

A MAN'S GUIDE TO OSTEOPOROSIS PREVENTION

WorldOsteoporosisDay
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DON'T LET OSTEOPOROSIS SLOW YOU DOWN

Appearances can be deceiving. Men who look strong on the outside, may actually be weak on the inside and don't realize it. Worldwide approximately one in five men over the age of 50 years will break a bone due to osteoporosis.

Most are neither identified nor treated for this 'silent' disease, even after they've had a fracture.

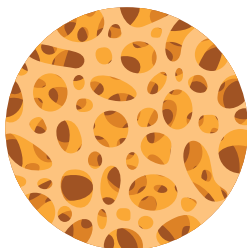


> AGE 50 WILL BREAK A BONE DUE TO OSTEOPOROSIS

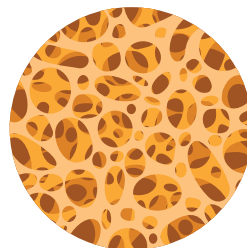
Osteoporosis is a disease which gradually weakens bones, leading to painful and debilitating fragility fractures (broken bones). These can occur after a minor fall from standing height, as a result of a bump, sneeze or even from bending over to tie a shoelace.

Any bone can break due to osteoporosis, but some of the most serious and common fractures are those of the spine and hip.

NORMAL BONE



OSTEOPOROTIC BONE



IT'S NOT JUST A WOMAN'S DISEASE

The common misconception is that osteoporosis affects only women, **BUT it affects millions of men** around the world too, with devastating consequences. Read the facts:

- ▶ **Broken bones cause immobility, long-term disability and severe pain:** the result is poor quality of life and loss of independence as men age.
- ▶ **Lifetime risk of fracture is greater than risk of developing prostate cancer:** few older men are on the alert for osteoporosis even though one in five will fracture.
- ▶ **One-third of all hip fractures worldwide occur in men:** studies also show that 37% of male patients die in the first year following a hip fracture.
- ▶ **Men more likely than women to suffer from serious consequences or death:** men are frequently older when they experience their first fracture.
- ▶ **Loss of productivity in the workplace due to fractures:** spinal fractures, in particular, can affect working men from the ages of 50-65 years and result in lost work days.

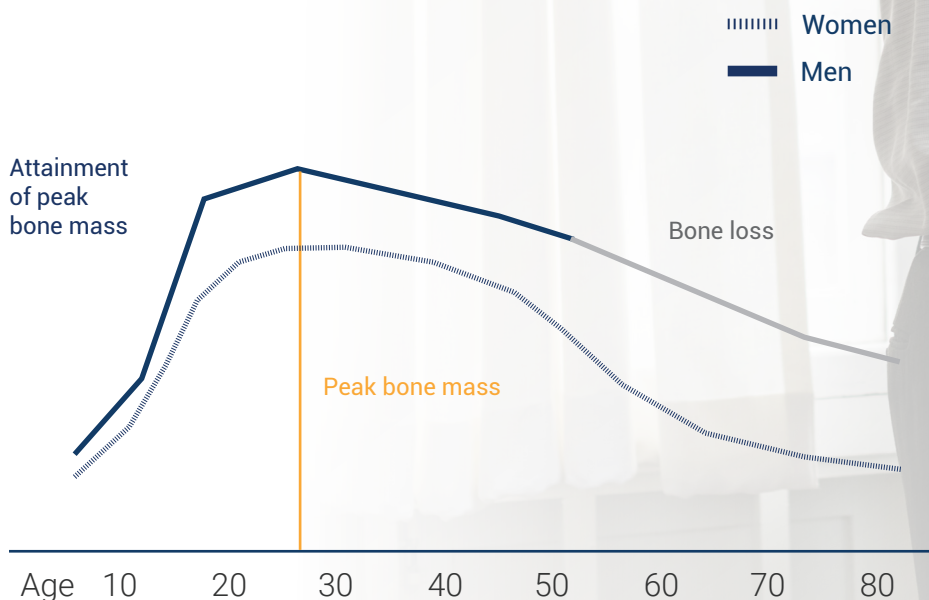
WHAT CAUSES OSTEOPOROSIS IN MEN?

