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Rehabilitation After Patellar Tendon Debridement Surgery

Phase One: 0 to 2 weeks after surgery

This protocol is a guideline for your **rehabilitation after patellar debridement surgery**. You may vary in your ability to do these exercises and to progress from one phase to the other. Please call your doctor if you are having a problem with your knee or if you need clarification of these instructions.

GOALS:

1. Protect the healing patellar tendon
2. Ensure wound healing
3. Maintain full knee extension (knee straight)
4. Initiate active and passive knee flexion exercises
5. Decrease swelling in the knee and leg
6. Promote activation of the quadriceps muscle
7. Avoid blood pooling in the leg

ACTIVITIES:

1. BRACE/ CRUTCHES

Use the knee brace (immobilizer) when you get out of bed and walk. The brace is set for full extension (straight). You can put your full weight on your operated leg while wearing the immobilizer. You should use the crutches if you need extra support when you are walking. Do not step up or down stairs on the operated side.

2. COLD APPLICATION (CRYOCUFF OPTIONAL)

Fill the blue cryocuff by putting ice water in the container and elevating the container above the knee so the cold water runs into the cryocuff. Use the cryocuff for 20 minutes at a time whenever you want to, but especially after exercising. You can use the cryocuff as much as you like to cool the knee area. If you do not have a cryocuff, put ice into a plastic bag. Put a thin towel over the knee and apply the ice pack.

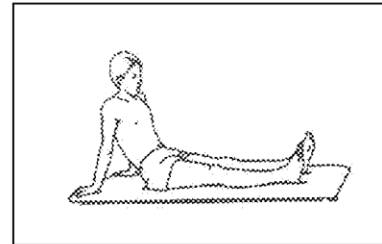
3. WOUND CARE

Remove your bandage on the second morning after surgery but leave on the small pieces of white tape (steri strips) that cross the incision. You can wrap an elastic bandage (ace) around the knee at other times to control swelling. You may now shower and get your incision wet, but do not soak the incision in a bathtub or Jacuzzi until the stitches have been removed.

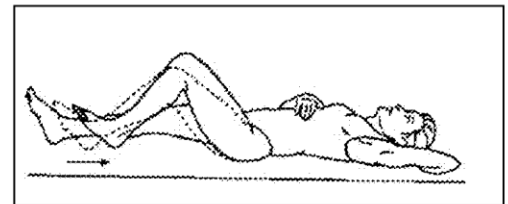
4. ASPIRIN/ELASTIC STOCKINGS

Continue to take an aspirin each morning (unless there is a reason not to take aspirin) to reduce the change of developing phlebitis (blood clots). Wear an elastic stocking (TED) below the knee to reduce swelling. Do at least 10 ankle pump exercises (moving the foot up and down) each hour to help prevent phlebitis (blood clots in the veins).

QUADRICEPS SETTING - to maintain muscle tone in the quadriceps (thigh) muscles and (extend) straighten the knee. Lie on your back with the knee extended fully straight as illustrated. Tighten (contract) and hold the front thigh muscle (quadriceps) making the knee flat and straight. If done correctly, the kneecap will slide slightly upward toward the thigh muscles. The tightening action of the quadriceps muscles should make your knee straighten and be pushed flat against the bed or floor. Hold five seconds for each contraction. Do 20 repetitions at least three times a day.

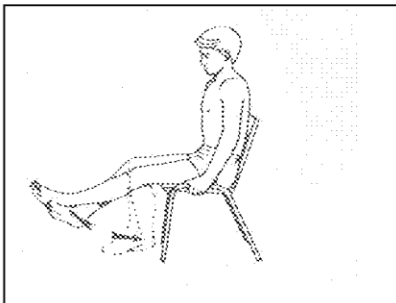


HEEL SLIDES - to regain the bend (flexion) of your knee. While lying on your back, use your muscles to slide your heel backward to bend the knee. Keep bending the knee until you feel a stretch in the front of the knee. Hold this bent position for five seconds and then slowly relieve the stretch and straighten the knee. While the knee is straight, you may repeat the quadriceps setting exercise. Repeat 20 times, three times a day.

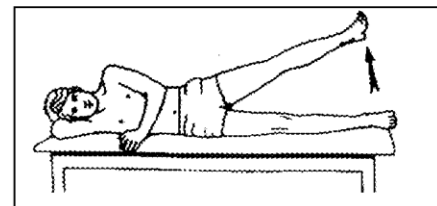


SITTING KNEE FLEXION -

to regain the bend (flexion) of the knee). While sitting in a chair or over the edge of your bed, support the operated leg with the uninvolved leg. Lower the operated leg, with the unoperated leg controlling, allowing the knee to bend as far as you are comfortable. Hold five seconds and slowly relieve the stretch by lifting the foot upward, with the uninvolved leg, to the straight position (passive assist). Repeat exercise 20 times, three times a day.

