

Whats up WOODLANDS

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AI-powered, Microsoft-approved knee replacement surgery at Woodlands reduces recovery time

Woodlands Hospital recently adopted an AI-based approach, approved by Microsoft, to perform a knee replacement surgery. This innovative technique significantly enhanced the accuracy of the procedure, enabling the middle-aged patient to "walk without support" by the third day after surgery—an achievement that typically takes a fortnight for most patients.

The state-of-the-art system, called Arthro 3D, combines artificial intelligence, 3D imaging and navigation to provide a personalised approach to knee replacement surgery, ensuring the higher precision and quicker return to mobility, according to doctors.

CT-Scans of the affected leg is taken in the planning stage, which generates a 3D bone model with a precision of up to 1mm. During the surgery, the doctor wears a Microsoft HoloLens headgear that generates a synchronous, real-time views of the coronal, sagittal, and axial planes, as well as the 3D



Dr Sujoy Kundu wears the Microsoft HoloLens headgear as he performs the surgery.

bone structure. It guides him on the best angle of the cut and how much to cut the femur for the optimal fit of the implant.

Advantages of AI-Guided Total Knee Replacement (TKR)

Enhanced Precision

- Utilizes Arthro 3D technology combining AI, 3D imaging, and navigation for up to 1mm accuracy

Personalised Surgery

- Tailored to each patient's unique anatomy, ensuring optimal fit and alignment of the implant

Faster Recovery

- Typically patients can walk without support as early as the third day post-surgery

Minimally Invasive

- Eliminates the need for intramedullary intervention (insertion of a rod into the femur)

Flexible Implant Options

- Compatible with implants from any manufacturer, unlike robotic knee replacement surgery

State-of-the-Art Technology

- Features Microsoft HoloLens for real-time 3D views, guiding precise surgical cuts and implant placement

Improved Patient Outcomes

- Reduced pain, faster healing, and better mobility post-surgery

Significantly, the system allows the surgeon to place the implant in the desired position without resorting to something called intramedullary intervention, which entails inserting a rod into the femur to assist in the precise alignment and placement of the knee prosthesis.

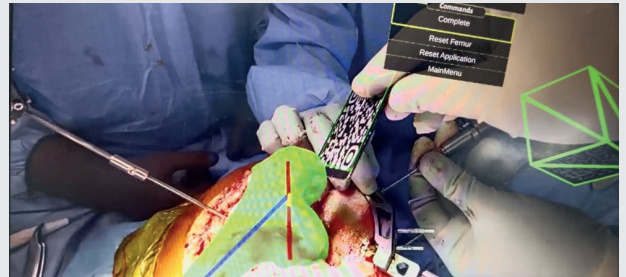
“Patients undergoing this procedure often experience less pain post-surgery, faster healing, and improved mobility. The system also provides the capability to tailor the procedure to the unique anatomy of each patient. Also, the implant of any company can be used, a flexibility that



The patient, 59-year-old Jaydeep Maity, walks by himself along the hospital corridor on the third day of total knee replacement surgery.

robotic knee replacement surgery does not allow,” said Dr Sujoy Kundu, senior consultant, orthopaedic and joint replacement surgery, Woodlands Multispeciality Hospital Ltd.

“At Woodlands, we are committed to combining medical expertise with cutting-edge technology to redefine patient care. The integration of AI in knee replacement surgery is a testament to our mission of delivering precision, innovation, and faster recovery for our patients,” said Mr Rupak Barua, managing director & CEO, Woodlands Multispeciality Hospital Ltd.



The 3D bone model generated by AI (in green) guides the surgeon at which angle and how much of the femur to cut for perfect fit of the bone prosthesis.

WOODY SAYS

Here are some quick tips to keep you breathing easy and living your best life this season. Woody’s got your back! Let’s roll!

- 1 **"Mask up, folks!"** Especially if you’re part of the vulnerable gang—better safe than sorry!
- 2 **"Fresh air vibes!"** Keep indoor pollution at bay—let the sunlight in and ventilate like a pro.

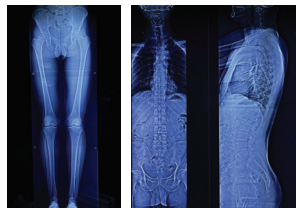


- 3 **"Hydration and greens FTW!"** Stay fuelled with water, fruits, and veggies to keep that glow alive.

- 4 **"Ditch the puff!"** Smoking? Not cool—for you or the air around you.

- 5 **"Purify to amplify!"** Air purifiers are your BFF in areas with heavy traffic pollution.

TECH



Technology to stitch Digital X-Ray Images Together

Woodlands Hospital is equipped with state-of-the-art Digital X-Ray machines, Siemens

Luminos Fusion FD and Siemens Multix Impact, offering unparalleled imaging precision, enhancing diagnosis and patient care. These advanced systems use cutting-edge technology to create composite images by seamlessly stitching multiple X-rays together, ensuring accurate full-length views.

