

ADDUCTOR RELEASE FOR ATHLETIC GROIN PAIN

THE INJURY

The adductor muscles of the thigh connect the lower rim of the pelvic bone (pubis) to the thigh-bone (femur). These muscles exert high forces during activities such as soccer, hockey and football when powerful and explosive movements take place. High stresses are concentrated especially at the tendon of the adductor longus tendon where it attaches to the bone. This tendon can become irritated and inflamed and be the source of unrelenting pain in the groin area. Pain can also be felt in the lower abdomen.

THE OPERATION

Athletic groin pain due to chronic injury to the adductor longus muscle-tendon complex usually can be relieved by releasing the tendon where it attaches to the pubic bone. A small incision is made over the tendon attachment and the tendon is cut, or released from its attachment to the bone. The tendon retracts distally and heals to the surrounding tissues. The groin pain is usually relieved since the injured tendon is no longer anchored to the bone.

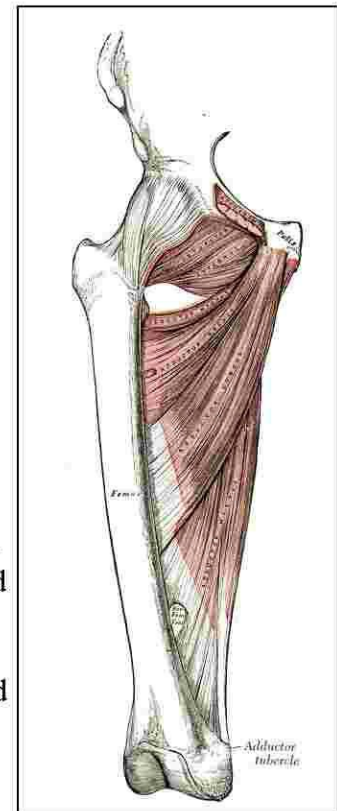
It takes several weeks for the area to heal. Athletes can return to full competition after a period of six or eight weeks of rehabilitation, but it may take a longer period of time to regain full strength and function.

RISKS OF SURGERY AND RESULTS

As with any operation, there are potential risks and possible complications. These are rare, and precautions are taken to avoid problems. The spermatic cord (in males) is close to the operative area, but it is rarely at risk. There is a small chance for bleeding in the area.

There is a small (less than 1%) risk of infection after surgery.

The success rate of adductor release surgery is high if the pain is coming from the adductor longus tendon. Pain can also come from an associated lower abdominal strain, which may require additional (or concomitant) surgery. If the adductor is painful on only one side, occasionally the other side can also be strained and become painful.



Sports Medicine



ADDUCTOR TENDON RELEASE PREOPERATIVE INSTRUCTIONS

Within one month of surgery

- Preoperative office visit for history and physical examination and instructions
- Complete blood count (CBC)
- Electrocardiogram (EKG) if over the age of 40

Within several days of surgery

- Wash the upper thigh and groin area well
- Be careful of the skin to avoid sunburn, poison ivy, rashes, etc.

The day before surgery

- Check with the doctor's office for your time to report to the surgical unit the next day.
- **HAVE NOTHING TO EAT OR DRINK AFTER MIDNIGHT.** If surgery will be done in the afternoon, you can have **clear liquids only** up to **six hours** before surgery but no milk or food.

The day of surgery

- Nothing to eat or drink
 - For surgery at **MGH main campus in Boston:** Report directly to the Surgical Day Care Unit on the third floor of the Wang Ambulatory Care Building at Massachusetts General Hospital two hours prior to surgery.
 - For surgery at the surgery center at **MGH West in Waltham:** Report directly to the Ambulatory Surgery Center on the second floor of Mass General West.
- You probably will be able to go home shortly after surgery.

ADDUCTOR TENDON RELEASE POSTOPERATIVE INSTRUCTIONS

Phase One: First week after surgery

You will wake up in the operating room and be taken to the recovery room. A sterile dressing will be in place and your legs will be stretched out to the sides. You should keep the legs stretched out to the sides (abducted) continuously for the first two or three days after surgery (starting in the recovery room).

An ice pack will be applied to the groin area to reduce pain and swelling.

When you have fully recovered from anesthesia (usually in two hours), you can go home. There is usually no need for crutches but you may have some discomfort walking.

