ENGLEWOOD SPORTS MEDICINE ORTHOPAEDIC SURGERY, P.C.

ORTHORITY 360™ TOTAL BODY WELLNESS

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ORTHOPAEDIC SURGERY

Patient Name: _____

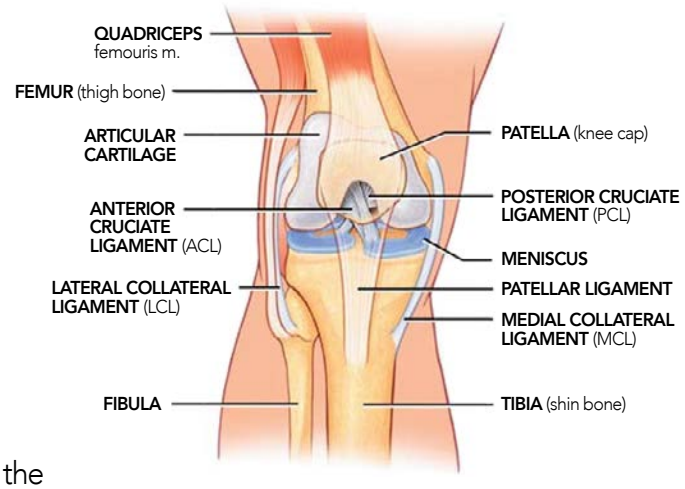
Date of Birth: _____ Date of Surgery: _____

WHAT TO EXPECT:
ACL RECONSTRUCTION SURGERY

A PATIENT'S GUIDE FOR PRE-SURGERY EXPECTATIONS AND POST-SURGERY RECOVERY AND REHABILITATION

HOW DOES YOUR KNEE WORK?

Your knee joint connects your **FEMUR** (thigh bone) and **TIBIA** (shin bone). The knee is referred to as a "hinge joint" which means it has the ability to both flex and extend. This hinge is held together by four ligaments. The smooth pain-free gliding surface is the smooth articular surface on the ends of the bone called **ARTICULAR CARTILAGE** (the rubber tire). The function of the **MENISCUS** is to decrease the force of load on articular cartilage.



Your surgeon can discuss in more details your findings and treatments strategy. Please note that debridement of osteoarthritis (OA) of the knee (fraying of the rubber tire) by itself is not an effective treatment strategy.

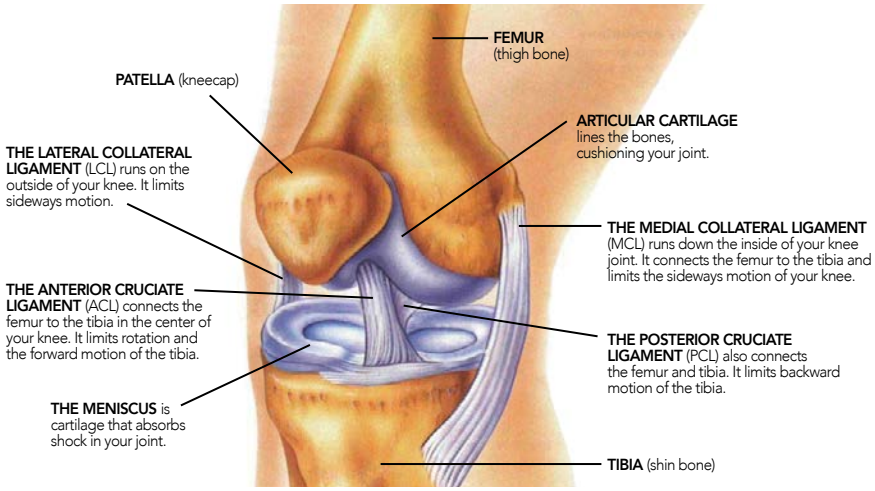
INJURIES THAT ARE EFFECTIVELY TREATED BY ARTHROSCOPIC SURGERY INCLUDE:

- Meniscus tears.
- Loose bodies being removed.
- Ligament injuries.
- Scar tissue and plica excision.
- Focal or isolated articular cartilage defects/injuries.
- Micro-fractures to that injured articular cartilage.

