

Anterior Cruciate Ligament Reconstruction

Ohio Valley Orthopaedics & Sports Medicine
Presentation designed for patient education

Ohio Valley Orthopaedics & Sports Medicine

Offices

- Kenwood
- Westchester
- Fairfield
- Mason
- www.ohiovalleyortho.com
- 513-985-3700

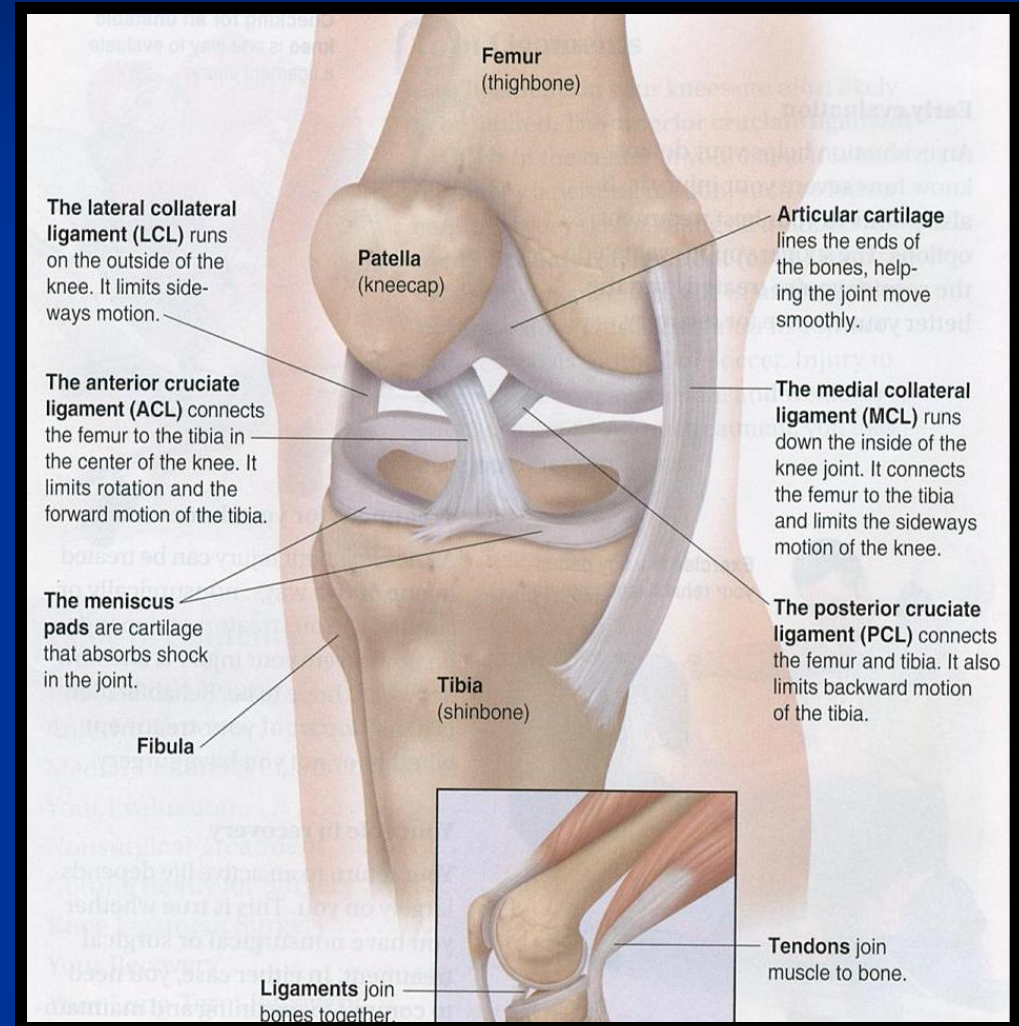


Physicians

- Barton R. Branam, MD
- Paul M. Gangl, MD
- Robert J. Hill, DO
- Arnold R. Penix, MD
- Dirk T. Pruis, MD
- David E. Taylor, MD
- Joseph D. Thomas, MD
- Lisa L. Vickers, MD
- Marilyn Palcic, PA-C

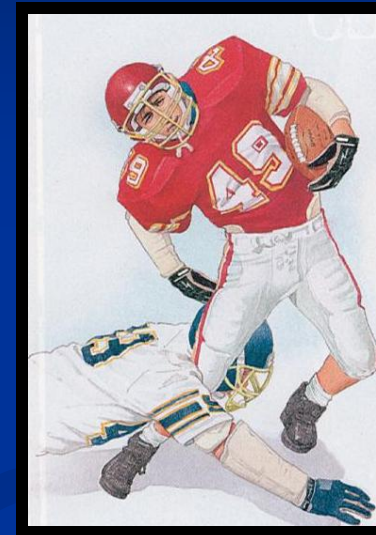
What is the Anterior Cruciate Ligament (ACL) ?

