

Unicompartmental Knee Replacement

Partial Knee Replacement Surgery

Patient Information Booklet

JointClinics

Specialist Orthopaedic Care

Birmingham | Bristol | Bromsgrove

Version 1.0 - May 2026

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1. Introduction

This booklet has been prepared by the specialist orthopaedic team at JointClinics to provide you with comprehensive information about unicompartmental knee replacement (UKR), also known as partial knee replacement. If your surgeon has recommended this procedure, or you are considering it as a treatment option, this guide will help you understand what is involved, what to expect during your recovery, and how to achieve the best possible outcome.

Unicompartmental knee replacement is a highly effective, minimally invasive procedure for patients whose arthritis is confined to a single compartment of the knee. Unlike total knee replacement, which resurfaces the entire joint, UKR preserves the healthy bone, cartilage, and ligaments - resulting in a more natural-feeling knee, faster recovery, and excellent long-term results.

At JointClinics, we use the latest evidence-based techniques and implant technology to deliver outstanding outcomes for our patients. Our surgeons have extensive experience in partial knee replacement and will guide you through every step of your journey.

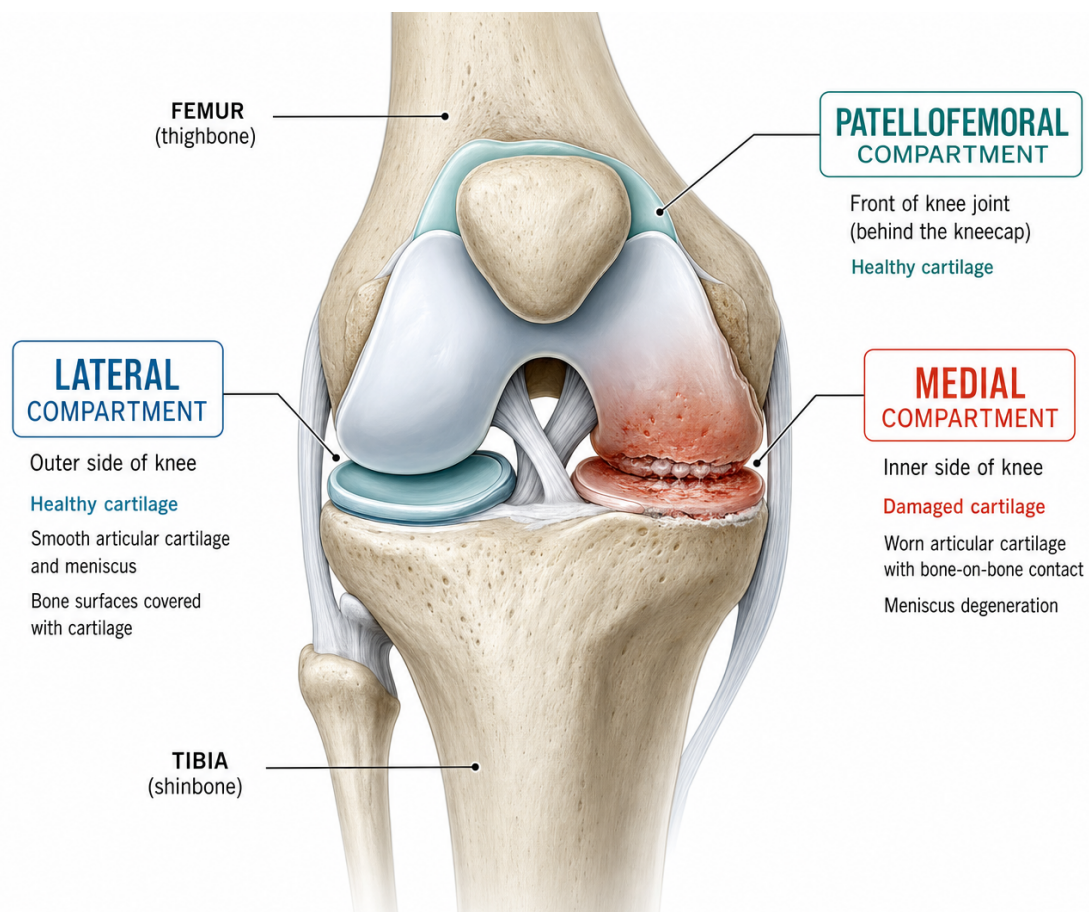
2. Understanding Your Knee

The knee is the largest and one of the most complex joints in the body. It is formed by three bones: the femur (thighbone), the tibia (shinbone), and the patella (kneecap). These bones are covered with a smooth layer of articular cartilage that allows pain-free movement.

