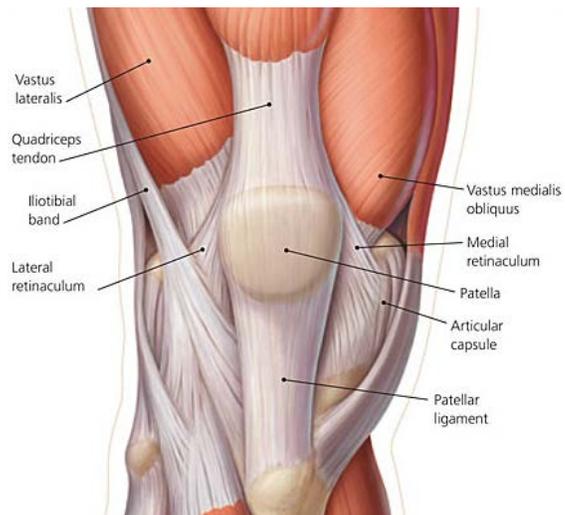




## Patellofemoral Pain *PROTOCOL*

### BACKGROUND

- **Description**
  - Commonly occur in runners and cyclists
  - Pain can arise in and around the kneecap, tendons or the soft tissue around the knee
- **Causes:**
  - Weakness in quadriceps
  - Tight hamstring, calf or IT band
  - Poor foot posture or footwear
  - Weak hip abductors
- **Common Signs and symptoms**
  - Pain in the front of the knee, increased with running or jumping activities
  - Pain may be deep or under the kneecap
  - Mild swelling
  - Tenderness around the patella
- **Treatment**
  - Most often the cause of the pain is soft tissue and can be treated with a program of rest, ice, activity modification, stretching and strengthening of the knee.



- Other treatments may include patella taping, foot orthotics, a patella stabilization brace, or in severe cases possibly surgery

### Stretching exercises



#### *Hamstring Stretching 1*

Patient lies flat on their back with one leg through the door jam  
 One leg is placed up against the wall  
 Slowly move the body closer to the wall until a stretch is felt  
 Continue to move closer as flexibility increases

**Frequency:** 1 set 3-5 min. 2-3 times a day.  
**Goal:** *Increase hamstring flexibility*



#### *Hamstring Stretching 2*

Patient lies on flat on their back  
 With a towel wrapped around the foot, slowly raise leg  
 Continue until a stretch is felt and hold.  
 Try to keep opposite leg flat on the ground.

**Frequency:** 3 sets of 60 secs. 2-3 times a day.  
**Goal:** *Increase hamstring flexibility*



#### *Quadriceps Stretches*

**Pic 1:** Kick back leg and slowly pull heel towards buttock  
 Try to keep knees close to each other and abdominals contracted

**Pic 2:** Begin with foot rested on a chair/bench  
 Slowly lower down until a stretch is felt

**Frequency:** 3 sets of 60 seconds 2-3 times a day.  
**Goal:** *Increased quadriceps flexibility*



# Patellofemoral Pain *PROTOCOL*

Stretching exercises



### *Hip Flexor Stretch*

Begin in a lunge position with knee bent to 90 degrees  
Contract abdominal muscles to maintain back posture  
Slowly move the hips forwards until a hip stretch is felt  
Raise arm to increase stretch. **Keep abs contacted!**

**Frequency:** 3 sets of 60sec 2-3 times per day  
**Goal:** Increase hip flexor flexibility



### *IT band Stretch*

Stand next to a rail or stable object and grasp with hand  
Step with the leg closest to the rail in front of the other leg  
Slowly push hips away from the rail until a stretch is felt  
Keep body straight during this exercise  
Widen the distance during leg cross to increase the stretch

**Frequency:** 3 sets of 60 sec. 2-3 times per day  
**Goal:** Increase IT band flexibility



### *IT band Mobilization*

Lay on a foam roller with top leg crossed over.  
Keep body in a straight line, do not bend hips.  
Roll from the hip to just above the knee.  
Use the other leg and hand to offload pressure.  
This exercise may cause some bruising to the thigh.

