Robotic Total Knee Replacement

Total Knee Arthroplasty (TKA) — Your Friendly Guide to What to Expect

Everything you need to know, written in plain English — no jargon, no scary stuff.

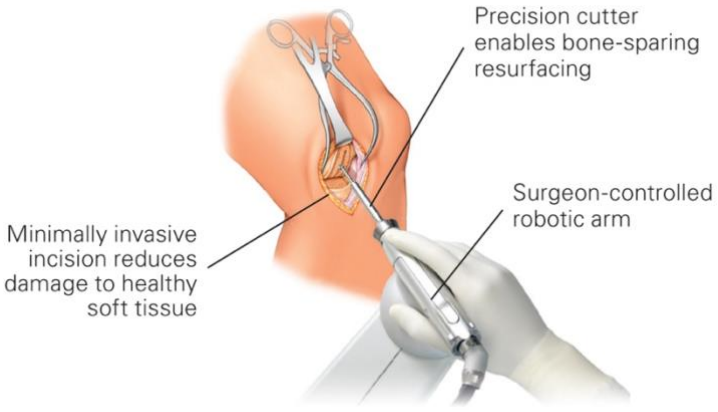
So — What Exactly is a Robotic Total Knee Replacement?

A total knee replacement — or total knee arthroplasty — is one of the most commonly performed and consistently successful orthopaedic surgeries in the world. It removes the damaged surfaces of the knee joint and replaces them with precision-engineered implants, eliminating the pain of bone-on-bone arthritis and restoring the movement and stability that the deteriorated joint has taken away.

Robotic-assisted knee replacement takes this procedure to a level of precision that simply was not possible a decade ago. Using a detailed CT scan of your knee taken before surgery, the surgical team builds a three-dimensional model of your exact anatomy and creates a personalised plan — specifying the exact size, alignment, and positioning of your implants before you ever enter the theatre.

During surgery, the robotic system guides the surgeon with real-time feedback, ensuring every cut and every implant placement stays precisely within the boundaries of the pre-operative plan. This is not a robot performing surgery on its own — your surgeon remains fully in control throughout. The robotic arm is a precision instrument that enhances what the surgeon can achieve by hand, preventing drift and providing live data on alignment, balance, and positioning as the operation progresses.

The result is a more accurately aligned implant, better knee balance, improved function, less soft tissue damage, and — for most people — a faster and more comfortable recovery. We access robotic knee replacement through our hospital partners in India at a fraction of what the same procedure costs in New Zealand.



Is Knee Replacement Right for You?

Knee replacement is typically considered when knee pain and loss of function are significantly affecting your quality of life and have not responded adequately to non-surgical management. You might be a candidate if you recognise yourself in most of these:

✓	You have been diagnosed with osteoarthritis, rheumatoid arthritis, or post-traumatic arthritis of the knee
✓	Knee pain significantly limits your everyday activities — walking, climbing stairs, getting up from a chair, or sleeping comfortably
✓	Your knee is stiff, swollen, or has lost its normal range of motion
✓	Pain relief medications, physiotherapy, cortisone injections, and other conservative treatments are no longer providing adequate relief
✓	You are generally in good health and fit enough to undergo surgery and commit to rehabilitation
✓	Your weight is in a range your surgical team is comfortable operating at safely
✓	You have realistic expectations — knee replacement dramatically reduces pain and improves function, but the knee will not feel exactly like a natural joint, and high-impact activities will still need to be avoided

Not sure if you're at the right stage yet? That's exactly what the consultation is for. The surgical team will review your X-rays and imaging, your health history, and your current limitations, and give you an honest assessment of whether surgery is the right next step — and whether robotic-assisted surgery is appropriate for your specific anatomy.

Robotic vs Traditional Knee Replacement — What's the Difference?

Both approaches replace the damaged knee joint surfaces with implants — but the precision and consistency with which this is achieved differs significantly. Traditional knee replacement relies on manual cutting guides and the surgeon's skill and judgement alone. Robotic-assisted surgery adds a layer of technology that makes the process measurably more accurate:

✓ Advantages	✕ Considerations
Pre-operative CT scan creates a precise 3D model of your knee for personalised surgical planning	Longer operating time — setting up and calibrating the robotic system adds time to the procedure
Implant sizing, alignment, and positioning are calculated before surgery — not estimated in theatre	Requires a pre-operative CT scan — an additional step before surgery
Robotic arm guides the surgeon in real time, with boundary alerts preventing unplanned movement	Not available at all hospitals in NZ (used daily in India) — specialist equipment and trained surgical teams are required
More accurate bone cuts — studies consistently show improved alignment versus conventional TKA	Higher cost than conventional knee replacement in New Zealand — though the gap is far smaller in India