WHAT IS THE ANTERIOR CRUCIATE LIGAMENT, OR ACL?

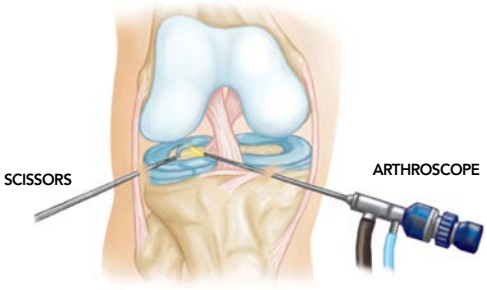
The **ANTERIOR CRUCIATE LIGAMENT** (also known as the **ACL**) is one of the four ligaments that keep the knee joint stable. The ACL prevents your **TIBIA** (shin bone) from moving in front of your **FEMUR** (thigh bone). An ACL is commonly injured during "cutting" maneuvers or landing after jumping in athletics particularly in basketball, rugby, soccer, skiing and football. This is a very common injury with approximately 200,000 Americans sustaining an ACL injury annually. When the ligament ruptures, it will not heal on its own.

While surgery is not necessary to live a healthy lifestyle, patients who are candidates for the surgical procedure often have: knee instability, swelling and less commonly pain. Without surgically correcting this issue, it can potentially lead to further damage of other structures such as the meniscus or articular cartilage if instability is present.



WHAT IS ARTHROSCOPIC KNEE SURGERY?

Knee arthroscopic surgery is a minimally invasive procedure performed by an orthopedic surgeon utilizing a camera for visualization in one hand and an operative instrument in the other. The small holes, or portals, for visualization or viewing the knee are made on the outside (lateral) to the kneecap tendon and the operative instrument portal is just inside (medial) to the kneecap tendon. These small holes are approximately half an inch long. The patient can be under regional, spinal or general anesthesia.



Through these portals a complete inspection of the knee is performed to evaluate:

- **THE CARTILAGE:** A smooth white coating of tissue on the end of the bones (protective cap on the end of the bone).
- **LOOSE BODIES:** Fragmented debris that are creating pain or instability.

- **LIGAMENTS:** The structures that hold your knee joint in place such as your ACL.
- **THE MENISCUS:** A piece of tissue on the top of the shin bone. The shock absorber of the knee that prevents injury to the cartilage.

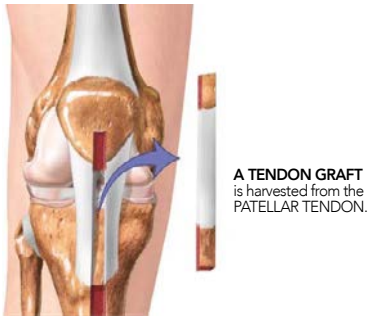
Once the degree of the injury is assessed, the appropriate care will be performed using these instruments. Your surgeon will provide you with operative pictures after surgery. Short-term recovery and long-term function is very dependent on the extent of your injuries and whether or not there is any arthritis present, which is the wear or injury to the articular cartilage.

ARE YOU A CANDIDATE FOR ACL SURGERY?

It is possible to live a healthy and happy lifestyle with an ACL tear. However, in the athletic population, the initial injury will require a surgical repair in order to prevent further damage to the joint, provide stability in order to complete dynamic movements and maintain the ability to lead an active lifestyle. The procedure itself calls for an entirely new ligament that your surgeon will harvest from your own body tissue. Your body will accept this graft better than an outside donor.

WHAT DOES THE PROCEDURE ENTAIL?

While this is an arthroscopic procedure, your surgeon will be harvesting the graft from either your patellar tendon or a piece of your hamstring muscle tendon. The graft choice is dependent on a few criteria that vary from patient to patient (gender, age, physical activity etc;). This technique requires making an extra incision to obtain the graft. Once the graft is appropriately sized for your body, the graft will be bored through your shin bone and into your thigh bone at an appropriate angle to replicate the same duties your previous ACL was responsible for prior to your injury.



