

## Early Phase

### Goals:

- Decrease pain
- Minimize swelling
- Maximize knee range of motion (knee bending and straightening) and leg strength
- Normalize gait

### General Recommendations:

- Walking: gradually increase the amount of weight you put on your leg = Weight bear as tolerated with crutches until you are walking without a limp and without increased pain or swelling.  
“No limping” “No pain”
- When you stop using crutches, limit your amount of walking, i.e., emphasize “walking well (quality) over walking too much (quantity)”
- Do stairs one leg at a time, leading with the noninvolved leg when going up stairs, leading with the involved leg when going down stairs **“Up with the Good, Down with the Bad”**
- Apply cold pack to your knee for 15-20 minutes 2-3x/day. Place a paper towel or pillowcase on knee to protect your skin.

\*Please note in all pictures, the involved leg is the right leg which is identified with a yellow band around the right ankle. If it is your left knee that is injured (involved), follow these directions using your left leg.

### Knee Extension

It is very important to get your knee fully straight prior to surgery

- Lie on your back with both legs straight.
- Place a rolled up towel under the heel of your injured leg.
- Relax and let your involved knee straighten as much as possible.
- Try to maintain this position for 2-3 minutes.
- Then place the towel under your knee for a 30 sec rest period.
- Repeat this sequence 4-5 times.
- Perform 3-5 times per day until your knee is fully straight.
- A cold pack can also be applied during this exercise.



### Quadriceps Set

- Lie on your back with a towel roll under your involved knee and your noninvolved knee bent.
- Tighten your quadriceps (the muscles on the top of your thigh) and gently press the back of your knee into the towel roll. NOT as hard as you can. Do NOT lift your heel off the bed
- Should you experience any pain or discomfort, make the towel roll thicker/bigger.
- Hold 10 seconds. Rest 10 seconds. 15 repetitions. 5-7x /day.
- Goal is 100 repetitions per day.



**Knee Bending (Flexion) and Straightening (Extension): Active / Active-Assisted Range of Motion**

(1) Sit at the edge of the bed or a firm surface. Support your involved leg (band) with your non-involved leg.

(2, 3) Gently allow your involved leg to bend by supporting it with the assistance of your non-involved leg.

When your knee bends to an angle of approximately 70 degrees (or at an angle that you deem comfortable) slowly remove your non-involved leg from behind your involved leg and dangle as tolerated

(4) Attempt to bend your involved knee under the bed or firm surface. Hold a gentle stretch for 5 seconds

(6) Place your non-involved leg back behind your injured leg for support. Straighten your involved knee with the assistance of your non-involved leg

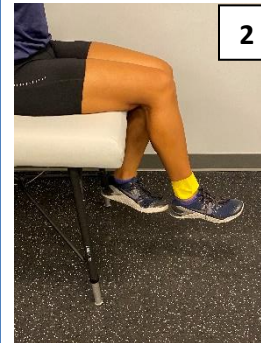
Repeat 20 times. 3-5 times per day.

When range of motion improves, advance this exercise by:

(5) Placing your non-involved leg in front of your involved leg and together with your involved leg gently bend your involved knee back until you feel a gentle stretch. Again hold 5 seconds.



SUPPORT



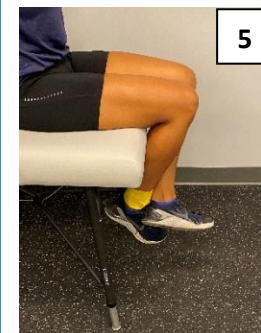
RELAX TO BEND



RELAX TO BEND



DANGLE



BEND



STRAIGHTEN WITH SUPPORT

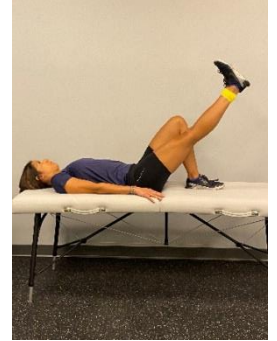
**Calf Stretch**

- Sit Up with your knee straight with a STRAP or Towel around the ball of your foot.
- With your hands, gently pull the strap/towel (foot) towards you to feel a stretch in your calf and behind your knee.
- Hold 30 seconds. Repeat 3 sets. Perform 2 times per day.



