INFORMATION AND EXERCISES

MPFL Tear: Non-operative Management

For a torn medial patellofemoral ligament (MPFL), after the kneecap has slipped out of place

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After a first dislocation of the kneecap, an MPFL tear is usually treated without an operation at first. An operation is advised if the kneecap keeps slipping out, if a piece of bone or cartilage has broken off inside the knee and needs fixing or removing, or sometimes even after a first dislocation, when the scans show a high chance of it happening again. This sheet is only for an MPFL tear on its own, not when the anterior cruciate ligament (ACL) inside the knee is also torn. It explains what has happened to your knee and how to settle it, and sets out, step by step, the exercises that make the muscles around the knee strong and well controlled, to help keep the kneecap steady.

BRACE, FOR COMFORT	HEAVIER STRENGTH WORK	TWISTING AND TURNING	KEEP GOING
Up to 4 weeks	2 to 3 times a week	Avoid for now	At least 3 months

Understanding an MPFL tear

The medial patellofemoral ligament (MPFL) is a strong band on the inner side of the knee, running from the kneecap to the thigh bone. It holds the kneecap in its groove at the front of the knee, and stops it slipping out towards the outer side. When the kneecap does slip out of place (a dislocation), this ligament tears, partly or completely.

It usually happens when the knee twists with the foot planted, during sport, dancing or a fall. The kneecap often slips back by itself as the knee straightens, so you may not have seen it out of place. The knee then swells, and the inner side of the kneecap is tender.

Dr Malik will usually arrange an X-ray and an MRI scan. They show the tear, check whether a piece of bone or cartilage has broken off inside the knee, and show the shape of the kneecap and its groove. The kneecap is more likely to slip out again in teenagers who are still growing, when the groove is shallow, when the kneecap sits higher than usual, when it has slipped out before, or when others in the family have had the same problem.

Without an operation, the knee is given time to settle and heal, while exercises make the muscles around it strong and well controlled. Trying exercises first does not rule out an operation later.

Everyday tips

- Keep active, but for now avoid twisting on the injured leg, sudden changes of direction, and jumping. Turn by taking small steps, rather than pivoting on the injured leg.
- Avoid kneeling, and deep squats (for example squatting on the floor or on an Indian-style toilet), at first: they can usually be started again between 6 weeks and 3 months after the injury.

- Walking, an exercise bike and swimming (front crawl) keep you fit without twisting the knee.
- Take care on uneven ground, slopes and stairs until the knee feels steady.

Easing pain and swelling

- In the first days, rest the knee from anything that makes it worse, but keep it moving gently. If you are limping, crutches help for a few days; put as much weight on the leg as is comfortable.
- A knee brace is usually worn, for comfort only. It can stay on for up to 4 weeks, depending on how the knee recovers, and Dr Malik will tell you when to cut down on it and stop. It lets the knee bend and straighten as comfort allows, so keep doing the exercises.
- An ice pack wrapped in a thin towel, for up to 20 minutes at a time, several times a day, eases the pain.
- Raise the leg when you rest. A stretchy bandage around the knee can help to control the swelling.
- Painkillers, taken as prescribed by Dr Malik, make it easier to keep moving and to do the exercises.

> **If the swelling does not settle, or you are worried about your knee, contact the clinic on +91 99197 03477.**

Contact the clinic if

- The kneecap feels as if it is about to slip out, or the knee gives way, during everyday activities or the exercises.
- The knee keeps swelling up after the exercises, or catches, clicks painfully or sticks for a moment: these can be signs of a loose piece of cartilage.
- The knee is still swollen, or no better, after about 6 weeks.
- You would like to go back to a sport with a lot of twisting, turning or jumping, and the knee does not feel steady.

CONTACT THE CLINIC URGENTLY IF

- The kneecap slips out of place again. If it does not go back by itself, do not force it: keep the leg still and go to the nearest emergency department.
- Your knee locks or gets stuck, and you cannot straighten it.
- Your knee suddenly swells up again, or the pain suddenly gets much worse.
- You have pain or swelling in your calf.

Clinic: +91 99197 03477. If you are short of breath or have chest pain, go to the nearest emergency department straight away.

BEFORE YOU BEGIN

- Start only when Dr Malik or your physiotherapist has told you to. A physiotherapist experienced with knee injuries should guide the programme, and check your progress every week or two.
- Move on to each part when you reach its goals, not by the calendar.
- Some aching or discomfort during the exercises, and for up to 30 minutes afterwards, is normal. If the knee is more swollen or painful the next morning, do less next time, then build up again gradually.
- In every standing exercise, keep the knee in line with your toes: do not let it fall inwards, as this pulls the kneecap towards the outer side.
- Follow these exercises as they are written unless Dr Malik tells you otherwise.
- This sheet does not replace individual advice. If it differs from what you were told in clinic, follow the advice you were given there.