The procedure is about 2 hours in length and you will be general anesthesia. Post-operatively, you will spend a few hours in the recovery room where you will be fitted with your crutches and a cryotherapy unit (if you have not already obtained one prior to surgery). You will be allowed to leave the hospital the same day of the procedure. Make sure you bring a friend or family member with you as you are not allowed to drive or take public transportation.

Some patients may have a concomitant injury to their meniscus — the knee's shock absorber — which can be repaired or removed depending on severity and location of the injury.[1]

[1]A meniscal repair involves using sutures to repair the injured meniscus. A meniscectomy is a procedure where the damaged tissue is removed. These procedures are common with ACL injuries but can slightly alter recovery time.

PREPARING FOR YOUR SURGERY

MEDICATIONS

DISCONTINUE the following pain management, anti-inflammatory or any other of the following medications one week prior to surgery:

- Motrin
- Advil
- Ibuprofen
- Aleve
- Naproxen
- Mobic
- Aspirin
- Plavix
- Herbal supplements
- Vitamins
- Oral contraceptives (Birth Control)

LIMIT NARCOTIC PAIN MEDICATIONS if you take them. This will make it easier to manage post-operative pain. (i.e. Norco, Viciodin, Percocet).

CONTACT YOUR PRIMARY DOCTOR if you take Coumadin, Lovenox, Ticlid or any other blood thinners. Your doctor will need to help manage the starting and stopping of these medications. Please tell our office if you are taking any of these medicines.

MORNING OF SURGERY: If you normally take cardiac medications in the morning, take with a small sip of water. If you are diabetic and take Long-acting Insulin, take half of your typical morning dosage.

DO NOT TAKE THE FOLLOWING the morning of your scheduled surgery:

- Diuretics (or any blood pressure medications with a diuretic component).
- Oral diabetic medications.
- Regular (Short-acting) Insulin.

THE NIGHT BEFORE SURGERY

- **DO NOT** Eat or drink anything after midnight (12 AM).
- **DO NOT** smoke after midnight (12 AM).
- Medications can be taken with a small sip of water (unless otherwise instructed).
- Wash the surgical site with Hibiclens soap and repeat the morning of surgery (can be purchased at Walgreens or CVS).

WHAT TO BRING THE DAY OF SURGERY

- Comfortable clothes to wear home.
- A friend or family member to drive you home.
- A list of medicines and medical problems to provide your anesthesia team.

YOU WILL BE HAVING YOUR SURGERY AT

Hackensack Meridian Health
Palisades Medical Center
7600 River Road
North Bergen, NJ 07047

Hudson Crossing Surgery Center
2 Executive Drive
Fort Lee, NJ 07024

SURGERY TIME

You will be contacted by the facility where your surgery will take place the day before the procedure to let you know what time to arrive. If you have not received a call by the late afternoon, please call the surgical facility to confirm your time. You will go home the same day (unless otherwise instructed).

If your surgery has been scheduled for a Monday: You will receive a call the Friday before your procedure stating what time you should report to the designated facility.

INSURANCE INFORMATION

Our office will pre-certify your surgery with your insurance company. Please provide us with the most up to date information regarding your insurance. Your benefits will be verified. If you are under Workman's Compensation, written authorization will be obtained before scheduling surgery. If you have any questions about scheduling, please call our office at 201.567.5700.

DISABILITY PAPERWORK

If you have any disability paperwork that needs to be completed, please fax it to the office at 201.567.8049. Please address the paperwork stating your name, your provider and when the paperwork needs to be completed. Please allow 2 weeks for paperwork to be processed.

PRE-OPERATIVE TESTING

We will let you know what pre-operative testing is required when you schedule your surgery. This may consist of basic blood work and/or seeing your medical doctor. For anesthesia purposes, the information **MUST BE COMPLETED** and faxed to 201.567.8049 **AT LEAST ONE WEEK PRIOR TO SURGERY**. If the information is not received or incomplete, your surgery may be canceled.

PLAN TIME OFF FROM WORK/SCHOOL

You will likely need time off from work or school. This varies based on the amount of time you spend on your feet, lifting requirements, time commuting, etc. Please inform our office if you need a letter for your employer excusing you, a return-to-work date and all other necessary accommodations.

