

# LET'S TALK ABOUT PATELLOFEMORAL PAIN

A PATIENT GUIDE



kids back  
@sport



# WHAT IS PATELLOFEMORAL PAIN?

Patellofemoral Pain (PFP) is an umbrella term used for pain resulting from the patellofemoral joint (knee cap joint) or the surrounding soft tissues. The patella is the medical name for the knee cap and it sits within the quadriceps muscle and tendon in a groove on the front of the femur (the thigh bone). The knee cap is held within the groove by muscles and ligaments and any of these structures can contribute to pain which is most commonly felt at the front of the knee. Another term used for PFP is therefore Anterior Knee Pain. It commonly occurs in both knees.



There are multiple explanations for PFP and the cause of pain may differ between individuals. These types of injuries are usually caused by a spike in activity relative to what the young person has trained for. They exceed their current capacity. That might be because the child did too much too soon, such as at the beginning of a new term, or they might have had a lower capacity than usual due to a virus, a growth spurt or lack of adequate sleep or nutrition. During rapid growth spurts, tension increases in the quadriceps and hamstring muscle groups which may contribute to changes in the tension in the soft tissues around the knee cap. Those who grow fastest appear to be at greater risk. It is rare that patellofemoral pain is ever the result of any specific bony or soft tissue injury.

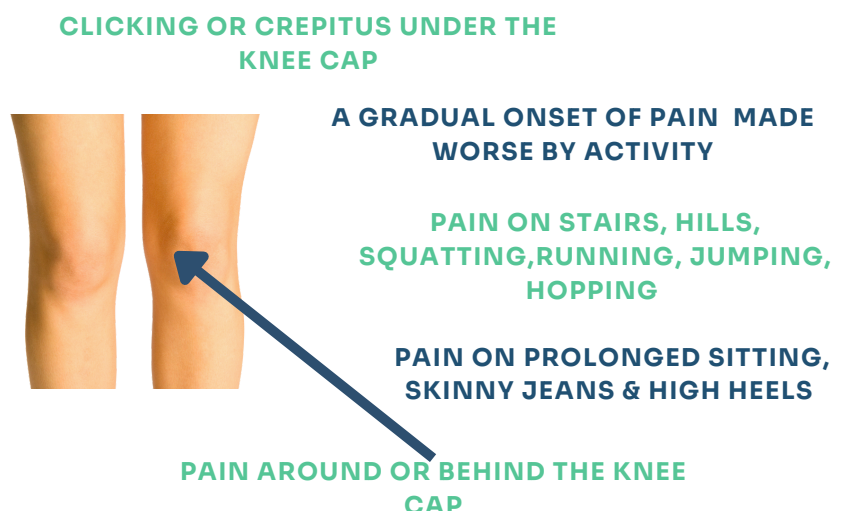
## WHO GETS PATELLOFEMORAL PAIN?

PFP is common in adolescents who participate in repeated high intensity and higher volumes of hopping, jumping and change of direction type activities, but it can also occur in children who are more sedentary and can occur in adults too.

Children who get symptoms are usually around 12-19 years of age. For many children the pain settled quite quickly, but for some the pain persists for prolonged periods of time, or they experience regular flare ups when pain recurs. Those more at risk of longer lasting symptoms are more commonly adolescent females who are less active and in whom their pain is more frequent at the time of onset, or those who had longer duration symptoms and who may be experiencing low mood or greater anxiety. Symptoms also seem to be more persistent in some children who are more hypermobile with a diagnosis of autism spectrum disorder or ADHD but this does not mean that everyone who is hypermobile or autistic will experience knee pain.

## WHAT ARE THE SYMPTOMS OF PATELLOFEMORAL PAIN?

The onset of pain is usually gradual, and gets worse with activity and settles with rest, although many patients find prolonged sitting with the knee in one position aggravates their pain (cinema goers knee!). Some people may experience swelling around the knee cap. The knee is often “noisy”, clicking or grinding, but despite not sounding great, it is not related to pain levels and does not indicate that the tissues are damaged. If the pain persists, it can feel like it hurts all the time, but try to work out what aggravates the pain, so you can minimise those activities for a while.



# HOW IS IT DIAGNOSED?

A trained health professional will know what signs and symptoms to look for and be able to diagnose the condition without x-rays or scans. They will ask lots of questions about the symptoms you get and how the pain behaves. They will ask the child to do a series of movements to isolate what structures are contributing to their symptoms.

