

Cartilage Repair Center

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What is osteochondral auto-grafting?

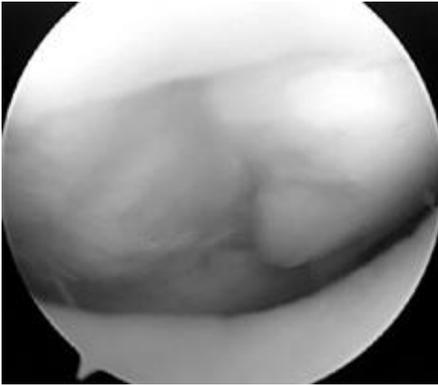
Osteochondral auto-grafting is useful to repair cartilage defects that are relatively small, < 1.5 cm squared or the size of a dime. An osteochondral graft is a cartilage and bone plug that is taken from a minor load bearing area within the same knee (auto graft) or from a dead person's knee joint (cadaveric allograft). Specially devised instrumentation is used to harvest exactly matched cylinders of cartilage and bone to fill in the areas of damage. The technical systems are known as: OATS™, COR™, SDS™ and Mosaicplasty™. All these systems essentially to the same procedure but have subtle differences between them, and some require an open technique versus an arthroscopically performed technique.

Who is osteochondral allo-grafting?

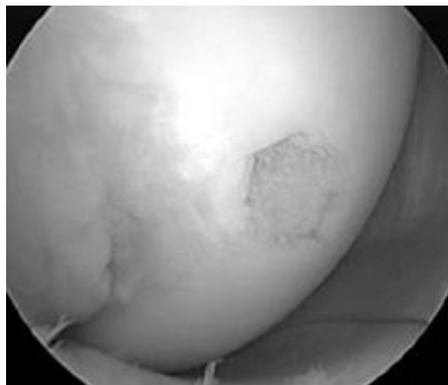
Large cartilage injuries are best treated by osteochondral allo-grafting so as to not create a donor site problem. The procurement of a cadaveric allograft requires the use of a radiographic marker on an x-ray of your knee to match the appropriate size. The x-ray is then sent to a commercial procurement company which will find a suitable match, and after screening the tissue for absence of disease, the fresh tissue will be available for transplantation. Fresh tissue is preferable as cartilage viability is associated with a better long-term result. When the tissue becomes available you will be contacted, and you will need to come in within one week of the tissue being available. It may take as quick as two weeks or as long as three to six months before the appropriate match is available. Tissue typing is not required as in other organ transplantation with a blood supply such as kidney heart or lung. Rejection of bone and cartilage is very rare and usually manifests as persistent swelling and a nonunion of the bone to bone junction.

What will happen during my surgery?

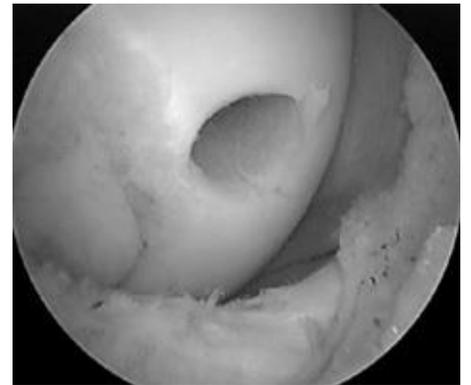
Arthroscopic osteochondral grafting is performed for small chondral defects on a day surgery basis or overnight admission. Typically an OATS™ system is used for this purpose. The procedure takes approximately 60 minutes to perform, with a drain being left inside the joint overnight to remove any postoperative bleeding from the donor site. The drain is either taken out in the hospital for following morning or the office. The technique involves harvesting and osteochondral plug from a minor loadbearing area within the knee joint and transferring it to a recipient donor site were the cartilage defect exists. In this way bone to bone healing occurs within six weeks after surgery with mature cartilage on the surface.