POST-OPERATIVE EQUIPMENT

Before your surgery you may be fitted and provided with the following equipment:

CRUTCHES: Will help you distribute weight when you walk and will be an indication for fellow pedestrians to keep a safe distance away when you are walking in public.

HINGED KNEE BRACE: Only patients undergoing an ACL reconstruction and/or meniscal repair will be fitted for a hinged knee brace. This will protect your knee after the procedure from excessive flexion and support ambulation. You can take the brace off to change clothes, when using the bathroom and showering, during physical therapy and when applying ice. You must sleep with brace on for several weeks following the surgery.

CRYOCUFF: This modality is used to distribute a combination of cold water and compression to the affected joint to minimize swelling and decrease pain. There are two models that we use:

GAME READY offers both benefits of cold and compression.

OSSUR COLD RUSH does not offer compression.

PRE-OPERATIVE CHECKLIST

THINGS TO GET IN ORDER BEFORE YOUR SCHEDULED SURGERY DATE:

- Please be aware that you will be prescribed four medications to fill on the day of your surgery. If you have any allergies to NSAIDs (Non-Steroidal Anti-Inflammatory Drugs) please let your surgical team know. Here are the four medications you will be taking home:
  - **TYLENOL (1000 mg)** by mouth, every 8 hours for swelling.
  - **OXYCODONE (5 mg)** by mouth, every 6 hours as needed with food for pain.
  - **ASPIRIN (324 mg)** by mouth, every 24 hours for 6 weeks for blood clot prevention.
  - **COLACE (100 mg)** by mouth, every 12 hours for constipation.
- Make sure you have been issued the appropriate equipment:
  - Crutches
  - Hinged knee brace
  - Cryocuff or Game Ready
- Schedule your first post-operative physical therapy appointment.
- Make sure you have been given your first post-operative appointment date by the surgical scheduling team, usually 10-14 days after surgery.
- Discontinue all aspirin products at least 7 days prior to surgery.
- The hospital pre-operative staff will call on the afternoon before your surgery (if you're scheduled for a Monday procedure you will be called on the Friday) to tell you what time to arrive at the hospital. If you are not contacted by 5:00 PM the day before surgery, please call our office at 201.567.5700.
- Bring your brace and crutches to the hospital on day of surgery.
- **Do NOT** eat or drink anything past midnight the night before surgery.
- **Do NOT** write anything on your operative site — this will be done by the surgeon in the pre-operative holding area on the day of your surgery.
- Please **ARRIVE 2 HOURS BEFORE** the scheduled surgery time (remember to not eat or drink anything after midnight).

DAY OF SURGERY: ADMITTANCE AND RECOVERY

- You will be admitted and meet the nursing staff and anesthesia staff. One of the surgical team members will meet and examine you as well in the pre-operative holding area.
- You will likely have a regional anesthetic placed in the pre-operative regional block area.
- Your surgery will likely take approximately 1½ - 2½ hours.
- Your brace will be put on either in the operating room or the recovery room. If you did not receive them pre-operatively, they will be fitted in the recovery room.[2]
- You will have an elastic bandage covering a dressing on your knee overlying the surgical incisions. There will be white butterfly bandages (called steri-strips) on the skin. These should stay on until you return to the doctor's office.
- You will be fit for crutches in the recovery room.
- You will stay in the recovery room 1-3 hours, depending on the duration of the anesthetic and until you clear the hospital discharge protocol.
- You will need someone to pick you up at the hospital. You cannot take public transportation home.

DAY OF SURGERY: DISCHARGE AND POST-OPERATIVE INSTRUCTIONS

- You should begin taking your narcotic pain medicine as soon as you get home and have had some food. This will help lessen the pain when the nerve block wears off. You can also take Extra Strength Tylenol between your other pain medications if need be.
- You can put down as much weight as possible on your foot — **UNLESS SPECIFICALLY INSTRUCTED NOT TO DO SO**.[3]
- You may shower and remove gauze dressing 3 days after surgery. Remove the dressing but not the white steri-strip bandages. Pat dry the wounds after the shower. Do not use any soaps, lotions, or creams on the area.
- The brace will stay in the "locked" position (straight) until you regain use of your quadriceps muscle. Your doctor will make the decision to unlock the brace at your first post-operative visit.
- You should sleep with a pillow under the heel (not the knee) to help with keeping the knee straight — this should be done for the entirety of the brace wear.