The knee is divided into three distinct compartments:

Compartment	Location	Description
Medial	Inner side	Between inner surfaces of femur and tibia
Lateral	Outer side	Between outer surfaces of femur and tibia
Patellofemoral	Front	Between kneecap and front of femur

The knee is stabilised by four major ligaments: the anterior cruciate ligament (ACL), posterior cruciate ligament (PCL), medial collateral ligament (MCL), and lateral collateral ligament (LCL). Two C-shaped cartilage pads called menisci act as shock absorbers between the femur and tibia.



In a healthy knee, all three compartments work together to provide smooth, pain-free movement. However, osteoarthritis can sometimes affect just one compartment - most commonly the medial (inner) compartment - while the other compartments remain healthy. This pattern is called anteromedial osteoarthritis (AMOA) and is the ideal indication for unicompartamental knee replacement.

3. What Is Unicompartamental Knee Replacement?

Unicompartamental knee replacement (UKR) is a surgical procedure in which only the damaged compartment of the knee is replaced with an artificial implant. The healthy cartilage, bone, and all of the ligaments in the remaining compartments are preserved.

The procedure is also known as partial knee replacement, uni-knee, or unicondylar knee arthroplasty (UKA).

Because only one compartment is resurfaced, the surgery is performed through a smaller incision (typically 7-10 cm) compared to total knee replacement (15-20 cm). This minimally invasive approach causes less disruption to the surrounding muscles and soft tissues, which is a key reason for the faster recovery.

The concept of UKR was first developed in the 1950s, and modern designs have been in use since the early 1970s. The Oxford Unicompartamental Knee, introduced in the 1980s by Goodfellow and O'Connor, represented a significant advance in implant design and remains one of the most widely used and extensively studied partial knee implants worldwide.

4. Why You May Need a Partial Knee Replacement

Osteoarthritis is the most common reason for knee replacement surgery. In osteoarthritis, the protective cartilage that covers the ends of the bones gradually wears away, leading to bone rubbing on bone. This causes pain, stiffness, swelling, and reduced mobility.

Your surgeon may recommend unicompartamental knee replacement if:

- You have significant pain in one compartment of your knee that affects your daily life
- Non-surgical treatments (physiotherapy, injections, medications, weight loss) have not provided adequate relief
- X-rays or MRI scans confirm that the arthritis is confined to a single compartment
- Your ligaments (particularly the ACL) are intact and functioning normally
- The other compartments of your knee have healthy or near-normal cartilage

The most common pattern is medial compartment osteoarthritis, where the inner side of the knee is worn while the outer side and kneecap remain healthy. This accounts for approximately 75% of all unicompartamental replacements.

5. Are You a Suitable Candidate?

Not everyone with knee arthritis is suitable for a partial knee replacement. Your surgeon will perform a thorough assessment to determine whether UKR is the right procedure for you.

Ideal Candidates

Modern evidence-based criteria (Oxford indications) suggest that you may be a good candidate if you have:

- Bone-on-bone arthritis confirmed on weight-bearing X-rays in one compartment
- An intact, functioning anterior cruciate ligament (ACL)
- A stable medial collateral ligament (MCL)
- Full-thickness cartilage in the opposite (lateral) compartment
- A correctable deformity (the leg straightens when stress is applied)

Modern research shows that age, body weight, activity level, and patellofemoral changes are NOT contraindications to UKR when performed by an experienced surgeon.

