Are you aged 60 or older?

- Yes  No

## 2. Did you break a bone after age 50?

- Yes  No

## 3. Are you underweight?

- Yes  No

To calculate your BMI in case you do not know it	BMI Value	Meaning
$\text{BMI} = \frac{\text{Metric units weight in kilograms}}{\text{height in meters}^2}$	Below 19.0 19.1 to 24.9 25.0 to 29.9 Above 30.0	Underweight Normal/Healthy Overweight Obese

If you have ticked yes to 2 or more of the above questions, your replies suggest that you may have major risk factors for osteoporosis and fractures. We encourage you to ask for assessment and to discuss strategies to reduce your risk for osteoporosis-related fractures with your doctor.

## 4. Do you have any of the following disorders?

- Rheumatoid arthritis
- Digestive tract diseases (inflammatory bowel disease (IBD), coeliac disease)
- Prostate or breast cancer
- Diabetes
- Chronic kidney disease
- Thyroid or parathyroid gland disorders (hyperthyroidism, hyperparathyroidism)
- Lung disorder (chronic obstructive pulmonary disease (COPD))
- Low testosterone (hypogonadism)
- Early menopause, periods stopped, ovaries removed (low oestrogen due to hypogonadism)
- Prolonged immobility (unable to walk unaided)
- HIV
- I do not know, but I will ask my doctor
- None of the above

## 5. Have you been treated with any of the following medications?

- Glucocorticoids, or "steroids", used to treat inflammation (e.g. prednisone tablets for 3 months or longer)
- Aromatase inhibitors used to treat breast cancer
- Androgen deprivation therapy used to treat prostate cancer
- Thiazolidinediones used to treat diabetes (e.g. pioglitazone)
- Immunosuppressants used after transplantation surgeries (e.g. calcmodulin/calcineurin phosphatase inhibitors)
- Antidepressants used to treat depression, obsessive compulsive disorder etc. (e.g. selective serotonin reuptake inhibitors (SSRI))
- Anticonvulsant or antiepileptic drugs used to treat seizures (e.g. phenobarbital, carbamazepine and phenytoin)
- I do not know, but I will ask my doctor
- None of the above

## 6. After the age of 40, have you lost more than 4 cm in height (ca. 1.5 inches)?

- Yes     No     I do not know

## 7. Have either of your parents had a hip fracture?

- Yes     No

## 8. Do you drink excessive amounts of alcohol (> 3 units a day) and/or smoke?

- Yes     No

# UNDERSTANDING YOUR ANSWERS

If any risk factors apply to you, it does not mean that you have osteoporosis, just that you may have a greater chance of developing this condition. In this case, be sure to discuss bone health with your doctor, who may advise a bone health assessment.

# TIME TO TAKE ACTION FOR BONE HEALTH

Now that you know your osteoporosis risk factors, you've taken an important step toward staying strong and independent. Even if none apply today, **stay alert to future risks and start bone-healthy habits** — your bones will thank you!

For further information about osteoporosis, contact your local osteoporosis society or visit the following websites:



[www.buildbetterbones.org](http://www.buildbetterbones.org)  
[www.osteoporosis.foundation](http://www.osteoporosis.foundation)

## COULD YOU BE AT RISK?



**Take the online test!**  
Available in more than **34 languages**

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9 rue Juste-Olivier, 1260 Nyon, Switzerland  
[info@osteoporosis.foundation](mailto:info@osteoporosis.foundation)

[www.osteoporosis.foundation](http://www.osteoporosis.foundation)  
[www.worldosteoporosisday.org](http://www.worldosteoporosisday.org)



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