[2] You will only need a brace if you are undergoing an ACL reconstruction and/or meniscal repair.

[3] For patients with a meniscal repair you will be partial weight bearing with the brace locked in extension for up to 6 weeks.

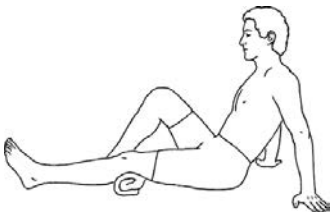
- You can use your cryocuff once you get home after your surgery. You will have to remove your brace and the bandages underneath. Please make sure there is a barrier such as a hand towel between your incisions and the cryocuff.
- The bandage around your knee may block you from feeling cold, place ice above or below the bandage.
- The most important things to focus on when you get home are: rest, icing, compressing and elevating your knee to reduce swelling as much as possible. Try to keep your leg on a steady incline.

POST-OPERATIVE EXERCISES

Before you get started in Physical Therapy, you can try these exercises. These will help minimize swelling and aid in a faster recovery. If you had a **MENISCAL REPAIR**, these exercises are to be done with your brace on.

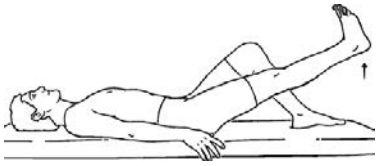
QUAD SET

Sitting up with your legs straight, actively try to extend/ straighten your leg as much as possible. Point your toe towards the ceiling. Hold this position for 10 seconds then relax. You should do 1 set of 10 repetitions. Do this once an hour. You can put a towel under your knee to limit discomfort.



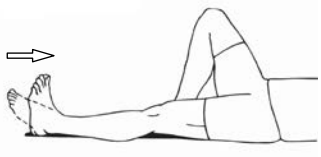
STRAIGHT LEG RAISE

Lie down on your back. Bend your **UNAFFECTED LEG** so that your foot is flat on the surface. With your affected leg as straight as you can (like the quad set) lift up until you reach the height of your **UNAFFECTED KNEE**. Slowly bring the leg back down. Aim for 1 set 10 Repetitions. You should be doing this exercise after you finish your Quad Sets.



ANKLE PUMPS

With your leg straight, point your toes toward you head and then press down (like pushing on a gas pedal). Without resistance, you can do 1 set of 100 repetitions.



POST-OPERATIVE OFFICE VISITS

1ST POST-OPERATIVE VISIT: 10-14 DAYS AFTER SURGERY

- At this point you should have completed a few physical therapy sessions. Your physical therapist should be assigning you exercises to do at home.
- At that visit, we will inspect your wounds and remove your stitches (if necessary). Several small sutures are snipped at the skin level.
- If you are able to perform a straight leg raise, we will allow you to start unlocking the brace for walking. This is important because it typically means you'll be able to get off the crutches sooner.

Please bring the photos of your surgery to this visit. Your surgeon will review your arthroscopic photos to show you what was done.

2ND POST-OPERATIVE VISIT: APPROXIMATELY 6-8 WEEKS AFTER SURGERY

- You can typically stop using the crutches between 2-4 weeks post-operatively.
- You can stop using the brace after 4 weeks post-operatively once your quadriceps muscles are functioning properly and cleared by your physical therapist.
- You will have X-rays taken of your knee at the second post-operative visit, so make sure you arrive 1 hour prior to the scheduled appointment time.
- Your third visit will be approximately 3 - 4 months after the surgery

MOVING FORWARD

You will have periodic appointments at 6 months, 9 months and 12 months after your surgery. If you have any questions between these visits, please do not hesitate to contact our office at 201.567.5700.