- The ACL is one of the 4 main ligaments of the knee that keeps the knee stable.



How is the ACL injured

- Usually injured with a twisting injury to the knee or a direct blow to the outside of the knee with a contact or noncontact mechanism
- Contact injury
 - Example-hit by an opponent
- Noncontact injury
 - Example-skiing



Signs and Symptoms of ACL tear

■ Acute

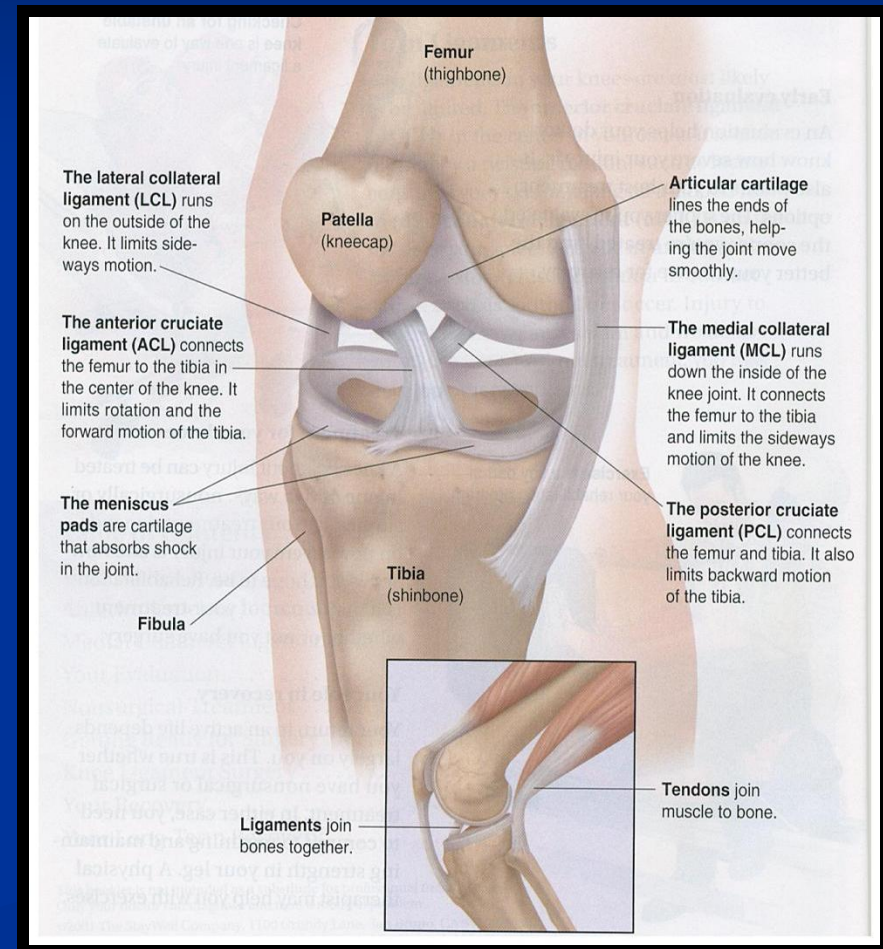
- Marked pain and pop
- Significant knee swelling
- Difficulty bearing weight on the affected knee

■ Chronic

- The knee feels loose
- Feeling of “buckling”, “giving way” or instability
- Pain and swelling

Signs and Symptoms of ACL tear?