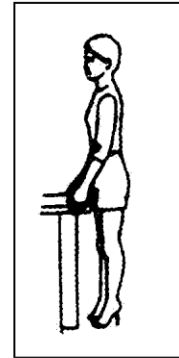


HIP ABDUCTION - lie on your unoperated side. Keep the knees fully extended. Raise the operated limb upward to a 45 degree angle as illustrated. Hold one second, then lower slowly. Repeat 20 times, once or twice a day

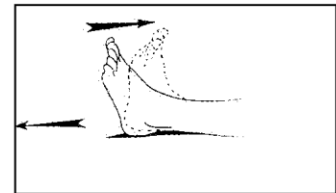


STANDING TOE RAISES

With the knee brace on, use a table for support and balance. Tighten the quadricep to hold the knee fully straight. Raise up on ‘tip-toes’ while maintaining the knees in full extension. Hold for one second, then lower slowly to the starting position.



ANKLE PUMPS - move your foot up and down at the ankle to stimulate circulation in the leg. You should do at least 10 ankle pump exercises each hour.



OFFICE VISIT:

Please return to see your doctor approximately six weeks after your surgery. If you have any questions regarding this exercise program, call 972-669-7101.

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Rehabilitation After Patellar Tendon Debridement Surgery

Phase two: Two to six weeks after surgery

Goals:

1. Walk normally
2. Regain full motion
3. Regain full muscle strength

Activities:

1. You may discontinue the knee immobilizer when you feel safe walking without it.
2. Bear full weight and **walk** on the leg. Try to avoid limping and walk slowly but normally. Do not walk up or down stairs with your full weight at this time.
3. Continue to ice the knee if there is pain and swelling. Place a towel or cloth between the skin and the ice to prevent skin injury.

Exercise Program

The following exercise program will help you regain knee motion and strength. If the exercises can be performed easily after the first week, then an ankle weight may be used to increase the resistance of the exercise and to build strength. Start with one pound and add one pound per week until you reach five pounds.

Do the exercises daily for the first week, then decrease to every other day when using ankle weights.

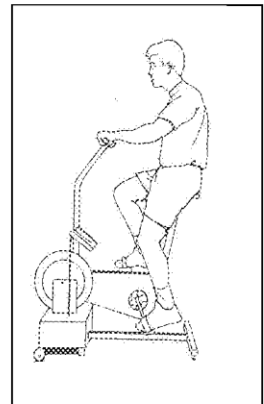
You may ride the stationary bicycle daily for 10 to 20 minutes.

Avoid using stair-stepper machines, doing deep knee bends and squats or any exercise that causes crunching, clicking or pain at the kneecap.

STATIONARY BICYCLE

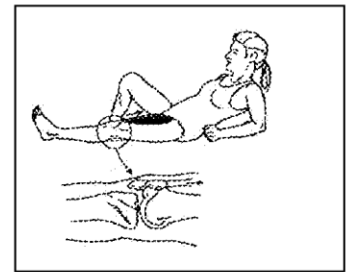
Utilize a stationary bicycle to move the knee joint and increase knee flexion.

If you cannot pedal all the way around, then keep the foot of your operated leg on the pedal, and pedal back and forth until your knee will bend far enough to allow a full cycle. Most people are able to achieve a full cycle revolution backwards first, followed by forward. You may ride the cycle with no resistance for 10 to 20 minutes a day. Set the seat height so that when you are sitting on the bicycle seat, your knee is fully extended with the heel resting on the pedal in the fully bottom position. You should then ride the bicycle with your forefoot resting on the pedal.



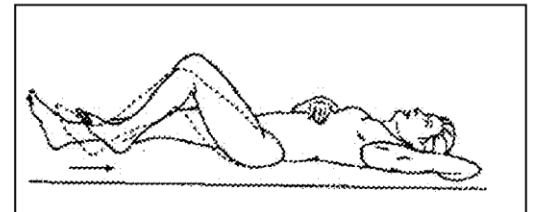
QUADRICEPS SETTING - to maintain muscle tone in the thigh muscles and straighten the knee. See figure in phase 1.

Lie on your back with the knee extended fully straight. Tighten and hold the front thigh muscle making the knee flat and straight. If done correctly, the kneecap will slide slightly upward toward the thigh muscle. The tightening action of the quadriceps should make your knee straighten and be pushed flat against the bed or floor. Hold 5 seconds for each contraction. Do 20 repetitions three times a day until you can fully straighten your knee equal to the unoperated side.



HEEL SLIDES - to regain the bend (flexion) of the knee.

