Osteoporosis and exercise
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Summary

- Osteoporosis is characterised by the loss of calcium in a person’s bones, which makes them more likely to fracture (break).
- Exercising regularly reduces the rate of bone loss and conserves bone tissue, lowering the risk of fractures.
- Exercise also helps reduce the risk of falling.
- Exercise that is too vigorous may increase the risk of fractures.
- See your doctor, physiotherapist or other healthcare professional for expert advice.

Osteoporosis is the loss of calcium and other minerals from a person’s bones, which makes the bones susceptible to fracturing (breaking). In Australia, around half of all women and one third of men over 60 years of age have osteoporosis. Women are more likely to have osteoporosis because the hormonal changes of menopause make bone loss worse.

A nutritious diet including calcium-rich foods and regular exercise throughout a person’s life (including during childhood and adolescence) will reduce the risk of osteoporosis in later years.

People with existing osteoporosis can also benefit from exercise. This is because a sedentary lifestyle (little exercise) encourages the loss of bone mass. Exercising regularly can reduce the rate of bone loss.

Most bone fractures occur because of a fall. You can reduce your chances of falling by exercising to build your muscle strength and improve your balance. Exercise can also slow the rate of bone loss, which reduces the risk of fractures from osteoporosis.

Exercise also brings other benefits to people who have osteoporosis or want to prevent osteoporosis. These include reduced need for some medications that can contribute to the risk of falls, and better management of other health problems.

Benefits of exercise for people with osteoporosis

A sedentary lifestyle, poor posture, poor balance and weak muscles increase the risk of fractures. A person with osteoporosis can improve their health with exercise in valuable ways, including:

- reduction of bone loss
- conservation of remaining bone tissue
- improved physical fitness
- improved muscle strength
- improved reaction time
- increased mobility
- better sense of balance and coordination
- reduced risk of bone fractures caused by falls
- reduced pain
- better mood and vitality.

Deciding on an exercise program for people with osteoporosis

Always consult with your doctor, physiotherapist or health care professional before you decide on an exercise program. Factors that need to be considered include:

- your age
- the severity of your osteoporosis
- your current medications
- your fitness and ability
- other medical conditions such as cardiovascular or pulmonary disease, arthritis, or neurological problems
- whether improving bone density or preventing falls is the main aim of your exercise program.

A combination of weight-bearing aerobic and muscle-building (resistance) exercise is best, together with specific balance exercises.

Recommended exercises for people with osteoporosis

Exercises that are good for people with osteoporosis include:

- weight-bearing aerobics exercise such as dancing
- resistance training using free weights such as dumbbells and barbells, elastic band resistance, body-weight resistance or weight-training machines
- exercises to improve posture, balance and body strength, such as tai chi.

Ideally, weekly physical activity should include something from all three groups.
Swimming and water exercise for people with osteoporosis

Swimming and water exercise (such as aqua aerobics or hydrotherapy) are not weight-bearing exercises, because the buoyancy of the water counteracts the effects of gravity. However, exercising in water can improve your cardiovascular fitness and muscle strength.

People with severe osteoporosis or kyphosis (hunching of the upper back) who are at high risk of bone fractures may find that swimming or water exercise is their preferred activity. Consult with your doctor or healthcare professional.

Walking for people with osteoporosis

Even though walking is a weight-bearing exercise, it does not greatly improve bone health, muscle strength, fitness or balance, unless it is carried out at high intensity such as at a faster pace, for long durations (such as bushwalking) or incorporates challenging terrain such as hills. However, for people who are otherwise inactive, walking may be a safe way to introduce some physical activity.

Exercises that people with osteoporosis should avoid

A person with osteoporosis has weakened bones that are prone to fracturing. They should avoid activities that:

- involve loaded forward flexion of the spine such as abdominal sit-ups
- increase the risk of falling
- require sudden, forceful movement, unless introduced gradually as part of a progressive program
- require a forceful twisting motion, such as a golf swing, unless the person is accustomed to such movements.

