



YOUR GUIDE TO

# PLICA SYNDROME

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## Introduction

**Please take note of the following before starting any of the exercises in this guide:**

- The information contained in this guide is intended to assist in managing your recovery.
- This guide is based on the latest medical research in the field and contains the best advice available to the best of our knowledge.
- This guide is complimentary to other medical services and is not intended as a substitute for a health care provider's consultation. Never disregard medical advice or delay in seeking advice because of something you have read in this guide.

● Many people have found quick and lasting relief from their knee pain by acting upon the information provided, but everyone decides for themselves what to do with this information. Should you doubt a particular exercise in your situation, please consult your health professional.

**When consulting your health professional, it is wise to take this guide with you to show them.**

# What is Plica Syndrome?

Plica syndrome is a condition that occurs when an otherwise normal structure in the knee becomes a source of knee pain due to injury or overuse. The diagnosis can sometimes be difficult, but if this is the source of your knee pain, it can be easily treated.

This guide will help you better understand

- what the plica is
- how plica syndrome can cause problems
- what can be done to treat the condition

# What are Plicae?

The knee joint is the largest joint in the body and is classed as a synovial joint. Synovial joints are the most common and most moveable joints in the body, and are surrounded by a joint capsule. The joint capsule of the knee can be thought of as a cylindrical sleeve that passes between the thigh bone (femur) and shin bone (tibia). It consists of two main layers, a thicker, more fibrous outer layer, and a membranous inner layer. The inner layer is known as the synovial membrane and is composed of a thin, delicate tissue which secretes a fluid that provides lubrication and nutrition to the joint. The fluid is thick like the white of an egg and is known as synovial fluid. A Plica is a fold in the synovial tissue of the knee that is the remains of early development. During foetal development, the knee is

divided into three separate compartments, but as the foetus matures, these compartments develop into one large synovial cavity, with the synovial folds or plicae being the remains of the earlier divisions. Most people are not affected by these plicae as they only become a problem when they become irritated through overuse or direct injury to the knee.

Of the common plicae that may be found in the normal knee, the plica that most commonly becomes irritated is the one on the inner aspect of the knee, called the medial plica. The medial plica attaches to the lower end of the kneecap (patella) and runs sideways to attach to the lower end of the thighbone at the inner (medial) side of the knee joint.

**Typically plicae are found in three positions:**

1. Suprapatellar plica (above the patella/ kneecap)
2. Infrapatellar plica (below the patella)
3. Medial plica (on the inner aspect of the knee).

When the knee is bent, the plicae tighten, and the medial plica can snap abruptly over the medial thigh bone, while the suprapatellar plica may be pinched between the thigh bone and the tendon of the thigh muscle (quadriceps). The medial plica can also become pinched between the kneecap and thigh bone, causing momentary pain and a feeling of 'giving way'.

# What Causes Plica Syndrome?

A plica only causes problems when it is irritated. This can occur suddenly (acute) or over a long period of time (chronic). Sudden injury, such as falling or hitting your knee on the dashboard in a car accident, can cause the plica of the knee to become inflamed and painful. This initial injury may lead to scarring and thickening of the plica tissue resulting in continued symptoms and later problems. Chronic or overuse problems develop when the plicae are irritated by certain exercises i.e. repetitive movements, or kneeling. Activities that repeatedly bend and straighten the knee, such as running, cycling, or swimming can also irritate the medial plica and cause plica syndrome.

## **SYMPTOMS**

The symptoms of plica syndrome are very similar to those of other knee injuries and therefore it can be very difficult to diagnose unless a full

clinical examination is performed. Consulting with an allied health professional is therefore very important to ensure that you are given an appropriate rehabilitation programme for this condition. The main symptoms of plica syndrome include:

- Pain and swelling in the knee
- There may be a snapping sensation along the inside of the knee as the knee is bent which is due to the rubbing of the thickened plica over the round edge of the thigh bone where it enters the joint. In some people a string like cord can also be felt along the inside of the knee and is tender on palpation
- Intermittent catching or locking of the knee joint at particular ranges when straightening the knee
- Stiffness and pain after sitting still for a long time