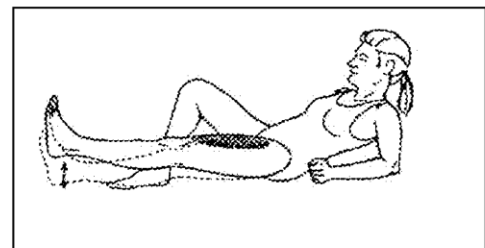
While lying on your back (figure), actively slide your heel backward to bend the knee. Keep bending the knee until you feel a stretch in the front of the knee. Hold this bent position for five seconds and then slowly relieve the stretch and straighten the knee. While the knee is straight, you may repeat the quadriceps setting exercise. Continue this exercise until you can fully bend your knee equal to the unoperated side. Repeat 20 times, three times a day.



STRAIGHT LEG LIFT

The quality of the muscle contraction in this exercise is what counts the most, not just the ability to lift the leg!

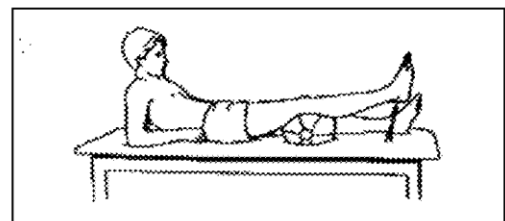
1. Tighten the quadriceps (quadriceps setting) as much as you can, push the back of the knee against the floor.
2. Tighten this muscle **harder!**
3. Lift your heel 4 to 6 inches off the floor
4. Tighten the quadriceps **harder again.**
5. Lower your leg and heel back to the floor. Keep the quadriceps as tight as possible.
6. Tighten this muscle **harder again.**
7. Relax and repeat .

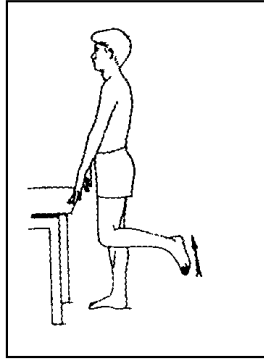


If the knee bends when you attempt to lift the limb off of the bed, do not do this exercise. Keep trying to do the quadriceps setting exercise until you can lift the limb without letting the knee bend.

SHORT ARC LIFT

With the knee bent over a rolled up towel or blanket, lift the foot so that the knee fully straightens. Hold the knee locked in extension for five seconds, then slowly lower. Repeat 20 times.



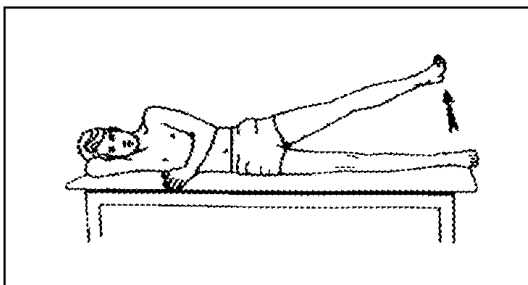
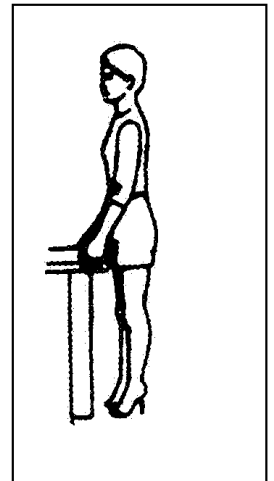


STANDING HAMSTRING CURL

Stand facing a table, using the table for balance and support. While standing on the unoperated limb bend the knee of the operated side and raise the heel toward the buttock. Hold this flexed position for one second. Slowly lower the foot back to the floor. Keep the thighs aligned as illustrated. Repeat 20 times.

STANDING TOE RAISE

Stand facing a table, hands on the table for support and balance. Keep the knees extended fully. Tighten the quadriceps to hold the knee fully straight. Raise up on 'tip-toes' while maintaining the knees in full extension. Hold for one second, then lower slowly to the starting position. Repeat 20 times.

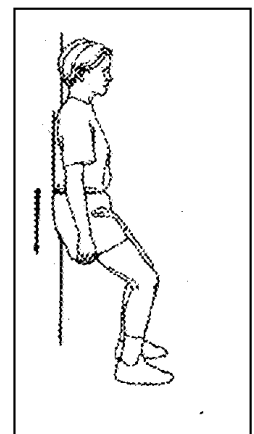


HIP ABDUCTION

Lie on your unoperated side. Keep the knees fully extended. Raise the operated limb upward to a 45 degree angle as illustrated. Hold one second, then lower slowly. Repeat 20 times.

WALL SLIDES

Stand upright with your back and buttocks touching a wall. Place the feet about 12 inches apart and about 6 inches from the wall. Slowly lower your hips by bending the knees and slide down the wall until the knees are flexed about 45 degrees (illustration). Pause five seconds and then slowly slide back up to the upright starting position. Do 3 sets of 10 to 15 repetitions.