Beware of the risk factors that cause excessive bone loss. By young adulthood men typically have built more bone mass than women. After around age 30 years, the amount of bone in the skeleton begins to decline as the formation of new bone does not keep up with the removal of old bone.

Men in their fifties do not experience the rapid loss of bone mass women do in the years following menopause. But by the age of approximately 70 years, men and women lose bone mass at the same rate, and the absorption of calcium (a mineral important to bone health) decreases in both sexes. Excessive bone loss causes bone to become fragile and more likely to fracture.


Find out whether you have risk factors which can speed up bone loss and lead to osteoporosis and broken bones.

Bone mass throughout the life cycle





WHAT ARE THE RISK FACTORS IN MEN?



Many of the same factors that put women at risk of osteoporosis and fractures apply to men too, although **men must look out for testosterone deficiency and medications related to prostate cancer therapy.**

MAJOR RISK FACTORS

Age

Bone loss increases with age, and in men accelerates more rapidly at around age 70 years.

Family history

If your parents had osteoporosis or a history of fractures you're at higher risk.

A previous broken bone at the age of 50 years or over

If you've broken a bone you're at double the risk of another fracture.



Long-term use of glucocorticosteroids (more than 3 months)

These prescription drugs (for e.g. prednisolone) are the most common cause of secondary osteoporosis. They are used for treating a variety of medical conditions including asthma and inflammatory arthritis.

Primary or secondary hypogonadism (testosterone deficiency)

This occurs in up to 12.3% of men, often resulting from defects of the testes. Androgen deprivation therapy (ADT), the most commonly used treatment for metastatic prostate cancer, also causes low testosterone levels.

Certain medications

In addition to glucocorticosteroids, other medications can also put you at increased risk.

These include, but are not limited to, some immunosuppressants, anticonvulsants, anti-epileptic drugs, and proton-pump inhibitors.

Some chronic diseases

Diseases that place you at risk include, but are not limited to:

- ▶ Rheumatoid arthritis
- ▶ Inflammatory bowel disease (e.g. Crohn's disease)
- ▶ Diseases of malabsorption (e.g. celiac's disease)
- ▶ Type 1 and type 2 diabetes
- ▶ Hyperparathyroidism
- ▶ Chronic liver or kidney disease
- ▶ Lymphoma and multiple myeloma
- ▶ Hypercalciuria
- ▶ Thyrotoxicosis

Watch out for these two common risk factors

- ▶ Testosterone deficiency (primary or secondary hypogonadism)
- ▶ Androgen deprivation therapy (ADT)

Are you getting shorter?

Measure your height and compare to the height listed on your passport. If you have lost more than 4 cm in height (just over 1.5 inches) this may mean you have had spinal compression fractures due to osteoporosis.

LIFESTYLE-RELATED RISKS

- ▶ Smoking
- ▶ Excessive alcohol consumption (more than 2 units a day)
- ▶ Poor diet (low levels of calcium, less than 600 mg per day)
- ▶ Vitamin D deficiency/insufficiency
- ▶ Lack of physical exercise or excessive exercise that leads to low body weight
- ▶ Low body mass index (BMI <20)

HOW TO ESTIMATE YOUR ALCOHOL CONSUMPTION

A unit of alcohol is equivalent to 10 ml (ca. 8 grams) of pure ethanol, the active chemical ingredient in alcoholic beverages. Excessive alcohol consumption increases the risk of osteoporosis and fractures.

Beer or cider

4% alcohol
250 mL/8.75 oz = 1 unit



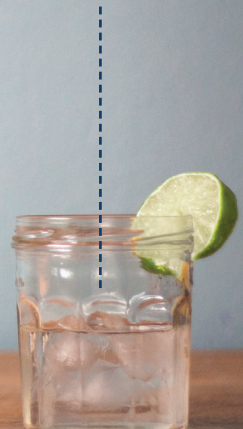
Wine

12.5% alcohol
80 mL/2.8 oz = 1 unit



Spirits

40% alcohol
25 mL/0.88 oz = 1 unit



SHOULD YOU BE TESTED?

