

STEVEN CHUDIK MD

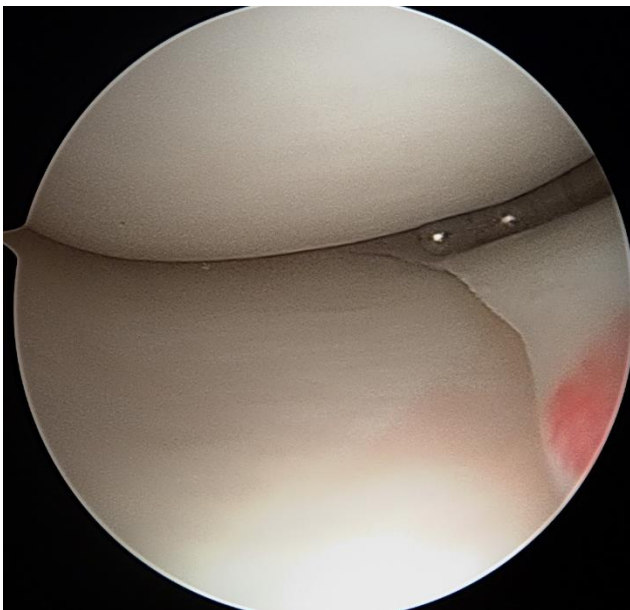
SHOULDER, KNEE & SPORTS MEDICINE

Arthroscopic Knee Cartilage Repair, Transfer, and Transplant

Indications for Surgery

Cartilage, the protective surface that covers the ends of our bones, helps our joints move smoothly without pain. Cartilage may become damaged with age, wear and tear, or injury. This wearing away of the cartilage surface and the associated symptoms of pain, stiffness, and swelling is known as arthritis. In the knee, there are also two menisci (a medial and lateral meniscus) that help to support and distribute forces along the cartilage surfaces. These menisci also can develop tears and become damaged with age, wear and tear, or injury.

Currently, there are limited options to address the onset of arthritis. Arthroscopic procedures can clean up the torn, worn out edges of the cartilage and meniscus. Arthroplasty involves removing the degenerated ends of bones and replacing them with metal and plastic prosthetic implants. Neither of these procedures is able to restore the joint surfaces to their original state. However, some complicated procedures are now available to help restore (not make normal) the cartilage surface for patients with certain patterns of wear or cartilage injury.



Normal knee cartilage and meniscus



Focal area of cartilage damage



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Contraindications to Surgery

- Infection of the knee
- Inability or unwillingness to complete an appropriate postoperative rehabilitation program
- Diffuse, advanced arthritis (damaged cartilage) of the knee without mechanical symptoms

Potential Surgical Risks and Complications

- Infection
- Knee stiffness (loss of knee motion)
- Failure of cartilage implants to heal properly
- Continued pain and progressive arthritis
- Weakness of the quadriceps muscles if proper rehabilitation is not performed
- Persistent swelling, symptoms, and need for total knee replacement

Hospitalization and Anesthesia

- Outpatient surgery (go home the same day)
- General anesthesia with femoral nerve block (see “Your Surgical Experience” folder)

General Surgical Technique

Dr. Chudik performs cartilage repair and transplant procedures with the assistance of an arthroscope, a camera that inserts into small incisions and allows him to view the inside of the knee joint. Arthroscopic shavers and cutting instruments are used to remove and contour the torn meniscus and cartilage. There are several options for cartilage restoration, depending on the specific location and severity of the cartilage damage.

- **Abrasionplasty:** The cartilage defect is debrided back to stable borders and the base of the lesion is abraded to a bleeding surface to allow blood and marrow elements to fill to defect.
- **Microfracture:** A similar concept to the abrasionplasty procedure in which deeper holes are created to access the blood and marrow components.
- **Autologous Chondrocyte Implantation:** This two-stage surgery involves first harvesting cartilage cells, and then allowing them to grow in a lab environment. Later, in a second surgery, a thin layer of periosteal tissue or a synthetic collagen matrix is appropriately placed in the cartilage defect, and then the cells are injected into the space in attempt to regrow and fill in the gap.
- **Osteochondral Autologous Transfer (OATs):** A piece of healthy bone and cartilage is harvested from a lesser weight-bearing area of the knee and then transferred into the damaged area.
- **Osteochondral Allograft Transplant:** In patients that have larger defects, a bone and cartilage plug from a cadaver is transplanted into the cartilage-deficient area.