- May also be dependant on injuries to other knee structures
- Ligaments
 - Medial Collateral Ligament (MCL)
 - Posterior Cruciate Ligament (PCL)
 - Posterolateral Corner
- Meniscus-(cushions in the knee)
 - Medial
 - Lateral
 - Both
- Articular cartilage (gliding cartilage on the ends of bones)

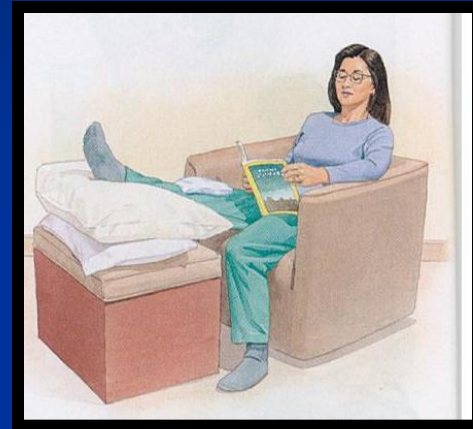


Diagnosis

- History
- Physical exam
- X-rays → usually normal but should be obtained to ensure that there is no fracture
- MRI-excellent for evaluating not only the ACL but also the meniscus, articular cartilage and other knee ligaments

What is the acute treatment for an ACL tear?

- Rest
- Ice
- Elevation
- Compression
- Protected Weight Bearing
- Brace



Does everyone with a torn ACL need surgery?

- No!
- Who does not need surgery?
 - Patients with very advanced arthritis
 - Patients who do not do activities that require an intact ACL?
 - Patients who are not interested in committing to post-operative rehab

Who does need an ACL reconstruction?

- Most patients
- Patients who perform activities requiring an intact ACL-most active patients
- Patients with associated knee injuries
 - Other ligaments, meniscus tear, gliding cartilage injury
- Young patients with an otherwise healthy knee
 - No injury to meniscus or gliding cartilage

ACL dependent activities

■ Dependent

- Cutting sports
 - Basketball, soccer, football, softball, tennis, cheerleading, skiing etc.
- High end aerobics
- Skateboarding
- Difficult Hiking
- Most laboring jobs
- ANY ACTIVITY WHEN THE KNEE BUCKLES AFTER THE INJURY

■ Not Dependent

- Walking
- Jogging in a straight line
- Desk jobs
- Riding a bicycle

Who needs a pre-op brace?

- Patients whose knee buckles (gives out) with everyday activities

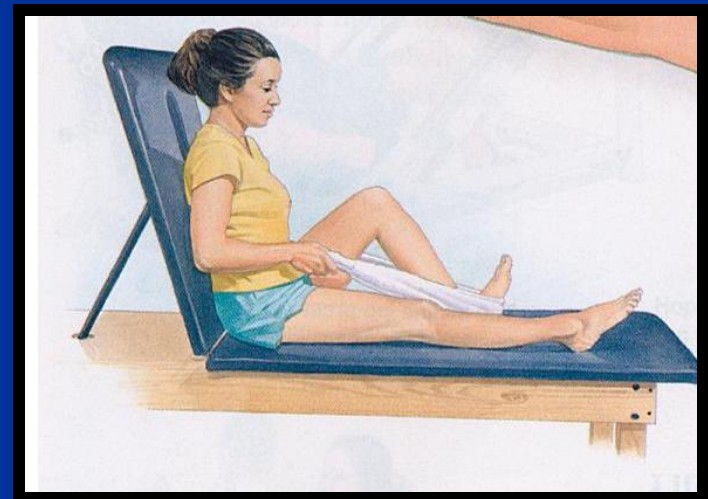


What are the risks of not getting your ACL fixed?

- Every time your knee buckles you risk injuring other vital structures in your knee
 - Meniscus, ligaments, gliding cartilage
- What happens if the vital structure are injured?
 - Rapidly accelerated arthritis

Are there any pre-operative requirements for ACL reconstruction?

- Yes
- You should have near normal knee range of motion.
- Sometimes patients go to physical therapy pre-operatively to get there motion restored before surgery.



What should I do before my surgery?

- Make sure your knee does not buckle
- Understand your injury
- Ask your surgeon any questions that you have
- Understand what the expected post operative course will be like
- Choose a graft
 - ACLs are not REPAIRED, but rather RECONSTRUCTED and thus require other tissue for a graft

Graft Choices-Autograft

- Autograft (your own tissue)
 - Bone-Patellar Tendon-Bone
 - Bone plug from your knee cap, middle 1/3 of your patellar tendon and bone plug from shin bone
 - Most painful
 - Hamstring autograft
 - 2 hamstring tendons
 - Less painful than bone patellar tendon bone graft
 - Allows for a very stable knee
 - Graft of choice for patients with open growth plates