OFFICE VISIT

Please set up an appointment to see the doctor 4 weeks (6 weeks after surgery). If you have any questions regarding this exercise program, call 972-669-7101

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Rehabilitation After Patellar Tendon Debridement Surgery

Phase 3: Six to twelve weeks after surgery

ACTIVITIES

1. Walking/Stairs

You should be walking without the aid of a brace or crutches. If you feel confident walking on the operated limb and have good strength and knee motion, you can begin attempting to walk up-stairs on the operated limb. It is not recommended that you lower yourself down-stairs on the operated limb until you complete the enclosed 'Step up-down progression'.

2. Knee Support – for excess activities

Buy an elastic knee sleeve (made of neoprene rubber) at a sporting goods store. It should have an opening for the kneecap and velcro straps but does not need hinges on the sides. Use this support if you are on your feet for a prolonged period of time.

3. Stationary Bicycle – good exercise

Utilize a stationary bicycle to both strengthen the thigh muscles and increase knee flexion. If you cannot yet pedal all the way around, then keep the foot of your operated leg on the pedal, and pedal back and forth until your knee will bend far enough to allow a full cycle. You may ride the cycle with mild resistance for up to 10 minutes a day. Set the seat height so that when you are sitting on the bicycle seat, your knee is fully extended with the heel resting on the pedal in the fully bottom position. You should then actually ride the bicycle with your forefoot resting on the pedal.

4. Swimming –good exercise

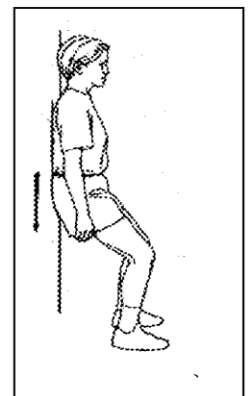
Swimming is good exercise at this time, if available.

5. Exercises

You should add the following exercises, every other day, as instructed by the physical therapist:

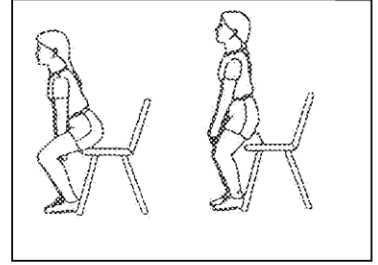
WALL SLIDES

Stand upright with your back and buttocks touching a wall.
Place the feet about 12 inches apart and about 6 inches from the wall.
Slowly lower your hips by bending the knees and slide down the wall until the knees are flexed about 45 degrees (illustration). Pause five seconds and then slowly slide back up to the upright starting position. When doing a wall slide, you should position your thighs so that your kneecaps are in line with the tips of your shoes, or your second toe. This exercise is illustrated in phase 2.



SQUAT TO CHAIR

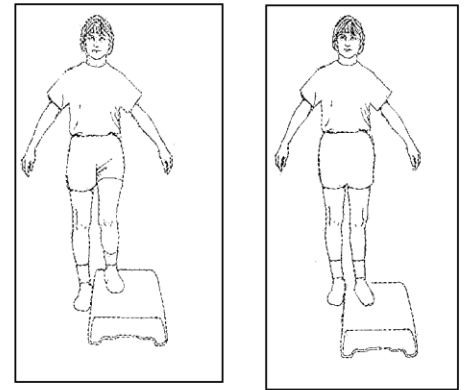
In the chair squat exercise, you lower your buttocks toward the chair until your buttocks touch the chair. Do not sit or rest at the chair, but instead immediately and slowly return to the standing and starting position. Remember to keep your head over your feet and bend at the waist as you descend. When doing a squat, you should position your thighs so that your kneecaps are in line with the tips of your shoes, or your second toe. After the first week, you may hold dumbbells while performing this exercise and the wall slide. Start with 3 to 5 pounds each hand. You may add 2 to 3 pounds per week until you reach 10 pounds in each hand.



STEP-UP-DOWN EXERCISE

At this time, it is important to begin the development of single-leg strength. Begin to follow the “Step-up-down Strengthening progression” outlined below, if you are able to do the exercises without pain. The instructions estimate a time period of 6 to 8 weeks for you to progress through the whole program. This time line will vary for different people and knees, depending upon the presence of other knee problems.

