



HOW TO EAT WELL

AFTER BREAKING A BONE DUE TO OSTEOPOROSIS

ADAPTING YOUR DIET AFTER BREAKING A BONE DUE TO OSTEOPOROSIS

After you've broken a bone due to osteoporosis, what you eat makes a difference. Ensuring good nutritional status, with enough calories and adequate protein, vitamins and minerals, will help you recover more quickly from your fracture!

Nutritional status is a term used to describe how well your diet meets your needs for energy and essential nutrients such as protein, vitamins, and minerals. If your diet meets your needs, you have an adequate nutritional status. If your diet does not meet your needs, you have an inadequate nutritional status, which is also called **Malnutrition**.

Malnutrition due to low protein and energy intake in your diet can increase your risk for fractures by decreasing your muscle strength and function, which then raises your risk of falling.¹ After you've broken a bone due to osteoporosis, avoiding malnutrition may help you recover more quickly from your fracture and leave the hospital earlier with fewer complications.¹

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CONTINUE TO EAT A HEALTHY, BALANCED DIET

Just like before you broke a bone, **you should still aim to eat a healthy, balanced diet.** According to the World Health Organization, a healthy diet is rich in fruit and vegetables, legumes like lentils and beans, nuts and whole grains².



Fruit & Vegetables



Legumes



Nuts



Whole Grains

A healthy diet also has limited salt and sugar intake and includes a moderate amount of unsaturated fats (from fish, avocado and nuts, and in sunflower, soybean, canola and olive oils) and less saturated fats (from fatty meat, butter, palm and coconut oil, cream, cheese, ghee and lard). **Trans-fats**, from baked and fried foods and pre-packaged snacks and foods, should be limited.² A bone-healthy diet also includes foods that provide key nutrients for bone health, such as calcium from dairy products or fortified plant-based beverages, and protein as mentioned in the next page.

Cheese

Cheese and other dairy products provide calcium and protein, which are key nutrients for bone health

Legumes

Lentils and beans are examples of protein-rich legumes

Vegetables

Vegetables provide many essential vitamins and nutrients

Milk & Plant-Based Beverages

Milk and calcium-fortified plant-based beverages are part of a bone-healthy diet due to their calcium content. Milk and soy drink are also a good source of protein.

Meat & Fish

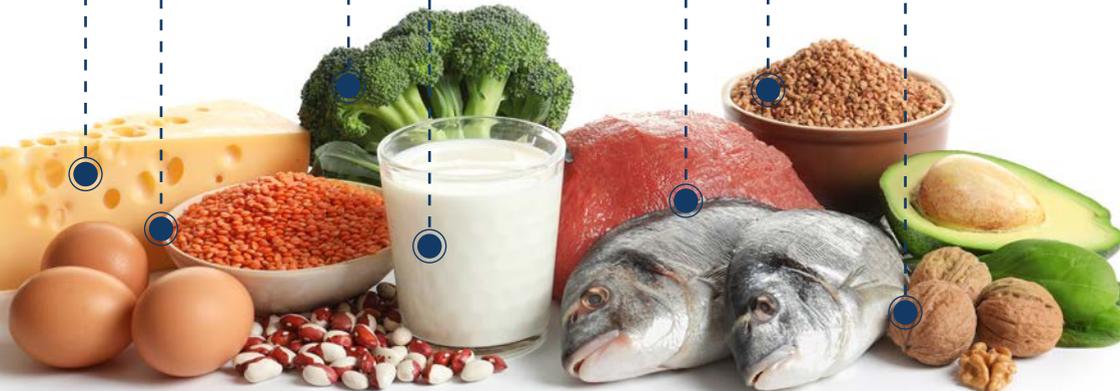
Lean meat and fish are excellent sources of protein. Fish has the additional benefit of being a source of unsaturated fats.

Grains

Whole grains have more vitamins and fibre than processed grains

Nuts

Nuts and seeds are good sources of protein and unsaturated fats



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ENSURE ENOUGH PROTEIN INTAKE

Protein is a nutrient found in many foods and is essential for the body. It has many functions, such as building tissues in the body including skin, muscle, and bone. While healing from a broken bone due to osteoporosis, **your body needs more protein than usual to rebuild.** If you needed surgery after your broken bone, your body also needs more protein to heal from the surgery.

IOF recommends that older adults eat between 1.0 and 1.2 grams of protein for every kilogram of bodyweight (0.45 grams to 0.55 grams for every pound of bodyweight).³ This is 25%-50% more protein than needed by adults aged 18-65 years.

MORE PROTEIN IS NEEDED

- To heal broken bones
- After surgery



The PROT-AGE recommendations suggest up to 2.0g for every kilogram of bodyweight (0.9g for every pound of bodyweight) for older adults with severe injury and malnutrition.⁴ This can mean needing up to twice the amount of protein after breaking a bone due to osteoporosis compared to the amount needed by a healthy adult under 65 years of age.

Food sources of protein include **meat, fish, dairy products, eggs, soy foods and some vegetarian meat alternatives, legumes, and nuts.** Grains, especially whole grains, and, to some degree, vegetables also provide some of your daily protein intake.

Examples of protein content in several protein-rich foods



Chicken

24g protein per 100g
(3 1/2 oz)



Lentils, split, cooked

11g protein per 100g
(3 1/3 oz)



Yoghurt

3.9g protein per 100g
(3 1/3 oz)



Tofu

15g protein per 100g
(3 1/3 oz)

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GET ENOUGH CALORIES

Energy from food is measured in either kilojoules or kilocalories, commonly known as **calories**. The amount of energy you need from food depends on your physical activity level, age, sex, and muscle mass. Some diseases may affect your energy needs as well. Just like protein, **your body uses more energy to heal from your broken bone** and from surgery. Even if you may have less appetite, it is still important to ensure you are eating enough to get enough calories.