**Frequency:** 3 sets of 10 reps. 2-3 times per day  
**Goal:** Increase IT band flexibility



### *Calf Stretch 1*

Stand on a step with the ball of the foot on the edge.  
Slowly lower heel towards the ground.  
This stretch should be performed with the knee straight and slightly bent.

**Frequency:** 3 sets of 60 sec. 2-3 times per day  
**Goal:** Increase calf flexibility



### *Calf Stretch 2*

Stand with the ball of the foot against the wall  
Slowly move body towards the wall until stretch is felt  
This stretch should be performed with the knee straight and slightly bent.

**Frequency:** 3 sets of 60 sec. 2-3 times per day  
**Goal:** Increase calf flexibility



## Patellofemoral Pain *PROTOCOL*

STRENGTHENING EXERCISES:



### *Straight Leg Raise*

Begin in a seated position, resting back on hands.  
Flex quad muscles  
Slowly raise leg up 24 inches and hold 5 sec.  
Slowly lower down.

**Frequency:** 3 sets of 15 reps. 3 times per week.  
**Goal:** *Improved quadriceps strength.*



### *Wall Slides*

Stand with feet 18in. in front of a wall  
Feet should be shoulder width apart  
Slowly lower to 45 degree of knee flexion  
Patient can also squeeze a physioball between their knees.

**Frequency:** 3 sets of 45-60 sec. Three times per week  
**Goal:** *Improve quad and hip strength*



### *Single Leg Half Squat*

Stand on one leg, next to a stable object like a chair  
Keep knee in line with the foot at all times  
Slowly bend knee to 45 degrees and hold for 3 sec.  
Return to starting position by pushing through the heel.  
Work towards performing this exercise without assistance of a chair

**Frequency:** 3 sets of 15 reps. Three times per week  
**Goal:** *Improve lower leg strength and balance*



### *Terminal Extension*

Attach theraband to a stable object at knee level  
Place theraband around the leg just above the knee  
Step back until theraband is taut with knee slightly bent  
Standing up straight, slowly straight leg out by flexing quad  
Hold 5 seconds

**Frequency:** 3 sets of 15 reps. Three times per week  
**Goal:** *Increase VMO Quad strength*



# Patellofemoral Pain *PROTOCOL*

STRENGTHENING EXERCISES:



### *Clam Shell*

Patient lies on their side with knees bent 90 degrees.

Keeping feet together, slowly raise knee towards the ceiling

Squeeze gluteal muscles.

Hold 5 sec. Repeat 10-15 times

**Frequency:** 3 sets 3 times per week.

**Goal:** *Increase glute medius strength*



### *Double Leg Bridge*

Lie on back with both knees bent 90 degrees on the floor.

Slow raise hips up towards the ceiling

Hold 5 sec. Repeat 10-15 times

**Frequency:** 3 sets. 3 times per week

**Goal:** *Increase gluteal strength*



### *Single Leg Bridge*

Lie on back with one leg knee bent 90 degrees on the floor.

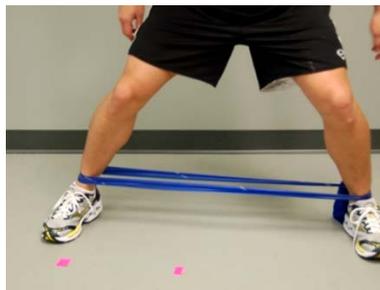
Pull the other knee towards chest.

Maintaining this position, push foot into ground and raise hips up

Hold 5 sec. Repeat 10-15 times

**Frequency:** 3 sets. 3 times per week

**Goal:** *Increase gluteal strength*



### *Lateral Slides*

Place theraband around both ankles. Stand with knees and hips slightly bent.

Take a 6-8 inch step to the side, followed by the other foot.

Repeat 10 times both directions

**Frequency:** 3 sets 3 times per week

**Goal:** *Increase hip strength*