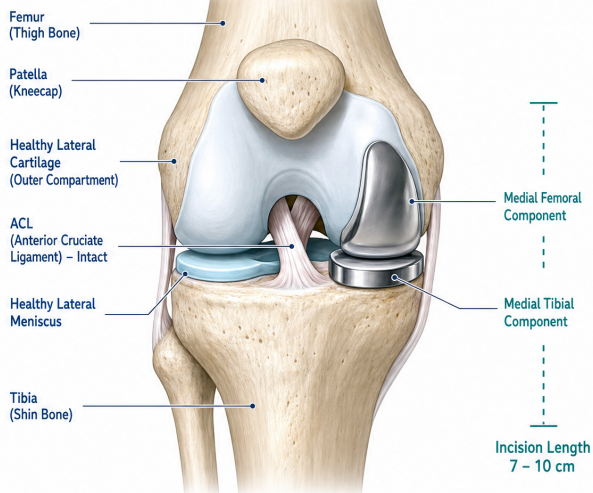
Contraindications

Contraindication	Reason
Inflammatory arthritis	Affects all compartments simultaneously
Absent or torn ACL	Leads to abnormal knee mechanics
Fixed flexion >15 degrees	Indicates widespread joint disease
Ligament instability	Cannot maintain normal alignment
Active infection	Risk of implant infection
Multi-compartment arthritis	Requires total knee replacement

6. UKR vs Total Knee Replacement

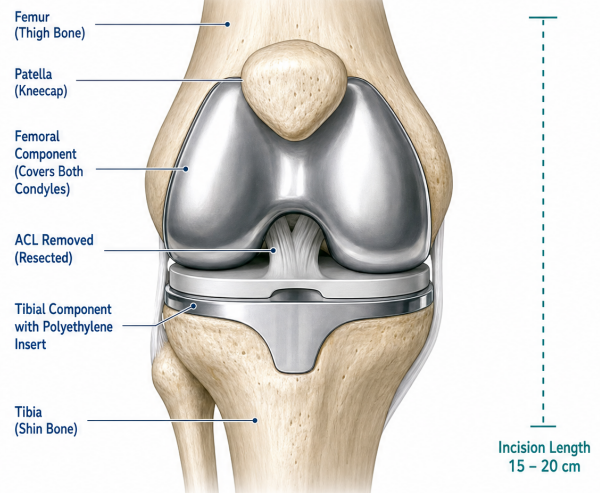
Understanding the differences between partial and total knee replacement can help you appreciate why your surgeon may recommend one procedure over the other.

Partial Knee Replacement (UKR) Medial (Inner) Compartment



- Only the damaged medial (inner) compartment is replaced
- Lateral compartment and ACL are preserved
- Smaller incision, less soft tissue disruption
- Faster recovery, more natural knee function

