INFORMATION AND EXERCISES

Knee Osteoarthritis

Also called arthritis of the knee: exercises and advice to manage it without an operation

Dr Aditya Malik
FRCS (Tr&Orth) Edinburgh
drdityamalik.com

Osteoarthritis is the most common cause of knee pain in later life. There is no cure, but there is a lot you can do yourself to ease the pain and keep active, and regular exercise is the most important part. This sheet explains what osteoarthritis is and what helps, and sets out the exercises step by step.

GENTLE EXERCISES	STRENGTH EXERCISES	WALKING OR CYCLING	KEEP GOING
Every day	3 times a week	Most days	For the long term

Understanding knee osteoarthritis

In a healthy knee, the ends of the bones are covered with smooth, slippery cartilage, so that the joint moves easily. In osteoarthritis, this cartilage slowly becomes thinner and rougher, the bone underneath thickens, and small bony bumps can form at the edges of the joint. The lining of the joint can become irritated, and the knee may swell.

It causes pain, especially when walking, on stairs, and getting up from a chair or the floor, and stiffness after resting. The knee may creak, swell from time to time, and feel weak. It is very common after the age of 50, especially in women, and more likely after a past knee injury, in people who are overweight, and in work with a lot of kneeling, squatting or heavy lifting.

Osteoarthritis is not simply wear and tear. The knee is living tissue that responds to how it is used: keeping it moving, and the muscles around it strong, helps it, and exercise does not damage it. The pain does not always match what the X-ray shows, and it often comes and goes, with good and bad spells.

What helps most

- Exercise. Strengthening the muscles around the knee and hip, and staying active, is the treatment that every major guideline puts first. For many people it eases the pain and makes everyday activities easier, and it is safe for the joint.
- Keeping to a healthy weight. If you are overweight, losing weight takes load off the knee and eases the pain: even a small loss helps, and losing about a tenth of your body weight helps more.
- Understanding the condition, and pacing your day, so that you keep doing the things that matter to you.

Keeping active

- Walking is one of the best things you can do. Build up gradually to about 30 minutes on most days: it can be split into shorter walks.

- If walking hurts, an exercise bike, swimming or exercising in water, yoga or tai chi are gentler on the knee, and are good alternatives.
- Break up long spells of sitting by getting up and moving about regularly.
- Pace yourself: spread heavy or long jobs through the day, and alternate standing tasks with sitting ones. Do not push through severe pain.

Everyday tips

- A walking stick, held in the hand on the opposite side to the painful knee, takes load off the knee and makes walking easier. The handle should be level with your wrist when your arm hangs down.
- On stairs, use the rail. Going up, step up with the less painful leg first; coming down, step down with the painful leg first.
- Wear comfortable, flat shoes with a cushioned sole.
- Squatting, kneeling and sitting cross-legged on the floor bend the knee fully and load it heavily. If they hurt, use a chair, a raised (Western-style) toilet or a toilet frame, and a low stool for prayers or chores.
- A knee brace or a knee cap (an elastic knee support) helps some people feel more comfortable and steady, but not others: if one helps you, use it.
- Keep your bones healthy: get enough calcium and vitamins, especially vitamin D3, and ask Dr Malik whether you need a bone density check.

Easing the pain

- A hot pack or an ice pack, wrapped in a thin towel, for 15 to 20 minutes, can ease the pain: use whichever helps you more, and check the skin regularly.
- Painkilling gels rubbed on the knee, and tablets, taken as prescribed by Dr Malik, can ease the pain enough to keep you active.
- Supplements such as glucosamine help some people for a while, but not others.
- Injections into the knee can ease the pain for a while in some people. Dr Malik offers three kinds: a steroid, hyaluronic acid (a gel-like fluid, similar to the joint's own) and PRP (prepared from a sample of your own blood). How much they help, and for how long, varies from person to person: Dr Malik will talk through the choices with you, and the choice is yours.
- During a flare-up, cut back on walking and the harder exercises for a few days, keep doing Part 1 gently, and build up again as the pain settles.

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

Contact the clinic if

- The pain is getting steadily worse despite the exercises, or it keeps you awake at night.

- The knee keeps swelling up, or gives way.
- Everyday activities, such as walking, stairs or getting up from a chair, are getting harder and harder.

CONTACT THE CLINIC URGENTLY IF

- Your knee becomes hot, red and very swollen, especially if you feel feverish or unwell.
- After a fall or an injury, you cannot put weight on the leg, or the knee swells up quickly.
- Your knee locks or gets stuck, and you cannot straighten it.
- 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.

How to do the programme

- Warm up first with 3 to 5 minutes of gentle walking, and finish the same way.
- Do Part 1 every day, once or twice a day. These gentle exercises keep the knee moving, and are the ones to keep doing in a flare-up.
- Do Part 2 three times a week, with a day's rest in between: the muscles get stronger on the rest days. When Part 2 feels easy, add Part 3 on the same days.
- Move slowly and with control: lift slowly, hold, and lower slowly. The last few repetitions should feel like hard work. When an exercise feels easy, make it a little harder, as the card suggests.
- If both knees are painful, do the exercises with both legs.
- Give it time: it usually takes a few weeks of regular exercise before the knee feels better, and the benefit lasts only as long as you keep exercising.