PHYSICAL THERAPY PROTOCOL

Physical Therapy is an integral part of your recovery. While some exercises can be done at home, it is important to see your physical therapist frequently (2-3 times per week at first) to assess your progress, create a personalized postoperative rehabilitation regimen to enhance your recovery time and to cater to your individual needs. Your surgeon and your physical therapist will be in contact regularly to assess the progress you are making. It can take approximately 9-12 months to fully recover from an ACL reconstruction. Therefore, it is important to regularly attend your physical therapy appointments. If you have any questions on finding a proper location for your physical therapy, contact our office at 201.567.5700.

GENERAL INFORMATION

The following ACL rehabilitation guidelines are based on a review of the randomized controlled trials related to ACL rehabilitation. For many aspects of ACL rehabilitation, there are either no studies that qualify as best evidence or the number of studies is too few for conclusions to be drawn with confidence. In these circumstances, the recommendations are based upon the guidance of the MOON (Multi-center Orthopaedic Outcomes Network) ACL panel of experts.

The guidelines have been developed to service the entire spectrum of ACL Reconstruction rehabilitation, ranging from elite athletes to non- athletes. For this reason, example exercises are provided instead of a highly structured rehabilitation program. Attending rehabilitation specialists should tailor the program to each patient's specific needs.

Progression from one phase to the next is based on the patient demonstrating readiness by achieving functional criteria rather than the time elapsed after surgery. The time frames identified are approximate. Some patients will be ready to progress sooner whereas other may take longer. Do not get discouraged

The recommended number of visits to your physical therapy clinic is 2-3 times per week for 14 -16 weeks. However, it is recognized that some patient's health plans are severely restrictive. For this reason the minimum number has been set to 6 total visits.

PHASE I

The first few weeks are an integral part of your recovery process. The most important parts about this phase of the recovery are to reduce swelling as quickly as possible to develop strength in your quadriceps muscles. The rehabilitation process differs in the beginning based off the procedure you had.[4]

[4]Patients who have had a meniscal repair are going to be limited in your exercises and range of motion. However, it is still important to get out of your brace to prevent atrophy and the chance of developing a blood clot.

PHASE I: ACL RECONSTRUCTION WITHOUT MENISCAL REPAIR (WEEKS 1-2)

- Electrical stimulation (Biphasic or Russian settings with quad set): with ice if necessary to reduce swelling.
- Hamstring, IT Band and Gastroc/Soleus stretching: to help stimulate blood flow and recreate tissue extensibility.
- Quad sets: short sets for long duration use tactile and verbal queues when necessary
- Heel slides: passive range of motion (PROM) with long duration hold (approximately 10 seconds) at peak flexion to help increase PROM.
- Ankle pumps/plantar flexion with resistance: to stimulate blood flow, decrease atrophy and actively promote decrease in swelling.
- Straight leg raises: In both flexion and abduction. Brace must be kept on during these exercises until you can maintain full extension.
- Weight shifting: practice balance on the one limb by shifting majority of your weight to the affected side for 10 seconds, then slowly come back to the center.
- Gait training: patients can begin to weight bear as tolerated. Once they are comfortable full weight bearing (FWB) with both crutches, the patient can begin to wean themselves to: FWB with one crutch, then FWB with only brace until 2 weeks post-operatively when they can move to FWB without the brace.

PHASE I: ACL RECONSTRUCTION WITH MENISCAL REPAIR (WEEKS 1-2)[5]

- Electrical stimulation (Biphasic or Russian settings with quad set): with ice if necessary to reduce swelling.
- Hamstring, IT band and gastrocnemius/soleus stretching: to help stimulate blood flow and recreate tissue extensibility.
- Resisted plantar flexion: to work on calf strength and blood flow. Can use resistance band as tolerated.
- Quad sets: short sets for long duration use tactile and verbal queues when necessary.
- Glute sets: short sets for long duration.
- Passive knee flexion off the end of a table: Exercises should be limited to not create posterior knee pain. Do not flex the knee past 90 degrees.
- Straight leg raises: flexion and abduction. Brace must be kept on during these exercises until you can maintain full extension.
- Abdominal isometrics: for core strengthening.
- Gait training: At the 3-week mark, patient can wean out of brace and crutches. From weeks 3-4, patient can progress to full weight bearing (FWB with 2 crutches > FWB | Crutch > FWB with just brace > Removing the brace at week 4.

