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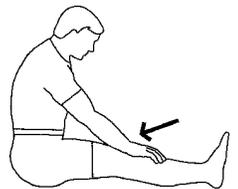
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KNEE AND LEG EXERCISE PROGRAM

These exercises are specifically designed to rehabilitate the muscles of the hip and knee by increasing the strength and flexibility of the involved leg. This exercise program must be performed on a regular basis to regain and improve lost muscular strength, endurance, and flexibility; thus a consistent effort on your part is required to obtain the maximum benefit from the exercise program outlined.

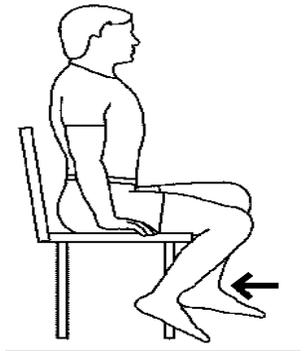
When correctly performed all of these exercises may be accomplished without difficulty. You may notice some muscular fatigue and soreness for the initiation of the exercise program, but this should be distinguished from pain. In addition, there should not be any increase in pain or swelling. These signs may indicate too much activity too fast, and necessitate that you consult with your doctor, athletic trainer, or physical therapist

1. **PATELLAR MOBILIZATION:** With leg straight and thigh muscles relaxed, place a finger of each hand on either side of patella (kneecap) and gently move the kneecap up and down for 1-2 minutes. Perform 4-5 times daily.



2. **PASSIVE KNEE FLEXION:** Seated, use the uninvolved leg to move the involved leg through the range of motion.

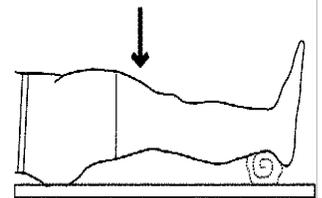
To bend the knee: place the ankle of the uninvolved leg over the shin of your involved leg and push back as far as possible. Hold 10 seconds. Relax for 10 seconds. Repeat _____ times.



To straighten: hook the foot of the uninvolved leg behind the involved leg's ankle and guide you involved knee straight without contracting your quadriceps. Begin with _____ min., progressing to _____ min. Perform 4-5 times daily.

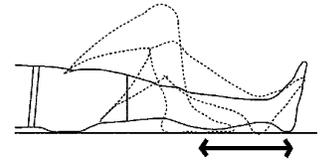
3. **PASSIVE KNEE EXTENSION TO ZERO:**

- A. Straighten leg by sliding heel downward with your involved foot. Use hands to put pressure on leg above patella, try to make the knee as straight as possible. Hold 10 seconds. Perform _____ min., _____ daily.
- B. Place towel roll under heel, and allow involved leg to straighten with the assistance of gravity, and gentle pressure from your hands. Hold _____ seconds. Perform _____ min., _____ times daily.
- C. Place a _____ pound weight on the thigh above the knee. Perform _____ min., _____ times daily.

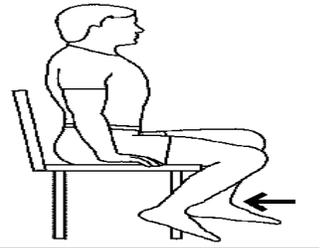


RANGE OF MOTION EXERCISES:

4. **HEEL SLIDE:** Bend your knee as far as possible using the hamstrings. Grasp the lower leg with both hands and gently pull heel toward buttocks. Hold ____ seconds. Relax. Perform ____ min., ____ times daily.



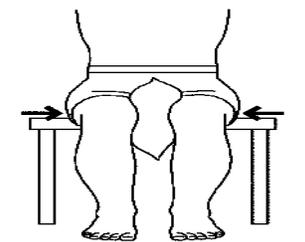
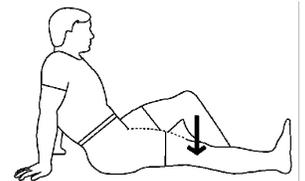
5. **ACTIVE ASSISTED KNEE FLEXION:** Sit in a chair with involved foot flat on floor. Slide foot back as far as possible using hamstring muscles. Keep foot stationary, slide hips forward over your foot. Hold ____ seconds. Relax ____ seconds. Perform ____ min. ____ times daily.