Graft Choices-Allograft

- Allograft (cadaver)
 - Least painful
 - Smallest incision
 - Recommended in patients with significant injuries to other ligaments of the knee
 - Usually recommended in revision cases
 - Very, very, very small risk of disease transmission from the donor

Graft Choices

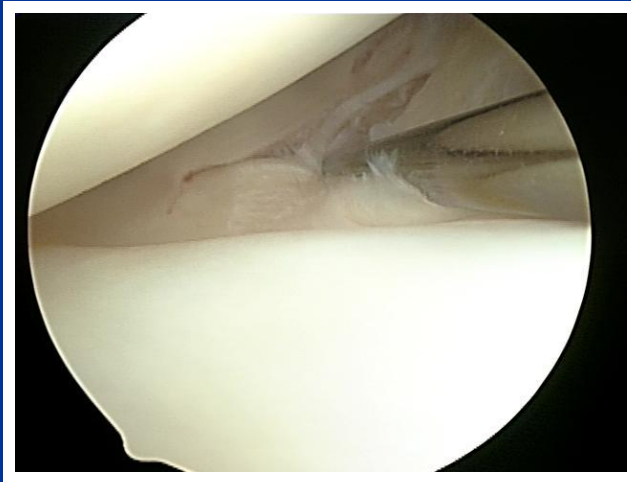
- There is no convincing evidence in the orthopaedic literature stating that one graft is any better than the other
- This is a personal choice and should be discussed with your surgeon!!!!
- This should be determined prior to the date of surgery

Day Of Surgery

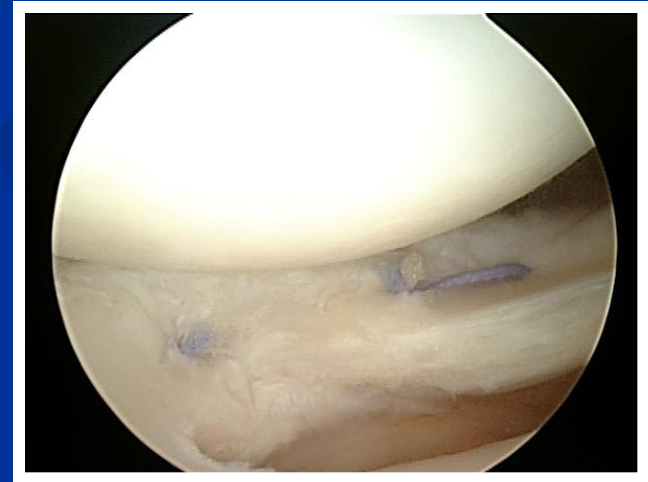
- NPO (nothing by mouth except meds) after midnight the night before
- Arrive to the hospital on time
- Get pre-operative nerve blocks
 - Anesthesiologist gives you sedating medication in your IV
 - Then gives you shots to numb your nerves so you have markedly decreased post op pain

Surgery

- Examination of your knee while you are asleep
- Fix any associated injuries



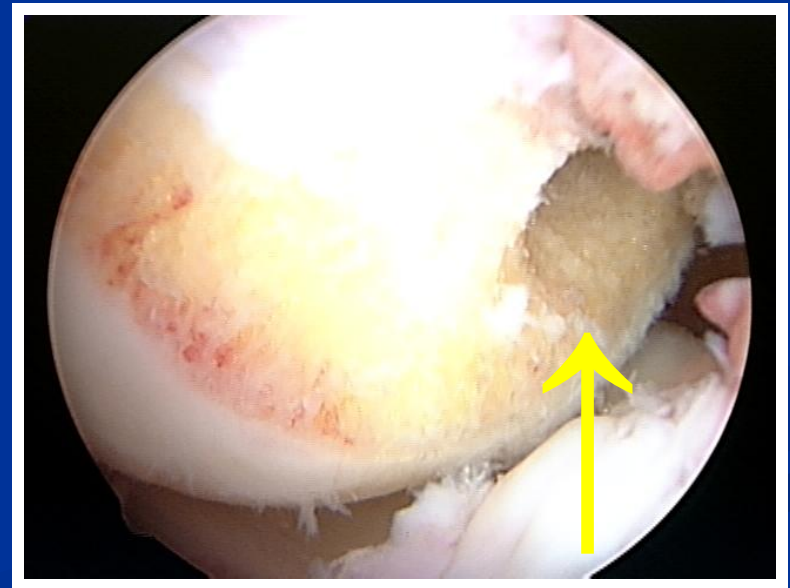
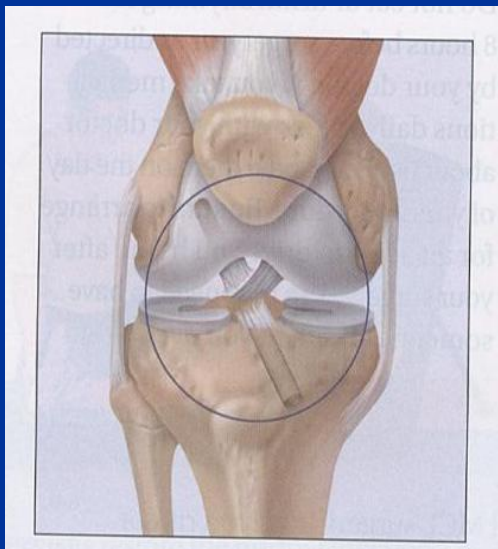
Torn meniscus