BEFORE YOU BEGIN

- If you have heart or lung problems, or problems with your balance, check with Dr Malik before you start.
- Some aching or discomfort during the exercises is normal, and does not mean you are harming the knee. Do a little less next time if the pain is much worse than usual during an exercise, has not settled within about 2 hours, or the knee is more swollen or painful the next morning; then build up again gradually.
- When you exercise standing up, keep a kitchen worktop or a sturdy chair within reach for support.
- 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.

Part 1: Moving the knee

Every day, once or twice a day. Gentle exercises to ease stiffness and wake up the thigh muscle: keep doing these during a flare-up.

01 Bending and straightening the knee

Keeping the knee moving, which eases stiffness.

1. Sit on a chair with both feet on the floor.
2. Slide the foot of your painful leg back under the chair, bending the knee as far as is comfortable. Hold.
3. Then slide it forwards and straighten the knee as far as it will go. Hold, then relax.

HOLD	REPETITIONS	HOW OFTEN
5 seconds each way	10	Once or twice a day

02 Tightening the thigh muscle

Waking up the muscle at the front of the thigh, which supports and protects the knee.

1. Sit or lie with your legs out in front of you, with a rolled-up towel under your painful knee.
2. Keeping the back of the knee on the towel, tighten the thigh muscle to straighten the knee, and lift your heel off the bed.
3. Hold, then lower slowly. When this is easy, add an ankle weight.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	10	Once or twice a day

03 Lifting the straight leg

Strengthening the thigh muscle with the knee held straight.

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 painful 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.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	10	Once or twice a day

04 Stretching the back of the thigh

Easing tightness at the back of the knee and thigh.

1. Sit on the edge of a chair, with your painful leg straight out in front, the heel on the floor and the toes pointing up.
2. Keeping your back straight, lean forwards from the hips until you feel a gentle stretch at the back of the thigh.
3. Hold, then sit up again. Do not bounce.

HOLD	REPETITIONS	HOW OFTEN
20 to 30 seconds	3	Once or twice a day

Part 2: Building strength

Three times a week, with a day's rest in between. Start with 1 set of each and build up to 3 sets of 10. Move on to Part 3 when these feel easy.

05 Straightening the knee, sitting

Strengthening the thigh muscle, which takes load off the knee.

1. Sit well back on a firm chair, with your feet on the floor.
2. Slowly straighten your painful knee as far as it will go. Hold, then lower it slowly.
3. When this is easy, add an ankle weight, or a light bag hung over your ankle.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	3 sets of 10	3 times a week

06 Standing up from a chair

Strengthening the thighs and hips for getting up, stairs and walking.

1. Sit near the front of a firm chair, with your feet flat on the floor, slightly apart.
2. Lean forwards over your feet and stand up, using your hands on the chair only if you need to.
3. Sit back down slowly, with control. When this is easy, do it without your hands, and later from a lower chair.

REPETITIONS	HOW OFTEN
3 sets of 10	3 times a week

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 painful leg only, with the other leg held straight.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	3 sets of 10	3 times a week

08 Lifting the leg out to the side

Strengthening the muscles at the side of the hip, which help to keep the knee in line.

1. Stand upright, facing a kitchen worktop or the back of a sturdy chair, and hold on to it.
2. Keeping your knee straight and your toes pointing forwards, lift your painful leg out to the side. Do not lean over.
3. Hold, then lower it slowly. Then do the same with the other leg.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	3 sets of 10	3 times a week

09 Heel raises

Strengthening the calf, which works with the thigh to support the knee.

1. Stand holding on to a kitchen worktop or the back of a sturdy chair.
2. Rise up slowly onto your toes, hold, then lower slowly.
3. When this is easy, do it standing on your painful leg only.

HOLD	REPETITIONS	HOW OFTEN
2 seconds	3 sets of 10	3 times a week

Part 3: Stronger and steadier

Add these on the same three days when Part 2 feels easy. They work the knee the way you use it, for stairs, walking and getting up.

10 Step-ups and step-downs

Strengthening the leg for stairs.

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

REPETITIONS	HOW OFTEN
3 sets of 10	3 times a week

11 Mini squats against a wall

Strengthening the thighs and hips, with the knees bending only part of the way.

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 slowly, bending your knees only part of the way: well short of a right angle, and less if it hurts.
3. Keep your knees in line with your toes. Hold, then slide back up.

HOLD	REPETITIONS	HOW OFTEN
5 seconds	3 sets of 10	3 times a week

12 Standing on one leg

Improving your balance, and the control of the knee.

1. Stand on your painful 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, hold on with just one finger, then let go, keeping the worktop within reach.

HOLD	REPETITIONS	HOW OFTEN
Up to 30 seconds	3 to 5	3 times a week

Sport and work

Sport: walking, cycling, swimming and golf are usually comfortable. Running, and sports with jumping, twisting or sudden stops, put more load on the knee. 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.

Work: most people can keep working. Jobs with a lot of kneeling, squatting, climbing or heavy lifting load the knee the most, and may need adjusting for a while. Heavy work is built up gradually, and planned separately for each person, depending on your work and what it demands of your knee.

What to expect

Osteoarthritis pain often comes and goes. Exercise and the other measures described here will not cure it, but for many people they ease the pain and make everyday life easier, and they are worth keeping up for good.

When an operation may help

If the pain and stiffness remain severe, and stop you doing everyday things despite these measures, a knee replacement may be considered: it is the operation that helps osteoarthritis. A keyhole operation to wash out or clean up the knee does not help it.

Trying exercises and the other measures first does not rule out a knee replacement later. Dr Malik will discuss whether an operation is right for you.

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