

Osgood Schlatter syndrome

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. The quadriceps muscle attaches to the shin bone below the knee cap (patella) via the thick patella tendon. The point of attachment of the patella tendon to the shin bone is the bony bump (tibial tuberosity) just below 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 relief medications, stretching and physiotherapy.

Symptoms

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

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.

A range of possible causes

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 13-14 years, while affected girls are often aged 10-11 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 methods

Osgood-Schlatter syndrome is mainly diagnosed by clinical presentation (presenting symptoms and physical examination). However additional tests may be used to rule out other possible causes of the symptoms. Tests include:

- X-ray
- Ultrasound scan.

Treatment options

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.
- 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.

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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