The best amount of exercise for people with osteoporosis

The exact amount of exercise required for people with osteoporosis is currently unknown. However, guidelines suggest:

- 45 minutes to one hour of aerobic activity two to three times per week
- resistance training two or three times per week – each session should include exercises to strengthen the lower limb, trunk and arm muscles, and each exercise should be performed eight to 10 times
- balance exercises – these need to be at a level that is challenging to your balance and should be performed for a few minutes at least twice a week. For safety reasons, always make sure you can hold on to something if you overbalance
- stretching exercises to promote flexibility.

You need to continue your exercises over the long term to reduce your chances of a bone fracture.

Professional advice for people with osteoporosis

Regular exercise is an essential part of any osteoporosis treatment program. See your doctor before starting a new exercise program. Physiotherapists and other exercise professionals can give you expert guidance.

Always start your exercise program at a low level and progress slowly. Exercise that is too vigorous too quickly may increase your risk of injury, including fractures. Also, consult your doctor or a dietitian about ways to increase the amount of calcium, vitamin D and other important nutrients in your diet. They may advise you to use supplements.

Avoid smoking and excessive alcohol, which are bad for your bones.

Where to get help

- Your doctor
- Physiotherapist

Things to remember

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- Exercise that is too vigorous may increase the risk of fractures.
- See your doctor, physiotherapist or other healthcare professional for expert advice.

References

- Health professional resources – Osteoporosis, Arthritis Queensland. More information here.

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Bone muscle and joint basics

- Bone marrow
  Bone marrow is the spongy tissue in the hollow centres of a person’s long bones and is the blood cell ‘factory’.

- Bones
  The adult skeleton is made up of 206 bones, which provide the structure for our bodies.

- Choosing the right shoe
  The right footwear can help keep your feet healthy, make your physical activity easier and help keep your body safe from injury.

- Growth hormone
  Some athletes and bodybuilders wrongly believe that taking synthetic growth hormone will help build up their muscles.

- Joints
  A joint is the part of the body where two or more bones meet to allow movement.

- Locomotor system
  The skeleton and skeletal muscles work together to allow movement.

- Muscles
  There are about 600 muscles in the human body.

Healthy bones muscles and joints

- 10 tips for getting enough vitamin D
  A balanced UV approach is required to ensure some sun exposure for vitamin D while minimising the risk of skin cancer.

- 10 tips for safe stretching
  Make stretching part of your life... 10 tips for safe stretching.

- 10 tips on how to eat more calcium
  Reduce your intake of coffee, alcohol and soft drinks... 10 tips on how to eat more calcium.

- Ageing - muscles bones and joints
  Exercise can prevent age-related changes to muscles, bones and joints and can reverse these changes too.

- Bone density testing
  Most procedures that measure bone density are quick and pain-free.

- Calcium
  If you don’t have enough calcium in your diet, your bones will eventually become weak and brittle.

- Choosing the right shoe
  The right footwear can help keep your feet healthy, make your physical activity easier and help keep your body safe from injury.

- Posture
  Bad habits such as slouching and inactivity cause muscle fatigue and tension that ultimately lead to poor posture.

- Vitamin D
  A balanced approach to sunlight exposure will help you get enough vitamin D while protecting against skin cancer.

- Vitamin D - maintaining levels in winter (video)
  Vitamin D is important for healthy bones, muscles and the nervous system.
Bone and bone marrow conditions

- **Acromegaly**
  Acromegaly is caused by an excess of growth hormone in adults, which causes the overgrowth of bones in the face, hands, feet and internal organs.

- **Amyloidosis**
  A person with amyloidosis produces aggregates of insoluble protein that cannot be eliminated from the body.

- **Bone cancer**
  Bone cancer is a rare form of cancer that is treated with chemotherapy, radiotherapy or hormone therapy.

- **Bone fractures**
  Common sites for bone fractures include the wrist, ankle and hip.

- **Fibrous dysplasia**
  Fibrous dysplasia causes abnormal growth or swelling of bone, but it is not a form of cancer.

- **Leukaemia**
  Most children and many adults with acute leukaemia can expect to be cured, while chronic leukaemia can be successfully managed.

- **McCune-Albright syndrome**
  The severity of symptoms or how a child with McCune-Albright syndrome will be affected throughout life is difficult to predict.

