

# All About Meniscus tear And It's treatment

## Overview

The medial and lateral menisci or “shock absorbers” of the knee are very important structures to protect the cartilage and prevent the development of osteoarthritis (wear and tear of knee joint). In addition, the menisci also provide extra stability to the knee. Thus, they are an essential part of the anatomy and the loss/removal of the menisci can result in early onset osteoarthritis and can also result in an unstable knee, especially if there is a concurrent ligamentous injury or reconstruction is performed.

The menisci are fibrocartilage “C” or half-moon shaped. Meniscal tears at the edges of the meniscus on the inside (white -white zone) of the knee have a very low chance of healing. **However, meniscal tears closer to the joint lining (red-red & red-white zones), commonly called menisco capsular separations, have a much higher chance of healing.** Meniscal tear treatment will usually be administered by **arthroscopic meniscus repair.**

Menisci are not the vestigial structures of the knee as being generally considered which led to its removal and excision. Thus, promoting early wear and tear of knee and hence decreasing the quality of life. Advanced revision surgeries like meniscal allograft transplant or osteotomies maybe required in such scenarios.

## **Description of Meniscus Repair / Surgery**

In general, Dr. IDee will **always try to preserve** the meniscal tissues to prevent further development of osteoarthritis, especially if there is a concurrent ACL or ligament reconstruction performed to prevent the graft from stretching out over time. Also in younger individuals it is recommended to repair the meniscus than to remove it. It has been found that the use of multiple inside-out sutures allows the meniscus to be put back into its anatomic position and also provides extra stability to the meniscus such that early range of motion can be implemented.

Various techniques can be used to repair the meniscus:

- All inside
- Inside out (Gold standard)
- Outside in

Whatever the technique chosen, the overall goal of the surgery is to get a stable fixation, which enhances healing of the meniscus thus preserving the knee joint.

In the case of a non-repairable tear or complex tears, Dr. IDee will try to preserve as much meniscal tissue as possible and will trim and contour the area of the tear such that it has a lower risk of tearing further over time.

In all patients who have meniscal tissue removed, they must be educated to make sure if they have any problems with pain or swelling that they return to be evaluated. This is because the early signs of osteoarthritis are pain and swelling with activities. It is important to have a proper assessment to evaluate if the patient has post-menisectomy arthritis developing to the point where the

use of an unloader brace, osteotomy or meniscus transplant surgery may be necessary to slow the further progression of osteoarthritis.

Dr. IDEe recommends patients be periodically observed with monopedal weight bearing x-ray views to look for joint space narrowing and alignment x-rays (scanogram) to determine if they are malaligned for that particular compartment where the meniscus has been removed. In such cases a realignment procedure such as high tibial osteotomy (HTO) needs to be added along with meniscus repair.

Dr. IDEe will typically do a repair of peripheral tears of the meniscus, large horizontal tears, root detachments and occasionally for radial tears, especially of the lateral meniscus, in young athletic patients. He performs the majority of meniscal tear treatments using an inside-out approach with a surgical incision on the inside or outside of the knee with needles placed into the tear which are then pulled outside the joint and tied directly over the joint lining. The use of non-absorbable sutures in this circumstance are incorporated because of the reports of higher risks of tearing a meniscus repair over time in patients who have absorbable sutures utilized. However, it is shown that a synovium eventually covers the sutures hence preventing cartilage abrasion with these sutures.

Our preferred technique is a vertical mattress suture repair for a meniscal tear. Biomechanically, these have been shown to be the strongest type of suture repair. In some circumstances, a horizontal mattress suture may be required, especially for under surface meniscal tears to pull it back to a more anatomic position, and also for radial tears of the lateral meniscus where horizontal mattress sutures are required to hold meniscal tissue back into place.

In order to maximize healing of the meniscus, we commonly inject fibrin clot during the surgery and also do bone marrow stimulation. This helps in the repair by releasing growth factors which should increase the chance of the meniscal tissue healing.

## **Post-Operative Protocol for Meniscus Surgery**

In the case of an isolated meniscus surgery repair, we have patients work on a range of motion from 0-90° for the first 2-3 weeks and then increase their knee flexion as tolerated. However, they are non-weight bearing for 4-6 weeks.

In general, we recommend patients who have meniscus repairs avoid deep squatting, sitting cross-legged or performing any heavy lifting or squatting activities for a minimum of 4-6 months postoperatively to give the posterior horn of the meniscus the best chance for healing. For concurrent meniscal root repairs or radial repairs, the rehabilitation process is slowed significantly to maximize the chance of healing.

A well guided physical therapy protocol is essential to maximize outcomes after a meniscus surgery repair. It is important for the patient to follow the protocol, avoid participating in certain high impact, contact, or twisting activities and to closely follow the rehabilitation program recommended to maximize their surgical outcome.

The rehabilitation program for postoperative meniscus surgery also depends upon the other concurrent surgeries. It has been well demonstrated for patients with a meniscus repair and a concurrent ACL reconstruction that one can start early range of

motion and have a very high chance of healing. We believe this is because of the growth factors and stem cells that are released from drilling the ACL reconstruction tunnels.

Dr. D. Deee