How to do the programme

- Warm up first with 5 to 10 minutes of brisk walking or an exercise bike.
- Do Part 1 two or three times a day, and Part 2 once a day. Do Part 3 two or three times a week, with a rest day in between: the muscles get stronger on the rest days.
- In Part 3, the last few repetitions of each set should be hard work. When you can do 2 more than the target in the last set, add a little more weight next time.
- Keep going for at least 3 months. After that, keep up strength and balance exercises at least twice a week, to keep the knee strong and steady for good.
- Keep a diary of the exercises, the weights, and how the knee feels.

Part 1: Calming the knee

Start these as soon as the knee is comfortable, usually in the first days after the injury. Move on to Part 2 when the swelling has settled, the knee straightens fully, and you can lift your leg straight without the knee sagging.

01 Tightening the thigh muscle

Waking up the muscle at the front of the thigh, which straightens the knee and holds it steady.

1. Sit with your legs up on the bed or sofa, with a rolled-up towel or a small pillow under your injured knee.
2. Pull your foot up towards you, and press the back of the knee down into the towel, so that the knee straightens.
3. Keeping the knee on the towel, lift your heel about a centimetre off the bed. Hold, then relax.

HOLD	REPETITIONS	HOW OFTEN
10 to 15 seconds	10 to 15	2 to 3 times a day

02 Lifting the straight leg

Strengthening the thigh muscle, so that the knee holds steady when you walk.

1. Lie on your back, or sit leaning back on your elbows, with your other knee bent and that foot flat on the bed.
2. Tighten the thigh muscle of your injured leg, so that the knee is straight, and pull your foot up towards you.
3. Keeping the knee straight, lift the leg until it is level with your other knee. Hold, then lower it slowly.
4. If the knee bends as you lift, keep practising exercise 01 for a few more days.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	10	2 to 3 times a day

03 Bending the knee, sitting

Getting the knee bending fully again, with your other leg helping.

1. Sit on a chair with both feet on the floor.
2. Slide the foot of your injured leg back under the chair, bending the knee as far as you can.
3. Cross your other leg in front of it at the ankle, and use it to push your injured foot further back. Hold, then relax.

HOLD	REPETITIONS	HOW OFTEN
5 to 10 seconds	10 to 15	2 to 3 times a day

04 Straightening the knee

Getting the knee fully straight, which matters most in the early weeks.

1. Sit with your injured leg out in front of you, the heel resting on a rolled-up towel or a cushion, so that the back of the knee is not supported. You can also rest your heel on a stool.
2. Place your hand just above the kneecap, and press gently to push the knee straight.
3. Hold, then relax.

HOLD	REPETITIONS	HOW OFTEN
20 seconds	4	2 to 3 times a day

Part 2: Building strength and balance

These build up the thigh and hip muscles that hold the knee and the kneecap steady: start with no weight. Move on to Part 3 when they are all easy, and you can stand on the injured leg for 30 seconds without holding on.

05 Mini squats

Strengthening the thigh and hip muscles, with the knee bending only a little.

1. Stand with your back against a wall, your feet hip-width apart and about a foot's length in front of you.
2. Slide down the wall a short way, bending your knees only a little: well short of a right angle.
3. Keep your knees in line with your toes. Hold, then slide back up.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	3 sets of 15	Once a day

06 Step-ups

Strengthening the leg for stairs and everyday tasks.

1. Stand facing the bottom step of the stairs, holding the rail.
2. Step up with your injured leg, then bring your other foot up beside it. Keep the knee in line with your toes.
3. Step back down with your other leg first, lowering yourself slowly on your injured leg, then bring the injured foot down.
4. Start with a low step, and use a higher one as it gets easier.

REPETITIONS	HOW OFTEN
3 sets of 15	Once a day

07 Bridging

Strengthening the buttocks and the back of the thighs.

1. Lie on your back with both knees bent and your feet flat on the bed or the floor.
2. Squeeze your buttocks and lift your bottom up, until your body is in a straight line from your shoulders to your knees.
3. Hold, then lower slowly. When this is easy, do it on your injured leg only, with the other leg held straight.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	3 sets of 10	Once a day

08 Opening the knees, lying on your side

Strengthening the muscles at the back and the side of the hip, which stop the knee falling inwards.

1. Lie on your side with your injured leg on top, your hips and knees bent, and your feet together.
2. Keeping your feet together, lift your top knee as far as is comfortable, without letting your hips roll backwards. Hold.
3. Lower it slowly. When this is easy, tie a stretchy exercise band around your thighs, just above the knees.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	3 sets of 10	Once a day

09 Standing on one leg

Getting back the balance and control of the knee.

