

Robotic Knee Replacement: Precision, Personalization and a New Hope for Arthritis Patients

Category: Business

written by News Mall | July 8, 2025



Knee pain is more than just discomfort-it can slowly rob individuals of their freedom, confidence, and joy in everyday movement. For countless patients suffering from severe osteoarthritis, knee replacement surgery has long offered a second chance at a pain-free life. Now, with the arrival of robotic-assisted technology, Total Knee Replacement (TKR) is entering a new era-one marked by precision, personalization, and faster recovery.



Dr. Bharani Kumar Dayanandam, Senior Consultant Trauma & Orthopaedics (Knee and Shoulder Specialist), Apollo Speciality Hospital, Vanagaram

Understanding Robotic Knee Replacement

Robotic TKR is not a surgery performed by a robot-it is a surgeon-led procedure enhanced by robotic assistance. The process begins with a CT scan or 3D mapping of the patient's knee, helping the system create a virtual model. During surgery, the robot guides the surgeon to execute the plan with millimetric precision. It ensures accurate bone cuts, optimal implant positioning, and alignment tailored to the individual's anatomy.

This high degree of accuracy is difficult to achieve with traditional methods and can significantly impact the success of the procedure.

Dr. Bharani Kumar Dayanandam, Senior Consultant Trauma & Orthopaedics (Knee and Shoulder Specialist), says, *“Arthritis affects people across all ages, not just the elderly, and it can have a profound impact on daily life. By focusing on prevention, early intervention, and modern surgical innovations, we empower patients to regain mobility and live pain-free. Robotic-assisted and minimally invasive techniques are transforming knee replacement surgeries, ensuring quicker recovery times, less pain, and a better overall experience for patients.”*

Advantages That Matter to Patients

What makes robotic TKR a breakthrough is not just the technology, but its direct benefits to patients:

- **Better implant alignment:** Precision placement means better joint movement and less wear over time.
- **Less post-operative pain:** Smaller incisions and minimal soft tissue disruption help in reducing pain and inflammation.
- **Faster recovery:** Many patients are able to begin walking within a day or two and resume normal activities more confidently.
- **Longevity of the implant:** Correct positioning reduces the chances of early implant failure, making the knee joint last longer.

“Robotic technology brings a level of customization and accuracy that is unmatched. Every knee is different, and robotic assistance allows us to cater to that uniqueness—especially important for Indian patients who often suffer from advanced arthritis by the time they seek help.” says a Senior Orthopedic Surgeon

He adds that this technology is especially valuable in cases where traditional techniques might leave room for error due to complex anatomy or bone deformities.

Why It's Relevant in India

In India, over 15 crore people are estimated to suffer from knee problems, with women disproportionately affected. Late diagnosis, social stigma, and fear of surgery often delay treatment. However, the minimally invasive and patient-friendly nature of robotic TKR is helping change this narrative.

Hospitals across the country are now offering robotic-assisted joint replacement as a safer and smarter choice, helping patients overcome fear and return to their routines faster than before.

In Conclusion

Robotic Total Knee Replacement is not just a technological advancement-it is a step forward in restoring movement, dignity, and independence. As awareness grows and more hospitals adopt this innovative solution, patients can look forward to knee surgeries that are less invasive, more accurate, and lead to better long-term outcomes.

If you or a loved one is struggling with persistent knee pain, consult your orthopedic specialist and ask if robotic-assisted knee replacement could be the right choice for you.

