



# BACKSTRONG SPINE & REHAB

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Patient name: .....

## BEGINNER CLOSED CHAIN QUADRICEPS EXERCISES FOR PATELLOFEMORAL PAIN

*These exercises are aimed at increasing the strength and agility of the muscle on the front of your thigh (quadriceps). They should provide you with relief if you suffer from pain around the kneecap.*

### TERMINAL KNEE EXTENSIONS

#### Step 1

Have the two ends of an elastic band firmly attached to a fixed object in front of you. Stand upright with one leg straight and one leg slightly bent. The loop of the elastic band should be wrapped around the bent knee.



#### Step 2

Slowly straighten your knee by tightening (contracting) the muscles on the front of your leg (quadriceps). Do not 'lock' or over straighten the knee at the end point.



#### Step 3

Return to the step 1 position.

Repeat steps 2 to 3 ten times each side. You can perform up to four sets.

Did you know you can experience improvements in strength in as little as one training session?

## SMALL SQUATS

### Step 1

Stand upright with a natural curve in your lower back.



### Step 2

Slowly squat down maintaining the natural curve in your lower back. Keep the squat small (well before your thighs are horizontal with the floor). Make sure your knees don't move inwards.



Increases in strength are due to immediate changes in the nerves that control your quadriceps.

### Step 3

Slowly return to the step 1 position.

Repeat steps 2 to 3 ten times. You can perform up to four sets.

## SINGLE LEG SMALL SQUATS (WITH SWISS BALL)

### Step 1

Stand upright on one leg with the Swiss ball in the small of your back. You can also use a bolster or rolled towel.



### Step 2

Slowly squat down maintaining the natural curve in your lower back. Keep the squat small (well before your thighs are horizontal with the floor). Make sure your knee doesn't move inwards.



Swelling and pain in the knee can reduce the neurological input into the quadriceps muscle, reducing its strength.

### Step 3

Slowly return to the step 1 position.

Repeat steps 2 to 3 ten times each side. You can perform up to four sets.

## SPLIT STANCE SMALL LUNGE

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### Step 1

Stand in a split stance (one foot in front of the other) with your weight on the front leg. Make sure your feet are not too close together.



### Step 2

Bend your knees so that your body lowers towards the ground. Keep the squat small (well before your front thigh is horizontal with the floor). Make sure your knee doesn't move inwards. You can either keep your trunk straight or lean forward slightly.



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### Step 3

Slowly return to the step 1 position.

Repeat steps 2 to 3 ten times each side. You can perform up to four sets.

## FORWARD STEP-UP STEP-DOWN

### Step 1

Stand in front of a box, feet hip width apart, shoulders relaxed. You can hold 1-2kg weights in your hands if you wish.



### Step 2

Lift one leg forwards up onto the box so that your foot ends up flat.



### Step 3

Shift your weight onto the foot on the box and use the muscles of that leg to lift your body up onto the box.



Retraining quadriceps strength is important to restore function following an injury.

### Alternative Step 3

You can also finish this exercise with the free leg elevated to 90 degrees, knee bent to 90 degrees.



### Step 4

Slowly return to the step 1 position by reversing the movement.

Repeat steps 1 to 5 ten times each side.



## SIDEWAYS STEP-UP STEP-DOWN

### Step 1

Stand beside a box, feet hip width apart, shoulders relaxed. You can hold 1-2kg weights in your hands if you wish.



### Step 2

Lift your inside leg sideways onto the box so that your foot ends up flat on the box.



### Step 3

Shift your weight onto the foot on the box and use the muscles of that leg and buttock to lift your body up onto the box so that your hips end up level.



### Alternative Step 3

You can also finish this exercise with the free leg elevated to 90 degrees, knee bent to 90 degrees.



When you exercise you're not just changing your body – you're also changing your nervous system!

### Step 4

Return to the step 1 position by reversing the movement.

Repeat steps 1 to 5 ten times each side.