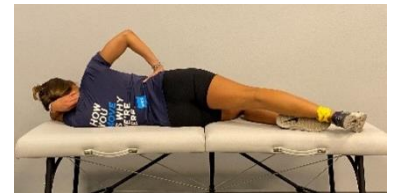
### Straight Leg Raise (Lying on your back)

- Lie on your back with your involved knee straight and your other knee bent as shown.
- Tighten your stomach, tighten the muscles on top of your thigh (quadriceps), keep the leg completely straight, and then raise it to the height of your other knee.
- Hold for 1 second and slowly lower.
- Perform 1 set of 10 repetitions, 3 times per week
- Advance to 2 sets of 10, then 3 sets of 10 as tolerated.
- Use a brace if recommended by your physician or if you can't keep your knee straight when lifting.



### Straight Leg Raise (Side Lying)

- Lie on your side with your involved leg on top, and your hips stacked on top of each other. Bend your lower leg slightly.
- Keeping your involved leg in line with your body, tighten your stomach, tighten your quadriceps, and raise your top (involved leg straight up, without letting it come forward).
- Hold for 1 second, slowly lower.
- Perform 1 set of 10 repetitions, 3 times per week
- Advance to 2 sets of 10, then 3 sets of 10 as tolerated.
- Use a brace if recommended by your physician.



### Advanced Phase

#### Goals:

- Decrease pain
- Minimize swelling
- Maximize knee range of motion and leg strength
- Demonstrate the ability to ascend 8" steps without symptoms (pain or compensations)

#### General Recommendations:

- You are ready to progress to this phase:
  - When you can walk normally (without a limp) without crutches
  - Your knee is straight (full extension)
  - You can perform the straight leg raise exercise (on your back) 3 sets of 10 without symptoms
- Continue to emphasize "quality walking over quantity walking"
- Be sure to maintain full knee extension
- Continue to go upstairs one leg at a time (leading with the noninvolved leg when ascending stairs), until you can perform an 8" step up (as described in the exercises below) without pain and compensating
- Continue to apply a cold pack to your knee for 15-20 minutes, 1-2/day. Protect your skin with a paper towel or pillowcase.

*\*Suggest purchasing an adjustable cuff weight and a mini-band for exercises described below*

#### Straight Leg Raises (All Planes = directions)

Continue the Straight Leg Raise exercises (1) & (2) as described in the earlier phase

(3) Lie on your stomach with a pillow under your hips

(4) Keeping your involved knee straight, lift your involved leg off the bed without arching your back (tighten stomach)

- Hold for 1 second, slowly lower.
- Perform 3 set of 10 repetitions, 3 times per week

(5) Lie on your involved side with your non-involved leg crossed over your involved leg.

(6) Keeping your involved knee straight, lift your involved leg off the table

- Hold for 1 second, slowly lower.
- Perform 3 set of 10 repetitions, 3 times per week
- Add a light weight (adjustable cuff weight) to each of these exercises when 3 sets of 10 repetitions becomes less challenging.
- Progress weights as tolerated



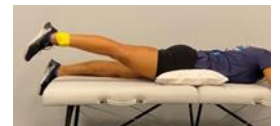
(1)



(2)



(3)



(4)



(5)



(6)

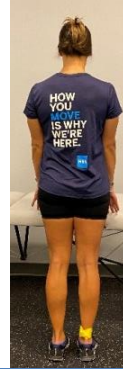
### Active-Assisted Knee Flexion (On a Step)

- Place your involved leg on the step in front of you.
  - (1) Use the stair railings or a wall for upper body support.
  - (2) Lean forward creating a bend in the involved knee.
    - Bend the knee as tolerated till you feel a gentle stretch in your knee (No Pain).
    - Hold the stretch for 5 seconds
    - Return to the starting position
    - Perform 10x, 2-3x/day



### Standing Calf Raises

- Stand with equal weight on both legs in front of a table (for support as needed)
- Rise up on both feet
- Slowly lower
- Perform 3 sets of 10 repetitions, 1-2x/day



### Forward Step Up Progression

Stand up tall behind a 4" step.