At home stay in bed for two or three days with your legs widely abducted. Put several pillows between your knees to keep your knees spread widely apart. Remove the outer dressing on the second day after surgery and shower. Leave the little pieces of tape (steri-strips) in place. You can get the wound wet, but do not soak in a tub.

After you are up and around (two or three days after surgery) continue to stretch the legs into wide abduction at least every two or three hours when awake. When sleeping, keep pillows between the legs to keep them apart.

Office Visit

You should set up a follow up appointment in the office for suture removal and rehabilitation instructions 7-10 days following surgery.

**MGH Sports Medicine
175 Cambridge Street
Boston, MA 02114
617-726-7500**

REHABILITATION AFTER ADDUCTOR RELEASE SURGERY

Phase Two: from the second through the fourth week after surgery

GOALS:

1. Ensure wound healing
2. Keep adductor muscles stretched as much as possible
3. Prevent excess scarring
4. Improve flexibility of the adductor muscles

ACTIVITIES

1. Apply ice to the groin area as tolerated to reduce pain and swelling. Protect the testicles from too much cold.
2. You may walk for short distances as tolerated. You may ride a stationary cycle for ten minute periods as tolerated. You should not run, jump or participate in sports yet.

EXERCISE PROGRAM

The following exercise program should begin at one week after surgery. Start with stretching exercises and over the next week, add muscle-strengthening exercises. Do the exercises 1 to 2 times per day. Ride a stationary cycle for 10 to 20 minutes to warm-up prior to stretching. Let pain be your guide as to how far to stretch. As time goes on and healing occurs, you can stretch further. Apply ice to the adductor area for 10 to 15 minutes following the exercises to reduce pain and swelling.

Stretching Exercises

The following stretches are illustrated and described in the back of the handout. Hold each stretch for 15 to 30 seconds. Do 3 to 5 of each, 2 times a day.

Standing spread
Sitting split
Butterfly spread
Standing hip flexor
Floor hip flexor
Rectus femoris
Hamstring

Piriformis
Single knee to chest
Double knee to chest
Quadriceps and knee flexion

Strengthening exercises

The following exercises can begin, as tolerated during the second week after surgery. Do 20 repetitions of each exercise. The exercises are described and illustrated in the back of the handout.

Standing abduction

Alternating hip rotations

Straight leg raises

Alternating toe-hand touches

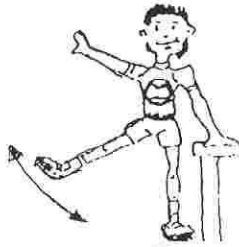
Toe touches

Straight leg sit-up

To contact your doctor or physical therapist:

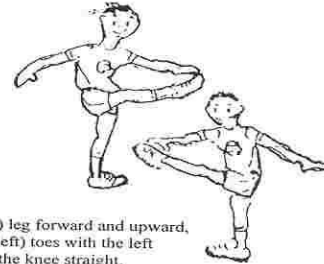
Call 617-726-7500

Standing Abduction



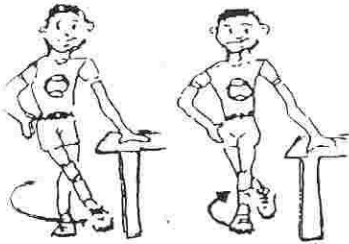
With one foot on the floor, bring the other leg out to the side as far as you can. Repeat slowly 20 times.

Alternating Toe-Hand touches



Bring the right (left) leg forward and upward, touching the right (left) toes with the left (right) hand. Keep the knee straight. Repeat 20 times each leg.

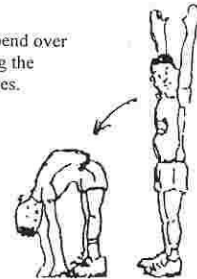
Alternating Hip Rotations



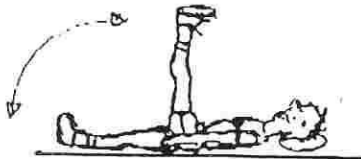
With one foot on the floor, lift the other leg forward and across, then move it backward and across. Repeat slowly 20 times each leg.

Toe Touches

Reach arms upward overhead, then bend over and reach for your toes while keeping the knees straight. Repeat slowly 20 times.