Chondral Injury



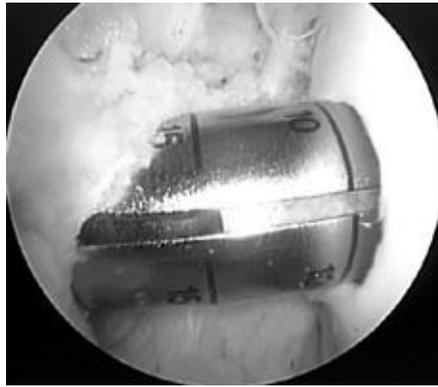
Debrided and Sized



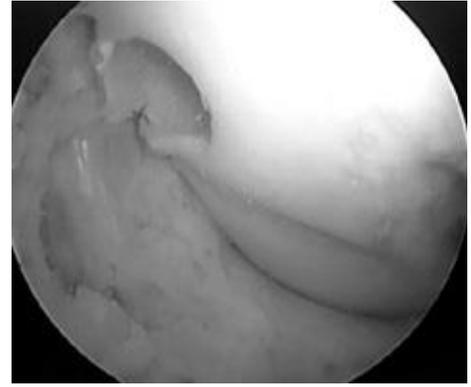
Recipient-7mm



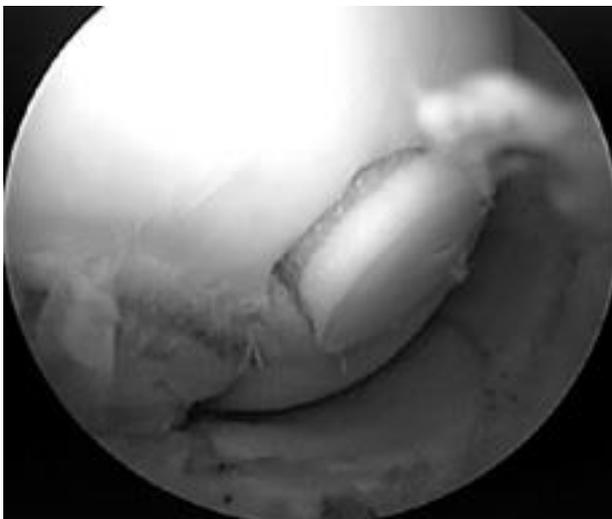
Sizing of 8mm Donor



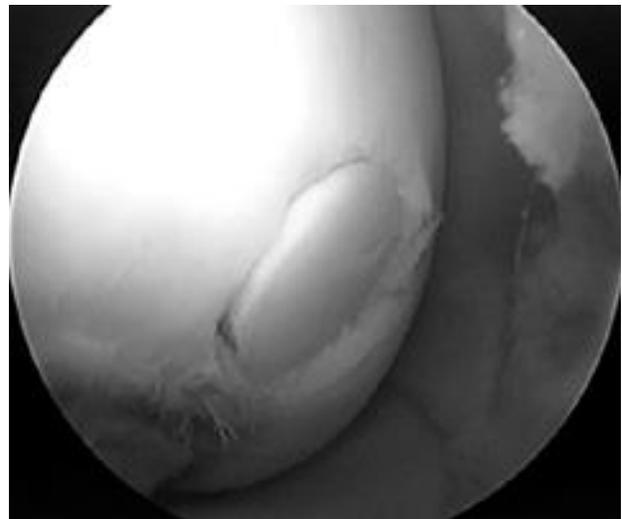
8mm Donor Harvest



Empty Donor Non-Weight bearing site



Implantation of 8mm Donor OCG



Final Seating of 8mm Donor OCG

Large defects may be treated by multiple small osteochondral graft through an open procedure requiring two to three days in the hospital postoperatively. Alternatively, a single large osteochondral allograft may be utilized. The choice is dependent on the defect size and whether it is well contained or there is bony insufficiency present. This would be discussed in the office setting.

What can you expect post-operatively?

Osteochondral Auto-grafting

Range of motion exercises and protected weight-bearing for six weeks on crutches are required. In this way knee stiffness is eliminated in bony healing of the osteochondral graft transfer may safely occur prior to full body weight. Joint pain is most severe the first seven days after surgery. Narcotics are required on a regular basis for 48 hours after surgery. Within seven days after surgery they are usually discontinued and required only prior to bed rest for sleep. Cold therapy by a Cryo –Cuff TM is used for up to six weeks after surgery to assist in reduction of swelling. A continuous passive motion machine, (CPM machine), is helpful for the first three weeks after surgery to assist in motion in reduction of swelling as well. This is not always covered by insurance carriers. Stationary bicycling is useful for weeks after surgery.

Six weeks following surgery crutches are gradually discontinued as comfort allows. At this time strengthening exercises through close chain progressive to open chain exercises occurs. Physical therapy is useful in assisting in this goal. It may take four to six months before pain is resolved

Osteochondral Allo-grafting

The same postoperative protocol following Osteo-articular allo-grafting is required, as above the first six weeks after surgery. However, this is usually more painful procedure requiring therapy products as long as six weeks postoperatively. It may take one year before complete pain relief and functional recovery occurs. Postoperative rehabilitation with physical therapy is individualized.

What are the risks with each surgery?

Osteochondral Auto-grafting

Hemarthrosis-a collection of blood in the joint, requiring needle drainage. Infection-A 1 in 1500 risk, of obtaining an infected joint after arthroscopic osteochondral auto grafting.

Sinkage/"drop-out" of graft- the osteochondral graft is placed into its recipient site by a press fit. It is possible that the grafting may sink further into its recipient site, is actually leaving a cartilage defect. It is also possible that the graft may become prominent or "drop-

out” of its recipient site. Both of these situations are possible but unlikely. They have been reported in the literature.

Osteochondral Allo-grafting

In addition to the above risks, a risk of virally transmitted disease may occur. Specimens are screened for virally transmitted disease, however transmission is still possible. Failure of the graft by 10 years occurs in 40 percent of allografts. At this time a new allograft can be used for total joint replacement. This would be dependent on the arthritic condition of the knee.