# What Treatment can I receive?

## NON-SURGICAL

These measures can cure most cases of plica syndrome. The primary goal is to reduce inflammation of the synovial tissue and thickening of the plica. The following are recommended forms of treatment for plica syndrome

- **Relative Rest:** It is often necessary to stop exercises such as cycling, running and swimming while the plica heal and until pain and inflammation are reduced.
- **Non-steroidal anti inflammatory medication:** Your doctor will often prescribe anti inflammatory medication such as ibuprofen to reduce the pain and inflammation in the joint.
- **Cortisone injection:** This may be given by your doctor to help reduce the inflammation in the tissue.
- **Ice:** Ice can be applied to the knee for 10-15 minutes at a time every two hours (never apply ice directly to the skin). The ice pack serves to relieve pain and reduce inflammation
- **Physical Therapy:** Consulting a therapist such as a; Physiotherapist, Osteopath or Chiropractor is advised to ensure that a full assessment is provided and accurate diagnosis given. They will also be able to use specific treatment techniques that will serve to speed up the recovery process, promote a full return to function and provide you with advice on how to prevent future episodes of knee pain.

● **Exercise:** A strengthening exercise programme is essential to the rehabilitation of plica syndrome, as it helps to restore your muscle balance and aids in your return to full function.

## PRECAUTIONS WHEN USING ICE THERAPY.

- **Ice treatment must be used carefully otherwise it may cause a skin burn.**
- **Never put an ice pack directly onto the skin, always use a damp towel or cloth to prevent an ice burn.**
- **Only apply an ice pack to areas of skin with normal sensation i.e. you must be able to feel hot and cold.**
- **Never put an ice pack over an open wound or graze.**
- **Do not apply an ice pack to an area with poor circulation.**
- **Never leave an ice pack on the skin longer than the time stated in this advice sheet.**
- **Adults should always supervise young children when using ice packs. Application may be reduced and extra care should be taken when checking the skin.**
- **Remember to check the skin underneath every 5 minutes for:**
  - Whiteness of the skin
  - Blueness of the skin
  - Blotchy and painful skin
  - Excessive numbness

**If you get any of these symptoms remove the ice pack immediately.**

## SURGERY

If all non surgical attempts fail to reduce your symptoms within a few months, surgery may be suggested by your doctor or health care professional. Usually arthroscopic

(keyhole) surgery is used to remove the irritated plica. There are no known problems associated with not having a plica, so you should expect fully recovery after surgery.

# What exercises can I do?

Rehabilitative exercises should be instituted when the inflammation has been controlled and pain levels have reduced. These exercises should concentrate on increasing overall strength and flexibility of the leg muscles. It is important that you are aware that the exercise programme included in this pack is a general exercise programme for plica

syndrome, which can be adjusted depending on advice that you have been given by your health care professional on assessment. With all the exercises make sure that you work in a pain free range of motion and progress from phase one only when you are able to complete the exercises in this phase pain free and with good control.

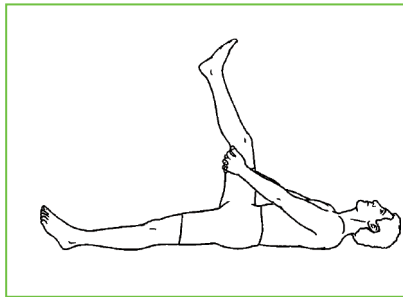
## Exercises

- Keep all exercises in your pain free limits. **Trying to work in painful ranges will only prolong your recovery.**
- If you experience pain during any of the exercises, decrease the intensity of the exercises by:
  - decreasing the number of sets
  - decreasing the number of repetitions
  - decreasing the range of movement
  - decreasing the resistance
- Do all exercises slowly and breathe normally.
- Progress gradually according to your own level of comfort.
- Following exercise, stiffness or fatigue may result but should not last longer than 24 hrs. The symptoms of your injury should not be aggravated.

