

# HEALTH IN OUR HANDS!

The Arkansas State University Wellness Program Newsletter  
[www.clt.astate.edu/wellness](http://www.clt.astate.edu/wellness)



## Osgood-Schlatter Disease

### Overview

Osgood-Schlatter disease (OSD) is an overuse injury. It is one of the most frequent causes of knee pain in children. The patella tendon inserts on the anterior tibial tubercle on the tibia. When the tendon becomes irritated, it is known as Osgood-Schlatter disease. There is a painful bump below the knee. There is inflammation of the bone, cartilage, and tendon at the top of the tibia where the tendon of the patella inserts. Osgood-Schlatter affects children and adolescents during growth spurts most commonly around puberty. Most often only one knee is affected. Osgood-Schlatter is believed to be caused by repeated overuse and stretching of the tendon when the area has not finished growing.

### Risk Factors

The biggest risk factor is growth spurts. The bones, muscles and tendons may not all grow at the same rate. Exercise and physical activity place additional stress on the muscle

groups, tendons, and bones. Boys are more likely to develop Osgood-Schlatter disease, but as girls become more active in sports, the gender gap is narrowing. Osgood-Schlatter disease affects 1 in 5 adolescents. Age range varies but most often affects boys between 10 and 15 years and 8 to 13 years of age for girls. Adolescents are at an increased risk if they play sports involving running, twisting, and jumping such as

- basketball
- football
- volleyball
- soccer
- gymnastics

### Symptoms

The main symptom is painful swelling and a bump on the lower part of the leg at the top of the shinbone. This pain can vary from mild discomfort felt only during activity to severe and constant. Other symptoms include:

- Pain that worsens during exercise
- Relief from pain during rest
- Swelling or tenderness under the knee and over the shinbone
- Limping after exercise
- Tightness of the muscles surrounding the knee

If your child is experiencing pain at rest, thigh pain, or severe pain that awakens them at night, you should consult your physician.

### Causes

The long bones in children's arms and legs have growth plates made of cartilage at the end of the bone. Cartilage is not as strong as bone. When stress is placed on the growth plate this causes it to become swollen and painful. The thigh muscles (quadriceps) pull on the tendon connecting the kneecap to the shinbone during activities previously mentioned. When this activity is repeated again and

again this causes the tendon to pull away from the shinbone, resulting in pain and swelling. The body may try to close the gap by developing new bone known as Wolff's law.

### Treatment

This condition usually resolves itself, once the adolescent quits growing. This could take 12 to 24 months or until the child reaches 18 years of age. A doctor may advise that the child limit the activities that cause the most stress and pain to the knee. When symptoms flare up, the child can take a short break then continue with the activity. Shock absorbent insoles in shoes can decrease the stress on the knee. Use the RICE formula to decrease symptoms. RICE stands for

- **Rest.** Limit activities as much as possible and avoid activities that involve running, jumping or twisting. Usually taking one week rest with gradual increase in activity for a month decreases symptoms.
- **Ice.** Putting ice over the painful area should be done two to four times a day and after activities. Icing for 20 minutes after activity can minimize the swelling. Continue doing this for 2-5 days or until the pain and swelling goes away.
- **Compress.** Provide the knee with extra support using a brace, band or strap.

- **Elevate.** Try to keep your knee higher than your heart to reduce swelling.

There are knee pads available to protect the knee. Stretching with activity and a focus on the quadriceps and hamstrings before an activity can reduce irritation. In severe cases, a complete break from all physical activity may be necessary. Physical therapy can help educate the patient on proper stretching and strengthening exercises. Ibuprofen and other nonsteroidal anti-inflammatory drugs or acetaminophen can be used to decrease the amount of pain. If the symptoms do not decrease, a cast may be used to immobilize for 6 to 8 weeks or until it heals. Long term effects are rare but may include a permanent, painless bump below the knee. If the bony growth becomes painful, it can be surgically removed. Most adults that had OSD will experience limited pain with kneeling. A severe case of OSD can result in osteochondrosis. Osteochondrosis is when the stretching involves microscopic bone chipping, inflammation and tears, and can lead to a separation of cartilage and bone, in this case, from the tibia.

### Prevention

Prevention is usually difficult because the small injuries that lead to OSD are hard to recognize. Regular stretching before and after activity can help prevent injuries. Athletes should warm up and cool down before and after activity for 15 to 30 minutes. Coaches should be trained on how to supervise their athletes for risks.

### Similar Diseases

**Sever's Disease (SD):** Sever's disease is a common cause of heel pain in growing kids. Pain and inflammation occur because the heel bone (calcaneus) is growing faster than the leg's muscles and tendons. This causes the muscles and tendons to be overstretched making the heel less flexible. Over time the repeated stress on the heel causes swelling, tenderness and pain that is associated with SD.

**Ischial Apophysitis:** Ischial apophysitis is a similar condition that happens in the hip. Muscles and tendons on the back of the leg that connect to the ischial tuberosity can cause pain, swelling, and tenderness during growth spurts and increased activity.

### References

- [www.nlm.nih.gov](http://www.nlm.nih.gov)
- [kidshealth.org](http://kidshealth.org)
- [www.mayoclinic.com](http://www.mayoclinic.com)
- [www.osgoodschlatter.com](http://www.osgoodschlatter.com)

### Other News:

\*\*If you have any suggestions for newsletter topics, please contact Dean Susan Hanrahan at [hanrahan@astate.edu](mailto:hanrahan@astate.edu).

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The Arkansas State University Employee Wellness Newsletter is published monthly during the academic year by the College of Nursing and Health Professions. Health questions can be addressed to Dean Susan Hanrahan, Ph.D., ext. 3112 or [hanrahan@astate.edu](mailto:hanrahan@astate.edu). Produced by Michelle Williams, graduate student in the College of Nursing and Health Professions, Physical Therapy Program.