Energy needed from food depends on your:



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GET ENOUGH CALCIUM AND VITAMIN D

Although calcium and vitamin D are both essential nutrients for a bone-healthy diet, these two nutrients are even more important after breaking a bone due to osteoporosis.

You should aim to **consume at least 1000 mg of calcium each day**, and at least 1200 mg of calcium each day if you are a woman aged 50 or over or a man aged 70 or over⁵. Consult your dietitian or doctor and use the IOF Calcium Calculator to find out if you should increase your calcium intake. See page 7 for a list of especially calcium-rich foods.

Vitamin D is also very important as it helps your body absorb calcium. We mostly get Vitamin D when our skin is exposed to sunlight, with small amounts also provided from food sources. In fact, IOF recommends that anyone aged 60 years or over take a supplement at a dose of 800 to 1000 IU/day to benefit bone health.

After a fracture, **your doctor is likely to prescribe calcium and vitamin D supplements along with a drug treatment** while you recover from your broken bone as this ensures that you are getting enough of these important nutrients.

DIFFICULTY MEETING YOUR CALORIE AND PROTEIN NEEDS?

Sometimes it is hard to eat the right foods in the right amounts to meet the higher protein and energy needs after a broken bone due to osteoporosis. This is especially true if you are frail or have poor appetite. While you are healing, your nurse, dietitian, or doctor might recommend you take an **Oral Nutritional Supplement**.

This usually comes in the form of a milk or fruit-based drink helping to make sure you meet your protein and energy needs. If you can't meet your needs with your diet alone, Oral Nutritional Supplements can improve your chances of recovering from a broken bone due to osteoporosis without complications.¹

MAINTAIN A BONE-HEALTHY DIET TO REDUCE YOUR RISK OF FUTURE FRACTURES

If you've broken a bone due to osteoporosis, you are at a higher risk of breaking another bone in the future. Eating a bone-healthy diet is one step you can take to reduce further loss of bone density after you've broken a bone due to osteoporosis. Discuss with your dietitian or doctor for more detailed and personal tips on how to eat a bone-healthy diet to reduce your risk. Although bone-healthy nutrition is important, drug therapies are critical for lowering your risk of breaking another bone due to osteoporosis.



FOODS RICH IN CALCIUM



Milk and Vegetal Drinks

Food 250ml (1 cup)	Calcium (mg)
Milk, semi-skimmed	300
Milk, skimmed	305
Milk, whole	295
Sheep Milk	475
Soy Drink (calcium-enriched*)	300
Almond Drink	112



Yoghurt

Food 150g (2/3 cup)	Calcium (mg)
Yoghurt, natural	207



Cheese

Food	Calcium (mg)
Hard Cheese (e.g. Cheddar, Parmesan, Emmental, Gruyère)*	240
Soft Cheese (e.g. Brie, Camembert)**	240
Feta**	270
Mozzarella**	242

*30g (1 oz)

** 60g (2 oz)



FRUITS

Food	Calcium (mg)
Orange, 150g (5 1/3 oz)	60
Figs, 60g (2 oz) dried	96



Meat, Fish and Eggs

Food	Calcium (mg)
Egg, 50g (1 3/4 oz)	27
Sardines in Oil, 60g (2 oz) canned	240



Beans & Lentils

Food	Calcium (mg)
Chick Peas*	99
Red Beans*	93
White Beans*	132

*80g raw/200g cooked (2 2/3 oz raw/ 6 2/3 oz cooked)



Vegetables

Food	Calcium (mg)
Cress, 120g raw (2 1/3 cup raw)	188
Rhubarb, 120g (1 cup diced)	103
Broccoli, 120g (1 1/3 cup)	112



Nuts & Seeds

Food, 30g (1oz)	Calcium (mg)
Almonds	75
Hazelnuts	56



OTHERS

Food	Calcium (mg)
Tofu, 120g (4 1/4 oz)	126
Wakame, 100g (3 1/2 oz)	150

References

1. Pinto, D., Alshahrani, M., Chapurlat, R. *et al.* The global approach to rehabilitation following an osteoporotic fragility fracture: A review of the rehabilitation working group of the International Osteoporosis Foundation (IOF) committee of scientific advisors. *Osteoporos Int* **33**, 527–540 (2022). <https://doi.org/10.1007/s00198-021-06240-7>
2. World Health Organization. Healthy Diet. Accessed 11/07/2022. Available at: <https://www.who.int/news-room/fact-sheets/detail/healthy-diet>
3. Mithal, A., Bonjour, JP., Boonen, S. et al. Impact of nutrition on muscle mass, strength, and performance in older adults. *Osteoporos Int* **24**, 1555–1566 (2013). <https://doi.org/10.1007/s00198-012-2236-y>
4. Bauer, J., Biolo, G., Cederholm, T., *et al.* Evidence-Based Recommendations for Optimal Dietary Protein Intake in Older People: A Position Paper From the PROT-AGE Study Group. *J Am Med Dir Assoc* **14**, 542-559 (2013). <https://doi.org/10.1016/j.jamda.2013.05.021>.
5. National Institutes of Health. Dietary Reference Intakes for Calcium and Vitamin D. National Academies Press, Washington, DC. 2011. Available at: <https://nap.nationalacademies.org/read/13050/chapter/2>

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