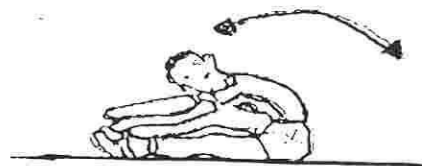


Straight Leg Raises



Lie on a hard surface, lift the leg up to vertical while keeping the knee straight. Repeat slowly 20 times each leg.

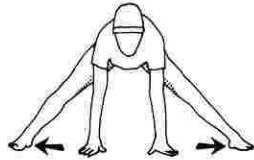
Straight Leg Sit-Up



Lie on a hard surface, keep the knees straight, and sit up and touch the toes with your arms extended. Repeat slowly 20 times.

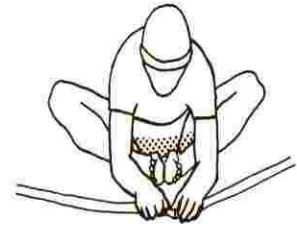
Groin and Adductor Stretch "Standing Spread"

- Spread feet wide
- Bend over and rest hands on floor
- Alternate leaning gently to the left and right
- Hold each position for 15 to 20 seconds

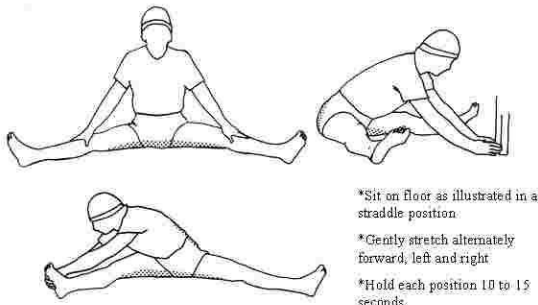


Groin and Adductor Stretch "Butterfly Spread"

- Sitting on the floor as illustrated with soles of feet together
- Let the knees drop out to the side
- Lean slightly forward
- Let elbows press down against inner knee to increase inner thigh stretch
- Hold 10 to 15 seconds



Groin and Adductor Stretch "Sitting Split"



*Sit on floor as illustrated in a straddle position
*Gently stretch alternately forward, left and right
*Hold each position 10 to 15 seconds

Hip Flexor Stretch Standing Technique

- Place foot on solid object about hip height
- Keep hip and knee of the foot on the floor extended
- Lean forward keeping back straight and erect
- Hold 10 to 15 seconds



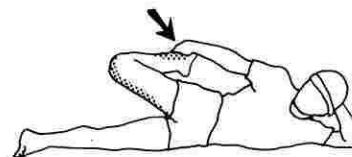
Hip Flexor Stretch Floor Technique

- With the hip to be stretched extended backward
- Rest the body weight on the arms and forward leg
- Keep the body erect while leaning forward
- Hold stretch for 10 to 15 seconds



Rectus Femoris Stretch Side Lying Technique

- Lie on your side and grasp the foot at the front of the ankle
- Bring the heel to the buttock and then extend the hip to increase the stretch
- Hold 10 to 15 seconds



Quadriceps and Knee Flexion Stretch

- Standing upright with the thigh aligned with the opposite thigh
- Rest foot on table or other surface
- Gently lean back so that the buttock moves toward the heel
- Hold 10 to 15 seconds



Hamstring Stretch

- Perform this stretch in the position illustrated.
- Bend slowly forward at the hips, keeping the knee fully extended
- A gentle stretch is felt in the back of your thigh and knee.
- Hold the stretch for 10 to 15 seconds



Single Knee-to-Chest Stretch

Starting with the knees bent, pull knee to chest and hold the stretched position for 5 to 10 seconds. Alternate sides, repeat 5 to 10 times each, 3 times a day



Double Knee-to-Chest Stretch

Starting with the knees bent, pull both knees to chest and hold the stretched position for 5 to 10 seconds. Repeat 5 to 10 times each, 3 times a day



Piriformis and Deep Hip Stretch

- Lie on your back
- Rotate the right hip externally as shown while bringing the knee and thigh toward the chest
- Maintain the hip in external rotation while continuing to stretch the thigh toward the chest
- Hold 10 to 15 seconds, alternately



REHABILITATION AFTER ADDUCTOR RELEASE SURGERY

Phase Three: from the fifth through the seventh week after surgery

GOALS:

1. Begin exercises against some resistance
2. Keep adductor muscles stretched and flexible
3. Start a walking program and progress to running
4. Improve flexibility all lower extremity muscles

ACTIVITIES:

Exercises

Continue the stretches from phase one two times a day. Each stretch can be done 3 to 5 times each with a 15 to 30 second hold. Generally, you should do some walking or cycling so that you break a sweat before you stretch. After stretching, do the strengthening exercises, and then stretch again as you are cooling down. Ice for 20 minutes after completing the exercise program. Strengthening exercises can be done on an every-other-day basis. The strengthening exercises from phase one can now be done as part of your warm-up routine. Stationary cycle can continue with light resistance on a daily basis for 20 to 40 minutes.