Place the foot of the operated limb on the stool. Maintain balance, if necessary, by holding onto the wall or chair. Standing **sideways** to the step, slowly step up onto the stool and slowly straighten the knee using the quadriceps muscles. Slowly lower the opposite foot to touch the floor. Do not land on the floor, just touch gently and repeat the step up



Step Up-Down exercise Progression (12-20 weeks after surgery)

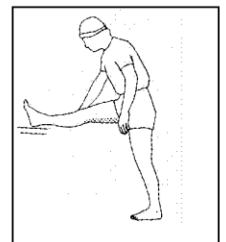
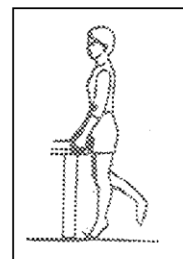
Start with a step of 3 inches in height
Start with 3 sets of 5 repetitions for the first 2 weeks. If pain free, add one repetition per set, per workout, until you can do 3 sets of 10 (about 2 weeks)
If pain free, progress to a step of 6 inches in height
Repeat progression starting with 3 sets of 5 repetitions for 2 weeks.
After that, if pain free,
Add one repetition per set until you can do 3 set of 10 (about 2 weeks)
If pain free, progress to a step of 9 inches in height (the height of a standard stair).
Repeat progression starting with 3 sets of 5 repetitions for 2 weeks. After that, if pain free, Add one repetition per set until you can do 3 set of 10 (about 2 weeks)
Do not continue to raise the height of the step if there is pain or crepitus at the kneecap.

ONE LEGGED TOE RAISES

Continue the toe-raises from phase 2, but now try to raise up and down slowly on just the operated side. Hold the unoperated foot off the floor and hold the wall or a chair or table for balance and support. Build to 3 sets of 15 repetitions.

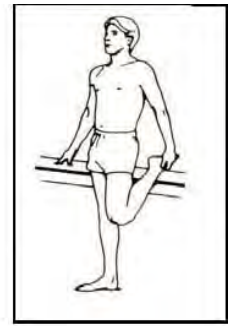
HAMSTRING STRETCH

Perform this stretch in the position illustrated. Bend slowly forward at the hips, keeping the knee fully extended until you feel gentle stretch in the back of your thigh and knee. Hold the stretch for 15 to 20 seconds and repeat 3 to 5 times.



QUADRICEPS STRETCH

This stretch is performed in the position illustrated. Lean gently backward as if bringing you heel toward the buttock. When a stretch is felt in the front of the thigh and knee, hold 15 to 20 seconds for 3 to 5 repetitions.



CALF STRETCH

In the position illustrated, keep the heel flat on the floor and the knee fully extended. Lean forward at the hips with the arms supporting your weight. When you feel a gentle stretch in the back of your calf and knee, hold for 15 to 20 seconds for 3 to 5 repetitions.

OPTIONAL ADDITIONAL EXERCISES

The following exercises may be added to your exercise program at **6 weeks** after surgery:

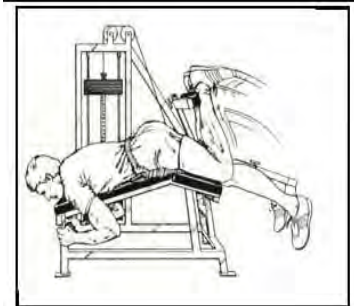
SEATED LEG PRESS

If you are using a leg press machine for strengthening, use an amount of weight that feels easy enough to perform 20 repetitions as the starting weight for this exercise. Use this weight for the first week before raising the weight. The weight may be increased by about 5 pounds every 7 to 10 days thereafter, as long as you can perform 20 repetitions per set for 3 sets, and as long as the weight used does not exceed body-weight when using both legs, or ½ body weight when using the one leg. In this exercise, avoid letting the knees **snap** or drop suddenly into extension when reaching the fully straightened position. Avoid starting the exercise with the knees bent past 90 degrees. Adjust the seat position to limit the excursion of the machine



RESISTED HAMSTRING CURLS

If you have access to a hamstring curl machine (illustration), you may start using it. As with the leg press, start with a reasonable weight and use that weight for the first week. You may increase the weight by 3 to 5 pounds every 10 days as long as you can perform 3 sets of 20 repetitions slowly, with good form. If you do not have access to a hamstring machine, continue doing the standing hamstring curl adding an ankle weight for resistance. Start with 3 to pounds and add 1 pound per week until you build to 10 pounds for 3 sets of 15 repetitions.

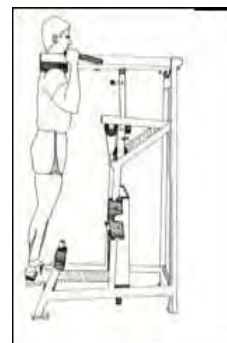


Additional Weight Training

Hip Abductor/Adductor machine

Roman Chair

Calf Raise Machine



Phase 4 Exercise Program Summary:

Frequency: 3 times a week

Sets and repetitions: 3 sets of 15 repetitions

- Leg Press
- Hamstring Curl
- Wall Slides
- Roman Chair
- Chair Squat
- Calf Raises or Calf Raise machine
- Hip Abductor/Adductor machine
- Step-up-down strengthening progression
- Hamstring, Calf and Quadriceps stretching
- Quadriceps setting 20 repetitions, 3 times a day