- **Multiple myeloma**
  Multiple myeloma is cancer of plasma cells in the bone marrow.

- **Osteomyelitis**
  Osteomyelitis means an infection of bone which can either be recent or longstanding.

- **Paget's disease of bone**
  Paget's disease of bone is a chronic condition that causes abnormal enlargement and weakening of bone.

- **Rickets**
  Rickets is a preventable childhood bone disease caused by a lack of vitamin D.

- **Scoliosis**
  Scoliosis is an abnormal sideways curve of the spine.

- **Shin splints**
  'Shin splints' refers to pain felt anywhere along the shinbone from knee to ankle.

- **Treacher Collins syndrome**
  Treacher Collins syndrome is a genetic disorder that affects growth and development of the head, causing facial defects and hearing loss.

**Osteoporosis**

- **Menopause and osteoporosis**
  Regular weight-bearing exercise and maintaining a diet rich in calcium from childhood will help reduce bone loss at menopause.

- **Osteoporosis**
  A healthy, calcium-rich diet and regular physical activity throughout life can help prevent osteoporosis.

- **Osteoporosis and exercise**
  Exercise can reduce the risk of fractures resulting from osteoporosis by both slowing the rate of bone loss, and reducing the person's risk of falling by building muscle strength and improving balance.

- **Osteoporosis in children**
  Osteoporosis in children is rare and usually caused by an underlying medical condition.

- **Osteoporosis in men**
  Up to 30 per cent of all fractures that occur in people with osteoporosis and osteopenia, occur in men.
Muscle conditions

- Bell's palsy
  The majority of people with Bell's palsy, around 90 per cent, will recover completely with time.

- Helping a child with a disability with everyday activities
  If you have a child with a disability you can help improve their communication and movement by encouraging them to take part in daily activities.

- Multiple sclerosis (MS)
  Multiple sclerosis is not contagious, but it is progressive and unpredictable.

- Muscle cramp
  A muscle cramp is an uncontrollable and painful spasm of a muscle.

- Muscular dystrophy
  People affected by muscular dystrophy have different degrees of independence, mobility and care needs.

- Myasthenia gravis
  Myasthenia gravis is an autoimmune disease that causes muscle weakness.

- Polymyositis
  Polymyositis is hard to diagnose and may be mistaken for muscular dystrophy.

- Spinal muscular atrophy (SMA)
  A child with spinal muscular atrophy type 1 rarely lives beyond three years of age.

- Sprains and strains
  It is important to get the correct treatment for a sprain or strain as soon as possible after the injury to help you recover quickly.

Joint conditions

- Ankle sprains
  Ankle sprain is a common sports injury caused by overstretched and tearing the supporting ligaments.

- Ankylosing spondylitis
  Ankylosing spondylitis (AS) is a type of inflammatory arthritis that targets the joints of the spine.

- Arthritis explained
  People can manage their arthritis using medication, physiotherapy, exercise and self-management techniques.

- Baker's cyst
  Baker's cysts of the knee don't always require active treatment and sometimes will only require observation by the treating doctor.

- Bursitis
  Bursitis is often caused by overuse and the inflammation will continue unless the particular activity or movement is stopped.

- Carpal tunnel syndrome
  Carpal tunnel syndrome can be caused by repetitive hand movements, pregnancy and arthritis.

- Developmental dysplasia of the hip (DDH)
  Around 95 per cent of babies born with developmental dysplasia of the hip can be successfully treated.

- Elbow pain
  Elbow pain and can result from overuse in a range of sports or occupations.

- Hip disorders
  The hip joint is complicated to allow a wide range of motion while still supporting the weight of the body.

- Knee injuries
  Mild knee injuries may heal by themselves, but all injuries should be checked and diagnosed by a doctor or physiotherapist.

- Osgood-Schlatter syndrome
Osgood-Schlatter syndrome is a painful knee condition that affects adolescents.

- Perthes' disease
  Most children with Perthes' disease eventually recover, but it can take anywhere from two to five years.

- Reactive arthritis
  Reactive arthritis is a form of arthritis that occurs as a result of some bacterial infections.

Hand and foot conditions

- Achilles tendonitis
  People who run regularly seem to be susceptible to Achilles tendonitis.