# Exercises phase 1

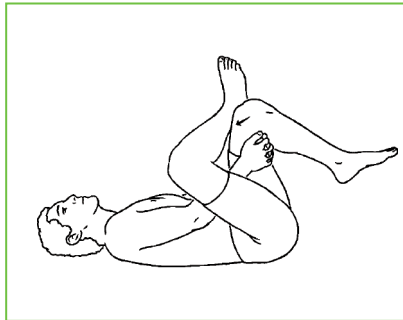
## STRETCHES

- Hold each stretch for **30 seconds** and repeat **2-3 sets** on each leg
- **Do not bounce** the stretch
- **Do not work into pain.** You should only be feeling a good pull in the muscles, not pain.



### HAMSTRINGS

Lying on your back, one leg straight and one knee bent. Raise the bent leg up towards your chest until your knee is in line with your hip. Now straighten the knee. You should feel a stretch at the back of your leg. You can use a towel if necessary to aid you in lifting your leg for the stretch

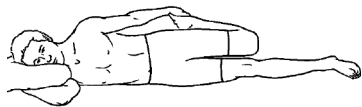


### BUTTOCKS

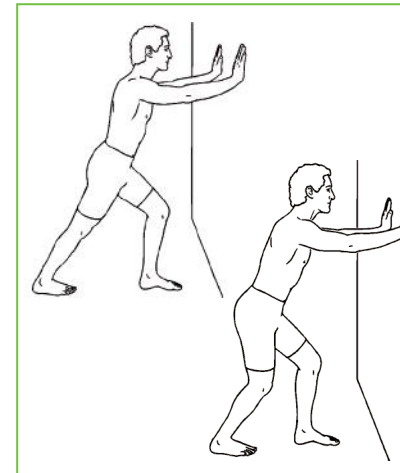
Lie on your back and rest your right ankle on your left knee. Using your hands lift your left leg into the air, bending the knee at 90°. Pull your left leg gently towards your body. You should feel a stretch in the upper back part of your right leg. A towel can be used to aid you in this stretch if you are unable to reach your leg

### QUADRICEPS

Lying on your right side, your right arm extended up to cushion your head, use your left hand to grasp your left ankle as you bend your left knee backwards. You should feel



the stretch along the front of your thigh. Repeat this twice on your right before rolling over to stretch your left leg. It is important to keep the other leg bent at both the hip and the knee, so as not to hyperextend your back. A towel can be used to aid you in this stretch if you are unable to reach your ankle or bend your knee too far.

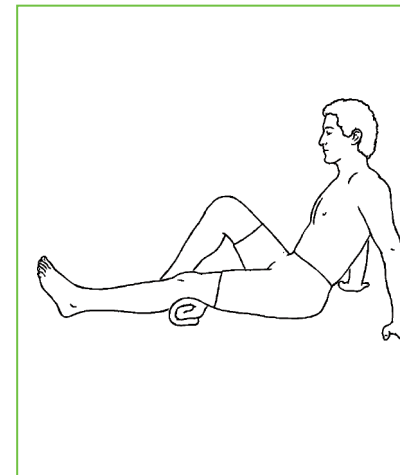


### CALF STRETCH

Stand about a metre away from a wall. Place both hands against the wall with one foot further back than the other. Now lean in towards the wall, bending the front knee and keeping the back knee straight and the heel on the floor. Hold for 20-30 seconds, and then simply bend your back knee slightly, still keeping your heel flat on the floor. You should feel the stretch lower down your leg in the region of your Achilles tendon. Hold for 20-30 seconds and then repeat with the other leg.

## STRENGTHENING EXERCISES

- Complete 2 sets of 10-15 repetitions on each leg (unless otherwise stated within the exercise)
- Always work in a pain free range of movement



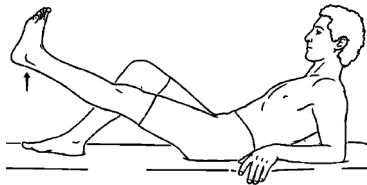
### TERMINAL LEG EXTENSIONS

Sitting on the floor with one leg outstretched in front of you and a pillow/rolled up towel under the knee. Try and lift the heel off the floor by contracting your thigh muscles and straightening the leg. Hold for 10 seconds and then relax. You should feel the muscle on the inside of your leg contracting. Your main focus should be on contracting your thigh muscle and not on lifting your heel off the floor. As you get stronger the two will go hand in hand. Repeat 10 on each leg.