# CAN I PLAY WITH PAIN?

If the child has been diagnosed with PFP by a health professional, it is not usually harmful to continue to play sport with mild pain. The aim of treatment is to keep them as active as possible. If they do nothing, their tissues get even less tolerant of loading and the muscles get weaker. The best way to improve symptoms is to modify what they are doing in terms of volume or intensity until they get stronger and their body adapts to what is being asked of it. They might benefit from taking a rest day every other day for a few weeks. Look at the Kids Back 2 Sport toolkit in the diagram below. Find an exercise on the steps that they can do without irritating their symptoms and meets the following criteria:

## REDUCE THE FREQUENCY AND INTENSITY OF ACTIVITY TO A LEVEL OF ACTIVITY THAT:

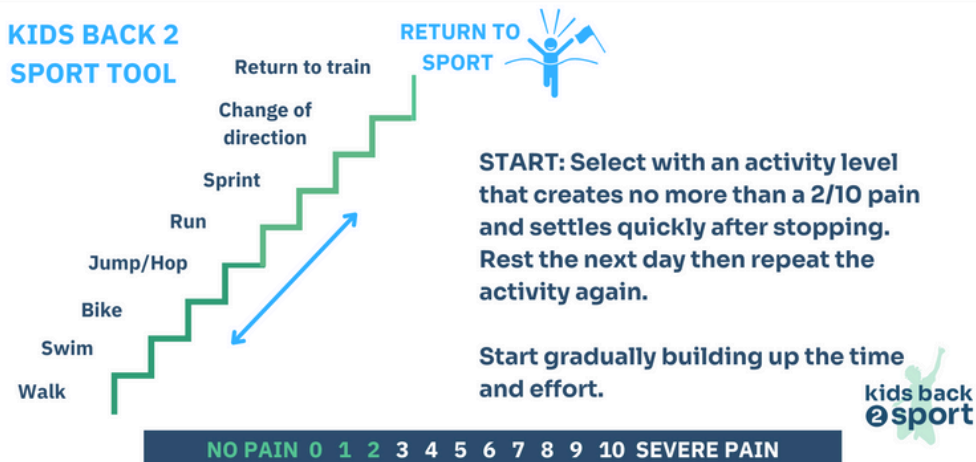
1. Creates only MILD pain (<3/10)
2. Settles within an hour
3. Does not cause them to limp
4. Is no worse the next day
5. Does not increase swelling

NO PAIN 0 1 2 3 4 5 6 7 8 9 10 SEVERE PAIN

Using a pain scale of 0-10 (where 10 is severe pain and 0 is no pain), assess their pain level during and after activities.

They then need to adjust their activity level back to a point where they can meet these criteria every time they play.

## FIND A LEVEL OF ACTIVITY THEY CAN TOLERATE



Find a level of activity on the steps diagram below that they can do with minimal pain and settles quickly without causing more symptoms the next day. For example, they may only be able to walk 2500 steps initially, but can gradually build up that level week on week. Others may be able to go on their bike, but not run without aggravating their symptoms. Leave a day between exercise sessions to assess if there has been any adverse reaction, then repeat that same exercise, slowly adding longer durations.

# HOW TO GET THEM SAFELY BACK TO SPORT

If they are still experiencing pain it may be that they are still doing too much and need to do less strenuous activity until it settles. If their pain is greater than a 2/10 then you might be able to settle their symptoms, by using some ice packs, but do not give your child pain killers to help them get through a game. This will mask the pain and is likely to just make the whole episode last longer. The other thing that helps some kids is using a small knee support or using taping to support the knee cap.

**Taking a short break from high impact activities such as jumping and running for 4 weeks can help.**



After the pains settle, be careful that they do not go straight back to doing the high levels of sport that they were doing when they got injured. Build back up gradually so their body can adapt to what is being demanded of it and get itself strong.

If there is no increase in symptoms, move up the steps one level at a time repeating the process. Continue to leave a day between activities and vary the intensity of the sessions so some days it is easier than others. It may take several weeks or longer to achieve their previous level of activity, but this process allows the immature bone time to become stronger and tolerate more load.

Once they can run, they are not ready to go back to sport yet. Start adding changes of direction, stopping and starting drills and build up the number of sprints they do to replicate the demands of the sports they play. When they do start back playing in competitive settings, in the early matches, limit game time and allow a day between matches.

