

Sports Therapy  
Manual Therapy  
Electrotherapy  
Manipulation  
Rehabilitation  
Pre-habilitation  
Clinical Pilates  
Pre-Season Screening  
Exercise Prescription  
Massage

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## Post-Operative Physiotherapy Information

### Knee Reconstruction (Anterior Cruciate Ligaments)

#### QUADRICEPS TENDON GRAFT

#### CARE OF YOUR KNEE POST SURGERY.

After your surgery there will be a number of things that you can do to optimise recovery time and guarantee success of your new cruciate. These include:

#### 1. REDUCING SWELLING

Within the first 48 hours reducing post operative bleeding and swelling is vital. This can be done by:-

##### 1.1. ICING

Icing or cryotherapy has the effect of controlling inflammation, bleeding and thus swelling which your knee is prone to after surgery.

It helps to pull down your tubigrip compression bandage when icing. Always use a damp cloth between the ice pack and your skin as ice can burn if directly applied to the skin. We recommend you place the ice pack on the front of your knee.

##### Application recommendation

- Within the first week: apply ice very regularly, ie. for 15-20 minutes, at least every 1-2 hours. A minimum of 4 times/day is recommended eg. Morning, lunch, afternoon and evening.
- From one week onwards: apply after exercises, after activities which may have aggravated your knee, or if your knee is feeling painful and swollen.

##### 1.2. COMPRESSION

Wear your "tubigrip" (compression sleeve) until swelling has settled. This may take up to 8 weeks.

##### 1.3. ELEVATE YOUR LEG WHEN ABLE

Within the early days, keeping your leg elevated will allow for natural drainage of fluid out of your knee. Level with your body on the bed or couch is best.

## **1.4. USE OF CRUTCHES**

It is recommended that you begin weight bearing on your operated leg immediately post-surgery. Obviously you may have some pain, which will affect how much weight you can take on your leg. Use your crutches to take as much weight as you need to try to walk as normally as possible. The crutches are also useful to minimise the risk of overdoing things in the early stages of your recovery.

UP STAIRS - Good leg, operated leg, crutches

DOWN STAIRS - Crutches, operated leg, good leg

### **When To Come Off The Crutches**

As a general rule, once you can walk comfortably without a limp then you can stop using your crutches. It is important to retrain a natural walking pattern. Generally this may take 2 weeks and your Physiotherapist will guide you with this.

## **1.5. DON'T "OVERDO-IT"**

As you increase your activity levels always make note of how your knee reacts to it.

**If you notice an increase in swelling and pain around your knee it is time to slow down a little!!!**

## **2. MAINTAINING GRAFT LENGTH**

**IMPORTANT:** One of the crucial points to a successful operation is making sure you maintain the length of the graft.

During the operation, your surgeon obtains the correct length/tension of your graft while your knee is in a straight/locked position. As a consequence it is vital in the early stage of your recovery to make sure you can get and keep your knee straight. This can be achieved by placing a rolled up towel under your heel thus helping to keep your knee straight.

It is recommended that you try and spend as much time as possible with your knee in this position. For example: while sitting on the couch maintain the locked position.

## Information about your operation

### Procedure:

Your surgeon has used a quadriceps tendon graft to replace your cruciate ligament. The procedure involves taking a strip of quadricep tendon from the top of your knee up towards the quadriceps muscle. This is all done through a very small incision.

The graft is then fed through your knee joint and attached to the tibia (shin bone) with a screw and femur (thigh bone) by various methods of fixation. (Fig. A) The graft is quite strong initially.

The new graft will be in exactly the same position as your old cruciate ligament.

FIG. A.

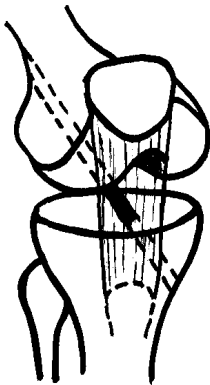


FIG. B.