6. **KNEE FLEXION PULLEY:** Seated, with pulley secured to back of chair, slide the involved foot back as far as possible. Grasp handle of pulley rope and pull gently to bend knee further back. Hold ____ seconds. Relax ____ seconds. Perform ____ min., ____ times daily.

ISOMETRICS

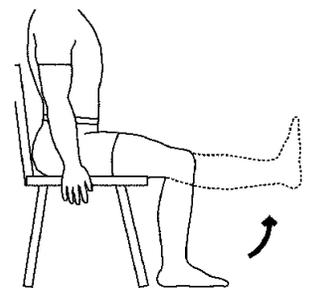
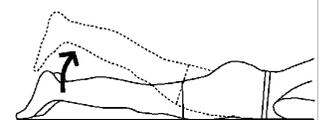
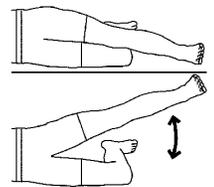
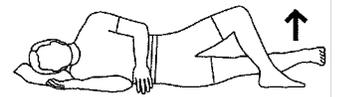
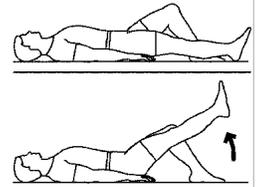
1. **QUAD SETS:** With leg as straight as possible and heel resting on a firm surface (floor or table), tighten the front thigh muscles (quads), trying to pull the patella toward you. Hold for 5 seconds contracting your muscles as tight as possible. Completely relax the thigh and rest 3 seconds. Repeat 50 times. This exercise should be performed throughout the day and may be performed standing, sitting, or lying down.
2. **MULTI-ANGLE ISOMETRICS:** Seated, place your foot against the wall with your knee bent to 90 degrees. Gently push into the walls as if to kick out. Hold 10 seconds, relax 4 seconds. Repeat exercise a 90, 60 and 30 degrees of knee flexion. Perform ____ sets, ____ repetitions, ____ times daily.
3. **HIP ADDUCTION:** Place a rolled towel, pillow, or small rubber kickball between thighs. Squeeze legs together tightly, holding 10 seconds. Relax, resting 4 seconds. Perform ____ sets, ____ repetitions, ____ times daily.



4. **CO-CONTRACTIONS:** While sitting with the involved knee slightly bent, tighten both the front (quads) and back (hams) thigh muscles at the same time “digging” the heel of your foot downward. Contract your muscles as tight as possible, holding for 10 second. Relax, resting 4 seconds. Perform ____ sets, ____ repetitions, ____ times daily. Co-contractions may be modified by performing each set with the knee bent at different angles, as described in multi-angle isometrics.

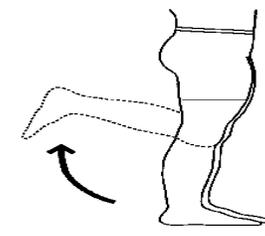
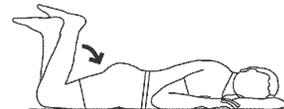
ISOTONICS

1. **STRAIGHT LEG RAISE (SLR):** Lying on your back with involved knee bent 90 degrees tighten the quadriceps as in a quad set. Keeping your leg straight, lift your heel until the thigh reaches the approximate level of the uninvolved thigh. Hold for 6 seconds and slowly lower leg down. Completely relax the thigh and rest 4 seconds. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs., gradually increasing to ____ lbs.
2. **ADDUCTED SLR:** Lying on involved side either: a) bend the good leg up so its foot is in front of the involved leg, or b) place the uninvolved leg on the seat of a chair. Lift the involved leg upwards approximately 6 inches. Hold for 6 seconds. Relax 4 seconds. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs.: gradually increasing to ____ lbs.
3. **ABDUCTED SLR:** Lying on uninvolved side, lift the involved leg towards the ceiling without rotating the leg outwards. Hold 6 seconds relax 4 seconds. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs., gradually increasing to ____ lbs.
4. **PRONE SLR:** Lie on your stomach with folded towel under the thigh just above the knee, perform a quad set and keep the leg straight while lifting the leg approximately 6 inches backwards from the hip. Hold 6 seconds, relax 4 seconds. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs, gradually increasing to ____ lbs.
5. **90-45 DEGREE KNEE EXTENSION:** While seated, slowly extend the involved leg out to a 45 degree angle. Hold 6 seconds. Slowly lower to starting position. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs., gradually increasing to ____ lbs.
6. **KNEE EXTENSION (FULL):** While seated, slowly extend the involved leg until straight. Hold 6 seconds. Slowly lower to starting position. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs., gradually increasing to ____ lbs.