[5]Although this program is outlined on a weekly basis, for patients to move to the next phase they must: I) Walk pain-free without crutches and 2) Have minimal to no effusion in the operative knee.

PHASE II

You should be continuing the same exercise regimen as your first 2-4 weeks. At this point you should have had your sutures removed and will be able to walk with minimal use of the crutches and brace. Take your time acclimating to walking without the crutches. Try practicing at home walking from room to room, followed by a little walk close to home. If you feel that you need to take your crutches to commute to and from school/work, this is fine.

This phase continues to emphasize increasing your passive and active ranges of motion, gait training and so strengthening exercises to build muscular endurance. You should be continuing the regimen from the previous weeks and your physical therapist will adjust accordingly.

PHASE II: ACL RECONSTRUCTION WITHOUT MENISCAL REPAIR (WEEKS 2 -3)

- When you have reached 90 degrees of active flexion (bending your knee) you can start riding a "short crank" stationary bicycle — 10 minutes light to zero resistance. Start with the seat elevated higher than normal and adjust once flexion improves.
- "A" kicks against wall with dorsiflexion: using the wall to support your body with both hands, lift knee up towards your chest (similar to a "high knee" exercise). Focus on pointing your toes upward and bending your knee as much as possible. Alternate between both legs.
- Prone hamstring curls.
- Straight leg raise extension, if patient can do other straight leg raises without the use of a brace.
- Standing terminal knee extension with resistance
- Bridging.
- Wall sits: no more than 60 degrees of knee flexion.
- Forward step-up.

PHASE II: ACL RECONSTRUCTION WITH MENISCAL REPAIR (WEEKS 4-6)

- Isometric hip abduction.
- Isometric hip adduction.
- Prone knee hangs with low load long duration (LLLD) to increase range of motion.
- Heel Slides: passive range of motion (PROM) with long duration hold (approximately 10 seconds) at peak flexion to help increase PROM.
- Clamshells: for gluteal strength.
- Lateral band walking: for gluteal strength and proprioception.
- Weight shifting.
- Closed chain exercises: knee should not be flexed past 60 degrees — avoid posterior knee pain with all exercises

PHASE III: WEEKS 8-12

At this stage, the both procedures can follow the same protocol. Your therapy can now begin to progress into more dynamic stretches, exercises and light weight lifting.

- Regular stationary bicycle (if you can achieve over 120 degrees of passive flexion)
- Bilateral "A" kicks
- Prone knee flexion stretch: with pad underneath distal femur
- Wobble board balance (can progress to balance while throwing ball into trampoline)
- Leg press/eccentric leg press
- Mini-squats/wall squats/body weight squats
- Lateral step-ups/lateral step-downs
- Physioball curls/bridges
- Planks
- Functional reaching
- Romanian dead lifts

Around week 10 start implementing low impact plyometrics (Forward and Backward movements first).

- Dynamic warm-up to actively stretch hamstrings, quads and glutes should be implemented
- Light hopping
- Quick steps
- Agility ladder
- "A" skips
- Butt kicks against the wall
- Weighted squats
- Box jumps
- Kettlebell swings
- Double leg drop-downs
- Lunges/reverse lunges

Week 12 should be the beginning of medium to heavy cardio with lateral movements. The goal is to be running/jogging by week 14.

PHASE V: WEEKS 17-20

You should be honing in on sport specific movements at this stage of your therapy. There should still be an emphasis in gaining strength and maintaining ranges of motion. The focus of these drills is to work on change of direction and pivoting motions. You are also training your body and brain to rely on your new graft. You should be focusing on having equal strength in both legs. This includes:

- 85% contralateral strength.
- 85% contralateral hop testing/ vertical jump testing.
- Similar one-legged deceleration.

This rehab protocol can take 20-25 weeks to complete. While the protocol lasts 6 months, studies show patients do not feel 100% "normal" until 9-12 months after the surgery. We use a functional Sports Assessment to determine your readiness to return to sports. This assesment will be completed prior to your 6 month post-operative appointment for your surgeon to review with you.