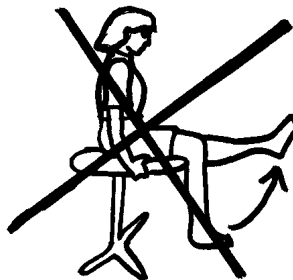
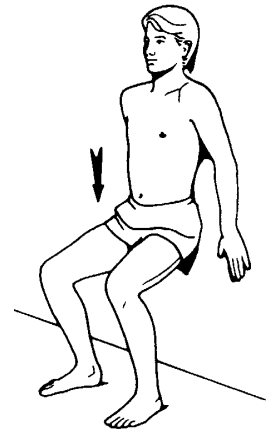


FIG. C.



## Stability of your knee post surgery

Your tendon graft takes time to adapt and take on the new role of your anterior cruciate ligament. Around 3 months following the surgery, the cruciate ligament has actually weakened compared to when it was first placed inside your knee. You need to be cautious around this time period with activities that may involve changing direction and twisting. The graft then begins to strengthen and continues doing so for the next 6 months or longer.

Rehabilitation post surgery focuses on the use of closed chain activities. These activities will involve weight-bearing exercises, which have been shown to be safe for your new graft.

Example of weight bearing activities (closed chain): (Fig. C)

- lunges
- squats
- bike
- leg press

The most important exercise to avoid is any open chain activities.

Example of open chain activities:

- leg extension (Fig. B)

Your physiotherapist will explain this further to you.

# STAGES OF REHABILITATION

**PHASES:** The Following time frames are guides only. Your progression through the phases should be individually paced as you continue to meet the milestones. Don't be in a hurry to speed up the progress. You should complete the goals of one phase before commencing the main components of the next phase. Your physio will guide you with this.

## PHASE I (0 – 2 WEEKS)

### MAIN GOALS:

- Control swelling
- Knee to full extension
- Encourage knee bend
- Quads muscles working well

Generally you will perform the following exercises at home until your first review with your surgeon. During this first 2 weeks, he is most happy for you to focus on Recovery ie. Rest and Ice, and reaching the goals above. Usually you do not need to see a physio during this time, however if you feel you are struggling and need help to achieve these goals, please contact us or your local physio

Mobility: Crutches at all times (use your knee brace when up and about)

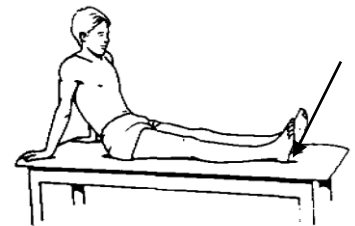
### STRENGTH AND RANGE OF MOVEMENT

**Aim: to maintain pre-operative muscle activation as much as possible**

**ALL EXERCISES TO BE REPEATED EVERY 3-4 HOURS (ie, morning, lunch, afternoon and evening)**

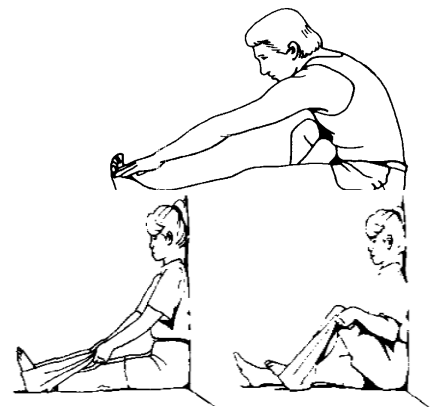
#### 1. QUADS SETS

Gently tighten front thigh muscle and kneecap.  
Practice "flicking" the muscle until you are tightening well, then hold for 3 seconds.  
Repeat 10 times and increase reps as comfortable.  
You can also progress this by placing a towel under your heel to encourage a good locking of your knee



#### 2. HAMSTRINGS STRETCH

With legs out straight, flex your trunk forward at your hips to touch toes.  
Hold the stretch for 10 seconds.  
Repeat 3 times.

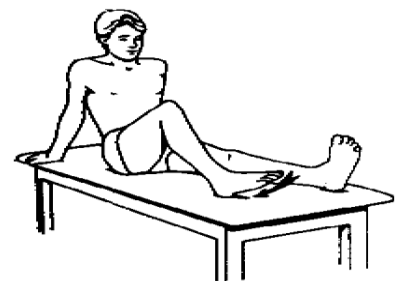


#### 3. HIP/ KNEE FLEXION

With hands supporting thigh or towel around heel, gently bend your knee as far as it feels comfortable. Let your pain guide you how far you can bend. There is no restriction on the bend.  
10 – 15 times. Increase reps as comfortable.