Better soft tissue balancing — the robotic system provides real-time tension data, helping achieve a more naturally balanced knee	The technology reduces risks but does not eliminate them — outcomes still depend on patient health, rehabilitation, and anatomy
Reduced risk of implant malalignment — a leading cause of early revision surgery	Not suitable for every patient — some complex revision cases may require a conventional approach
Less soft tissue disruption — more targeted surgical movements mean less trauma to surrounding structures	
Research shows lower overall complication rates and shorter hospital stays vs conventional TKA	
Longer implant lifespan expected — optimal alignment reduces wear on the bearing surfaces	
Greater patient satisfaction reported in multiple studies comparing robotic to conventional knee replacement	

How the Surgery Works — Step by Step

Here is exactly what happens, from start to finish, in plain English:

1	**Pre-operative CT scan** Before surgery, a CT scan of your knee is taken. This data is used by the surgical team to build a precise 3D model of your anatomy and finalise your surgical plan — including exact implant sizing, cutting angles, and positioning — before you set foot in the theatre.
2	**Anaesthesia** Robotic knee replacement is performed under general or spinal anaesthesia. Your anaesthetist will discuss the most appropriate option based on your health and preferences. A nerve block may also be used to significantly reduce post-operative pain in the first 24 hours.
3	**The incision** An incision is made down the front of the knee to access the joint. The robotic approach allows for precise, planned access — minimising unnecessary disruption to the surrounding soft tissues.
4	**Bone surface preparation** The damaged cartilage and bone surfaces are carefully removed from the end of the femur (thigh bone), the top of the tibia (shin bone), and in most cases the back of the patella (kneecap). The robotic system guides the surgical instruments with real-time feedback, ensuring every cut is made at precisely the planned angle and depth.
5	**Soft tissue balancing** The robotic system provides live data on ligament tension and joint balance throughout the procedure. This allows the surgeon to fine-tune the implant positioning to achieve a naturally balanced knee that moves correctly through its full range of motion — a step that is significantly more precise than traditional manual assessment.

6	**Implants are placed** The new femoral component (shaped to the end of the thigh bone), tibial component (a flat platform on the shin bone), and polyethylene bearing insert (between them) are secured in place. In most cases a patellar resurfacing component is also fitted to the back of the kneecap. The robotic system confirms correct alignment before components are fixed.
7	**The knee is tested** The surgeon moves the new knee through its full range of motion to confirm stability, smooth tracking, and correct balance before closing. Any final adjustments are made at this stage.
8	**Closure and recovery begins** The incision is closed in layers. A drain may be placed temporarily to manage fluid. You will be moved to recovery and, in most cases, a physiotherapist will have you standing and taking your first steps within hours of waking.

One Knee or Both? Understanding Your Options

If both of your knees need replacing, you have an important choice to make about how to approach this — and it is worth understanding both options clearly before your consultation. There are two approaches when both knees are affected:

Option 1 — Simultaneous Bilateral Knee Replacement (both knees in one session)

Both knees are replaced in a single operation under one anaesthetic. This is the most efficient approach — one surgery, one recovery, one trip, and you come home with both knees done. For appropriately selected patients in good general health, this is a well-established and safe option.

✓ Advantages	✕ Considerations
One anaesthetic event — reducing the cumulative risk of two separate anaesthetic exposures	More physically demanding — operating on both knees simultaneously is a longer procedure and places greater demands on the body
One recovery period — you rehabilitate both knees simultaneously rather than going through the process twice	More intense early recovery — both knees are sore and weak at the same time, making initial mobilisation more challenging
One trip to India — major savings on travel, accommodation, and logistics	Higher blood loss than a single knee procedure — though modern techniques manage this effectively
Shorter total time away from home and work compared to two separate trips	Not suitable for everyone — patients with significant heart, lung, kidney, or other systemic conditions may not be ideal candidates
Studies show comparable complication rates to staged surgery in well-selected patients	Requires robust general health and good cardiovascular fitness
Lower total cost — the most affordable option for treating both knees	

Option 2 — Staged Bilateral Knee Replacement (both knees, two procedures, 5–7 days apart)

Both knees are replaced during the same visit to India, but as two separate procedures spaced five to seven days apart. This staged approach gives the body a recovery window between operations while still completing both knees within a single trip — avoiding the need to travel to India twice.