Total Knee Replacement (TKR) All Compartments



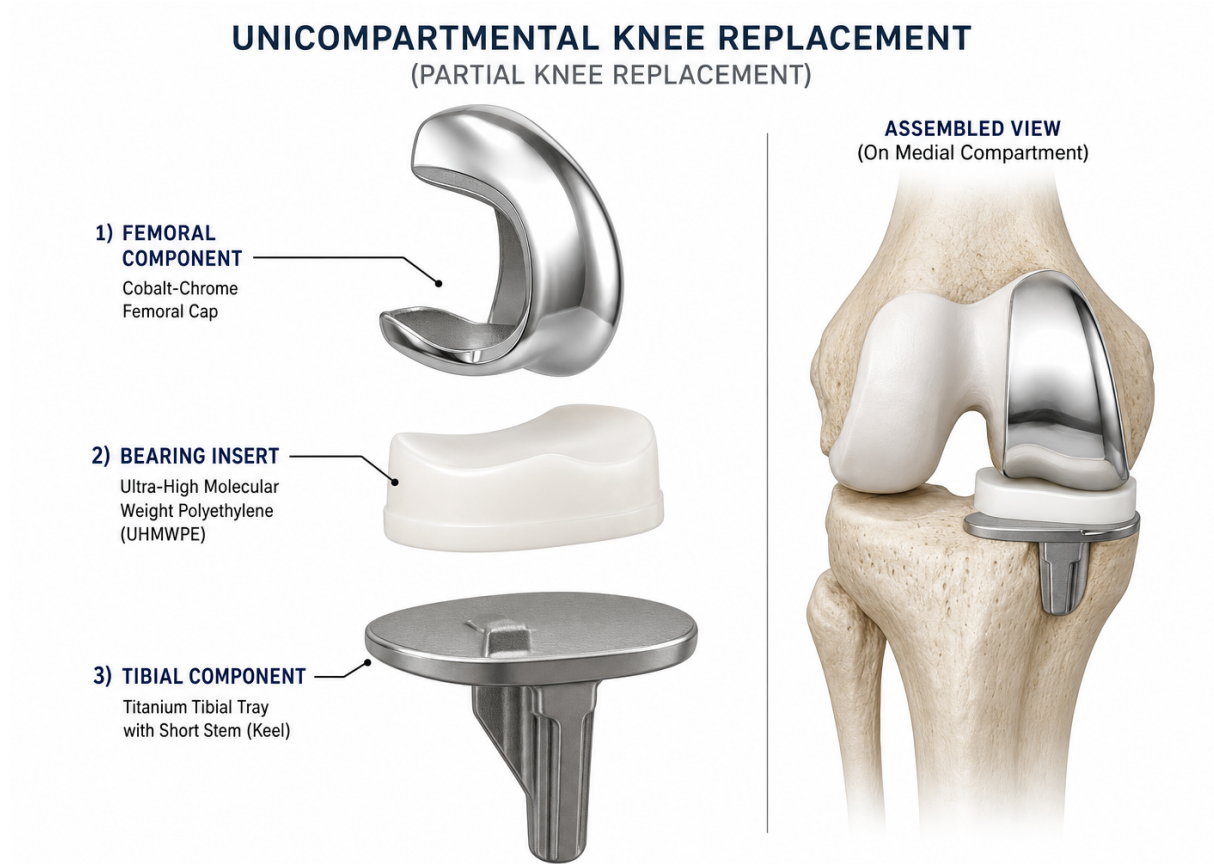
- All joint surfaces are replaced
- ACL is removed
- Larger incision, more soft tissue disruption
- Proven long-term pain relief and durability

Feature	UKR (Partial)	TKR (Total)
What is replaced	One compartment	All three compartments
Incision size	7-10 cm	15-20 cm
Hospital stay	Day-case or 1 night	1-3 nights
Return to driving	2-4 weeks	4-6 weeks
Full recovery	6-12 weeks	3-6 months
Infection risk	Lower (0.2-0.5%)	Higher (0.5-1.5%)
Range of motion	Average 130 degrees	Average 115-120 degrees
Natural feel	More natural	Less natural
10-year survival	93-97%	95-98%
Revision rate	Higher	Lower

Research from the UK National Joint Registry involving over 100,000 knee replacements has demonstrated that major complications (thromboembolism, infection, stroke, myocardial infarction) occur between a quarter and a half times less frequently with UKR compared to TKR. The mortality rate is also significantly lower.

7. Your New Knee - Implant Components

A unicompartmental knee implant consists of three main components:



Component	Material	Function
Femoral component	Cobalt-chrome alloy	Caps the end of the thighbone
Tibial component	Titanium alloy	Sits on top of the shinbone
Bearing insert	Polyethylene (plastic)	Allows smooth gliding

Fixed Bearing vs Mobile Bearing

Fixed bearing - The plastic insert is locked to the tibial component and does not move. The femoral component glides on the fixed surface.

Mobile bearing - The plastic insert is free to move (rotate and slide) on the tibial component. This design, pioneered by the Oxford knee, aims to reduce wear and distribute forces more evenly.

Both designs have demonstrated excellent long-term results. Your surgeon will choose the implant best suited to your anatomy and activity level.

Cemented vs Cementless Fixation

Implants can be fixed to bone using bone cement or press-fit without cement, relying on bone growing onto the

implant surface. Recent evidence suggests that cementless fixation may offer advantages including fewer radiolucent lines, avoidance of cementation errors, and faster surgical time.