#### 4. HAMSTRINGS

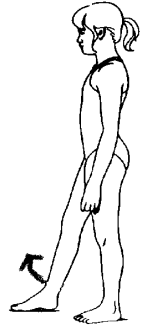
Once you can bend your knee to about 45°, usually a few days post-op  
Bend your knee slightly. Tighten muscles on the back of your thigh by pulling the heel down into floor. Hold for 3-5 seconds.



10 Repetitions. Increase reps as comfortable

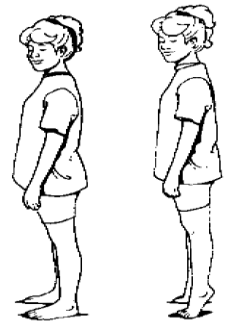
5. **STRAIGHT LEG RAISES**

Standing upright and holding onto your crutches for balance, tighten your thigh muscles of your operated leg. Lock your knee straight and lift it forwards off the ground. Lower slowly. You must maintain a locked knee  
10 Repetitions.



6. **CALF RAISES**

When standing with feet apart, rise up onto your toes and then slowly lower. Have as much weight as comfortable on your operated leg.  
10 REPETITIONS (increase as comfortable)



**ICING YOUR KNEE**

We recommend you continue icing your knee after completing your exercises

**PHASE 2.1 (2 - 4 WEEKS)**

**At your 2 week surgeons review Mr Morris will recommend that you start on phase 2 of your rehabilitation by starting to see a physiotherapist. It is strongly advised that you seek the guidance of a physiotherapist in this phase so that an appropriate programme is set out for you. Following are the progression of desired goals that need to be aimed for by your physiotherapist.**

**MAIN GOALS:**

- Control swelling: Swelling should be avoided as much as possible. So it is an important sign to look out for  
Activity modification, ice and anti-inflammatories may be required to minimise this
- Progress quads exercises (closed chain)
- Ensure full knee extension, progress knee flexion
- Normalise gait pattern
- Hamstring stretching
- Hamstring strengthening

**MOBILITY**

Progress to full weight-bearing without crutches

**COMPONENTS OF REHABILITATION**

- Strength & range of movement

- Emphasis on balance & knee control
- Aerobic fitness (introduce exercise bike)
- Continue Icing after exercise or if swollen

## PHASE 2.2 (4 - 6 WEEKS)

### MAIN GOALS:

- Same as previous stage
- Gradual increase in bend of knee
- Increase balance retraining (neuromuscular control and alignment)
- Increase intensity of exercises

### ICING YOUR KNEE

15 - 20 minutes after exercise or if swelling persists

## PHASE 2.3 (6-12 weeks)

### MAIN GOALS:

- Full range of movement
- No swelling
- Increased quads and hamstring strength and endurance exercises
- Dynamic proprioceptive retraining / increase neuromuscular control in single leg stance
- Begin and progress impact based exercises in preparation for jogging at around 12 weeks

## PHASE 3 (3-6 months)

### MAIN GOALS:



#### PART A)

- Higher level single leg exercises, eg. Single leg squat, leg press, jump and land
- Progression of impact exercises, then commencement of jogging
- Landing technique

#### PART B)

- Once straight line jogging has progressed and been tolerated then a graded sprinting program can be commenced
- Conscious agility training may begin and be progressed at around 6 months
- Full strength, endurance, neuromuscular control, balance on the operated side

#### PART C)

- Focus on fitness and endurance

#### PART D)

- Once jogging, running and controlled agility training has progressed, a functional program of non-competitive graduated activities can begin
- Non-competitive solo sports from 6 months onwards, once all other goals have been achieved

- Landing technique and focus on prevention program

## **SIX MONTHS ONWARDS and RETURN TO SPORT**

Ideally before starting sports specific competitive training, your operated leg must have equal muscle strength, balance, hopping distance/control, and running agility compared with your un-operated leg. If your goal is to return to high level sports, at around 9 months it is recommended that you do a Return to Sports Test prior to your final appointment with Mr Morris. Otherwise, this can be done after your appointment with Mr Morris and must be passed for you to return to sport. Your physiotherapist can continue to guide you with this.