- Children's feet and shoes
  A child learning to walk receives important sensory information from the soles of their feet, and shoes can make walking more difficult.

- Choosing the right shoe
  The right footwear can help keep your feet healthy, make your physical activity easier and help keep your body safe from injury.

- Cysts - ganglion cysts
  A ganglion cyst is the most common lump on the hand, and tends to target women between the ages of 20 and 40 years of age.

- Diabetes - foot care
  Good foot care and regular check-ups can help people with diabetes avoid foot problems.

- Dupuytren's contracture
  Dupuytren's contracture gradually causes clawing of the fingers as they are pulled towards the palm.

- Feet - problems and treatments
  Correctly fitted shoes help you avoid foot and leg pain or injury.

- Foot care - podiatrists
  Podiatrists can advise about how to choose the right shoes for your feet.

- Foot odour - causes and cures
  Even the most fastidiously clean people can suffer from foot odour.

- Foot orthoses
  People who have chronic foot or leg problems that interfere with their health may be prescribed orthoses by their podiatrist.

- Foot problems - heel pain
  The heel protects the structures of the foot, but heel pain is a common foot complaint.

- Footwear for healthy feet
  Wearing shoes that fit properly and support your feet is vital to avoid sore feet and to prevent or alleviate many common foot problems.

- Left-handedness
  If your child is naturally left-handed, don’t try to force them to use their right hand.

- Raynaud's phenomenon
  Raynaud's phenomenon can be a sign of a more serious underlying condition, so see your doctor if you experience it.

- Sever's disease
  Sever's disease is a common cause of heel pain, particularly in the young and physically active.

Back neck and spine conditions

- Back pain
  Back pain is common. Some people will develop back pain that is persistent (lasts more than three months). There are many things that you can do to live well with back pain.

- Back pain – disc problems
  Most disc problems resolve without specific treatment.
• Back pain in children
  Children with back pain may grow into adults with chronic bad backs, so it is important to encourage sensible back care...

• Living with persistent pain
  Pain is our built-in alarm system. It makes us aware that something might be going wrong in our body. However, there are many things you can do to deal effectively with persistent pain...

• Neck pain
  Treatments like physiotherapy, osteopathy or remedial massage can generally help neck and shoulder pain...

• Scoliosis
  Scoliosis is an abnormal sideways curve of the spine...

• Shoulder pain
  Shoulder pain is common in our community. The good news is that with appropriate treatment pain will improve so you can get back to doing the things you enjoy...

• Tendonitis
  Most cases of tendonitis recover completely, but severe untreated tendonitis can lead to rupture of the tendon...

• Treating persistent pain
  Pain is our built-in alarm system. It makes us aware that something might be going wrong in our body. However, there are many things you can do to deal effectively with persistent pain...

• When do I need to see my doctor about persistent pain?
  Living with persistent pain isn’t easy. Your doctor can help you balance your pain, your treatment and hurdles you encounter in life...

Related Information

• Osteoporosis
  A healthy, calcium-rich diet and regular physical activity throughout life can help prevent osteoporosis...

• Osteoporosis in men
  Up to 30 per cent of all fractures that occur in people with osteoporosis and osteopenia, occur in men...

• Osteoporosis in children
  Osteoporosis in children is rare and usually caused by an underlying medical condition...

• Breathing problems and exercise
  A little physical activity and some breathing exercises can help people with lung disease...

• Menstruation - athletic amenorrhoea
  Women who are athletes or who exercise a lot on a regular basis are at risk of developing athletic amenorrhoea, which is the absence of periods...

Home

Related information on other websites

• Choose Health: Be Active – A physical activity guide for older Australians.
• Exercise and Sports Science Australia (ESSA) – adult pre-exercise screening system.
• Exercise and Sports Science Australia (ESSA) – adult pre-exercise screening tool.
• National Osteoporosis Foundation.
• Osteoporosis Australia.
• Osteoporosis Booklets and Information Sheets.

Support Groups

• Melbourne Osteoporosis Support Group

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This page has been produced in consultation with and approved by: University of Melbourne - Centre for Health, Exercise and Sports Medicine

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