

Introduction to Robotic Joint Replacement

Robotic-assisted surgery has transformed the way joint replacements are performed, offering enhanced precision, better alignment, and faster recovery. This guide provides an overview of robotic knee and hip replacements, with a special focus on Stryker's Mako Robotic-Arm Assisted Technology, a global leader in the field.

What Is Robotic-Assisted Joint Replacement?

Robotic-assisted joint replacement is a surgical procedure where a surgeon uses a robotic system to assist in performing total or partial joint replacement surgeries. The robot doesn't perform the surgery; instead, it acts as a tool for the surgeon to achieve higher levels of accuracy. This can lead to more natural joint movement and better patient outcomes.

Benefits of Robotic Surgery

- Greater precision and control
- Personalised surgical planning
- Less damage to surrounding tissues
- Faster recovery and rehabilitation
- Lower risk of complications and re-operations

Introduction to Stryker's Mako System

Stryker's Mako Robotic-Arm Assisted Technology is used in thousands of hospitals around the world. Mako combines CT-based 3D modelling software with a robotic arm to help surgeons plan and perform precise joint replacements for hips and knees.

How the Mako System Works

1. **Pre-surgical Planning:** A CT scan of the patient's joint is taken and converted into a 3D model.
2. **Customised Surgical Plan:** Surgeons use the 3D model to plan the ideal placement and alignment of the implant.
3. **Intraoperative Assistance:** During surgery, the robotic arm guides the surgeon to operate within pre-defined boundaries, ensuring precision and consistency.

Robotic-Assisted Procedures

Total Knee Replacement

The Mako system helps the surgeon remove damaged cartilage and bone with incredible accuracy, and place a knee implant that matches the patient's unique anatomy. This can reduce pain and improve the feel of the new joint.

Partial Knee Replacement

For patients with damage in only one part of the knee, a partial knee replacement using Mako may be ideal. It allows for smaller incisions and preserves more of the patient's natural bone and ligaments, which may lead to quicker recovery and a more natural-feeling knee.

Total Hip Replacement

Using Mako, surgeons can place the hip implant with high accuracy. The robotic arm assists in optimising the alignment and positioning of the implant, which can reduce the risk of dislocation and improve the longevity and function of the new joint.

Recovery and Rehabilitation

Robotic surgery often allows for faster and more predictable recovery. Patients typically experience:

- Less post-operative pain
- Reduced hospital stay
- Quicker return to daily activities

Physical therapy is still essential, and personalised programs are developed to maximise the outcomes of the robotic-assisted surgery.

Is Robotic-Assisted Surgery Right for You?

Not everyone is a candidate for robotic-assisted joint replacement. Factors like age, bone health, severity of arthritis, and activity levels are considered. It's important to consult an orthopaedic specialist who uses Stryker Mako technology to determine the best course of action.

Conclusion

Robotic-assisted joint replacement using Stryker's Mako system is a powerful advancement in orthopaedic care. By offering precision, personalisation, and faster recovery, it has become a trusted option for patients seeking long-term relief from joint pain and improved mobility.