

## Rehabilitation

The major goal of the rehabilitation program is to normalise walking, normalise pain-free range of motion, prevent muscle wastage and maintain cardiovascular fitness. Rehabilitation after a meniscus repair should focus on early mobilization of the knee joint and quadriceps and hamstring strength. Weight bearing exercises are added as directed by a physiotherapist.

Regardless of the form of surgery, rehabilitation usually includes walking, bending the legs, and doing exercises that stretch and build up the leg muscles.

## Return to Sport

Return to play after a meniscal injury is expected. The timing is variable and depends on the injury, treatment and rehabilitation protocol. In many cases, return to sport can be as soon as 2 - 3 weeks or as long as 6 - 8 weeks. Prevention of recurrent problems is accomplished best by re-establishing and maintaining knee fitness with strength, flexibility and proprioception (balance).

## References

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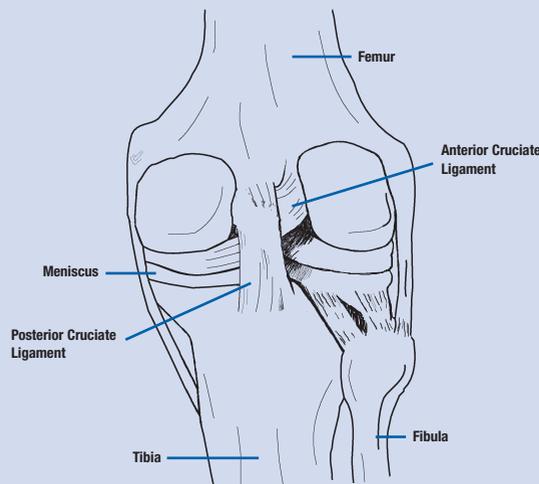


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# Introduction

The knee is one of the most complex joints in the human body, and because so many sports place extreme stress on the knee, it is also one of the most common sites for sports injuries. Meniscus (commonly referred to as cartilage) injuries are common in all sports that require twisting movements and sudden and explosive changes in direction, especially rugby, football, soccer, basketball, netball and snow skiing.

POSTERIOR VIEW OF THE KNEE



## Functional Anatomy

The knee is one of the most complex joints in the Human Body. Being a hinge joint it is structured to perform two principle actions, flexion (bending) and extension (straightening). The muscles which act at the knee are predominantly the Quadriceps (extension), and the Hamstrings (flexion).

The menisci are positioned on the tibial plateau (top surface of the shin bone) between the tibia (shin bone) and the femur (thigh bone). There are two menisci within each knee joint.

The menisci are roughly semicircular in shape and are markedly thicker around the rim.

## Causes of Injury

Meniscal tears can occur in isolation or in combination with a ligamentous injury. The meniscus in the knee is usually damaged by a twist occurring on a slightly flexed knee. A partial or total tear of a meniscus may occur when a person quickly twists or rotates the upper leg while the foot stays planted. Repeated or prolonged squatting can also tear the meniscus.

## Signs & Symptoms

Pain is usually experienced when a meniscus is injured, particularly when trying to straighten the knee. If the tear is tiny, the meniscus stays connected to the front and back of the knee. If the tear is large however, the meniscus may be left only slightly intact. Severe, intermittent sharp pain may occur, and is localised to that side of the joint. This results from part of the tear catching between the articular surfaces of the tibia and femur, blocking full extension of the knee, causing a 'locking' sensation.

Swelling may occur soon after the injury or several hours later as a result of inflammation. Complaints of clicking, popping or locking of the knee may also follow a meniscus injury. In some cases, after the initial swelling and pain, the joint settles down and normal activities can be resumed. This may be because the tear in the meniscus is small or the flap does not affect joint mechanics.

Meniscal tears can be traumatic or degenerative. Degenerative tears occur as part of progressive wear in the whole joint or as a result of habitual, prolonged squatting. In the older adult, the tear may be due to a natural degeneration of the menisci that occurs with age. The traumatic type of injuries are quite common in the athletic setting.

The medial meniscus is more commonly affected than the lateral meniscus, whilst tears in both menisci are much less common.

## Initial Treatment

The immediate treatment of any soft tissue injury consists of the RICER protocol – rest, ice, compression, elevation and referral. The RICER protocol should be followed for 48 – 72 hours. The aim is to reduce the bleeding and damage within the joint. The knee should be rested in an elevated position with an ice pack applied for 20 minutes every two hours (never apply ice directly to the skin). A compression bandage should be applied to limit bleeding and swelling in the joint.

The No HARM protocol should also be applied – no heat, no alcohol, no running or activity, and no massage. All these will lead to increased swelling and bleeding in the injured area.

A sports medicine professional should be seen as soon as possible to determine the extent of the injury and to provide advice on treatment required. A sports medicine professional may perform a physical examination and take x-rays of the knee. An MRI test may be recommended to confirm the diagnosis. An arthroscopy may also be used to help diagnose and treat a meniscal tear.

## Treatment

If the tear is minor and the pain and other symptoms go away, a muscle-strengthening program may be recommended. A large tear produces a flap of meniscus that may interfere with normal joint mechanics. The torn flap of meniscus can cause further damage leading to greater risk of degenerative arthritis. Due to the nature of the tear that the menisci can suffer, repair of the meniscus can be a complicated issue.

Symptoms that affect the function of the joint require surgical intervention. A meniscal tear that is symptomatic (painful with activities of daily living) needs to be addressed surgically. The majority of tears require arthroscopic surgery. This is where a small camera and surgical devices are used by the surgeon to remove the flap and smooth off the surface of the meniscus, or repair the torn meniscus. This will leave 'normal' structures and decrease the likelihood of degenerative arthritic changes.