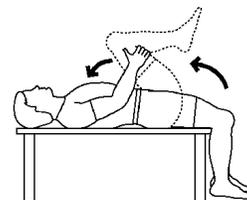
7. HAMSTRING CURLS:

A. **Prone:** Lie on your stomach with a folded towel under the thigh just above the knee. Bend the knee slowly bringing your heel toward your buttocks. Hold 6 seconds. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs., gradually increasing to ____ lbs.

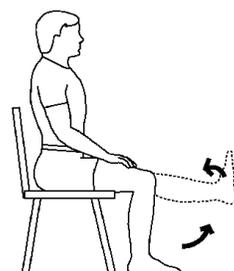


B. **Standing:** standing straight with thigh resting against table or wall, slowly raise heel up toward buttocks. Hold 6 seconds. Slowly lower to starting position. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs., gradually increasing to ____ lbs.

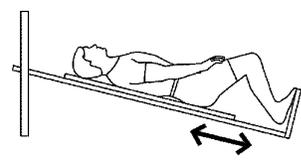
8. **HIP FLEXION:** Seated, slowly lift your bent knee toward your chest Hold 6 seconds. . Slowly lower to starting position. . Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs., gradually increasing to ____ lbs.



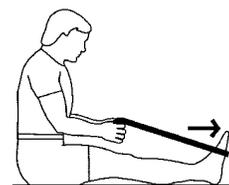
9. **STATIC WEIGHT LOADING:** Sitting on edge of a chair with involved leg straight and foot resting on floor. Tighten the quadriceps as in a quad set. Keeping leg straight, raise leg until parallel with floor. Hold for 6 seconds. Slowly lower to floor. Rest 4 seconds. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs., gradually increasing to ____ lbs.



10. **LEG PRESS:** In a lying or seated position, with your feet flat on the footrest of the machine, slowly extend your knee from ____ degrees. Hold 3 seconds. Slowly return to resting position. Perform ____ sets, ____ reps, ____ times daily. Begin with ____ lbs., gradually increasing to ____ lbs.

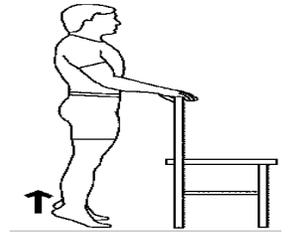


11. **RESISTED PLANTAR FLEXION:** With leg as straight as possible, loop a towel around the ball of the foot, holding the ends of the towel with both hands. Push foot downward, providing resistance with the towel. Pause and pull foot back as far as possible, stretching the Achilles tendon. Perform ____ sets, ____ reps, ____ times daily.



CLOSED
CHAIN
EXERCISES

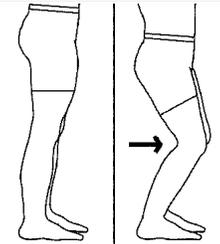
12. **HEEL RAISES:** Stand with feet straight using a wall or table for balance. Push up onto toes lifting heels off floor. Hold for 6 seconds. Slowly lower. Relax two seconds. Perform ____ sets, ____ reps, ____ times daily.



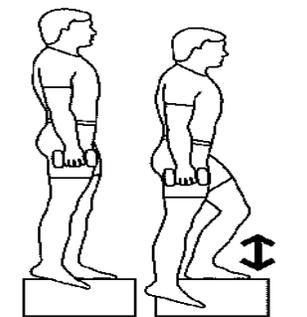
1. **1. STATIONARY CYCLING:** Adjust seat height so that involved leg is almost straight when the ball of foot is on the lowest pedal. Tension set to allow minimum to moderate resistance. Begin cycling ____ min., progressing to ____ min. as tolerated.