Suture repair of meniscus

Surgery

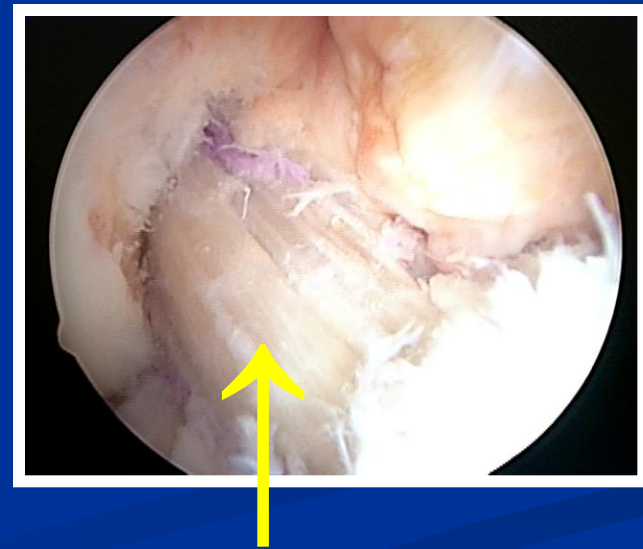
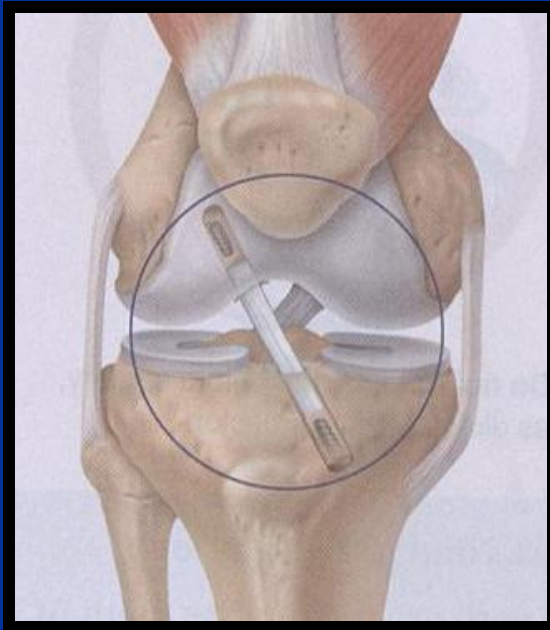
- Reconstruction of the ACL by drilling tunnels (holes) in your femur (thigh bone) and tibia (shin bone)



Tunnel (hole) in thigh bone for graft passage

Surgery

- Passing the graft across the knee and using surgical devices to hold the graft in place while it heals to the bones



New ACL graft passed thru tunnels

Immediately after surgery

- You will wake up with cryocuff (fancy ice pack) and a brace on with your knee in full extension (straight out)
- If you had pre-operative nerve blocks your pain should be tolerable
- The recovery room nurses will also give you pain medications

After surgery

- You can go home the same day as your surgery
- You should take your pain medications given by your surgeon no later than dinner time to make sure you have some pain medications in your system when your block wears off
- Your block will probably wear off sometime in the middle of the night
- Your pain will decrease every day

Post op care

- Wear your brace any time you are up
- Sleep in your brace
- You may open your brace any time you are seated or lying down
- Ice (cryocuff) as much as possible
- Elevate your knee above your heart as much as possible
- You may put as much weight on your leg as you can tolerate with your crutches immediately post op