If you do not have access to gym equipment, the following exercises from phase 3 should be continued using ankle weights. In general, start with 1 lb and add 1 lb per week:

- Straight leg raise
- Side lying abduction
- Standing hamstring curl
- Toe raises

Precautions When Exercising

- Avoid pain at the tendon repair site
- Avoid pain and/or crepitus at the patella
- Build up resistance and repetitions gradually
- Perform exercises slowly avoiding quick direction change and impact loading
- Exercise frequency should be 2 to 3 times a week for strength building
- Be consistent and regular with the exercise schedule

Principles of Strength Training

- Warm-up prior to exercising by stationary cycling or other means
- You are "warmed -up" when you have started sweating
- Gently stretch all muscle groups next
- Do exercises involving multiple muscle groups first and individual muscle groups last
- Do aerobic workouts *after* strength workouts
- Cool-down by stretching after finishing exercise

The following exercises are not recommended because they may overload the patella and the tendon repair:

1. Knee extension using a weight lifting machine
1. Lunges
2. Stairmaster
3. Step exercises with impact
4. Running
5. Jumping
6. Pivoting or cutting

Call **972-669-7101**, if you have any question regarding the exercise program.

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Rehabilitation After Patellar Realignment

Phase four: twelve weeks after surgery onward

ACTIVITIES

1. Walking/Stairs

If you feel confident walking on the operated limb and have good strength and knee motion, you can walk up and down-stairs on the operated limb if it is not painful.

2. Knee Support -for excess activities

Buy an elastic knee sleeve (made of neoprene rubber) at a sporting goods store. It should have an opening for the kneecap and velcro straps but does not need hinges on the sides. Use this support if you are on your feet for a prolonged period of time.

3. Stationary Bicycle - good exercise

Utilize a stationary bicycle to both strengthen the thigh muscles and increase knee flexion. If you cannot yet pedal all the way around, then keep the foot of your operated leg on the pedal, and pedal back and forth until your knee will bend far enough to allow a full cycle. You may ride the cycle with mild resistance for up to 10 minutes a day. Set the seat height so that when you are sitting on the bicycle seat, your knee is fully extended with the heel resting on the pedal in the fully bottom position. You should then actually ride the bicycle with your forefoot resting on the pedal.

4. Swimming -good exercise

Swimming is good exercise at this time, if available.

5. Return to run progression

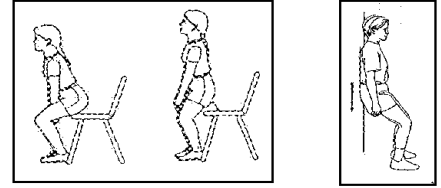
A gradual return to running can begin at this time with the approval of your doctor and physical therapist. The 'Return to jog' and 'Return to run' programs contained in this handout can serve as guidelines for safe return to running activities.

6. Exercises

You should add the following exercises, every other day, as instructed by the physical therapist:

CHAIR SQUAT WALL SLIDE

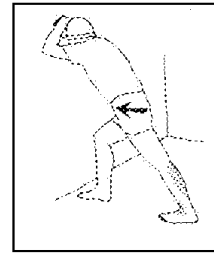
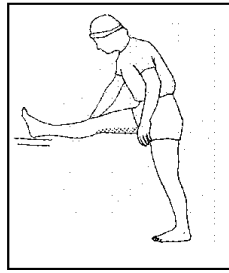
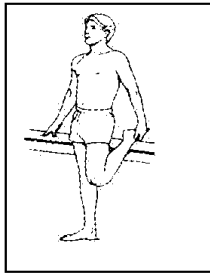
Continue these exercises from the previous phase.



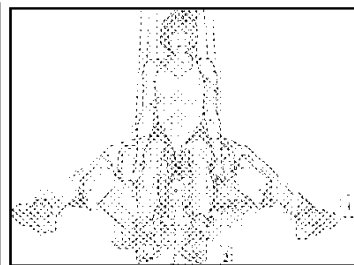
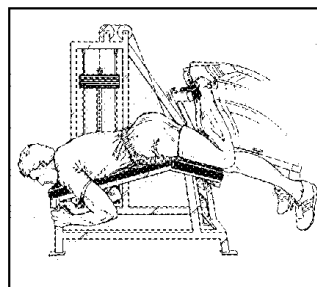
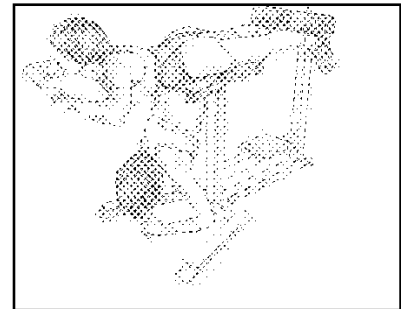
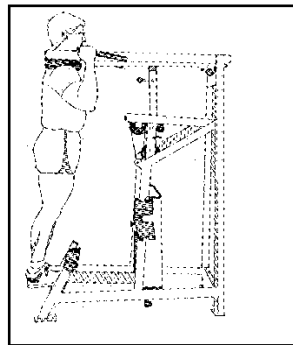
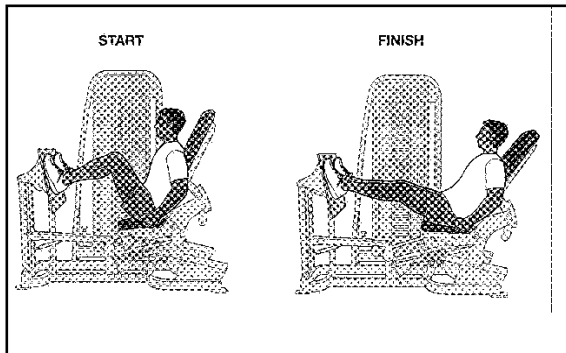
ADVANCED SINGLE LEG STRENGTHENING PROGRESSION

