

# Jumper's Knee in Children and Adolescents

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## Introduction

When a child or adolescent complains of pain and tenderness near the bottom of the kneecap, the problem might be from jumper's knee.

Kids in sports that require a lot of kicking, jumping, or running are affected most. Doing these actions over and over can lead to pain in the tendon that stretches over the front of the kneecap.

Sometimes the bone growth center at the bottom tip of the kneecap is affected. This condition is known as Sinding-Larsen-Johansson disorder.

It is mostly likely to occur during growth spurts. Disruption within the developing bone in the bottom tip of the kneecap may produce pain and tenderness in the front of the knee. Fortunately, this condition is not serious. It is usually only temporary and will improve with age.

This guide will help you understand

- what part of the knee is involved
- what causes the condition
- what treatment options are available

## Anatomy

What part of the knee is involved?

Jumper's knee affects the patellar tendon. The patellar tendon connects the large and powerful quadriceps muscle in the front of the thigh to the tibia (shinbone). The patellar tendon wraps over the front of the patella (kneecap). The upper end of the patellar tendon connects to the bottom tip of the patella. This area is called the inferior pole of the patella.

The lower end of the patellar tendon connects to a small bump of bone on the front surface of the tibia. This bump is called the tibial tuberosity.

Related Document: [A Patient's Guide to Knee Anatomy](#)

## Symptoms

What does this problem feel like?

Jumper's knee commonly produces pain and tenderness directly over the patellar tendon, just below the kneecap. Sometimes there is a small amount of swelling. Kneeling on the sore knee usually hurts. Activities where the quadriceps muscle works eccentrically, such as squatting, jumping, and going down stairs, are often painful.

Kids with Sinding-Larsen-Johansson disorder may feel similar symptoms along the top of the kneecap, where the quadriceps muscle meets the patellar tendon. Sometimes they feel tightness in this area, especially when they try to fully bend the knee.

## Diagnosis

How do doctors identify the problem?

The history and physical examination are usually enough to make the diagnosis of jumper's knee. The doctor will need information about the child's age and activity level. The doctor will press on and around the patella and patellar tendon to see if there is any tenderness. The doctor will compare the sore knee and the healthy knee. The doctor may also ask the patient to straighten the knee against resistance. This makes the quadriceps muscle work, putting tension on the patellar tendon. Pain during this test can help the doctor make the diagnosis of jumper's knee.

If the doctor suspects problems with Sinding-Larsen-Johansson disorder, it is likely that an X-ray will be ordered. The X-ray is taken from the side of the knee. This view may show small fragments of bone where tension in the patellar tendon has disrupted the growth plate in the bottom tip of the patella. The X-ray may also show calcification or roughness around the bottom of the patella.

An X-ray will be needed if the kneecap is painful from trauma such as a fall. In this case, the X-ray will help the doctor see if a patellar fracture has occurred.

Occasionally, a magnetic resonance imaging (MRI) scan may show more detail. The MRI can give a better view of any calcification in the patellar tendon where it attaches on the bottom tip of the kneecap. The MRI can detect swelling. It can also show if injury or inflammation is present within the patellar tendon.

## Treatment

What treatment options are available?

### Nonsurgical Treatment

In some cases of jumper's knee, the patient may need to stop sports activities for a short period. This gets the pain and inflammation under control. Usually patients don't need to avoid sports for a long time.

When jumper's knee is affecting a patient before the skeleton has stopped growing (Sinding-Larsen-Johansson disorder), the passing of time may be all that is needed. It takes one to two years for the bone growth plates that make up the inferior pole of the patella to grow together and form one solid bone. At this point, pain and symptoms usually go away completely.

To treat jumper's knee, the doctor may prescribe anti-inflammatory medicine to help reduce swelling. A variety of knee straps and sleeves are available that may help keep pain to a minimum. The doctor may also suggest working with a physical therapist.

Physical therapy treatments might use ice, heat, or ultrasound to control inflammation and pain. As symptoms ease, the physical therapist works on flexibility, strength, and muscle balance in the knee. Posture exercises can help improve knee alignment. The therapist may also design special shoe inserts, called orthotics, to support flat feet or to correct knock-kneed posture.

Cortisone injections are commonly used to control pain and inflammation in other types of injuries. However, a cortisone injection is usually not appropriate for this condition. Cortisone injections haven't shown consistently good results for jumper's knee. There is also a high risk that the cortisone will cause the patellar tendon to rupture.

### Surgery

Surgery is rarely needed for jumper's knee. Surgery is really not even an option when symptoms are caused by Sinding-Larsen-Johansson disorder, unless bone growth is complete and symptoms have not gone away with nonsurgical treatment. Even then, surgery for Sinding-Larsen-Johansson disorder is unusual.

Surgery may be considered if the problem involves only the tendon (not the growth plate) and if symptoms have not gone away with other forms of treatment. In these cases, the surgeon may do an operation to strip away inflamed and damaged tissue on the surface of the patellar tendon.

In this procedure, a small incision is made down the front of the knee, below the patella. The skin is opened to expose the patellar tendon. Next, the surgeon carefully peels damaged tissue off the surface of the tendon. Three to five thin lengths of the tendon are removed. In some cases, small drill holes are made in the bottom tip of the patella. The drilling causes a small amount of bleeding, which signals the body to begin healing the area. Then the surgeon removes any damaged tissue nearby.

To complete the operation, the surgeon stitches up the skin and wraps the area with a bandage.