

# Osgood Schlatter's Disease

## Prevention, Treatment and Management of Osgood Schlatter's Disease.

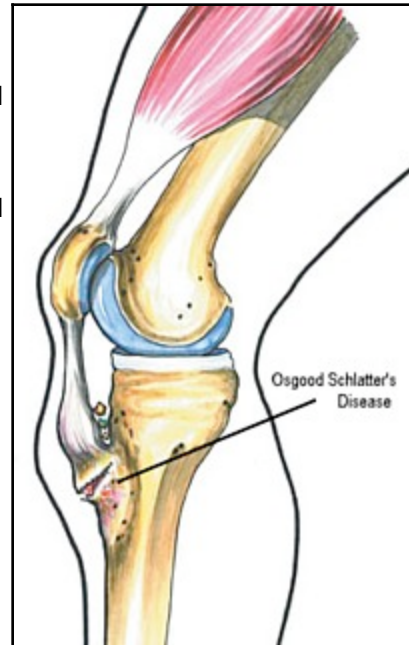


Osgood Schlatter's Disease is a common cause of knee pain in late adolescent and early teenage boys. The condition is less prevalent in females, although being active in sports increases a young female's chances. The term disease is often misleading, as it is not caused by bacteria, virus or other disease causing substance. It is labeled a disease due to its chronic nature. This condition was named for the two doctors who defined the condition, simultaneously, in 1908; Dr. Robert Osgood and Dr. Carl Schlatter.

### **What is Osgood Schlatter's Disease and the Anatomy Involved?**

The quadriceps tendon attaches to the patella (knee cap) and then continues down to the top of the tibia as the patellar tendon. When the quadriceps muscle flexes it shortens pulling upward on the tendon, which in turn causes the tendon to pull up on the tibia, causing the lower leg to extend.

As with any attachment it is under considerable stress when forcibly extending the knee or supporting the bodyweight during dynamic activities. Repetitive forceful contractions of the quadriceps can cause tiny avulsion fractures at the tendon attachment on the tibia. The bone will attempt to repair itself by adding more calcium to the area to protect and strengthen the attachment. This causes the lump under the knee often associated with Osgood Schlatter's Disease.



*Osgood Schlatter's Disease image from [Clinical Guide to Sports Injuries](#) by Roald Bahr, Sverre Maehlum and Tommy Bolic.*

When an adolescent or young teen goes through a growth spurt the muscles often struggle to keep pace with the growing bones and therefore are often too short compared with the accompanying bones. This places additional stress on the attachments and happens often with the femur and quadriceps muscle. The femur grows quickly and the quadriceps does not stretch so the muscle is tight until it has a chance to adapt to the new growth. This puts a chronic strain on the quadriceps and patellar tendon. This stress leads to those tiny fractures at

the attachment site when the muscle is under stress. These lead to the calcium loading at the site and pain and inflammation result.

### **What causes it?**

Osgood Schlatter's may be caused by any condition that puts extra stress on the patellar tendon resulting in small breaks at the attachment site. Some of the common causes:

- A growth spurt or rapid lengthening of the femur, causing the quadriceps to be tight.
- Repetitive stress to the patellar tendon through knee flexion and extension, such as with kicking or landing when jumping.
- Chronically tight quadriceps as seen with weight training without proper flexibility training as well.
- Untreated injury to the knee causing small avulsion fractures to the patellar tendon attachment on the tibia

### **Signs and Symptoms**

Knee pain without an apparent direct cause or pain in the knee during and after exercise may be a sign of Osgood Schlatter's Disease. Although the symptoms may be similar to other conditions, such as patellar tendonitis, in younger athletes this condition should be considered. Some of the common signs and symptoms of this disorder include:

- Pain below the knee cap, worsens with exercise or when contracting the quadriceps.
- Swelling and tenderness below the knee.
- A bony prominence may be noted under the knee as the condition advances.
- A "grinding" or stretching sensation may be noted at the tendons attachment site.

### **Treatment**

Knees are complex joints with many ligaments, tendons, bones and cartilaginous surfaces to be considered. Therefore, any serious or chronic knee pain should be evaluated by a sports medicine professional to determine the cause.

Most athletes with this condition find relief from rest and stretching the quadriceps muscle. This condition is rarely a long-term concern and will most often correct itself as the bones harden and mature.

Osgood Schlatter's often goes away as the athlete matures and the bone growth slows and allows the muscles to catch up. Reducing the stress on the patellar tendon will help facilitate healing. Resting, or reducing time from activities that cause pain will also allow the area to heal without further injury. Stretching the quadriceps will also alleviate the stress on the tendon and attachment.

Managing the pain and inflammation is important in treating this condition. Icing the area after an activity will help control inflammation and reduce soreness. Anti-inflammatory medication may also be of help in pain and inflammation management. Rest will often reduce the pain as well.

### Prevention

Preventing Osgood Schlatter's Disease involves avoiding or changing the conditions that lead to it. Knowing that chronic stress on the tendon and attachment causes this disorder, it is important to reduce that stress. Some of the strategies for prevention include:

- Proper warm-up techniques will help prepare the muscles and tendons for the activity and increase the flexibility of the tendon. Warmer tendons are more flexible tendons.
- If particular activities cause pain they are probably causing stress on the area. Reducing or avoiding these activities will help prevent the development of this condition. It is important to distinguish between healthy muscle pain and pain of injury. If it is stiffness and pain in the belly of the muscle and goes away in 24 hours it is simply pain from muscle breakdown and recovery, if it does not go away in a day or two, or is focused around a joint or bone attachment it may be the result of an injury.
- Since a lot of the stress placed on the quadriceps and patellar tendons is due to tight quadriceps muscles, stretching these muscles to relieve the tightness and to lengthen the muscle will help alleviate some of the stress. Developing a balance between the hamstrings and quadriceps is also important. If the hamstrings are proportionately weaker than the quadriceps then they will not be able to act as a counter force against the forceful quadriceps contractions, which could put additional stress on the tendon. If the quadriceps muscles are weaker than the hamstrings (very rare) they will be chronically tight from resisting the hamstrings. Strengthening the quadriceps also helps facilitate muscle lengthening and increases flexibility if done properly through a full range of motion.

Stretching is one of the most under-utilized techniques for improving athletic performance, preventing sports injury and properly rehabilitating sprain and strain injury. Don't make the mistake of thinking that something as simple as stretching won't be effective.



For an easy-to-use, quick reference guide of **more than 100 clear photographs of every possible stretch**, for every major muscle group in your body, get a copy of The Stretching Handbook. You'll also learn the benefits of flexibility; the rules for safe stretching; and how to stretch properly. [Click here to learn more about The Stretching Handbook.](#)

- Rest is a key component in prevention of many injuries. For Osgood Schlatter's it is essential to allow the affected area to heal in between bouts of activity. The body uses rest time to recover and get stronger. Too often young athletes fall into the "More is Better" line of thinking and over-train leading to overuse injuries such as Osgood Schlatter's.

- One of the most important preventative measures is to work into any activity gradually. This is especially important for younger athletes. The bones are not fully developed and therefore are a little weaker and more susceptible to injury. When strenuous activity is started without adequate conditioning and preparation it can cause too much stress on the skeletal system leading to injury. When a young athlete stresses the muscles of the quadriceps with excessive resistance, such as weight training with too heavy a load or sprinting middle distances before working up to it, it can cause undue stress on the patellar tendon and lead to Osgood Schlatter's.

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