Begin to follow the "Progression for Single Leg Strengthening" included in this packet if you are able to do the exercises without pain. The instructions estimate a time period of 10 to 12 weeks for you to progress through the whole program. This time line will vary for different people and knees, depending upon the presence of other knee problems. If these exercises cause pain or overload at the kneecap, you should not do them.

Continue stretching exercises from phase 3:



Continue optional weight training from phase 3:



Phase 4 Exercise Program Summary:

Frequency: 3 times a week

Sets and repetitions: 3 sets of 15 repetitions

Exercises:

- Leg Press
- Hamstring Curl
- Wall Slides
- Roman Chair
- Chair Squat
- Calf Raises or Calf Raise machine
- Hip Abductor/Adductor machine
- Single leg strengthening progression
- Hamstring, Calf and Quadriceps stretching
- Quadriceps setting 20 repetitions, 3 times a day

Progression for Single Leg Strengthening

Step Up-Down exercise

Start with a step of 3 inches in height

Start with 3 sets of 5 repetitions

Add one repetition per set, per workout, until you can do 3 sets of 10 (about 2 weeks)

If pain free, progress to a step of 6 inches in height Repeat progression starting with 3 sets of 5 repetitions

Add one repetition per set until you can do 3 set of 10 (about 2 weeks)

If pain free, progress to a step of 9 inches in height (the height of a standard stair) Repeat process of progression from 3 sets of 5, to 3sets of 10 (about 2 weeks)

Do not continue to raise the height of the step if there is pain or crepitus at the kneecap.

At this point, you can begin to add the single leg wall slide exercise. The strength workouts should be practiced 3 times a week (every other day).

Single Leg Wall Slide

Start with 3 sets of 5 repetitions. Limit knee bend to 45 degrees.

Add one repetition per set, per workout, until you can do 3 sets of 10 (about 2 weeks minimum). **Progress to this exercise only if there is no pain or crepitus at the kneecap.**

At this point, you can begin to add the single leg squat exercise. The strength workouts should continue every other day at the most, with more time between workouts if the knee gets sore after a session.

Continue doing the step-up exercise each workout. Alternate the workouts between the single leg wall slide and the single leg squat, e.g.,

Monday	Single leg squat
Wednesday	Single leg wall slides
Friday	Single leg squat

Single Leg Squat

Start with 3 sets of 5 repetitions. **Limit knee bend to 45 to 60 degrees.**

Add one repetition per set, per workout, until you can do 3 sets of 10 (about 2 weeks minimum).

After working up to the point where you can do 3 sets of ten of all three drills, you can hold dumbbells to add resistance. Start with 3 pounds in each hand and add 1 to 2 pounds a week until you reach 10 pounds in each hand.

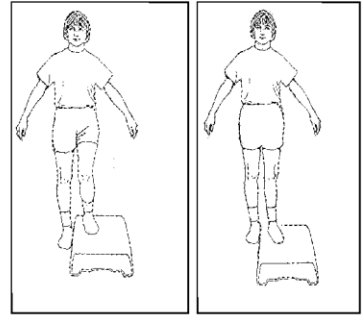
As you get stronger and gain better control of your leg muscles, try not to hold onto anything for balance.

When you return to sports or recreational activities, decrease the strength workouts to 2 times a week and do 1 set of 10 of each of the three drills only, as a maintenance workout.