Speak to your doctor and get tested if you are aged 70 years or over. If you're younger (aged 50-69 years) you should also be tested when risk factors are present. This is especially important if you have:

- ▶ **Suffered a fracture as a result of a fall from standing height or less since age 50 years**
- ▶ **Take glucocorticoid treatment**
- ▶ **Have low testosterone levels (hypogonadism)**

WHAT TESTS WILL THE DOCTOR DO?

Don't walk into your appointment blindly - mention your risks and don't hesitate to ask for more information and testing. A good way to identify whether you may have risk factors is to take the **IOF Osteoporosis Risk Check** (see end of brochure).

Clinical assessment may include bone mineral density (BMD) measurement with a dual energy x-ray absorptiometry (DXA) scanner. This is a quick and noninvasive method to measure BMD at the hip and spine.

In addition, your future fracture risk can be assessed by a computer-based questionnaire called **FRAX®** (<http://www.shef.ac.uk/FRAX>) that calculates the 10-year risk of fracture. Based on this information alone, some patients at high risk may be offered treatment without the need for further testing.



HAVE YOU IDENTIFIED ANY RISK FACTORS?

If so, ask your doctor the following questions at your next check-up:

1

I have a common risk factor for osteoporosis, should I have a bone density test? How often should it be repeated?

2

Can you calculate my risk of suffering future fractures?

3

What should I be doing with respect to calcium, vitamin D and exercise?

4

Can you advise me of specific lifestyle changes I can make to improve my bone health?

5

Do I need specific therapy to treat osteoporosis?



FIVE STEPS TO BETTER BONE HEALTH

Building strong bones throughout your lifetime will enable you to continue doing the things you enjoy for longer. It will also help you live independently, free of the pain and suffering caused by broken bones.

There are many actions that you can take to prevent and control osteoporosis.

Take charge of your bone health today.

1

Regular exercise

2

**Bone-healthy
nutrients**

3

**Avoid negative
lifestyle habits**

4

**Identify your risk
factors**

5

**Take osteoporosis
medicine if prescribed**



STEP #1

REGULAR EXERCISE

Regular weight-bearing and muscle-strengthening exercises are beneficial at all ages and important for maintaining strong bones and muscles.

WEIGHT-BEARING EXERCISES

Moderate impact weight-bearing

- ▶ Jogging
- ▶ Hiking
- ▶ Brisk walking
- ▶ Stair climbing

High impact weight-bearing

- ▶ 50–100 jumps or rope skipping
- ▶ Related impact loading sports:
e.g. racquet sports

These should be performed for at least 30 minutes, 3–5 days per week

MUSCLE STRENGTHENING / RESISTANCE EXERCISES

For maximum benefits the programme should be high intensity and become progressively more challenging over time. Don't forget to target the major muscles around the hip and spine.

- ▶ Weight lifting
- ▶ Using weight machines
- ▶ Using elastic exercise bands
- ▶ Lifting your own body weight
- ▶ Standing and rising on your toes

Muscle-strengthening or resistance exercises at least 2 days per week



As you age you need to ensure that the exercise is appropriate to your level of fitness.

If you have osteoporosis or spinal fractures you need to be cautious when doing activities that could lead to injury and you should have professional guidance when setting up a regular fitness routine.

STEP #2

BONE-HEALTHY NUTRIENTS

Don't let this 'silent' disease eat up your bones.

Sufficient calcium, vitamin D and protein are essential for your bone and muscle health. Dairy foods such as milk, yoghurt, and cheese, have the highest amounts of calcium and also contain protein and other minerals that are good for bones. Calcium is also contained in certain fruits and green vegetables (e.g. kale, broccoli, apricots) and in canned fish with bones (sardines). If available, take advantage of foods fortified with calcium. While dietary calcium is best, some people may need to take supplements if they can't achieve their daily calcium goals from food alone.

Calcium supplements should however be limited to 500–600 mg per day and it is generally recommended that they be taken combined with vitamin D.

CALCIUM REQUIREMENTS IN MALES

Recommended daily calcium intake varies country to country, but all health authorities recognize the need for increased calcium intake in older adults.

