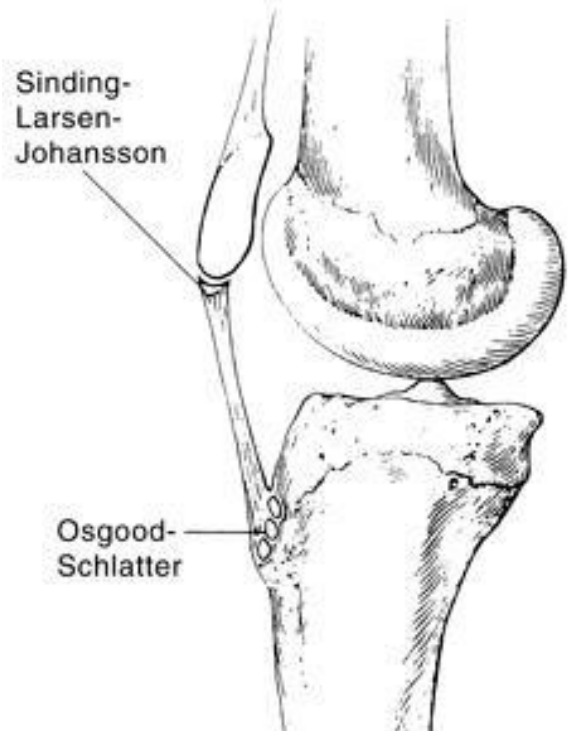


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Sinding-Larsen-Johansson Syndrome

Sinding-Larsen-Johansson syndrome is characterized by a stress injury to the growing patella (kneecap) at its inferior pole (bottom) where the patellar tendon attaches and experiences large forces from the powerful quadriceps (thigh) muscles. This aspect of this growing patella bone is an area of relative weakness and injury to it occurs from repetitive stress during vigorous exercise and activity. This is the site of origin of the patellar tendon. There is traction on the patella at this point due to action of the large, powerful thigh muscle (quadriceps), as well as with deep bending of the knee. It is usually a temporary condition that is uncommon after age 16 or when the growth is completed. It is the children's equivalent of patellar tendinitis (jumper's knee).



Frequent Signs and Symptoms

- Slightly swollen, warm, and tender bump below the kneecap
- Pain with activity, especially when straightening the leg against force (such as with stair climbing, jumping, deep knee bends, or weightlifting) or following an extended period of vigorous exercise in an adolescent
- In more severe cases, pain during less vigorous activity

Etiology (Causes)

Sinding-Larsen-Johansson syndrome results from stress (a single sudden incident or repeated) or injury of the lower patella that overstresses the developing bone, causing pain. This may be inflammation of the cartilage of the growing patella, death of tendon cells from repeated stress, or pulling off of the lining of the patellar bone.



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Risk Factors

- Overzealous conditioning routines, such as running, jumping, or jogging
- Being overweight
- Boys between ages 10 and 15
- Rapid skeletal growth
- Poor physical conditioning (strength and flexibility)

Prevention

- Appropriately warm up and stretch before practice or competition.
- Maintain appropriate conditioning:
 - Thigh and knee strength
 - Flexibility and endurance
 - Ideal body weight
 - Cardiovascular fitness
- Exercise moderately, avoiding extremes.
- Use proper technique.

Outcomes

Mild cases can be resolved with a slight reduction in activity level, stretching, regular cold therapy whereas moderate to severe cases may require significantly reduced activity and even temporary immobilization.

Potential Complications

- Continuation of the condition in adulthood, with symptomatic bone fragments below the affected knee (ossicle)
- Persisting prominence (bump) below the kneecap

Treatment Considerations

Initial treatment consists of medications and ice to relieve pain, stretching and strengthening exercises, and modification of activities. Specifically, kneeling, jumping, squatting, stair climbing, and running on the affected knee should be avoided. The exercises can all be carried out at home for acute cases. Chronic cases often require a referral to a physical therapist or



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athletic trainer for further evaluation or treatment. Uncommonly, the affected leg may be temporarily immobilized if symptoms are severe. A patellar band (brace between the kneecap and tibial tubercle on top of the patellar tendon) may help relieve symptoms. Rarely, surgery is needed (if conservative treatment fails) in the growing patient. In addition, surgery may be necessary after skeletal maturity if the ossicle becomes painful.

Possible Medications

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (**DO NOT** take within seven days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Cortisone injections are rarely, if ever, indicated. Cortisone injections may weaken tendons, so it is better to give the condition more time to heal than to use them

Modalities (Heat and Cold)

- Cold is used to relieve pain and reduce inflammation. Cold should be applied for 10 to 15 minutes every two to three hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage with a cloth between the ice and your skin to prevent burning /freezing your skin.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

Notify My Office If Symptoms Worsen