✓ Advantages	✕ Considerations
More manageable on the body than simultaneous surgery — a recovery window between the two procedures	Two separate anaesthetic events within a short window — requires careful medical assessment
Allows the surgical team to assess your recovery from the first knee before proceeding with the second	Longer total stay in India — you need to factor in the additional recovery days between procedures
Both knees are still completed within a single trip to India	Higher cost than simultaneous surgery — additional theatre and facility fees apply
One knee is already recovering while the second is operated on — you are not starting from zero twice	The first knee is still very early in recovery when the second procedure takes place — support and assistance are essential
Preferred option for patients who are not ideal candidates for simultaneous bilateral surgery	More logistically demanding — accommodation, transfers, and support need to be carefully coordinated for the inter-procedure period

ⓘ *Which option is right for you depends on your overall health, fitness, anaesthetic risk, and the severity of disease in each knee. Your surgical team will make a clear recommendation at consultation based on your specific situation. Safety always comes first — neither option is universally better, and the right choice is the one that is safest and most appropriate for you individually.*

Before Your Surgery — What to Expect

Preparation begins well before you travel. Your surgical team will provide specific instructions and you will need to have the following in order:

- ✓ A CT scan of your knee(s) — required for robotic surgical planning, arranged in India on arrival
- ✓ Pre-operative blood tests and medical assessment to confirm your fitness for surgery
- ✓ Which medications to stop and when — particularly blood thinners, anti-inflammatories, and certain supplements

✓	Stopping smoking at least six to eight weeks before surgery — smoking significantly impairs wound healing and recovery
✓	Arranging your home before you leave — a ground-floor sleeping arrangement if possible, grab rails in the bathroom, and a raised toilet seat are all recommended
✓	Organising someone to help you at home for several weeks after you return to New Zealand
✓	Day-of-surgery instructions — fasting times, what to wear, and what to bring
✓	If bilateral surgery is planned, bringing any necessary walking aids from New Zealand — your team will advise what is needed

✋	*Be completely honest with your surgical team about everything — your full health history, all medications and supplements, alcohol and tobacco use, and any previous knee problems, injections, or surgeries. This directly affects your safety and the planning of your procedure.*

Risks — The Honest Bit

Knee replacement is a major surgical procedure and carries risks, as all surgery does. The robotic-assisted approach reduces several of these compared to conventional surgery, but it does not eliminate them. Your surgeon will discuss all of the following with you fully before you proceed.

!	Deep vein thrombosis (DVT) or pulmonary embolism (PE) — blood clots are one of the most significant risks after lower limb surgery; blood thinners and early mobilisation are used routinely to minimise this risk
!	Infection — superficial wound infection or, rarely, deep joint infection, which may require further surgery or implant removal
!	Stiffness — some patients do not regain a full range of motion; physiotherapy compliance is critical in the early weeks to prevent this
!	Persistent pain — a small percentage of patients experience ongoing pain after knee replacement, even with a well-positioned implant
!	Implant loosening over time — modern implants are highly durable but can loosen years after surgery, particularly with high-impact activity
!	Nerve or blood vessel injury — rare, but possible given the proximity of important neurovascular structures
!	Kneecap (patella) complications — including fracture, instability, or wear of the patellar component
!	Wound healing problems — particularly in patients with diabetes, poor circulation, or who smoke
!	Anaesthetic risks — including reaction to anaesthetic and cardiovascular or respiratory complications; higher for bilateral simultaneous surgery
!	Blood loss — transfusion may be required, particularly for bilateral procedures
!	Need for revision surgery — implants are designed to last 15–25 years; a second operation may eventually be required

It is completely normal to feel some nerves about a procedure of this scale. Please share how you are feeling with your surgical team — they work with patients making this decision every day and are genuinely there to support you through it.

Recovery — What Happens After Surgery

Knee replacement recovery requires commitment and patience — but the results for most people are transformative. Here is what the typical journey looks like:

