Osgood Schlatter syndrome

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Osgood-Schlatter syndrome is a painful knee condition that affects adolescents. During a growth spurt, it is thought that the tendon attaching the quadriceps muscle to the knee joint becomes tighter, creating a strain on the growing bone (tibial tuberosity), particularly with physical activities that involve contraction of the quadriceps. Osgood-Schlatter syndrome usually resolves by itself with a period of activity modification, stretches and pain relief.

The knee is a hinge joint, situated between the thigh bone (femur) and shin bones (tibia and fibula). Contraction of the muscles on the front of the thigh (quadriceps) straightens the knee, while contraction of the muscles on the back of the thigh (the hamstrings) bends the knee.

Osgood-Schlatter syndrome (or disease) is a painful knee condition that tends to affect adolescents. Boys are affected more than girls, although this could be due to differing activity patterns. It is thought that around 13 per cent of adolescent knee pain is due to Osgood-Schlatter syndrome.

It often occurs during a growth spurt and is associated with physical activity. It is thought that the tendon attaching the quadriceps muscles to the shin bone becomes tight and causes inflammation and micro-fractures in the tibial tuberosity.

The tibial tuberosity swells and feels painful during certain activities such as running, kneeling, or stair climbing. Osgood-Schlatter syndrome usually resolves by itself with time. Treatment options include activity modification, ice, pain-relieving medications, stretching and physiotherapy.

**Symptoms of Osgood-Schlatter syndrome**

The symptoms of Osgood-Schlatter syndrome depend on the severity of the condition, but may include:

- pain in one or both knees
- pain when straightening the knee joint or full squatting
- pain on running, or going up and down stairs
- pain that eases with rest
- a swollen tibial tuberosity
- red and inflamed skin over the tibial tuberosity
- quadriceps muscles that can sometimes lose strength and bulk.

**The risk of fracture with Osgood-Schlatter syndrome**

The quadriceps muscles are joined to the tibial tuberosity by the patella tendon. During bone growth, the tendon may become tighter. When the quadriceps muscle contracts, it pulls even more on the tight tendon, and the point where the tendon attaches to the shin bone becomes inflamed and micro-fractures occur at the bone. In some cases, bone may become partially dislodged (partial avulsion fracture).

The body repairs the fractures by laying down extra bone tissue. The result is a larger than normal bump at the tibial tuberosity.

**Causes of Osgood-Schlatter syndrome**

Some of the causes of Osgood-Schlatter syndrome may include:

- Growth spurt – the condition tends to affect adolescent children. Affected boys are often aged about 13 to 14 years, while affected girls are often aged 10 to 11 years.
- Exercise – active children, particularly those engaged in athletics and sports, are at increased risk.
- Gender – boys are more susceptible than girls, but perhaps this is because boys typically play more vigorous sports.
- Injury – around half of all children with the condition report a prior knee injury.

**Diagnosis of Osgood-Schlatter syndrome**

Osgood-Schlatter syndrome is mainly diagnosed by clinical presentation (presenting symptoms and physical examination). However, additional tests, such as an x-ray or ultrasound scan, may be used to rule out other possible causes of the symptoms.

**Treatment for Osgood-Schlatter syndrome**

Osgood-Schlatter syndrome usually resolves by itself within 12 months. However, the knee may remain uncomfortable until growing finishes.
Treatment options include:

- activity modification or relative rest – completely avoiding activities that are painful for at least a couple of weeks followed by gradual return to activity guided by symptom levels
- frequent use of icepacks to reduce the local pain and swelling
- stretching and strengthening exercises for the quadriceps, hamstring and calf muscles – a suitable program can be provided by a physiotherapist
- medications, including painkillers and anti-inflammatory drugs
- very rarely, surgery – only in extreme cases and only once growth has ended.

Where to get help

- Your doctor
- Physiotherapist
- Orthopaedic surgeon

Things to remember

- Osgood-Schlatter syndrome is a painful knee condition that affects adolescents.
- It often occurs during a growth spurt and is associated with physical activity.
- Osgood-Schlatter syndrome usually resolves by itself with a period of activity modification, stretches and pain relief.

References

Bones muscles and joints

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- Healthy bones muscles and joints
- Bone and bone marrow conditions
- Osteoporosis
- Muscle conditions
- Joint conditions
- Hand and foot conditions
- Back neck and spine conditions

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'.

- 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...

- Aging - 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 is 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...

- Rib injuries
Rib injuries may include bruises, torn cartilage and bone fractures.

- **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 carer 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

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Ankle sprains
Ankle sprain is a common sports injury caused by overstretcing 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 require observation by the treating doctor.

Bursitis
Bursitis is 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 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 tendinitis.

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

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**Related information on other websites**

- [Medscape - Osgood-Schlatter disease](#)

**Support Groups**

- [Osgood-Schlatter Disease Support Group](#)

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Last updated: May 2015

Page content currently being reviewed.

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