STANFORD
SCHOOL OF MEDICINE
Stanford University Medical Center

DEPARTMENT OF ORTHOPEDIC SURGERY
SPORTS MEDICINE
Marc R. Safran, MD
Professor, Orthopaedic Surgery
Chief, Division of Sports Medicine

PATELLAR TENDINTIS
(JUMPER'S KNEE)

DESCRIPTION

This is partial tearing with inflammation and pain at the Patellar Tendon (the tendon below the kneecap). This structure is the tendon attachment of the quadriceps (thigh) muscles to the leg. This structure is important in straightening the knee or slow the knee during bending or squatting. This is usually a grade 1 or 2 strain of the tendon. A *Grade 1 strain* is a mild strain. There is a "slight pull" without obvious tearing (it is microscopic tendon tearing). There is no loss of strength and the tendon is the correct length. A *Grade 2 strain* is a moderate strain. There is tearing of tendon fibers within the substance of the tendon or at the bone-tendon junction. The length of the tendon is usually increased and there is decreased strength. A *grade 3 strain* is a complete rupture of the tendon. (see Patellar Tendon Rupture).

FREQUENT SIGNS AND SYMPTOMS

- Pain, tenderness, swelling, warmth and/or redness over the Patellar Tendon, most often at the lower pole of the patella (kneecap) or at the tibial tubercle (bump on the upper part of the lower leg).
- Pain and loss of strength (occasionally) with forcefully straightening the knee (especially jumping, arising from a seated or squatting position) and/or bending the knee completely (squatting or kneeling)
- Crepitation (a crackling sound) when the tendon is moved or touched

CAUSES

- Strain from sudden increase in amount or intensity of activity or overuse of the quadriceps muscles and patellar tendon
- Direct Blow or injury to the knee or patellar tendon.

RISK INCREASES WITH

- Sports that require sudden, explosive quadriceps contraction (jumping, quick starts, or kicking)
- Running sports, especially training running down hills.
- Poor physical conditioning (strength/flexibility - weak quadriceps and/or tight hamstrings)
- Flat feet

PREVENTIVE MEASURES

- Appropriate warm up and stretching before practice or competition
- Give time for adequate rest and recovery between practices and competition
- Appropriate conditioning including cardiovascular fitness, and thigh and knee strength, flexibility endurance
- To help prevent recurrence, taping, protective strapping or bracing, or an adhesive bandage may be needed for several weeks after healing is complete.
- Arch supports (orthotics)

EXPECTED OUTCOME

Usually curable within 6 weeks if treated appropriately with conservative treatment and resting the affected area.

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POSSIBLE COMPLICATIONS

- Healing time will be prolonged if not appropriately treated or if not given adequate time to heal
- Recurrence of symptoms if return to activity is too soon, with overuse, direct blow, or poor technique.
- Untreated, tendinitis may result in tendon rupture requiring surgery

GENERAL TREATMENT CONSIDERATIONS

Initial treatment consists of medication and ice to relieve the pain, stretching and strengthening exercises of the quadriceps and hamstrings muscles and modifying the activity which initially cause the problem to occur. These all can be carried out at home, though referral to a physical therapist or athletic trainer for further evaluation and treatment may be helpful. Rarely, a leg cast may be recommended to 10 to 14 days to immobilize the tendon to allow the inflammation to settle down. Uncommonly, crutches may be needed for the first few days to weeks until good control of the quadriceps muscles and no limp exists. An arch support (orthotic) and/or a patellar tendon brace may be prescribed to reduce stress to the tendon. PRP (platelet rich plasma) has been used with some benefit. Surgery, to remove the inflamed tendon lining or degenerated tendon tissue is rarely necessary and only after at least 6 months of adequate rehabilitation and rest.

MEDICATION

- Non-steroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take if surgery planned in 7 days or less), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact him/her immediately if any bleeding, stomach upset or an allergic reaction occurs.
- Pain relievers may be prescribed by your physician. Use only as directed and only as much as you need.
- Cortisone injections are not given. Cortisone injections may weaken tendons, so it is better to give the condition more time to heal than to use them.
- PRP (platelet rich plasma) injections have been used with some benefit, in conjunction with relative rest and physical therapy.

HEAT AND COLD:

- Cold is used to relieve pain and reduce inflammation. Cold should be applied for 10 - 15 minutes every 2-3 hours for inflammation and pain, and immediately after any activity which aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used prior to performing stretching and strengthening activities prescribed by your physician, physical therapist or athletic trainer. Use heat pack or a warm soak.

NOTIFY OUR OFFICE IF

- Symptoms get worse or do not improve in 2 weeks despite treatment
- New, unexplained symptoms develop. Drugs used in treatment may produce side-effects.

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