## Exercises phase 1 (continued)

### STRAIGHT LEG RAISES

Sitting on the floor with one knee bent and the other straight, and your arms supporting your back by

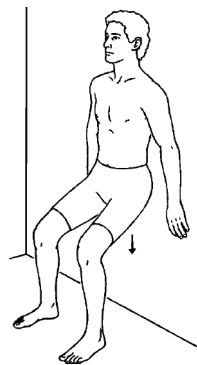


bringing them close to your body. Now raise your straight leg 20cm off the floor, keeping the knee straight and toes pointing towards the ceiling. Repeat 2 sets of 10-15 repetitions. Now change the toe position so that the toes are pointing outwards. Make sure that the rotation of your foot is from your ankle and not simply turning at your hip. Repeat 2 sets of 10-15 repetitions.



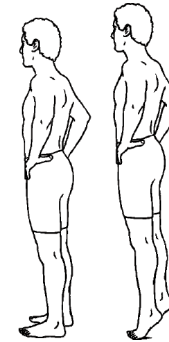
### STEP-UPS

Stand on one leg on a step facing up the stairs. Slowly lower yourself by bending your knee. Return to starting position without pushing off with the opposite leg. Be aware that your knee and foot do not roll inwards. Perform 2 sets of 10 reps per leg.



### WALL SLIDES

Stand leaning up against a wall, your feet a little away from the wall and pointing slightly outwards. Push your back against the wall. Slowly lower your body into a seated position and hold this position for 5-10 seconds. Complete 10 repetitions.



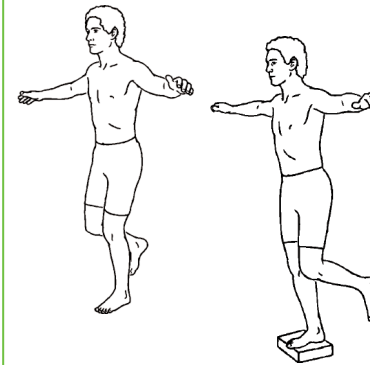
### CALF RAISES

Supporting yourself against a wall, raise up onto your toes in the following manner: First onto your big toe, then onto the middle toes and lastly onto your little toe. Repeat this sequence 10 times.



### TOE RAISES

Standing with your weight now on your heels, raise your toes off the ground in the same sequence as the calf raises, i.e. middle of your heel, outside and inside. Repeat this sequence 10 times



### STORK STANDING

- Balance on one leg for 30 seconds and repeat with the other leg.
- Repeat the above with your eyes closed.

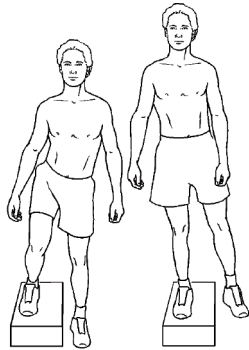
Progress the above to standing on an unsteady surface, e.g. a cushion or a narrow piece of wood.

## Exercises phase 2

Phase 2 exercises can be started when you are able to do all the Stretching and Strengthening exercises in Phase 1 with no adverse effects. Continue with the stretches from phase 1. Always work in a pain

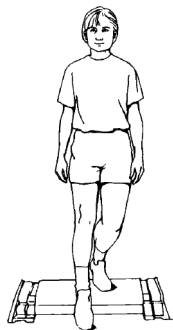
free range of movement, and if you are experiencing pain in any of these exercises after having already restricted your range, it is important that you stop the exercise and consult with your allied health professional.

### STRENGTHENING



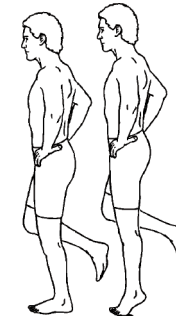
#### LATERAL STEP-UPS

Standing side on to a step, with one leg hanging off the step. Slowly lower the outside leg towards the floor, ensuring that your weight is more on your heel but foot is flat, and that as you bend, your knee goes in a straight line. Make sure the movement is controlled and that you do not let the hanging leg touch the floor before you return to your start position.



