

# Knee Pain

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<http://www.cssphysio.com.au/forpatients.html>



## Rehabilitation for Patellofemoral Problems

The type of rehabilitation will vary considerably, depending on whether the person's problem is one of instability or of pain without instability. The rehab will also vary from person to person, dependent on which features are assessed to be the most important. For treatment after patellar dislocation see the section on page 2.

### Rehabilitation

Because there are many different causes of instability and patellofemoral pain, there are many different treatment options. Once the patient has been carefully assessed, a range of treatments may be applied. Of particular importance will be:

1. Muscle strengthening. Depending on where the main muscle imbalances or deficits seem to be, the muscles most likely to need strengthening are:

- (a) Quadriceps, particularly the vastus medialis. This can be challenging, because quadriceps contractions often increase pressure and pain through the PFJ. Your physiotherapist will find ways to keep these exercises



will find ways to keep these exercises pain-free. Improving the balance between the medial and lateral quadriceps can also be challenging. EMG biofeedback, and specific exercises that favor



medial quads recruitment, are ways to assist with effective strengthening.

- (b) Hip muscles. Of particular importance are the gluteals -



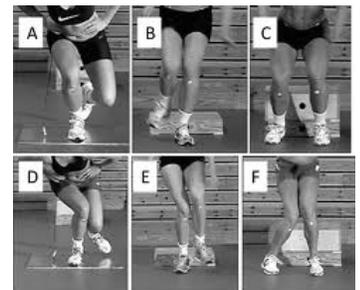
*gluteus maximus, medius* and *minimus*, and the deep hip rotator muscles. Exercises to

strengthen these muscles can also be very challenging. It is often difficult to isolate the correct muscles, and to turn off the overactive ones. It can also be difficult to select exercises

that avoid knee pain. Careful guidance and biofeedback may overcome the problem.

- (c) Core muscle groups. Hip and knee strengthening will be ineffective if the muscles are attempting to work through an unstable lumbo-pelvic region. Core strength and posture (see below) will often need to be improved early in rehab.

2. Neuromuscular retraining. As well as strength, the correct pattern of movement may be what is lacking.



Sometimes muscles aren't particularly weak, they are just working inefficiently, and their 'timing'

is out. Changing habits, practicing new ways of moving, and use of different types of biofeedback can all be helpful strategies.

3. Orthotics. For some people, PFPS is very much related to faulty biomechanics of the foot and ankle. Use of orthotics, or selection of better footwear can help in these situations.



4. Stretching. Tight muscles, particularly around the knee, can increase joint loads and should be kept flexible. Tight muscles elsewhere in the body may also need releasing or stretching, as they sometimes cause compensations throughout the body. The main muscle groups in the legs that require regular stretching are the hip flexors, quadriceps, hamstrings and calves.



5. Taping or bracing. Techniques using adhesive strapping tape have been shown to reduce pain and help with exercises for



PFPS. The tape may help by altering patellar alignment, or by creating more suitable loading through the PFJ. This method of taping is often referred to as *McConnell taping*, after the Australian physiotherapist Jenny McConnell who invented the technique. Certain patellofemoral braces may provide similar benefits.

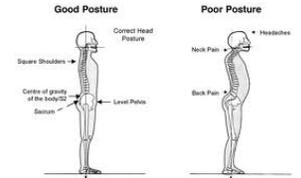


6. Massage and mobilisation. Stiff joints of the foot, ankle, knee, hip or spine can all result in increased torsion through the knee.



Joint mobilisation techniques may be helpful. Massage, including deep tissue and trigger point releases, can assist in relieving tension that is contributing to greater loading through the knee.

7. Postural correction. Certain postures, especially an excessive anterior pelvic tilt, can contribute to PFPS and other knee problems.



8. Balance and coordination training. There is evidence that balance and *proprioception* (joint position sense) are abnormal in people with PFPS. Training specifically aimed at these deficits can be very beneficial.



9. Functional exercises. Once rehabilitation is well under way and improvements have been made, the greatest challenge is returning to sport without suffering a return of pain. A graduated programme which targets the correct muscles, and which is specific to the type of sport or other activity, will be imperative. This will be included toward the end of the rehabilitation period.

### Treatment after Patellar Dislocation

It is important to minimise the trauma due to the injury. The dislocated patella should be relocated as soon as possible, then RICE treatment commenced.

See [http://www.cssphysio.com.au/pdfs/R\\_I\\_C\\_E\\_-\\_Procedure\(1\).pdf](http://www.cssphysio.com.au/pdfs/R_I_C_E_-_Procedure(1).pdf)

It is important to stabilize the patella in the early stages, to ensure it does not re-dislocate.

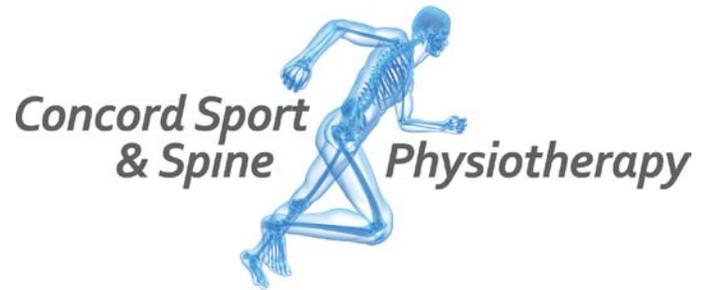


This may require the wearing of a knee brace, however strapping tape may be just as effective. Walking and muscle strengthening is encouraged from the start, but the exercises should be supervised. It is important to avoid putting the knee into positions where it is vulnerable to re-injury. It is also important to settle the swelling and inflammation as soon as possible. Strengthening of muscles around other joints, particularly those of the hip, can be commenced from the start. Recovery time will be very much determined by the extent and type of injury. When possible, resisted full-weight-bearing exercises will be commenced early. It is important to be guided through these

exercises, to ensure good alignment of the pelvis, hips, knees and feet. Strengthening of certain muscles is particularly important. These include the lumbopelvic core muscles, the gluteals, hip external rotators, and quadriceps.

Before return to normal function, including sport, it will be necessary to ensure adequate strength is regained. It will also be necessary to test that the knee will be able to cope with the demands of sport.

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