Theraband exercises

Exercises using rubber tubing as resistance can gradually begin at this time. These exercises should be done slowly for sets of 20 to 30 repetitions, every other day. The strength of the rubber tubing can be gradually increased each week if there is no pain.

Weight training exercises

Exercises using weight training equipment can begin at this time in certain athletic training applications. As the starting weight for these exercises, use an amount of weight that feels easy enough to perform 20 repetitions. 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. Weight training can be done three times a week. Do the theraband exercises before the weight training as a warm up activity.

The following weight training machines can be used at this time:

Leg press
Calf machine
Roman chair

Hamstring curl
Quadriceps extension

Progression from walking to jogging

The progression to help you return to running is attached in the back of this handout. A gradual transition from walking to jogging needs to be achieved before returning to full speed running. This program can be followed three times a week, on the days when you are not doing the theraband or weight training exercises.

Progression from walking to jogging

General Instructions

1. Walking/jogging should be done no more than three times a week.
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 stretching exercises.
4. Ice the injured area for 20 minutes after 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

For distance runners, you can continue to increase distance by $\frac{1}{4}$ 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.

When progressing after phase 5, running should be limited to 3 to 4 times per week with rest days in between run days. You should follow “periodized” training approach which utilizes the Heavy- Light- Medium format. For example, if your usual long run is 8 miles, then your “Heavy” run is 8 miles. If you are running three times per week, then your run distances would be:

Day 1: Heavy:	8 miles
Day 2: Light:	4 miles
Day 3: Medium:	6 miles

This approach will help prevent over-training and subsequent injury.

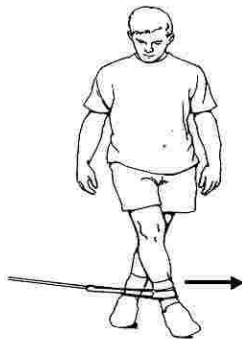
Athletes returning to sprinting and cutting sports should progress to the Return to sports running Program, which is upcoming in phase 4 of the protocol.

To contact your doctor or physical therapist:

Call 617-726-7500

Theraband Adduction

- Standing as illustrated with the band to your side, bring the foot across the body with the knee straight



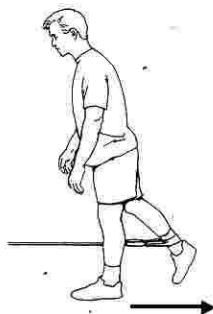
Theraband Hip Flexion

- Standing and holding a solid object for balance, bring the knee forward and up in a high kicking motion. Let the knee bend as you raise your knee upward.



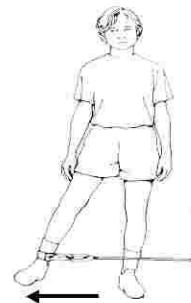
Theraband Hip Extension

- Standing as illustrated with the band to your front, Pull the leg backward with a straight knee.



Theraband Abduction

- Standing as illustrated with the band to your side, bring the foot away from the body with the knee straight

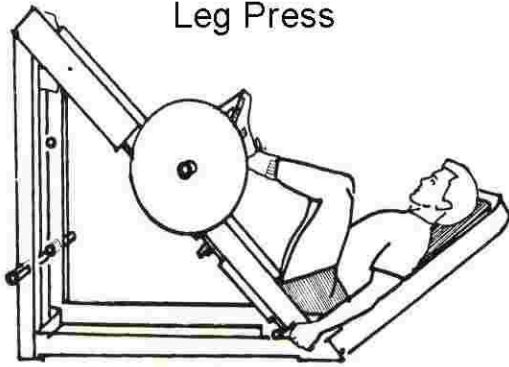


Theraband Hip flexion (straight knee)