#### STEP-DOWNS

Stand on one leg on a step facing down the stairs. Slowly lower yourself by bending your knee. Return to starting position without pushing off with the opposite leg. Be aware that your knee and foot do not roll inwards, that your weight is mostly on your heel with your foot flat, and that your knee goes down in line with your second toe.



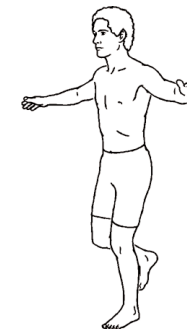
#### SINGLE LEG CALF RAISES

Standing on one leg, supporting yourself against a wall, raise up onto your toes in the following manner: First onto your big toe, then onto the middle toes and lastly onto your little toe. Repeat this sequence 10 times per leg



#### TOE RAISES

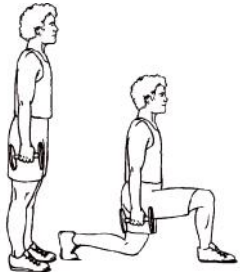
Standing with your weight now on your heels, raise your toes off the ground in the same sequence as the calf raises, i.e. middle of your heel, outside and inside. Repeat this sequence 10 times



#### STORK STAND PICK-UP

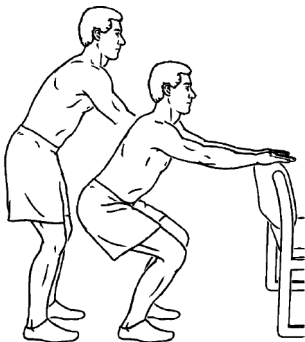
Standing on one leg, with your weight on your heel, bend down to pick up a weight with the opposite hand ensuring that your weight stays on your heel, and that your knee goes down in line with your second toe. Also ensure that your knee, and not your back, does the bending work. Repeat 10 times on each leg (up and down is one repetition)

## Exercises phase 2 (continued)



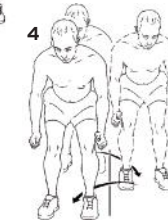
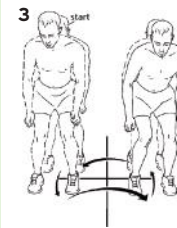
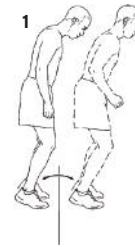
### LUNGES

Place one foot in front of the other. Bend both knees together until you have a 90° bend in both. Ensure that your front knee does not go over your front foot when bending to 90°. Return to the starting position. Perform 1 set of 10 reps per leg (complete all 10 reps with the one foot forward before changing and starting with the other leg forward). Once you can do this pain free, progress onto a stepping lunge, starting with your feet hip width apart, lunging forwards to a 90/90 position in your legs and then back to the start position.



### MINI SQUATS

Stand with your feet hip width apart and hold your hands out in front of you. Now bend the knees keeping your feet flat on the floor, and ensure that your knees do not go past a 90° angle. Return to the starting position. Make sure that both up and down movements are slow and controlled and that your knee goes down straight (no rolling inwards).



### HOPPING

Standing on two legs hop from one point to another in the following manner

1. Forwards and backwards
2. Side to side
3. In a square (clockwise and anti-clockwise)
4. In a zigzag forwards and then backwards

Repeat each sequence 10 times per leg. Progress to hopping on one leg.

### RUNNING DRILLS

These can be done once the above can be performed without pain and good control. With the drills try replicating movements that you could do in your sport i.e. running forwards, backwards, side to side, sudden change of direction, zigzag running etc. Also try and change the pace as you do them i.e. sudden sprinting, sudden stopping.

## Contact us

This guide is designed to assist you in the self-management of your injury/condition.

We are here to assist your recovery in the shortest but safest possible time. If you have any uncertainties or queries regarding the information, please do not hesitate to contact us on:

Phone 017890400999 / 07870166861  
www.mdphysiotherapy.co.uk