## FIND A LEVEL OF ACTIVITY THEY CAN TOLERATE

### KIDS BACK 2 SPORT TOOL



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NO PAIN 0 1 2 3 4 5 6 7 8 9 10 SEVERE PAIN

If the pain starts to flare up again, drop down a level on the activity steps for 2 consecutive sessions and then build up again gradually adding more effort and time. They don't have to stop everything if the pain recurs, just find a level that is more tolerable and then begin to build up again.

## HOW DO I STOP THEIR PAIN COMING BACK?

If the child does not change the factors that contributed to developing pain, it is likely that the pain will recur. The highest incidence of non contact injuries like PFP occurs in the third week of a school term or season. This is because children return to sport after a long holiday and exceed their capacity. The amount of sport they do exceeds the training completed in recent weeks. Their symptoms may also recur at times when their capacity has dropped such as during a growth spurt or if they are ill or stressed, so when the child has a dip in health or energy levels, adjust how much they do that week.

If the pain persists, consider seeing a therapist with experience in treating children. They will confirm the diagnosis as not all pain in the front of the knee is caused by PFP. They will also prescribe some strength exercises based on the type of symptoms the child presents with. It is important that we are honest with children who develop PFP as the symptoms can persist for prolonged periods and recur easily. They need a diagnosis they understand and can use to explain their symptoms to friends. They need practical advice they can use to learn to self manage.

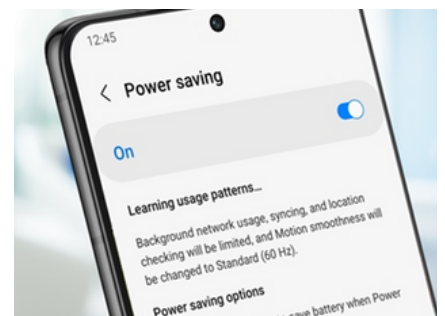
## HOW CAN I BUILD THEIR CAPACITY TO DO MORE?

Trying to get kids to do less is never popular so try to find a way to increase the capacity of the body to tolerate more activity. Building stronger muscles, getting more sleep, improving their energy intake and factoring in days when their body can adapt and recover all help.

## RECHARGE THEIR BATTERY

Just like our phones need to be recharged so does our brain and body. In the deep part of our sleep, we perform many of the same functions achieved by plugging our phone in to the mains. We perform vital updates, virus scans, repair damaged tissues, build stronger muscles and bones and upload skills learnt in the day to the hard drive.

Children need more sleep during growth spurts so make sure they are getting lots of early nights and feel refreshed in the morning, especially when more active.



## GET STRONGER

Stronger athletes have been shown to develop fewer injuries and be able to tolerate greater changes in sport volume and intensity. Some muscles may feel tight when they are growing. Doing some daily stretches may improve this, however in some children, doing quadriceps stretches can cause greater traction on the attachment of the muscle at the knee and increase compression through the knee cap which may well aggravate the symptoms, so seek guidance from a health professional.

Children with PFP often develop weaker quadriceps muscles over time as they are forced to do less and their level of pain inhibits the muscles from working as effectively. Other muscle groups in the trunk, calf, and hip may also need strength training, so it is recommended to see a health professional to learn which exercises are right for you.

# EAT FOR ENERGY

Getting adequate nutritional intake for the level of activity that the child does is important for bone health and growing stronger muscles. Make sure they eat a balanced diet including good protein sources for building muscles and repairing injured tissues. Many children don't feel hungry in the morning, but it is difficult to achieve adequate energy intake if children miss breakfast.

On days when they do more, they may need more regular intake of food and drink, especially during growth spurts. Adjust what they eat to meet the demands of what they do. Just like cars need refuelling, so do young athletes and the faster and harder they go, the more they need.

Many children require a Vitamin D supplement to improve bone health so discuss appropriate dosage with a health professional.

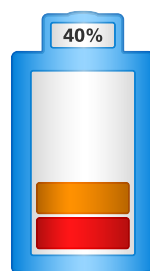
## LISTEN TO YOUR BODY

At times when they are ill, sore, stressed or tired, their body is more at risk of illness or injury. It is important to adapt how much and how hard they play to allow their body to recover and avoid increasing the risk of further injury. Think of their body like a mobile phone and when they are low on energy suggest they go home and not train. On days when they have moderate energy, perhaps they could focus on technical development and save the hard sessions for when their energy is high. Sometimes a day out to recover can avoid weeks off ill or injured.

### SHOULD I TRAIN OR NOT?



**GO HOME**



**GO EASY**



**GO HARD**

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