Age Range	Calcium (mg/day)
10-18 years	1300
19-70 years	1000
70+ years	1200

Source Institute of Medicine of the US National Academies of Sciences (2010)



GET YOUR DAILY DOSE OF CALCIUM

Make dairy foods your friend:


- ▶ **1 yoghurt or a glass of milk** ca. $\frac{1}{4}$ of your daily calcium requirements
- ▶ **1 large milkshake** ca. $\frac{1}{3}$ of your daily calcium requirement
- ▶ **Cheeses** are rich in calcium – especially parmesan, cheddar and mozzarella
- ▶ **A bowl of cereal with milk** is a good breakfast option
- ▶ Boost your intake by choosing **Caffè Latte** instead of regular coffee

VITAMIN D

Most of the vitamin D in the body is produced from exposure of the skin to sunlight.

However, depending on where you live, you may not be able to get enough vitamin D from safe exposure to sunlight alone. Small amounts of vitamin D are found in foods (e.g. egg yolk, salmon and tuna). In some countries vitamin D fortified foods are available.

The Institute of Medicine recommends 600 IU/day of vitamin D intake for men and women aged up to 70 years. IOF vitamin D recommendations for fall and fracture prevention are 800–1000 IU/day for men and women aged 60 years and over.



STEP #3

AVOID NEGATIVE LIFESTYLE HABITS

- ▶ **Stop smoking:** it has been shown to raise fracture risk substantially.
- ▶ **Reduce alcohol intake:** while a daily glass or two of wine or beer won't impact on your bone health, more than two units of alcohol can raise your fracture risk substantially.
- ▶ **Maintain a healthy weight:** if you are underweight (BMI <20) you are at increased risk of fracture.

Smoking increases your risk of breaking a bone by 29% and suffering a hip fracture by 68%






STEP #4 IDENTIFY YOUR RISK FACTORS

Talk to your doctor. Be aware of any risk factors that can make you a candidate for osteoporosis and fractures. As shown earlier, there are many different factors that can place you at risk.

Statistics from the UK, USA and Australia show that **men are between 20-25% less likely than women to visit a doctor.** Don't avoid your check up. Talk to your doctor about bone health and ask whether you should have a BMD test and/or FRAX® risk assessment test.



“Women have a much healthier relationship with their bodies. They see it as a question of maintenance, whereas men see it as a question of repair. Men treat their bodies a bit like a car: once it’s burnt out they’ll fix it, but until then they power on.”

STEP #5

TAKE OSTEOPOROSIS MEDICINE IF PRESCRIBED

There are many proven treatments that can help improve BMD and reduce your risk of fractures. Common treatments for men include:

- ▶ **Bisphosphonates: alendronate, risedronate**
- ▶ **Intravenous bisphosphonates: zoledronate**

Other treatment types include:

- ▶ **Denosumab: human monoclonal antibody**
- ▶ **Teriparatide: an anabolic agent**
- ▶ **Strontium ranelate**

Testosterone therapy for osteoporosis is effective in men with androgen deficiency.

Not all medications are approved in all countries.



ADHERE TO YOUR TREATMENT

Make sure you comply with your prescribed treatment regimen and if you're concerned about any side effects, speak to your doctor.

Because the benefits of treatment are not always evident, many patients stop taking their medication – don't let that happen to you. By continuing on treatment you can protect your bones and avoid damaging and potentially life-threatening fractures.



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
<p style="text-align: center;">Metric units</p> $\text{BMI} = \frac{\text{weight in kilograms}}{\text{height in meters}^2}$	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. calcineurin/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



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. If you have not identified any risk factors, we encourage you to lead a bone healthy lifestyle and keep monitoring your risks in the future.

Find out which resources are available to help you and your family and friends stay bone-healthy.

- **Contact your local osteoporosis society.** A list is available at www.osteoporosis.foundation
- **Reach out and join a patient-support group in your community.**
- **Visit the IOF website** www.osteoporosis.foundation to learn more about osteoporosis.

SHOW YOUR SUPPORT FOR GLOBAL OSTEOPOROSIS PREVENTION

- **Take part in World Osteoporosis Day on October 20** each year
www.worldosteoporosisday.org
- **Sign the IOF Global Patient Charter** to show your support for patient rights at www.globalpatientcharter.iofbonehealth.org/
- **Join or donate to your local osteoporosis society**

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