Key Advantages:

- **Lower Limb Scanogram:** Ideal for detecting leg length discrepancies and deformities with true-to-scale imaging, aiding in pre-surgical planning.
- **Whole Spine Scanogram:** Provides a comprehensive view of the spine for diagnosing conditions like scoliosis and kyphosis, and for surgical assessment.
- **Fluorescence System:** Enables real-time, dynamic imaging for functional studies, improving diagnostic accuracy and procedural guidance.

MD SPEAKS



Mr Rupak Barua
 Managing Director & CEO
 Woodlands Multispeciality
 Hospital Ltd

I extend my warm wishes for a healthy and prosperous New Year. This fifth edition of Whatsup Woodlands brings you inspiring stories of innovation, care, and community.

We are thrilled to share the success of our first AI-assisted total knee replacement using a Microsoft-approved technology. This milestone highlights the transformative role of AI in healthcare, delivering precision and quicker recovery times for our patients.

The issue also sheds light on TAVI, a minimally invasive cardiac procedure that ensures faster recovery and improved outcomes for patients with severe aortic stenosis.

Additionally, our advanced digital X-ray machines, like Siemens Luminos Fusion FD, now allow composite imaging, enhancing diagnostics for conditions such as leg length discrepancies and spinal alignment issues.

As we brave the winter chill, don't miss our handy health tips to keep you in the pink of health. We are also proud of our involvement in the Youth Basketball National Championship that came back to Kolkata after 12 years. A good 2,000 young athletes showcased their skills in the tournament, and we provided steadfast medical support.

At Woodlands, innovation and patient care go hand in hand, ensuring we always deliver excellence. Stay tuned for more in 2025!

MILESTONE

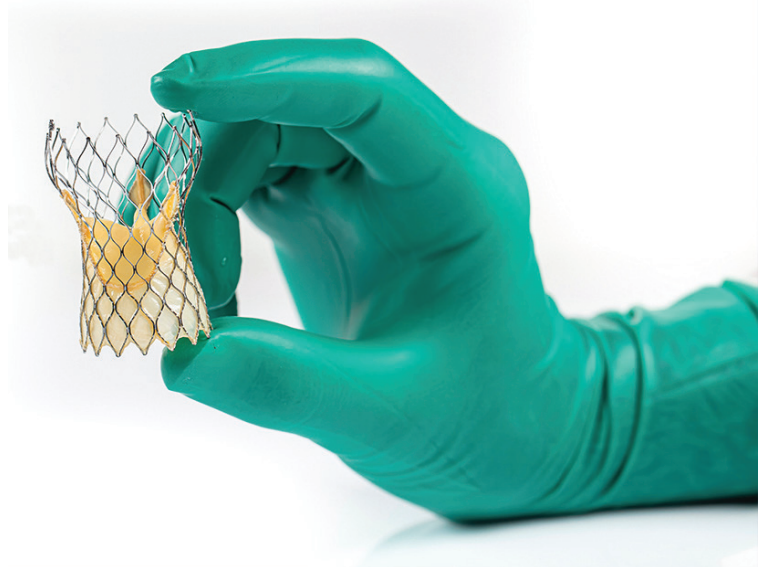
Minimal Incision, Maximum Impact: TAVI Success at Woodlands

The first TAVI, or transcatheter aortic valve implantation, was done on a 79-year-old male patient at Woodlands in February 2024 and followed by five more cases in close succession. This minimally invasive procedure is an alternative for open surgery which entails “sternotomy”, a surgical opening of the chest, and comes with obvious advantages like quicker recovery, lesser blood loss and shorter hospital stay.

The patient, who was suffering from severe aortic stenosis — a condition where the aortic valve narrows restricting blood flow from the heart — was hypertensive and had a pacemaker implanted since 2016.

TAVI, also called TAVR, was done by Dr Sunil Baran Roy, director, interventional cardiology, Woodlands, via the right femoral route on the second day of admission and the procedure, which involved delivering a replacement valve via a catheter and delivered inside the damaged aortic valve.

While an open procedure for the same problem requires



hospitalisation of at least 10 days, in this case the patient was kept under observation in ICU for a day and discharged on the second day after surgery.

“TAVI is a game-changer for patients with severe aortic stenosis, especially those who are high-risk for open-heart surgery. With its minimally invasive approach, we are able to provide effective treatment with faster recovery and improved quality of life,” said Dr SB Roy.

HR DIARY

A sneak peek at some of the initiatives taken up recently



November 30: Employee Retirement Ceremony



December 20: Training in Dietetics



December 14: Employee Farewell Programme



December 14: Drawing Competition

Health partner at the Basketball Youth Nationals



Woodlands Hospital matched the exuberance and energy of the best young “hoopers” this winter. As health partner of the 39th Youth Basketball National Championship that was making a comeback to Kolkata after 12 years, the hospital set up two medical units and took care of 200 boys and girls for cuts and niggles, bruises and scrapes.

The injuries were more serious injuries in six cases, including fractures, where treatment



had to be done at Woodlands Hospital. Mr Rupak Barua, managing director & CEO, Woodlands Multispeciality Hospital Ltd graced the presentation ceremony along with other dignitaries and presented the medal for the best male shooter of the tournament.

- 65K+ Orthopaedic & Replacement Surgeries
- 60K+ Total Cardiac Interventions
- 3 lakh+ surgeries
- 79 years of service

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