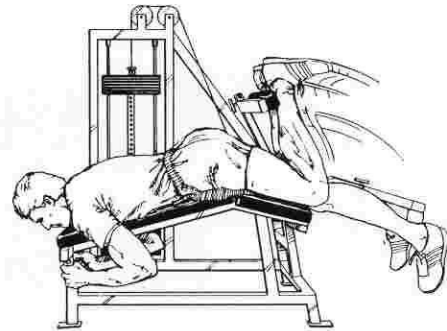
- Standing as illustrated with the band to your back, bring the foot forward with the knee straight to a 45 degree angle



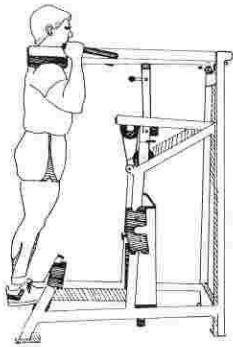
Leg Press



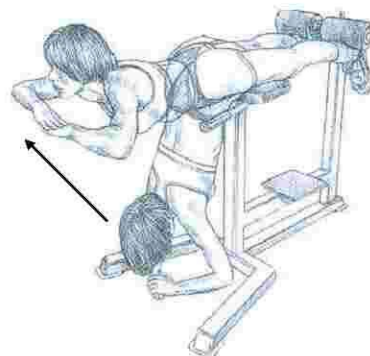
Hamstring curl



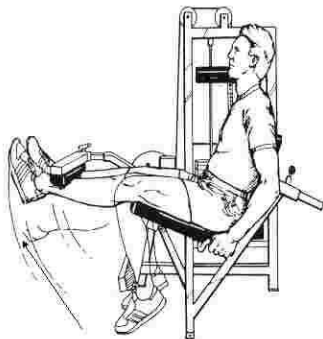
Calf Raise Machine



Roman Chair Exercise



Knee Extension Machine



REHABILITATION AFTER ADDUCTOR RELEASE SURGERY

Phase Four: From the eighth week after surgery onward

GOALS:

1. Safely return to full sports participation

ACTIVITIES

1. Continue using the stationary bicycle or elliptical trainer as a warm-up prior to exercising.
2. Continue strengthening exercises from phase 3 on a 2 to 3 times a week basis for 3 sets of 10 to 15 repetitions per set.
3. Continue stretching exercises before and after workouts.

EXERCISE PROGRAM

You can now add the Hip abductor-adductor weight-training machine and resisted hip flexion machine to the strengthening workout. Illustrations of these exercises are in the back of the handout.

Return to Running and Sports

If you have completed all of the steps in the 'return walk-jog program' from phase 3, you can now begin the 'return to sports running program' (attached to the back of this handout.). If you follow this program in a step-by-step fashion, you should be able to safely return to running sports successfully.

After returning to sports participation:

1. Continue the strengthening program two times a week for 2 sets of 10 to 15 repetitions.
2. Continue stretching program before and after workouts, practice and games.
3. Ice after workouts (after cooling down by stretching).
4. Use the final step of the sports running program to warm up prior to practice and games.

To contact your doctor or physical therapist:

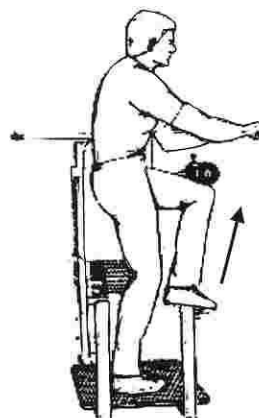
Call 617-726-7500

Resisted Hip Flexion Using Cable Weight Stack

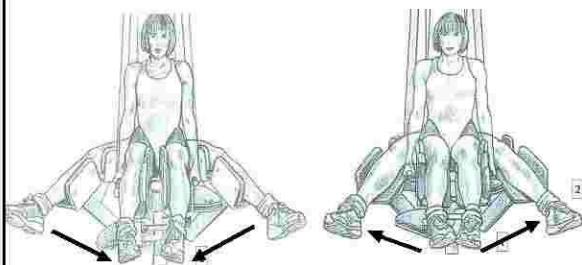
- Standing and holding a solid object for balance, bring the knee forward and up in a high kicking motion. Let the knee bend as you raise your knee upward.