- (1) Leading with the involved leg, place the whole foot onto the step and step up.
- (2) Let your non-involved leg join your involved leg on the step
- (3) Step down backwards with your involved leg, followed by your involved leg
  - Use upper extremity support as needed.
  - Keep the hips, knees, and toes aligned.
  - The exercise should be pain free.
  - Perform 3 sets of 10 repetitions, 1-2x/day
  - Once you can perform this exercise with the form described above and without upper extremity support, you can progress the height of the step to a 6-inch step, and then to an 8-inch step as tolerated.



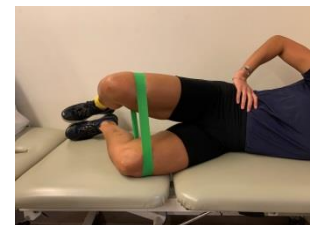
### Stair Stretch with Hamstring Stretch

- Stand in front of a staircase or chair and prop your involved legs heel onto the step/chair
- Keep your back straight and lean forward to the point where you feel a gentle stretch behind your thigh/knee
- Hold this position for 30sec, then return to the starting position
- Perform 3 repetitions, 1-2x/day



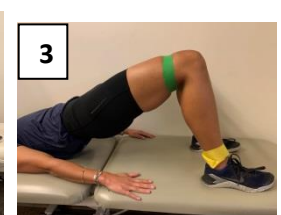
### “Clam Shell”

- Lie on your non-involved side with hip and knees bent. Pretend your back is flat against a wall
  - (1) Keeping your hips stacked on top of each other and your heels together, squeeze your butt muscle and separate your knees
    - Hold the position at the top for 3 seconds and return to the starting position
- Make sure to not lift your knee too high to avoid your hip rotating backwards
- Perform 3 sets of 10 repetitions, 3x/week
- If you do not feel your hips working adjust the position of your knees and or hips by either straightening or bending both your hips and knees
  - (2) When you find that this exercise is not challenging, add a mini-band around both thighs



### Bridging

- (1) Lie on your back with both of your knees bent, your feet hip distance apart, and arms relaxed by your side.
  - Tighten your abdominals and your buttocks.
- (2) Lift your buttocks off the mat until your hips are level.
  - Hold the position for 1 second, then slowly lower yourself down.
  - You should feel this in the buttocks
  - Perform 3 sets of 10 repetitions, 1-2x/day
  - When you find that this exercise is not challenging, add a mini-band around both thighs, keeping knees apart.



### Chair Squats

**(1) Stand tall with your feet approximately hip width apart and your weight evenly distributed between your feet.**

- Make sure the chair is an appropriate distance behind you
- Have a cushion in the chair to limit the depth of the squat to a comfortable range of motion.

**(2) Bend at your hips and knees and sit down into chair.**

- Allow your trunk to bend forward slightly.
- Try not to let your knees come over your toes.
- The knees and toes should point in the same direction.
- Sit down in a controlled manner; try not to let yourself quickly drop into the chair.
- Then stand back up returning to the starting position. Try not to use your arms to assist.
- Perform 3 sets of 10, 1-2x/day



### “Monster Walks”

- Place a resistance band slightly above your knees and position yourself into a quarter squat position
- Make sure your weight is between your mid-foot and heel, and tighten your abdominal muscles
- Take a step to the side and focus on keeping the knees pointing straight ahead and not caving in
- Think about just separating your knees rather than stepping to the side
- Do not let your knees and feet get too close together or you will lose tension in the band
- Perform 10 steps in one direction and then 10 steps in the opposite direction
- Repeat 3-4 times, 1-2x/day





### Balance

**(1) Stand with both legs on a foam cushion**

- Bend your knees slightly
- Attempt to stay stationary (limit any movement)
- 30 second bout, then rest.
- Repeat 5x, 1-2x/day
- Use a chair or wall to assist balancing as needed

**(2) When you find that this exercise is not challenging, attempt to balance on one leg as you keep stance leg slightly bent.**

- Use upper extremity support as needed (e.g. pole, chair, table)



### Quadriceps Stretch

- Lie on table or bed with your involved leg off the side of the table/bed
- Place a strap or towel around your lower leg
- Tighten your stomach to flatten your back
- Allow your leg to drop off the bed slightly
- Gently pull the strap/towel with your arm, so to bend your involved knee, feeling a stretch in the front of your thigh
- Hold the gentle stretch for 30 seconds
- Perform 3-5x, 1-2x/day
- Should you feel any discomfort/pain in your involved knee, discontinue the exercise