The risk of infection is higher because of the open nature of the surgery. A risk of 1 in 200 is the accepted risk for open knee surgery.

How will my pain be controlled after surgery?

Immediately following surgery during your inpatient stay your pain will be controlled using IV pain medication. During your inpatient stay one of the goals of your care will be to transition you from IV pain medication to oral pain medication. This is often achieved by day one after surgery. You will be sent home from the hospital with a prescription for oral pain medication to be filled at your local pharmacy. The most commonly prescribed post-op pain medications include Oxycodone, Dilaudid, or Vicodin. Most patients will require regularly scheduled doses of pain medication (every 4-6 hours) for the first one to two weeks. Following week 2 you will begin to decrease your pain medication use to prior to physical therapy and prior to bedtime. Cold ice therapy is very effective for pain without medication side effects. PolarCare™, Ossur™ continuous cold ice flow and Game Ready™ continuous ice flow compression therapy are all effective to increasing degrees. Most patients will not require any pain medication past week 4-6 weeks. You will need to come to the office to refill pain medication once a week. Florida State Law doesn't allow us to mail prescriptions or refill pain medication without an office visit. We are only allowed to give a week of pain medication at a time. Be sure to follow the directions carefully. It is important to know how to obtain your pain medication refills appropriately and in a timely manner.

When will I follow-up with my surgeon after surgery?

Your first post-operative visit will be take place 2 to 3 weeks after your surgery. This appointment is critical for checking your incision healing and range of motion as well as to answer any questions you may have in the first few weeks following surgery. You will then follow-up 6 weeks, 12 weeks, 6 months, and one year after surgery. At one-year post-op you will discuss with your surgeon your return to higher level activity. After your first year you will follow with your surgeon on a yearly basis.

Frequently Asked Questions

How do I get insurance approval for surgery? Your insurance approval will be handled by your surgeon's finance office. Often you do not need to do anything but wait for the administrative assistant to contact you to let you know you have been approved. In some instances, appeals need to be made to your insurance company for denial of services, if this is the case the administrative assistant will contact you and instruct you on how to proceed.

How long is my insurance approval good for? Most insurance approvals are good for a few months from the date of approval.

When will I start physical therapy? You will start physical therapy the same week as your surgery.

What will I do during physical therapy? The primary goal of physical therapy is to initially increase ROM so that you do not get stiff following surgery. You will then begin to work on increasing strength after surgery. You will be provided with a detailed protocol of what you should and should not be doing at each post-operative phase. You will provide this to your physical therapist.

I've heard about a CPM machine, what is this and will I use one? A CPM machine is a Continuous Passive Motion machine that is used following knee surgery to help patients regain range of motion. You will begin using a CPM machine 2-3 days after surgery and will continue using it for a period of 2 weeks for 4-6 hours per day. The CPM machine will be provided to you and is often covered by your insurance. Outpatient physical therapy and stationary bike use usually is adequate to maintain ROM after 3 weeks depending on the complexity of your surgery.

When do I need to wear my brace? You will need to wear your brace anytime you are up moving around on your crutches. You will use your brace for 6 weeks on average. You do not need to wear your brace for CPM, sleeping or when you are sitting.

How long will I need to use my crutches? Depending on how quickly your graft heals and your surgeon's preference you will need to use your crutches around 6 weeks on average.

When can I drive? For patients undergoing right leg surgical intervention you may not return to driving until you have good leg control, usually 3-6 weeks as assessed by your therapist and surgeon. For patients undergoing left knee surgery that do not drive standard transmission vehicles you may return to driving between 2-4 weeks when you are no longer taking pain medication.

When can I shower? You may shower 5 days after surgery but may not submerge your incision in a pool, hot tub, bathtub for 3 more weeks.

When can I go back to work? This will be different for each patient and depends largely on the type of work you do. Most patients who work in a sedentary position or desk work will be back to work by 6 weeks. Those patients who work in more labor intensive jobs may be out of work for 3-6 months.

When can I resume my regular activity? Return to regular activity depends highly on each individual patient's definition of regular activity. Non-impact activity such as walking, swimming, bike riding, and elliptical trainer can all be resumed by 4-5 months. Higher demand activity such as running and sports will not be able to be resumed until at least 1-year post operatively.

Will I need to stay in the hospital? You may be required to spend 1-2 nights in the hospital.

I don't like how narcotic pain medication makes me feel, can I take something else? You may use Tylenol (acetaminophen) for pain control following surgical intervention. Ice therapy is very effective without medication side effects- PolarCare™, Ossur™ continuous cold ice flow and Game Ready™ continuous ice flow compression therapy are all effective to increasing degrees. However, you should refrain from using any anti-inflammatory for the three months following surgery as it can slow the healing of your bone. These anti-inflammatory medications include medications such as Advil, Aleve, Ibuprofen, Naproxen, and Celebrex.

Who do I call if I have a question prior to my appointment? If you have questions regarding your upcoming surgery you may call your surgeon's nurse practitioner or research assistant.