2. **MINI SQUATS:** Stand with feet shoulder width apart and slightly rotated outward. Bend knees to 30 degrees. Hold 3 seconds. Slowly straighten to 15 degrees. Repeat ____ min., progressing to ____, ____ times daily.

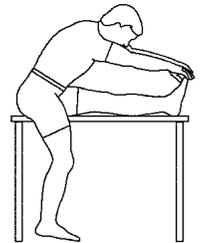


- A. **With Elastic Tubing:** Perform as above while standing on tubing and providing resistance by holding tubing at waist level. Repeat ____ min., progressing to ____, ____ times daily.
3. **STEP UPS:** Stand sideways with the involved leg toward a step. Place the involved foot up on the step. Lift the body weight with the involved leg and let yourself down, slowly and deliberately. You should land on the uninvolved heel and lift off the uninvolved heel. Begin with ____ inch step progressing to ____ inch step as tolerated. Begin with 1 min., ____ times daily.
- A. **With Elastic Tubing:** Performs as above while injured leg stands on tubing and providing resistance by holding tubing as high as possible. Begin with ____ inch step progressing to ____ inch step as tolerated. Begin with 1 min., ____ times daily.
4. **POOL WALKING/ RUNNING:**
- A. **Walking:** in chest high water begin walking widths forward and backward for ____ min., progressing to ____ mins. ____ times daily.
- B. **Running:** In chest high water with normal running form run widths forward and backward for ____ min., progressing to ____ mins. ____ times daily.

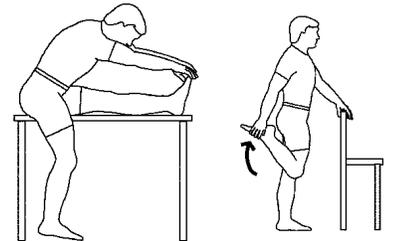


5. **WALKING:** At a normal pace begin walking on a level surface for _____ min. progressing to _____ mins. _____ times daily. All activity should be performed without pain, limp, or swelling.
6. **RUNNING PROGRAM:**
 - A. Jogging: Begin on flat surface with _____ distance gradually progressing to _____ distance as tolerated. Activity should be performed without pain, limp, or swelling.
 - B. Sprints: Begin with _____ yard sprint, at _____ speed, for _____ repetitions, progressing to _____ yards, at _____ speed, for _____ repetitions.
 - C. Figure 8's: Begin with _____ yard pattern, at _____ speed, performing _____ sets of _____ repetitions. Progress to _____ speed, _____ sets of _____ repetitions as tolerated.

1. **HAMSTRING STRETCH:** Straighten supported leg with the opposite leg off the side of a table or bed. Slowly lean forward bending only at the hip joint until you feel a stretch in the back muscles of your thigh (hamstring). Hold for 10 seconds, repeating _____ times, _____ times daily with each leg. Perform stretch with chin up, back straight, and without bouncing.



2. **QUADRICEPS STRETCH:** Holding on with one arm for balance, grasp foot of the injured leg with your hand and bring heel to buttocks. While standing up straight slowly extend your leg backwards, maintaining hold of your foot. Hold 10 seconds. Repeat _____ repetitions, _____ times daily with each leg.



3. **ACHILLES STRETCH:**
 - A. Stand and lean into a wall with your weight on your heel and back knee straight. Keep feet pointed straight ahead. Slowly lean forward until you feel a stretch in the back of your calf (gastrocnemius). Hold 10 seconds. Repeat _____ times, _____ times daily with each leg.
 - B. Stand and lean into a wall with your weight on your heels and knees slightly bent. Slowly lean forward until you feel a stretch in the back of your calf (soleus). Hold 10 seconds. Repeat _____ times, _____ daily with each leg.

FLEXIBILITY

ICE

1. Apply ice to the front and back of the injured area for _____ mins., _____ times daily, including:

_____ before rehabilitation _____ after rehabilitation _____ end of day