8. The Surgical Procedure

Anaesthesia

UKR is most commonly performed under spinal anaesthesia (an injection in your back that numbs you from the waist down) combined with sedation. Alternatively, a general anaesthetic may be used. Your anaesthetist will discuss the best option for you.

The Operation (Step by Step)

The procedure typically takes 45-60 minutes:

1. Incision

A small incision (7-10 cm) is made on the inner side of the knee, following the natural skin creases where possible.

2. Exposure

The joint is opened through a minimally invasive approach that avoids cutting through the quadriceps muscle. The kneecap is gently moved aside without dislocating it.

3. Assessment

The surgeon confirms that the arthritis is confined to one compartment and that the ACL is intact.

4. Bone Preparation

Using precision cutting guides (or robotic assistance), a thin layer of damaged bone is removed from the femoral condyle and tibial plateau. Only 3-4 mm of bone is removed - far less than in total knee replacement.

5. Trial Components

Trial implants are inserted to check the fit, alignment, and balance of the knee through a full range of motion.

6. Final Implants

The definitive implants are cemented or press-fit into position. The bearing insert is placed between the metal components.

7. Closure

The joint capsule and skin are closed in layers. A waterproof dressing is applied.

Robotic-Assisted Surgery

At JointClinics, we offer robotic-assisted UKR using advanced systems that provide 3D planning and real-time intraoperative guidance. This technology allows the surgeon to achieve implant positioning accuracy within 1 degree of the planned alignment and balance soft tissues to within 1 mm of the target.

9. Preparing for Surgery (Prehabilitation)

Preparing your body before surgery - known as prehabilitation - can significantly improve your recovery. We recommend starting these preparations 4-6 weeks before your operation.

Exercise Programme

Exercise	Purpose	Frequency
Straight leg raises	Strengthen quadriceps	3 sets of 10, twice daily
Heel slides	Maintain knee flexion	3 sets of 10, twice daily
Static quads	Activate thigh muscles	10-sec holds x10, twice daily
Ankle pumps	Improve circulation	20 reps, 4 times daily
Walking	General fitness	20-30 minutes daily
Stationary cycling	Low-impact conditioning	15-20 mins, 3x weekly

Practical Preparations

- Home setup - Arrange essentials within easy reach. Consider a raised toilet seat.
- Medications - Inform your surgeon about all medications, especially blood thinners.
- Smoking - Stop at least 6 weeks before surgery to reduce wound complications.
- Weight - Even modest weight loss (5-10%) can reduce surgical risk.
- Nutrition - Eat a balanced diet rich in protein, iron, and vitamins.
- Support - Arrange for someone to drive you home and help for the first few days.

10. What to Expect on the Day of Surgery

You will typically arrive at the hospital 1-2 hours before your scheduled surgery time. A nurse will check you in, confirm your details, and prepare you for theatre.

The anaesthetist will administer your anaesthetic (spinal or general). Your leg will be cleaned and draped in sterile towels. A tourniquet may be applied to reduce bleeding. The surgery takes approximately 45-60 minutes.

After surgery, you will spend 1-2 hours in the recovery room while the anaesthetic wears off. Nurses will monitor your blood pressure, heart rate, and pain levels.

Most patients are able to stand and take their first steps within 2-4 hours of surgery, with the support of a physiotherapist. You will use crutches or a walking frame initially.

11. Your Hospital Stay and Discharge

One of the major advantages of UKR over total knee replacement is the shorter hospital stay. Many patients are discharged on the same day as surgery (day-case) or after a single overnight stay.

Discharge Criteria

- Walk safely with crutches on a flat surface
- Get in and out of bed independently
- Climb a few stairs (if needed at home)
- Manage pain with oral medications
- Pass urine normally
- Understand your exercise programme and follow-up plan

12. Pain Management After Surgery

Effective pain control is essential for a good recovery. We use a multimodal approach that combines different types of pain relief to minimise discomfort while reducing the need for strong opioids.