1. Stand on your injured leg, knee slightly bent, lightly holding on to a kitchen worktop.
2. Keep your balance for up to 30 seconds.
3. As it gets easier, let go; then try it with your eyes closed, and later standing on a cushion.

HOLD	REPETITIONS	HOW OFTEN
Up to 30 seconds	5	Once a day

Part 3: Getting strong

Heavier work, two or three times a week; keep doing 08 and 09 on the other days.

10 Squatting to a chair

Building strength in the thigh and hip muscles, with more load.

1. Stand in front of a chair, holding a weight to your chest, such as a bag of water bottles.
2. Lower yourself slowly, counting to 3, until you just touch the chair, without sitting down.
3. Then stand up briskly. Keep your knees in line with your toes throughout.

REPETITIONS	REST	HOW OFTEN
3 sets of 8	1 to 2 minutes between sets	2 to 3 times a week

11 Single-leg squat

Building strength and control in the injured leg on its own.

1. Stand on your injured leg in front of a mirror, lightly holding on to a worktop.
2. Bend the knee slowly, as if to sit, about a quarter of the way down, keeping the knee in line with your toes: do not let it fall inwards.
3. Straighten up again with control.
4. When this is easy, go a little lower, let go of the worktop, or do it standing on a cushion.

REPETITIONS	REST	HOW OFTEN
3 sets of 8	1 to 2 minutes between sets	2 to 3 times a week

12 Straightening the knee against a weight, sitting

Building strength in the thigh muscle on its own, as it often stays weak after this injury.

1. Sit well back on a firm chair, with your feet on the floor. Put an ankle weight on your injured leg, or hang a light bag over the ankle.
2. Slowly straighten the knee as far as it will go. Hold, then lower it slowly, counting to 3.
3. If the kneecap hurts, use a lighter weight, or straighten the knee only part of the way.
4. Only for an MPFL tear on its own: not if your ACL is also torn.

HOLD	REPETITIONS	REST	HOW OFTEN
2 seconds	3 sets of 8	1 to 2 minutes between sets	2 to 3 times a week

Part 4: Running and jumping

Only when your physiotherapist agrees: usually when the knee no longer swells after Part 3, and the injured leg is nearly as strong as the other. Start with jogging in a straight line on flat ground, then add the exercise below. Changes of direction come last, and only if your sport needs them.

13 Hopping and landing

Teaching the knee to land, and to change speed, safely, before running and sport.

1. Start with small jumps on both feet, landing softly on the balls of your feet, with your knees bent and in line with your toes.
2. When this is easy, hop forwards on your injured leg and land softly, holding the landing still for 2 seconds.
3. Then hop from side to side over a line on the floor, on the injured leg, landing softly each time.
4. Stop, and tell your physiotherapist, if the knee swells afterwards or feels unsteady.

REPETITIONS	HOW OFTEN	START
2 to 3 sets of 10	2 to 3 times a week	When your physiotherapist agrees

Getting back to sport and work

Sport: your return to sport is built up gradually, and planned separately for each person, depending on the sport and what it demands of your knee. Sports with a lot of twisting, turning and jumping, such as football, basketball, badminton, kabaddi and dance, come last: once the knee is strong and steady and no longer swells, and when Dr Malik and your physiotherapist agree.

Work: most people can keep working, with lighter duties at first if the job is physical. Heavy work, or work with kneeling, squatting or twisting, is built up gradually, and planned separately for each person, depending on your work and what it demands of your knee.

What to expect

The knee usually settles over a few weeks, but building strength and control takes months, not weeks: usually at least 3 months. Most people get back to their everyday activities, although the knee may not feel quite as it did before the injury.

In some people the kneecap slips out again, often within the first year or two. Thigh strength can stay low for a long time after this injury, which is why the exercises are kept up for good. Teenagers who are still growing are followed up more closely.

An operation: MPFL reconstruction

An operation is advised if the kneecap keeps slipping out, if a piece of bone or cartilage has broken off inside the knee and needs fixing or removing, or sometimes even after a first dislocation, when the scans show a high chance of it happening again.

If the ligament can be mended, it is stitched back onto the bone (a repair); if not, a new ligament is made from a piece of tendon from your leg (a reconstruction). If the shape of the knee makes the kneecap unstable, another procedure, such as moving the bony point below the kneecap, may be needed at the same time.

Trying exercises first does not rule out an operation later. Dr Malik will discuss whether an operation is right for you. If you have one, his sheet ‘MPFL Reconstruction or Repair’ explains the recovery.

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