Technology work

3. Arthritic bone removal

In the operating room, your surgeon guides Mako's robotic arm to remove the arthritic bone and cartilage from the knee. A virtual boundary provides tactile resistance to help protect soft tissue and help the surgeon stay within the boundaries defined in your surgical plan.

4. Implant placement

With the diseased bone gone, your implant is placed into the knee joint. Then it's off to the recovery room to begin your journey to strengthening your new joint.

References

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Important information

Knee replacements

Knee replacement is intended for use in individuals with joint disease resulting from degenerative, rheumatoid and post-traumatic arthritis, and for moderate deformity of the knee. Knee replacement surgery is not appropriate for patients with certain types of infections, any mental or neuromuscular disorder which would create an unacceptable risk of prosthesis instability, prosthesis fixation failure or complications in postoperative care, compromised bone stock, skeletal immaturity, severe instability of the joint, or excessive body weight.

As with any surgery, knee replacement surgery has serious risks which include, but are not limited to, pain, infection, bone fracture, peripheral neuropathies (nerve damage), circulatory compromise (including deep vein thrombosis (blood clots in the legs)), genito-urinary disorders (including kidney failure), gastrointestinal disorders (including paralytic ileus (loss of intestinal digestive movement)), vascular disorders (including thrombus (blood clots), blood loss, or changes in blood pressure or heart rhythm), bronchopulmonary disorders (including emboli, stroke or pneumonia), heart attack, and death.

Implant related risks which may lead to a revision include dislocation, loosening, fracture, nerve damage, heterotopic bone formation (abnormal bone growth in tissue), wear of the implant, metal and/or foreign body sensitivity, soft tissue imbalance, osteolysis (localized progressive bone loss), and reaction to particle debris. Knee implants may not provide the same feel or performance characteristics experienced with a normal healthy joint. The information presented is for educational purposes only. Speak to your doctor to decide if joint replacement surgery is appropriate for you. Individual results vary and not all patients will return to the same activity level. The lifetime of any joint replacement is limited and varies with each individual. Your doctor will counsel you about how to best maintain your activities in order to potentially prolong the lifetime of the device. Such strategies include not engaging in high-impact activities, such as running, as well as maintaining a healthy weight. It is important to closely follow your doctor's instructions regarding post-surgery activity, treatment and follow-up care.

Ask your doctor if a knee replacement is right for you.

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stryker

325 Corporate Drive
Mahwah, NJ 07430
t: 1-888-STRYKER

meetmako.com

Mako® Robotic-Arm Assisted Surgery for knee arthritis

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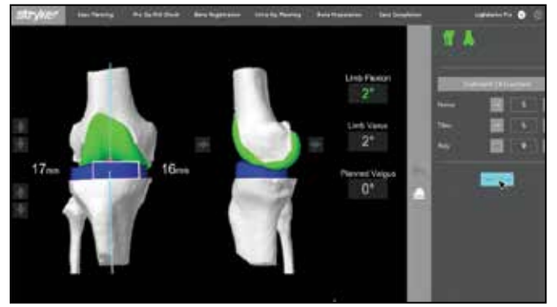
How does Mako

1. Personalized surgical plan

The first step is patient-specific surgical planning. Before surgery a CT scan of your knee is taken to develop a 3D virtual model of your unique joint. Your doctor uses this model to evaluate your bone structure, disease severity, joint alignment and even the surrounding bone and tissue, so they can determine the optimal size, placement and alignment of your implant.

2. Range-of-motion assessment



Throughout your procedure, Mako provides real-time data to your surgeon. This allows them to continuously assess the movement and tension of your new joint, and adjust your surgical plan if desired.

Is it time to take on your knee pain?

If you're one of the millions of Americans suffering from pain caused by arthritis or an injury to the knee, and you haven't experienced adequate relief with conservative treatment options, Mako Robotic-Arm Assisted Surgery might be right for you.

Mako Robotic-Arm Assisted Technology

Total knee replacement is a surgical procedure where a diseased or damaged joint is replaced with an artificial joint called an implant. Made of metal alloys and high-grade plastics, the implant is designed to mimic a normal, healthy knee.

Mako Technology transforms how total and partial knee replacement procedures are done by integrating 3D virtual modeling and robotic-arm precision[1,2] into the process. It's an innovative solution that has been helping knee pain sufferers for more than a decade.

The Mako difference

- In a laboratory study, Mako Total Knee enabled surgeons to **execute their surgical plans more accurately**.[1,2]
- In a clinical study, Mako **protected soft tissue and ligaments** from damage[3]
- In a clinical study, Mako patients surveyed 6 months after surgery reported **better patient satisfaction** scores than those who received a conventional joint replacement.[4]
- In a clinical study, Mako patients surveyed 6 months after surgery reported **lower pain scores** than those who received a conventional joint replacement.[4]

Is Mako an option for me?

Mako is for people with:

- Severe knee pain or stiffness resulting from: noninflammatory degenerative joint disease (including osteoarthritis, traumatic arthritis, or avascular necrosis), rheumatoid arthritis or post-traumatic arthritis
- Those who haven't experienced adequate relief with conservative treatment options, like bracing, medication or joint fluid supplements

If this sounds like you, ask your doctor about Mako Technology.

Visit **patients.stryker.com** to download a discussion guide to use with your doctor.

Frequently asked questions

These FAQs are not a substitute for medical advice from your own doctor. Make sure to discuss all questions and concerns with your doctor to see if Mako is right for you.

Q: When can I get back to normal activities?

A: Most people who undergo knee replacement surgery and participate in a physical therapy regimen prescribed by their doctor, return to their day-to-day activities like driving in four to six weeks[6], but everyone is different. Your doctor will help determine a plan best suited for your recovery and your lifestyle.

Q: What activities will I be able to do after surgery?

A: In a few weeks your doctor may allow you to pick back up with lower-impact activities like hiking, walking, cycling, and golfing.[7] Speak to your doctor about which activities are appropriate for you.

Q: How long has Mako Technology been available?

A: The first Mako procedure was performed in 2006. Since that time, more than 200,000 Mako Total Knee, Mako Partial Knee and Mako Total Hip procedures have been performed.

Q: How long will I be in the hospital?

A: All patients are different. But in a clinical study, patients who had a Mako Total Knee procedure spent approximately 3 days in the hospital compared to approximately 4 days for those who had a conventional knee replacement.[8]