Medication	Type	Duration
Paracetamol	Simple analgesic	4-6 weeks
Ibuprofen/Naproxen	Anti-inflammatory	2-4 weeks
Codeine/Tramadol	Weak opioid	1-2 weeks (reduce quickly)
Local anaesthetic	Nerve block	12-24 hours
Ice therapy	Non-pharmacological	As needed, first 2 weeks

Tips for Managing Pain

- Take regular paracetamol and anti-inflammatories (not just when pain is severe)
- Use ice packs wrapped in a towel for 15-20 minutes, 3-4 times daily
- Elevate your leg when resting to reduce swelling
- Move regularly - gentle movement helps reduce stiffness and pain
- Reduce opioid medications as soon as possible
- Pain should steadily improve each week - contact us if it is worsening

13. Rehabilitation Programme

Recovery after UKR is significantly faster than after total knee replacement. Most patients notice a dramatic improvement in their knee within the first 6 weeks.

UNICOMPARTMENTAL KNEE REPLACEMENT

— RECOVERY TIMELINE —



Phase 1: Immediate Post-Operative (Days 0-14)

Goals: Control swelling, restore knee extension, begin flexion, walk safely with crutches

Exercise	Description	Repetitions
Ankle pumps	Circle and pump ankles	20 reps, every hour
Static quadriceps	Tighten thigh, push knee flat	10x10-sec holds, 3x daily
Heel slides	Slide heel towards buttock	10 reps, 3x daily
Straight leg raise	Lift leg 15cm off bed	10 reps, 3x daily
Knee extension	Heel on towel, let knee straight	5 minutes, 4x daily

Phase 2: Early Recovery (Weeks 2-6)

Goals: Wean off crutches, restore normal gait, achieve full range of motion

Exercise	Description	Repetitions
Stationary cycling	Low resistance, full revolution	10-15 minutes daily
Step-ups	Step up onto low step	10 reps each leg, 3x daily
Wall squats	Slide down wall to 45 degrees	10 reps, 3x daily
Calf raises	Rise onto tiptoes, hold 3 sec	10 reps, 3x daily
Balance exercises	Stand on operated leg	30 sec x5, 3x daily

Phase 3: Strengthening (Weeks 6-12)

Goals: Build muscle strength, improve endurance, return to recreational activities

Exercise	Description	Repetitions
Leg press	Light-moderate resistance	3x12 reps, 3x weekly
Lunges	Forward and lateral	3x10 reps, 3x weekly
Swimming	Low-impact cardiovascular	20-30 mins, 3x weekly
Outdoor cycling	Gradually increase distance	20-30 mins, 3x weekly
Single-leg balance	Eyes closed, unstable surface	30 sec x5, daily

Phase 4: Return to Full Activity (3-6 Months)

Continue strengthening exercises 2-3 times weekly. Gradually return to higher-impact activities as tolerated. Maintain healthy weight and regular exercise for implant longevity. Annual review with your surgeon or physiotherapist.

14. Returning to Activities

One of the great advantages of UKR is the ability to return to a wide range of activities, including many sports.

Activity	Timeline	Notes
Driving (automatic)	2-3 weeks	When safe for emergency stop
Desk work	2-4 weeks	May need breaks to elevate leg
Light housework	2-3 weeks	Avoid heavy lifting initially
Golf	6-8 weeks	Start with putting and chipping
Swimming	4-6 weeks	Once wound fully healed
Cycling	4-6 weeks	Stationary bike earlier
Doubles tennis	8-12 weeks	Avoid aggressive lunging
Hiking	8-12 weeks	Start with flat terrain
Manual work	8-12 weeks	Depends on physical demands
Skiing	3-6 months	Good technique required
Running (jogging)	3-6 months	Discuss with surgeon

15. Risks and Complications

All surgery carries some risk. UKR is a safe procedure with a low complication rate - significantly lower than total knee replacement for most complications.