Instructions for Single Leg Exercises

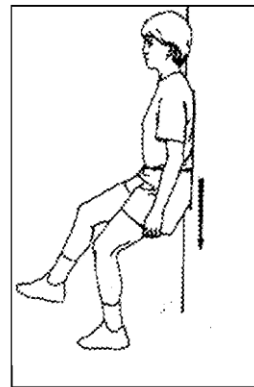
Step Up- Down Exercise

Place the foot of the operated limb on the stool. Maintain balance, if necessary, by holding onto the wall or chair (illustration). Standing **sideways** to the step, slowly step up onto the stool and slowly straighten the knee using the quadriceps muscles. Slowly lower the opposite foot to touch the floor. Do not land on the floor, just touch gently and repeat the step up



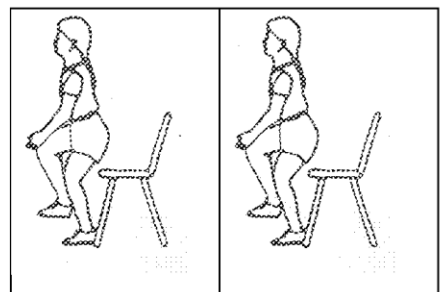
Single Leg Wall Slide Exercise

Stand on the single leg with your back and buttocks touching a wall. Place the foot about 6 inches from the wall. Slowly lower your body by bending the knee and slide down the wall until the knee is flexed about 45 degrees (illustration). Pause five seconds and then slowly slide back up to the upright starting position. Keep the hips level and be sure you are using your knee muscles to perform the exercise.



Single Leg Squat Exercise

In the single leg squat exercise, you stand on the single leg and then lower your buttocks toward the chair. Slowly return to the standing and starting position. Remember to keep your head over your feet and bend at the waist as you descend. You do not have to squat all the way to the chair, instead, try to stay in a comfortable range of motion where there is no knee pain. As you gain strength, try to do the exercise without holding on to anything



Return to Walk/Run Program

General Instructions

1. Walking/jogging should be done no more than every other day.
2. The program should be performed step by step. Do not advance your program until you can successfully complete the initial step. Let pain and swelling be your guide. If the activity creates pain, swelling, or causes you to limp, go back to the previous step.
3. Before starting the program and after completion of the program allow 15 minutes to perform warm-up and gentle stretching exercises.
4. Cool down by gently stretching all muscle groups
5. Ice for 20 minutes after cool down stretching.

Phase 1:

- Day #1 Walk 1/4 mile -- easy pace (1/2 speed)
Day #2 Walk 1/4 mile -- (3/4 speed)
Day #3 Walk 1/4 mile -- full speed – briskly

Phase 2:

- Day #1 Walk 1/2 mile -- easy pace (1/2 speed)
Day #2 Walk 1/2 mile -- (3/4 speed)
Day #3 Walk 1/2 mile -- full speed - briskly

Phase 3:

- Day #1 Walk 3/4 mile -- (3/4 speed)
Day #2 Walk 3/4 mile -- (full speed - briskly)
Day #3 Walk 1 mile -- (comfortable pace -3/4-full speed)

Phase 4:

- Day #1 Jog 1/4 mile, Walk 3/4 mile, comfortable pace
Day #2 Jog 1/2 mile, Walk 1/2 mile, comfortable pace
Day #3 Jog 3/4 mile, Walk 1/4 mile, comfortable pace

Phase 5:

- Day #1 Jog 3/4 mile, Walk 1/4 mile, comfortable pace
Day #2 Jog 1 mile
Day #3 Jog 1 mile

You can continue to increase distance by 1/4 mile per session until you reach your desired distance. When you have reached your training distance without causing any pain or swelling, and have a normal running form, you can gradually start to increase your running speed or progress to the "Return to sprint program".

Return to Run Program

Warm-up and Stretch and Ice

Be careful to be sure that you warm-up well and stretch lightly before workouts, and stretch well again after workouts. Generally, you should do some walking, cycling or jogging so that you break a sweat before starting the running program. You should then stretch before beginning the running drills. After completing the running drills, gently stretch all muscle groups as you cool down. Apply ice for 20 minutes after that.

The criteria to progress

Do not progress to the next step in the progression until the present step is pain free.

Frequency: every other day or 3 to 4 times a week

Day 1 Run ½ speed 100 yards, 10 repetitions

Day 2 No Run

Day 3 Repeat Day 1

Day 4 No Run

Day 5 Repeat Day 1

Day 6 Run ¾ speed 100 yards, 10 repetitions

Day 7 No Run

Day 8 Repeat Day 6

Day 9 No Run

Day 10 Repeat Day 8

Day 11 No Run

Day 12 Run ½ speed, 100 yards, 3 repetitions

Run ¾ speed, 100 yards, 3 repetitions

Run full-speed, 50 yards, 4 repetitions

Day 13 No Run

Day

14 - 42 Continue workout from Day 12, adding one 50 yard run each workout until you can do (10) 50 yard full speed runs. This progression should take a minimum of 24 days (3 weeks, 3 days), but may take longer if pain or swelling occurs. Do not progress to the next step in the progression until the present step is pain free, without swelling.