

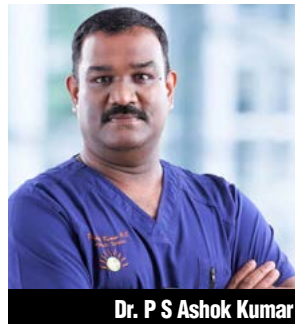
# Revolutionising Knee Replacement Surgery: Robotics Technology Leads the Way



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Total knee replacement as a treatment for crippling pain and arthritis has been around since almost 5 decades. Overtime many changes have come about in the techniques, designs, materials and the way the procedure is performed. The turn of the century saw increasing use of computer assisted techniques to further improve the precision and overcome the errors of the manual techniques. A large percentage of failures earlier on were due to issues with the precise placement of the components and achieving a balanced joint.

Computer navigation was a hallmark advancement that enabled surgeons in precise planning, balancing and positioning of the components. This was especially so in situations where the patient's anatomy threw some challenges either due to old injuries, developmental issues and other reasons. Over the last decade Robotic Technology has added another dimension and filled the lacuna of precise performance.

The ability to plan and precisely execute has also enabled surgeons to execute alternate alignment concepts which has opened the new approaches of performing procedures that are precisely designed for the person.

The benefits of these approaches are being increasingly realised both by the patients and surgeons in terms of speedy recovery, post operative pain levels and precise component placements.

Adoption of the robot assisted surgeries is on the rise across all specialities due to the precision, accuracy and minimising errors. Joint replacement is no exception and more and more robot assisted replacements of the knee and hip are being performed. Once the cost of the technology comes down, these are likely to become the standard of care.

The CORI Robotics surgical system is one of the second-generation real intelligence-based technology. Renowned orthopaedic surgeons like Dr. Suryanarayan Pichai and Dr. Ashok Kumar PS

at the SIMS-AOI, have hailed CORI as a potential game-changer.

"Having performed thousands of knee replacements with the computer assisted technologies for the past 15 years, it is their opinion that the CORI system without doubt is a great surgeon friendly system. The simple workflow and registration step is a big boon. Its accuracy in terms of measurement precision in balancing to the last millimeter is exceptional."

One of the system's key advantages is its ability to create a virtual boundary on the bone surface, preventing deviations from the surgical plan, even if they are intentional. This innovative feature guarantees that no more than the necessary damaged bone is removed, reducing risks and enhancing precision as per Dr. Vijay c Bose.

Furthermore, the use of patient-specific 3D bone models ensures that each surgery is tailored to the individual's unique requirements, leading to a custom-fit knee implant with submillimetre accuracy and proper alignment.

One remarkable aspect of the CORI system is its ability to eliminate the need for pre-operative CT scans or MRIs. This not only streamlines the surgical process but also reduces both costs and radiation exposure. However, the CORI system's advanced 3D modelling and navigation capabilities eliminates the need for these additional procedures.

According to Dr. K Kalaivanan, the benefits of considerably minimising radiation exposure is particularly important for those who are sensitive and are exposed to this environment every day like the OR personel, and nurses. Moreover, the reduction in pre-operative imaging not only lessens the financial burden on patients but also optimizes healthcare resource utilization. This cost-effective approach with significant gains to the patients aligns with the broader goal of making these advanced solutions more affordable. This possibility further re-

inforces the CORI system's status as a transformative force in the cutting edge technologies.

The transformative impact of the CORI robotic surgical system extends far beyond the realm of knee replacements. Its precision and efficiency have opened doors to a new era of surgical possibilities, inspiring healthcare professionals and patients alike. Surgeons find themselves equipped with an invaluable tool that enables them to perform complex procedures with enhanced accuracy, reducing the risks associated with traditional methods.

For patients, the benefits are profound. Reduced blood loss, shorter hospital stays, faster recovery time are certainly of much benefit to the people undergoing the procedure. Individuals can return to their normal lives and activities more swiftly than ever before. Improved knee function means enhanced mobility, allowing patients to regain their independence and reclaim their quality of life.

The ripple effect of this technological marvel reaches beyond the operating room, fostering hope for a future where healthcare continually evolves to offer safer, more efficient, and less invasive solutions. With each success story, they witness the boundless potential of cutting-edge medical technology to enhance the well-being and empower people to lead healthier, more fulfilling lives. It is, undeniably, a revolutionary step towards advanced health care and greater empowerment for surgeons and individuals everywhere.



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