



## Orthopaedic Surgery & Sports Medicine

### **Meniscus transplant**

#### **Knee anatomy**

The knee joint is made up of three bones: the femur (thigh bone), tibia (shin bone), and patella (knee cap). Crescent shaped pieces of cartilage (menisci) are the only cushions between the bones of each knee. Each knee has two menisci; the lateral (outside) and medial (inside) meniscus.

#### **What is the meniscus?**

The meniscus is the wedge-shaped ring of cartilage in the knee that sits between the femur and the tibia. These act as shock absorbers, provide stability of the joint, and act as lubrication. Each knee has two menisci, lateral (outside) and medial (inside).

#### **Meniscal deficiency defined**

The pain felt by a patient without a full and intact meniscus. The pain is due to stress on the bones and cartilage caused by the missing “shock absorbers.”

#### **Diagnosing meniscal deficiency**

##### *Signs, symptoms and diagnostic tests*

Signs - previous knee surgery, history of knee injury

Symptoms - pain on the inside or outside of the knee in the area of the missing meniscus, swelling, locking or catching of the knee. Symptoms will worsen with activity.

Diagnostic Tests - X-rays can evaluate the knee for arthritis and alignment of the leg. An MRI can confirm the absence of the meniscus and also rule out injuries to other structures. A bone scan may be used to determine areas of increased stress in the bone.

#### **What treatment options are available?**

##### *Non-surgical*

Many patients will function very well for a long time after having a portion of their meniscus repaired or removed. Over time, however, symptoms may develop and worsen. In some instances patients can be medically managed through: activity restrictions, anti-inflammatory and pain medications, cortisone injections and/or physical therapy. The effectiveness of conservative treatment will depend upon the patient’s age, activity level, and the amount of damage within the knee. If symptoms do not resolve with conservative treatment surgery may be necessary.

***Meniscal allograft transplant***

This surgical procedure is designed to replace a missing meniscus using donor tissue. The donated meniscus is from a human cadaver. This transplanted tissue will restore the “shock absorbers” to the knee.

**How is the procedure performed?**

Before the transplant, your physician will procure the appropriate tissue from a tissue bank. Unlike ligament grafts, which are size independent, meniscus grafts are size dependent. Through the use of preoperative X-rays and MRI, the physician is able to match the size of the donor tissue to the recipient.

The meniscal transplant is done arthroscopically through several small incisions in the knee. During the reconstruction, the surgeon first removes any remaining damaged meniscus and scar tissue before implanting the donor meniscus. The flat, crescent shaped donor meniscus is attached to the femur and tibia and secured to the capsule of the knee joint with sutures. Attached to the two ends of the meniscus are bone plugs, the plugs are secured into tunnels drilled into the recipient’s tibia (shin bone).

**What has been done to prevent disease transmission?**

Once the tissue has been harvested under sterile conditions it is tested for contamination and screened for transmittable diseases such as Acquired Immune Deficiency Syndrome (AIDS), Hepatitis B and C, and Syphilis. In addition, prior to tissue harvesting, the donor screening process is very rigid. Chances of disease transmission are minimal to none.

**What are the risks involved with the surgery?**

As with any knee surgical procedure there are some risks involved. There is always a small risk associated with the administration of general or spinal anesthesia. The morning of surgery an anesthesiologist will discuss the type of anesthesia that is recommended for your case and cover in detail the associated risks and benefits.

Two other small risks associated with the procedure include: lower leg blood clot formation and wound infection. Post-operative antibiotics and early mobility are used to prevent these potential risks from occurring.

**Meniscus transplant post-operative instructions**

Following the operation you will be taken to the recovery room for observation. Once the effects of the anesthesia have worn off and your pain is under control you will be taken to your hospital room.

Initial treatment after surgery consists of pain management, physical therapy and cryotherapy (ice).

**How should I care for my knee after surgery?**

Prior to your discharge, you will be given specific instructions on how to care for your knee. In general, you can expect the following:

***Diet***

Resume your regular diet as soon as tolerated. It is best to start with clear liquids before advancing to solid food.

***Medication***

You will be given a prescription for pain medication.

***Crutches***

Crutches will be used for approximately four to eight weeks. Partial (20-25 percent) weight bearing will be allowed on the operative leg for the first four weeks. Progression to full weight bearing will be determined by your physician. Crutch walking is encouraged.

***Brace***

A hinged knee brace will be applied in the operating room and worn for approximately eight weeks. During the first six weeks, the brace will be locked in full activities including walking, sitting, and sleeping. The brace may be unlocked on a daily basis for a vigorous exercise program.

***Ice***

You may receive a portable ice container which continually surrounds your knee with cold water. You may apply ice over the dressings for 30 minutes every hour for several days. Do not use heat.

***Suture removal***

Your stitches will be removed at your office visit 7-10 days after surgery.

***Follow-up office visit***

You will be given an initial follow-up appointment prior to leaving the hospital after surgery.

***Return to normal activities***

The return to most normal activities will occur within three to six months after surgery. Patients are able to return to sedentary work or school in approximately seven to ten days after surgery. Driving will begin in six to eight weeks. Heavy labor activities will not be resumed for six to nine months. Return to competitive sports occurs one year post surgery.

***How long is the rehabilitation process?***

Following the surgery patients face several months of rehabilitation. Within 24 hours after the transplant patients begin physical therapy; which includes crutch walking and range of motion exercises. Crutch walking is encouraged. Avoid long periods of standing or sitting (greater than 30 minutes) during the first two weeks after the surgery. The initial rehabilitation phase lasts four to six weeks and is followed by a progressive program to return to normal strength and activity. Total rehabilitation time lasts approximately six to nine months with recovery in one year.