Post op care

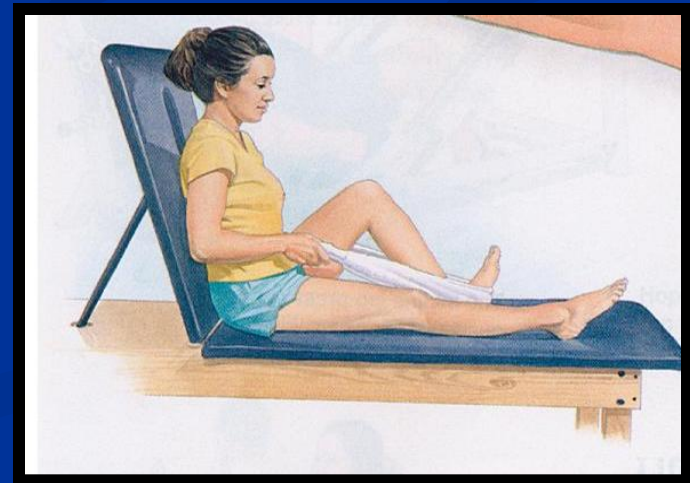
- You can take all your dressings down except for the steri-strips (white band aid like strips) on the third day after surgery and take a shower
- DO NOT SCRUB YOUR WOUNDS
- DO NOT SOAK YOUR WOUNDS
- Simply wash your thigh with soap and water and let the soap and water run off
- Pat your wounds dry
- If your wounds are dry you may leave them open to the air or put a clean dry dressing over them
- DO NOT PUT ANY CREAMS/OINTMENTS ON YOUR WOUNDS (THIS INCLUDES POLYSPORIN, ETC.)

Post op

- You will see your surgeon between 5-7 days post op
- You will go directly to your first physical therapy appointment after your office visit
- You will have PT 2-3 x per week for the first 6 weeks
- You can get rid of your crutches when you can hold a straight leg raise for 10 seconds (usually 7-14 days)

Typical Post-Op Milestones

- Typical milestones
 - Immediately post op
 - Long brace locked in full extension
 - Range of motion exercises and very gentle thigh exercises
 - PT 2-3x per week
 - Therapist will tell you when safe to get off crutches based on thigh waking up
 - 1 month-
 - Shorten your post op brace
 - Therapy 2-3 x week



Typical Post-Op Milestones

- 2 months
 - Hinged knee sleeve
 - begin aggressive thigh strengthening exercises (0-90°)
 - bike, elliptical, stairclimber, squats, lunges
 - Many of the exercises can be done on own at a gym
 - Check in with therapist periodically for them to “coach” you on your exercises and make sure you are on the right track



Typical Post-Op Milestones

- 3 months-
 - OK to jog if thigh progressing appropriately
- 4-5 months
 - begin some sport specific activities
- 6-9 months
 - return to sport/work
- The post-op course varies between patients and your course may be slightly different

Post-op Questions

- How long will I be on crutches?
 - 7-14 days-you can get off crutches when your thigh wakes up and you can hold a straight leg raise for 10 seconds
 - Your therapist will tell you when you can stop using crutches
- When can I go back to school?
 - Must be off narcotics
 - Must be able to navigate school with brace on and locked
 - Usually between 5-7 days.
- When can I go back to work
 - Labor Job- 6 to 9 months after your knee is fully healed
 - Desk job- 7-14 days after your pain goes down and you are off narcotic pain meds

Post op-Questions

- Can the post-op course be accelerated?
 - Not really
 - Cannot change biology-how fast humans heal
 - It takes several months for your new graft to grow into the bone. Accelerated rehab risks stretching your graft and making it too loose and non-functional
 - Also, length of the rehab is based more on the thigh than on the knee.

Post-op Questions

- The thigh (quadriceps muscle) shuts down (goes to sleep) after surgery and it takes time and rehab for it to wake up?
- It takes 6-9 months for the quadriceps musculature to fully restore itself after surgery.
- Until the thigh muscle is strong again your knee will feel loose even though it is entirely stable
- The more frequently the thigh exercises are done the faster the thigh will be strong and the faster you may safely return to full activities.

Thank You

- Any further questions should be directed to your therapist or surgeon

- 513-985-3700