

Patient Information Sheet

LIGAMENT TEAR

Structure

The knee lies between the thigh bone (*femur*), leg bone (*tibia*) and knee-cap (*patella*). Covering the ends of the bones is a tough low friction surface (*articular cartilage*). The knee consists of two joints: the thigh-leg (*tibio-femoral*) and the thigh-kneecap (*patello-femoral*). These joints are stabilised by ligaments: the collaterals (*inner-medial & outer-lateral*) prevent side-to-side movement and the cruciates (*anterior-front & posterior-back*) prevent twisting (*rotational*) movement. The knee is straightened (*extended*) by thigh muscles (*quadriceps*) and bent (*flexed*) by hamstring muscles. The menisci are spacer washers in the tibio-femoral joint that transfer load evenly.

Function

Ligaments run from bone to bone and consist of fibre bundles (*collagen*) highly aligned to resist tension. They guide motion to prevent injury and aid joint position sense (*proprioception*).

Failure

Ligaments tear when an excessive pull (*tension*) is applied. Collateral tears result from excess side-to-side (*medio-lateral*) force whilst cruciate tears result from excessive twisting (*axial rotational*) force. A simple low energy event (low speed skiing fall) causes a partial tear. *Partial tears will heal*. Conversely, a complex high energy injury (tackle) causes a complete ligament tear associated with meniscal and articular cartilage injuries. *Complete tears do not heal*.

Diagnosis

Partial tears are diagnosed by a history of a low energy event, pain and a tender but strong ligament on examination. Complete tears are diagnosed by a history of a high energy injury, painless giving way and ligament weakness on examination. X-ray may show a flake of bone pulled off by the ligament. MRI scanning is not required to make the diagnosis but may be necessary to exclude other injuries (meniscus / articular cartilage).

Management principles

Partial tears will heal and require bracing for 8 weeks to protect the healing ligament. Physiotherapy starts immediately to maintain optimal function in the uninjured parts of the knee.

Complete tears do not heal and require either repair (immediate surgery to the torn ligament ends) or reconstruction (delayed surgical replacement of the entire ligament with a graft).

Management of common tear patterns

Partial MCL (medial collateral ligament) tears will heal with bracing and physiotherapy. No surgery is required. A return to full function takes 3-6 months.

Complete ACL (anterior cruciate ligament) tears do not heal and require surgical reconstruction with a hamstring tendon. Return to full function takes 6-12 months after surgery.

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The Knee Joint