Common Risks (1 in 10 to 1 in 100)

Complication	Description
Swelling/bruising	Normal; resolves over 4-8 weeks
Stiffness	Usually temporary; physiotherapy helps
Numbness around wound	Small skin nerves cut; often improves
Mild discomfort	Residual aching, especially in cold weather

Uncommon Risks (1 in 100 to 1 in 1000)

Complication	Description
DVT (blood clot)	Prevented with blood thinners and mobilisation
Superficial infection	Treated with antibiotics
Bearing dislocation	May require further surgery (mobile bearing)
Unexplained pain	May require investigation
Arthritis progression	Other compartments affected over time

Rare Risks (Less than 1 in 1000)

Complication	Description
Deep infection	May require further surgery
Pulmonary embolism	Potentially life-threatening
Fracture	Around the implant
Nerve/vessel injury	Damage to structures near knee
Revision surgery	Conversion to TKR if implant fails
Death	Extremely rare (<0.02%)

If the implant fails or arthritis progresses, the UKR can be converted to a total knee replacement. Because healthy bone and ligaments are preserved during UKR, revision to TKR is generally straightforward and produces results comparable to a primary TKR.

16. Long-Term Outcomes and Implant Survival

Unicompartmental knee replacement has an excellent track record of long-term success when performed on appropriate patients by experienced surgeons.

Survival Data

Source	Implant	10-Year Survival
Pandit et al. (2013)	Oxford Phase 3	96%
Mohammad et al. (review)	Oxford UKR	93%
Cementless Oxford	Oxford Cementless	97.5%
UK National Joint Registry	All UKR	88%

Patient Satisfaction

- Over 90% of patients report good or excellent outcomes
- UKR patients report better function scores than TKR patients in matched comparisons
- Many patients describe their knee as feeling 'forgotten'
- The Oxford Knee Score is consistently higher after UKR than TKR

Factors That Improve Long-Term Success

- Appropriate patient selection (correct indications)
- Experienced surgeon (higher volume = better outcomes)
- Maintaining a healthy weight
- Regular low-impact exercise
- Avoiding high-impact activities that accelerate wear
- Attending follow-up appointments

17. Frequently Asked Questions

Q: How long does the operation take?

A: The surgery typically takes 45-60 minutes. You will be in the operating theatre for approximately 90 minutes in total.

Q: Will I be awake during surgery?

A: Most patients have a spinal anaesthetic with sedation - numb from the waist down and relaxed but not fully asleep. A general anaesthetic is also available.

Q: How long will I stay in hospital?

A: Most patients go home on the same day or after one night. This is significantly shorter than total knee replacement.

Q: When can I drive?

A: Most patients can drive within 2-4 weeks, once they can safely perform an emergency stop.

Q: When can I return to work?

A: Desk work: 2-4 weeks. Light physical: 4-6 weeks. Heavy manual: 8-12 weeks.

Q: Will my knee feel normal?

A: Many patients report that their UKR feels more natural than a TKR because healthy ligaments and cartilage are preserved.

Q: How long will the implant last?

A: Modern UKR implants have a 10-year survival rate of 93-97% in specialist centres. Many last 15-20 years or longer.

Q: Can I kneel after surgery?

A: Yes, most patients can kneel after UKR, although it may feel uncomfortable initially. Use a cushion or kneeling pad.

Q: Will I need the other side replaced later?

A: Possibly, if arthritis progresses. However, many patients never require further surgery.

Q: Is robotic surgery better?

A: Robotic-assisted surgery improves accuracy and consistency. Early results are promising but long-term comparative data is still being collected.

18. Warning Signs - When to Seek Help

Contact JointClinics or attend your nearest Emergency Department immediately if you experience any of the following after surgery:

SEEK URGENT MEDICAL ATTENTION FOR:

- Sudden severe calf pain or swelling (may indicate DVT)
- Sudden breathlessness or chest pain (may indicate PE)
- High fever (>38.5C) with wound redness (may indicate infection)
- Wound breakdown or pus discharge
- Sudden inability to weight-bear
- Severe pain not controlled by medications

Contact Us (Non-Urgent) For:

- Persistent swelling beyond 6 weeks
- Gradual worsening of pain after initial improvement
- Clicking, clunking, or catching sensations
- Difficulty achieving full extension or flexion beyond expected timelines
- Any concerns about your recovery progress

JointClinics Emergency Contact: 07553 209288

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This booklet is intended as a guide only and does not replace individual medical advice from your surgeon. Every patient is different, and your treatment plan will be tailored to your specific needs.

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