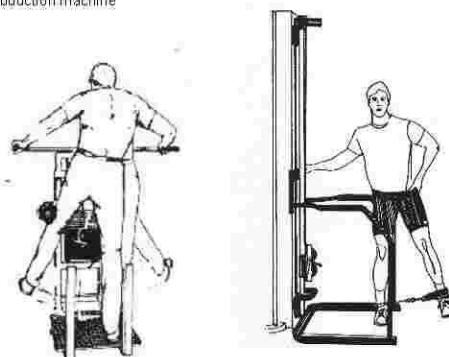
Hip flexion machine
Multi-hip



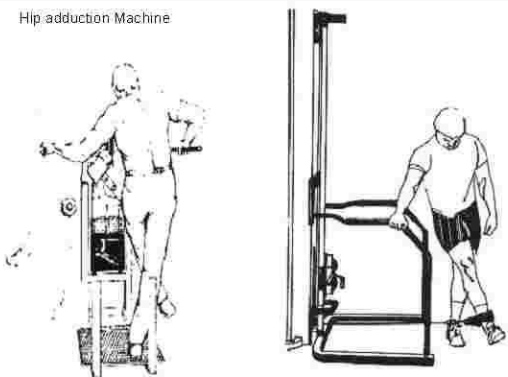
Hip Abductor-Adductor Machine



Hip abduction machine



Hip adduction Machine



Running program for Return to Sports

Goals:

1. Safely recondition the injured area for the demands of sports activity.
2. Provide a logical sequence of progressive drills for pre-sports conditioning
3. Provide objective criteria for safe return to sports.

Sports Specific Training

Phases of Training Straight-ahead running phase
 Direction change running phase
 Unrestricted direction change

Prerequisites Full Range of Motion
 Symmetrical muscle flexibility
 Pain free all stretching and strengthening exercises

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. Ice your knee for 20 minutes following workouts after stretching again as you are cooling down.

The criteria to progress

Do not progress to the next step in the progression until the present step is pain free, without swelling.

Frequency:

2 or 3 times per week. Repeat previous steps can be skipped if the running causes no problems.

Phase 1 *Straight Ahead Running*

- STEP 1 Run ½ speed 100 yards, 10 repetitions
- 2 Repeat previous step
 - 3 Run ¾ speed 100 yards, 10 repetitions
 - 4 Repeat previous step
 - 5 Run ½ speed, 100 yards, 3 repetitions
Run ¾ speed, 100 yards, 3 repetitions
Run full-speed, 50 yards, 4 repetitions
 - 6 Continue workout from Step 5, adding one 50 yard run each workout until you can do (10) 50 yard full speed runs.

Phase 2 Basic Direction Change Running

- STEP 7 Continue 100 yard run $\frac{1}{2}$ speed, 2 repetitions; $\frac{3}{4}$ speed, 2 repetitions; full speed, 2 repetitions
Start **zig-zag run**, round corners, 50 yards, 5 repetitions
- 8 Repeat previous step
- 9 Repeat previous step, add **backward run** 25 to **gradual stop**, then **forward run** 25 yards to gradual stop, 5 repetitions
- 10 Repeat previous step
- 11 Repeat previous step, add **circle run**, 20 foot or greater diameter circle, 3 repetitions to left and 3 reps to right.
- 12 Repeat previous step
- 13 Repeat previous step, add **figure of eight run**, 20 foot or greater length, 5 repetition
- 14 **Carioca**, 50 yards, 5 repetitions left, 5 repetitions right

Phase 3 Unrestricted Direction Change Running

Current workout:

100yd $\frac{1}{2}$ speed, $\frac{3}{4}$ speed and full speed each distance 2 repetitions

zig-zag run 5 repetitions

forward backward run 5 repetitions

circle run 6 repetitions

figure 8 runs 5 repetitions

carioca 5 repetitions each way

- 15 Continue Current Workout above and Add:

Shuttle run, 50 yards, direction change every 10 yards, 5 repetitions, alternate hands touching.

- 16 Repeat previous step

- 17 Repeat previous step

- 18 Repeat previous step and add **Box drill**, 20 yards square, 6 repetitions, alternate starting side.

- 19 Repeat previous step

- 20 Repeat previous step

- 21 Repeat previous step and add **agility run**, 5 repetitions, alternate starting side.