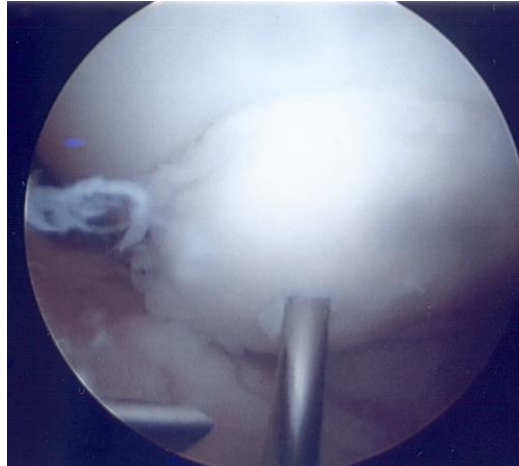
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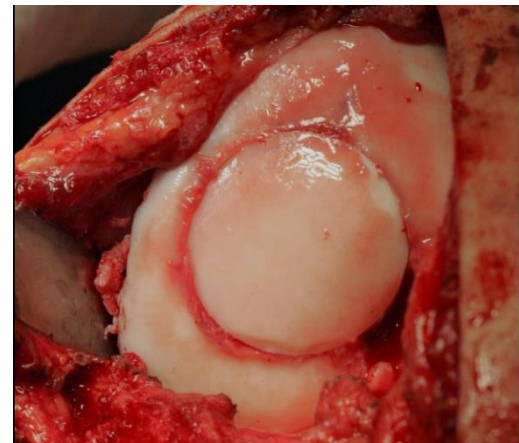
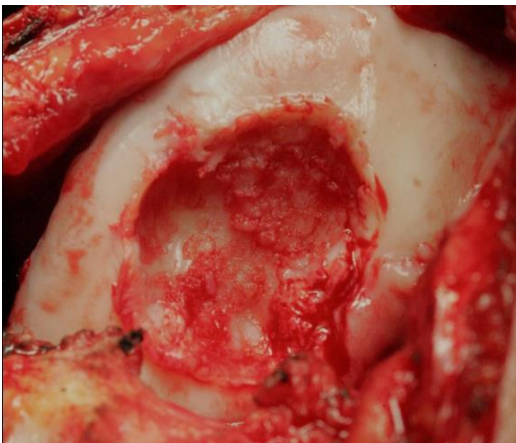
Abrasionplasty and debridement of lateral tibial plateau of right knee



Microfracture of medial femoral condyle after abrasionplasty and debridement of right knee



Before (left) and after (right) **transfer** of autologous bone and cartilage graft



Before (left) and after (right) allograft **transplant**
*open procedure due to patient's concurrent injuries



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Post-Operative Course

- Keep the wounds clean and dry for the 3 days following arthroscopic surgery and 14 days following an open procedure. Patients may shower after that time period. Do not submerge the incisions in water for at least 3 weeks
- Patients will use crutches for approximately 3 to 6 weeks depending on the severity of the cartilage and meniscus damage
- Physical therapy should begin 2-3 days after surgery and continue for approximately 3-4 months depending on severity. It is crucial to follow through and maintain a proper therapy schedule
- Minimize standing and walking for 6 weeks with a gradual progression of activity over 3 to 4 months

Return to Activity

Patients may return to sports and activities when there is no pain and when full knee range of motion, muscle strength/endurance, and functional use has been restored. However, for many knees, some life style changes are recommended to maintain a healthy knee for as long as possible.

- **Cardiovascular/Endurance exercise modification:** Weight-bearing exercise such as walking, jogging, and elliptical machine puts significant stress on cartilage damaged or arthritic knees. By modifying your exercise activities to include biking (except patellofemoral cartilage damage or arthritis), swimming, water running, stretching and light weight lifting, patients can greatly decrease the stress placed on the knees and remain active and healthy.
- **Weight loss:** During weight-bearing activities, knees bear significant forces. During simple everyday activities, the force across the knee can be greater than 10X the person's body weight and this amount of stress can be very damaging to cartilage and aggravating to weight-bearing arthritic joints. Losing just ten pounds is equivalent to reducing 100 pounds of compressive force on the knees. Losing some extra weight can help decrease the pain and symptoms of arthritis and, optimistically, slow its progression.
- **Knee unloader brace:** Custom-made braces can help decrease stress on a compartment (portion) of knees with more severe arthritis, either medial or lateral. These can be worn during recreation activities or periods of extended standing and walking to help alter forces on the knee and improve symptoms.
- **Medications:** Unfortunately, at this time there is no medicine that can reverse or stop the progression of arthritis. Anti-inflammatory medications such as Aleve (Naprosyn), Motrin (Ibuprofen), and Tylenol (Acetaminophen) can be helpful to decrease the inflammation and pain associated with arthritis. Although medications such as glucosamine-chondroitin have become increasingly popular, thus far no scientific research has confirmed the effectiveness of this supplement. Steroid (cortisone) injections can also help to decreasing inflammation and pain.



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Preoperative instructions

- Discontinue birth control pills
- Stop blood thinners (Aspirin, Coumadin, Lovenox, Xarelto, Eliquis) according to the prescribing doctor's directions
- Stop anti-inflammatory medicines (Ibuprofen, Advil, Motrin, Naproxen, Aleve, etc.)
- Stop nutritional supplements and drinks (vitamin C, ginseng, ginkgo biloba, etc.)
- Stop smoking for surgery and during the first six weeks postoperatively to allow proper healing of tissues
- Do not eat or drink anything after midnight the evening before surgery

Scheduling Surgery

Contact Dr. Chudik's surgery scheduler at 630-324-0402 or contactus@chudikmd.com to:

- Schedule the date and location of surgery; the hospital will call the day before with the arrival time
- Schedule an appointment with Dr. Chudik's physician assistant to complete pre-operative surgical education and other requirements
- Schedule a post-operative appointment with Dr. Chudik's team to remove sutures and review post-op instructions

Notify My Office if Symptoms Worsen