Timeline	What to Expect
Day 1	You will be encouraged to sit up and stand — often on the day of surgery itself. A physiotherapist will work with you from the very beginning. Pain is well managed with medication and, if used, the nerve block will significantly reduce discomfort in the first 24 hours. Swelling is normal and expected.
Days 2–4	You will be walking short distances with a frame. Physiotherapy focuses on range of motion exercises, safe movement techniques, and building early strength. Ice, elevation, and pain medication are all part of the routine.
Days 4–7	Discharge from hospital typically occurs in this window for a single knee. Mobility is improving daily. Stairs are practised before discharge. Swelling and bruising are prominent — this is normal and will take weeks to fully settle.
Weeks 1–6	You will progress from a frame to crutches to a single walking stick. Physiotherapy is the most important factor in your recovery — do not skip or cut short your sessions. Driving is not permitted for 6 weeks. Flying long-haul is not recommended for at least 6 weeks — this will affect your return travel planning.
Weeks 6–12	Most people are walking independently with good confidence. Swelling continues to reduce but may persist for months. Cycling and swimming are typically permitted around this point with approval. Stairs become much easier.
Months 3–6	Strength and endurance continue to build. Most people return to full daily activities, light work, and social life. The knee continues to feel more natural and comfortable as the months pass.
Months 6–12+	Full recovery. Swelling has largely resolved. The vast majority of patients describe the outcome as life-changing — walking without pain, sleeping through the night, and doing things they had stopped doing years ago. Low-impact activities such as walking, swimming, cycling, and golf are encouraged long term.

Important travel planning note: flying long-haul too soon after knee surgery significantly increases the risk of deep vein thrombosis. We plan your return travel carefully around your surgical date and recovery — including appropriate stopovers, compression stocking protocols, and in-flight movement advice. Getting you home safely is part of what we do.

Cost — India vs New Zealand

The savings available through robotic knee replacement in India are among the most significant of any procedure we facilitate. Here is a full breakdown:

Procedure / Cost Item	India — Single Knee (NZD)	India — Bilateral Knees (NZD)	New Zealand (NZD approx.)
Robotic Total Knee Replacement (surgery, surgeon, anaesthetist, hospital, implants)	**$10,444**	**$17,400**	$32,000 – $45,000
Bilateral — both knees in one session (simultaneous)	$17,400	**$17,400**	$58,000 – $82,000
Bilateral — both knees in two procedures, 3-4 days apart (staged) 7 day hospital	$22,000-$24000	**$22,000**	$64,000 – $90,000+
Pre-operative CT scan & medical assessment	Included	Included	~ $500 – $1,500
In-hospital physiotherapy	Included	Included	~ $1,000 – $3,000
Post-operative medications & dressings	~ Included	~ $100 – $200	~ $200 – $500

India pricing includes surgeon fee, anaesthetist, hospital stay, robotic system use, implants, and in-hospital physiotherapy. Airfares, accommodation, transfers, and JBTG logistics fees are additional — see your personalised invoice for full costings. All surgical costs are paid directly to the hospital.

A note about JBTG Limited's role. We organise everything around your surgery — your flights, hotel, all your transfers, and we escort you every step of the way. We are not medical professionals. Your surgical team, your treatment decisions, and your medical contract are between you and the hospital directly. Our job is to make sure you get there, you're supported throughout, and you come home safely.

Our Orthopaedic Surgeons

Our orthopaedic surgeons are based at our Hospital, is one of India's most respected private hospital groups, and are genuinely at the top of their field. Many of our surgeons have spent significant years working within the UK's National Health Service, bringing with them the rigorous training standards, clinical protocols, and patient care expectations of British medicine. You are in exceptionally capable hands.

Insurance & Visa

Travel insurance is highly recommended for anyone travelling to India for surgery. Standard New Zealand travel insurance policies will not cover elective procedures, so it is important to arrange specialist medical travel cover before you go. We work with Global Protective Solutions, who offer insurance specifically designed for medical tourists. Their policy covers the procedure itself and any complications for up to six months after your procedure date, including care back home in New Zealand. Please note that this is not a standard travel insurance policy — it does not cover the other elements of your trip such as flights, luggage, or cancellations.

You can enrol directly through our dedicated link at www.globalprotectivesolutions.com/enroll/bumstumsgums. A visa is also required to enter India, and while we cannot apply on your behalf, we will guide you through the process and make sure you have everything you need well in advance of travel.

Ready to Find Out More?

Here's how to get started — it's simpler than you might think:

1	**Get in touch** Call or email us for a no-obligation chat. Tell us about your knee situation and what you're hoping to achieve, and we'll take it from there.
2	**We connect you with our brokers in India** Our trusted on-the-ground medical brokers will assess your needs and connect you with the right orthopaedic surgical team for your specific case.
3	**You receive a personalised quote** The surgical team will review your information and provide a detailed quote — including whether single or bilateral surgery is recommended. No surprises, no hidden costs.
4	**We arrange everything** Once you're happy to go ahead, we take care of flights, hotel, transfers, and all logistics — including planning carefully around your post-operative travel requirements.
5	**We travel with you** You're not going alone. We escort you throughout the entire trip — to every appointment, every step of the way, and we make sure you get home safely.

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