- 22 Repeat previous step

- 23 Repeat previous step

- 24 Repeat previous step

Final workout:

100yd $\frac{1}{2}$ speed, $\frac{3}{4}$ speed and full speed each distance 2 repetitions

zig-zag run 5 repetitions

forward backward run 5 repetitions

circle run 6 repetitions

figure 8 runs 5 repetitions

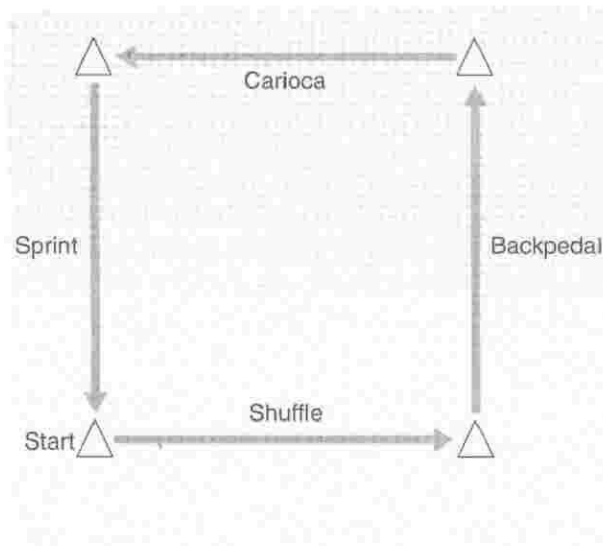
carioca 5 repetitions each way

Shuttle run, 50 yards, direction change every 10 yards, 5 repetitions, alternate hands touching.

Box drill, 20 yards square, 6 repetitions, alternate starting side.

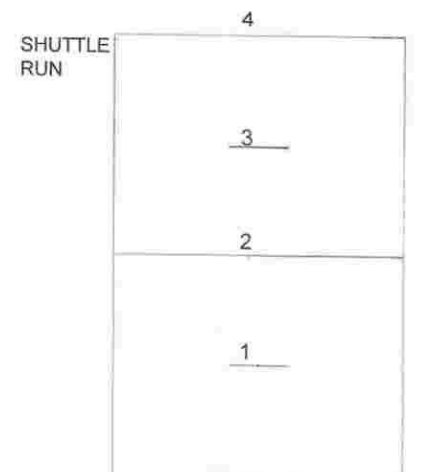
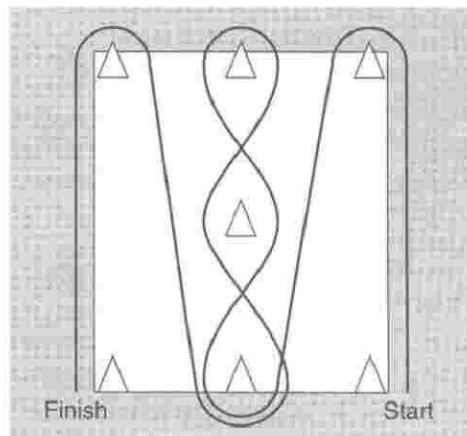
Agility run, 5 repetitions, alternate starting side

Phase 4 Return to Sports Practice. During phase 3
 Do 1 to 2 repetitions of each drill of final workout to warm-up before practice.
Phase 5 Return to Sports Competition. At the end of phase 3



BOX DRILL

AGILITY RUN



Run and touch each line
 with right hand then
 return and touch start line
 with left hand.

Start/Finish

Rehabilitation after Adductor Release Surgery

Post-op Phase	ROM and Stretching	Strength training	Return to running and sports	Recommended Restrictions
Phase One The first week after surgery	Active ROM exercises Stretch thighs apart Pillows between knees for sleep	none	none	Wound care Avoid excessive walking
Phase Two Two to four weeks after surgery	Full Rom Stretch adductors and all muscle groups Stationary bike	Active ROM exercises Strength training for uninvolved muscle groups	Walking	Elliptical OK.
Phase 3 Five to seven weeks after surgery	Progressive	Theraband resistance for hip muscles Leg press, knee extension, hamstring, calf and roman chair machines	Start walk/jog progression	Progress as tolerated
Phase 4 Eight weeks after surgery onward	Progressive	Add resisted hip motions on cable pullies or multi-hip machine, hip abductor/adductor machine	Progressive run, agility, jump training	Progress as tolerated