Information leaflet on Knee pain and Symptoms of Instability

Department of Trauma and Orthopaedics

What is the leaflet about?

This leaflet explains the reasons why a knee can feel painful and/or unstable despite no abnormalities showing following investigations. The leaflet also shows ways of relieving symptoms and how a person can help themselves.

Background

The knee is a common site for experiencing pain and feelings of instability. This can occur after an injury or operation, after an illness, or without any obvious cause. In many cases of knee pain the problem does lie within the knee. If there is a problem within the knee, this is usually confirmed by examining the knee and may require

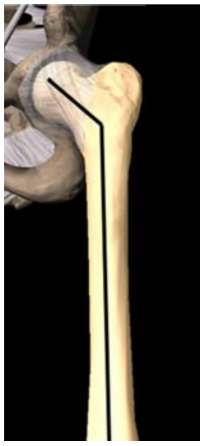
x-rays or scans to confirm.

How can a knee be painful and/or be unstable if the knee itself is normal?

There are several points to note:

1. Generally we walk on 2 legs, to achieve this, the upper thigh bone is angled to form the hip joint, this allows the muscles on the hip bone to be sited on the

   outside and lift the pelvis when we walk. This means that when going up or down stairs the thigh bone twists inwards.



2. If the twisting inwards of the thigh bone is uncontrolled due to muscle weakness then one, two or three things can happen:

   a. The knee cap may feel as if it is popping out sideways.

   b. The knee itself may feel as if it is dislocating.

   c. Pain is felt at the front and inside of the knee.

The main causes of muscles weakness, especially in the hip muscles, are:

- Disorders of the hip
- Incomplete rehabilitation with quads dominant leg
- Poor balance
- Long-term back problem
- Obesity
- Hypermobility syndrome
- Neurological or muscle diseases
- Long-term pain syndrome

3. The muscles that control twisting of the thigh bone are around the hip. The most important muscle is the gluteus maximus. This stops the inward twist of the thigh bone. Weakness of this muscle will lead to the problems listed above.

4. If the twisting inwards of the shin bone (tibia) is uncontrolled, similar feelings of instability and pain can occur at the knee. Training of the foot and ankle muscles can help control the knee position and prevent instability and pain.

Most exercise programmes for painful knees start by building up the quads muscle. This muscle is at the front of the thigh. It straightens the knee. When this is achieved most people are discharged from care. However to get the knee back to normal the hip muscles need to be strong; as well as the knee, pelvis and back muscles. All the muscles must also be coordinated. Anything that stops the muscles getting back their strength and coordination may cause a persistent feeling of knee pain and instability.

What causes muscles to remain weak and uncoordinated?

Points to note are:

1. The feeling of pain prevents proper exercise and the build-up of muscle strength
2. Control of the knee joint depends on strong muscles
3. When running the force through the knee cap is 10 times body weight
4. To stop when running fast needs the muscles to contract, including the largest muscle, Gluteus maximus.

   If the quads muscle has been over exercised the leg is termed “quads dominant”. Stopping when running means over-contraction of the quads and an excessive strain on the tissues at the front of the knee. This is experienced as pain in the knee.

5. If joints are very lax, it is because the ligaments are like bungee cord rather than ropes. To keep them stable needs exceptional muscle control above normal. The picture below gives examples of lax joints and hypermobility.



6. In some patients the feeling of pain continues even when the cause has been healed. This can be because the pain pathways in the brain have altered. If this is the case, specialist treatment may be needed.

What can you do to help your knee pain?

This depends on the reason for the problem. Remember the tests have shown that there is nothing wrong with the knee. If a car does not work, changing the engine will not help if the problem is the wrong fuel going in.

The following are the most common causes of continuing knee pain:

1. Overweight
2. Hypermobility
3. Poor muscle control
4. Chronic pain syndrome

What You Can Do To Help

- If you are **overweight** then advice about **diet** can be organised from the clinic or through your GP, should you wish it. You may prefer to look at the website: http://www.nhs.uk/livewell/loseweight/Pages/Loseweighthome.aspx
- Weight loss cannot be achieved through exercise alone.
- If you are **hypermobile**, visit the Hypermobility Syndrome Association website www.hypermobility.org. This has important information including how to contact others with the same problem.
- If you have **poor muscle control** this has a number of causes.
- If this is because of a back problem, a neurological condition (such as multiple sclerosis) or muscle condition (such as muscular dystrophy) then these must be the main focus of management.
- If poor muscle control is due to **lack of exercise** or an **incomplete rehabilitation** programme then an exercise programme needs to be started.

Exercises that you can do to help yourself

Try the following balance exercises twice a day. They are designed to get progressively more difficult and should challenge the muscles in your leg. You may feel muscle fatigue, but you should not reproduce significant knee pain. Once you can easily achieve an exercise, progress to the next one. Aim to increase the time you are practicing these exercises as you are able. If you are unable to progress through all of the exercises, keep up with the exercise you are able to complete.

Firstly, stand with your feet slightly apart, with knees slightly bent. Slowly move your weight distribution alternatively left and right for approximately 30 seconds. Then hold your weight evenly distributed for a further 30 seconds.

1. 

Using a wall, chair or a table to rest one hand against, balance on your leg for 1 minute.

2. 

Balance on your leg for 1 minute without holding on to anything. Progress the time of the exercise as able.

3. 

Once you can easily hold your balance for over 1 minute, progress to balancing on a cushion or wobble board.



4.

Build up **by walking on soft ground**, then uneven and finally hilly as your strength improves.

If necessary take **pain killers** (paracetamol and or ibuprofen) 20 minutes before exercise to help reduce the pain and gain more benefit from the exercise.

- Some patients find wearing a knee support helps when exercising. We would recommend a **neoprene knee sleeve** which can be bought on-line.



- The best long-term exercise programme is around balance and control e.g. Pilates. Information is available at:
- http://www.nhs.uk/Livewell/fitness/Pages/pilates.aspx
- When out walking on rough or hilly ground, you may find **walking poles** helpful as well as wearing appropriate footwear.
- If you are overweight as well as out of condition, you will need to continue the exercise programme for longer.
- Poor muscle control can return if you have a significant illness, which prevents you from completing the exercises, you may then have to start the whole programme again.
- If you have **chronic pain** then help is needed from a pain specialist. Your doctor may then refer you to a **Pain Clinic**

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