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Time to take on your knee pain

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Important information

Knee replacement: 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)), genitourinary 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.

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 SmartRobotics™ might be right for you.**

Over **32.5 million Americans** suffer from **osteoarthritis** (OA).[1]

Why does my knee hurt?

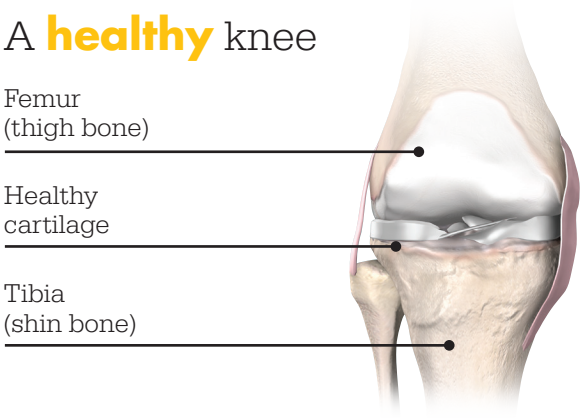
To get a better idea of why your knee hurts, let's take a look at how it works. Your knee is the largest joint in your body, and it works a lot like a hinge.

Three bones come together to form the joint: the lower end of the thighbone (the femur), the upper end of the shinbone (the tibia), and the kneecap (the patella) right above where the long bones meet.

Cartilage provides cushioning, keeps bones from rubbing together, and absorbs the shock of walking, running and jumping. Your body also produces a natural lubricating fluid called synovium that minimizes friction in the joint.

When everything is working smoothly, you don't have to think about the mechanics of your knee. When something's wrong, it can feel debilitating.

A healthy knee



Mako Can.

Scan.

It starts with a CT scan of your knee joint, which is loaded into Mako software and used to develop a 3D virtual model of your unique anatomy. This model helps your doctor see things they can't typically see with an X-ray alone.

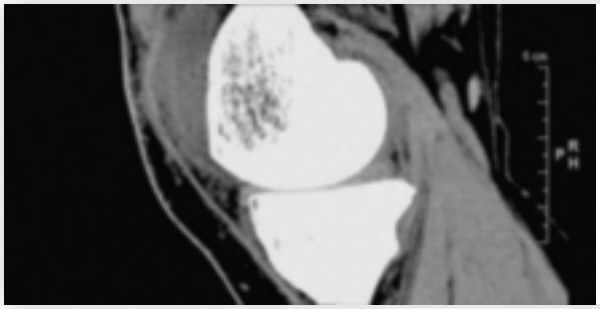
Plan.

The virtual model created from your CT scan helps your surgeon create a patient-specific surgical plan. Using the Mako software, your surgeon can determine the desired size, placement and positioning of your implant.

Mako Can.

In the operating room, your surgeon guides Mako's robotic arm to remove arthritic bone and cartilage from the knee. Throughout the procedure, Mako SmartRobotics™ provides real-time data to the surgeon so they can continuously assess the movement and tension of your new joint and adjust your surgical plan if needed. AccuStop™ technology provides tactile resistance to help your surgeon stay within the boundaries defined in your surgical plan and precisely cut what's planned.[4] After the removal of the diseased bone, your implant is placed into the knee joint.

Scan. Plan.



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.

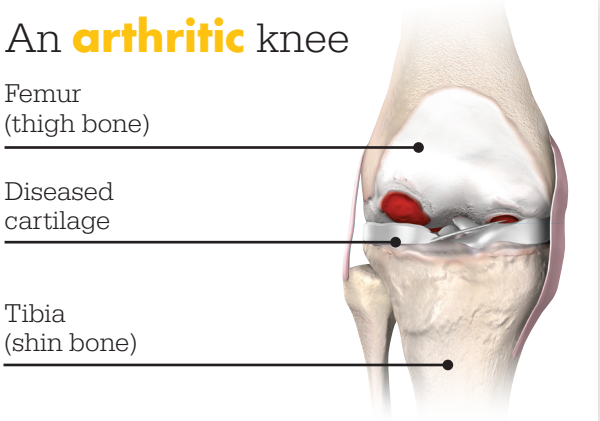
Made of metal alloys and high-grade plastics, the implant is designed to mimic a normal, healthy knee.

Mako SmartRobotics™ transforms how total knee replacement procedures are done.

Mako Total Knee is for:

- People with severe knee pain or stiffness resulting from noninflammatory degenerative joint disease (including osteoarthritis, traumatic arthritis and 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

An **arthritic** knee



More than 790,000 knee replacements are performed in the United States each year[2]

Is Mako SmartRobotics™ an option for me?

Mako can help surgeons plan for better outcomes like less pain[3] and shorter recovery times[3]. Additionally, in clinical studies, Mako SmartRobotics™ for total knee replacement:

- Enabled surgeons to execute their surgical plans more accurately compared to manual surgery[4]
- Protected soft tissue and ligaments from damage[5]
- Protected healthy bone[5,6]
- Resulted in less pain in the days and weeks following surgery compared to manual surgery[3]
- Resulted in a shorter hospital stay compared to manual surgery[3]
- Resulted in better patient satisfaction scores six months after surgery compared to manual surgery[7]
- Resulted in reduced bone and soft tissue trauma in patients who received a robotic-assisted total knee replacement,[5] which may have contributed to less pain and less opioid use by those patients[3,9]

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 SmartRobotics™ is right for you.

Q: How long has Mako Technology been available?

A: The first Mako procedure was performed in 2006. Since that time, more than 1,000,000 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. Clinical studies have shown that patients who had a Mako Total Knee procedure spent significantly less time in the hospital compared to those who had a conventional knee replacement.[3]

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,[7] 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.[8] Speak to your doctor about which activities are appropriate for you.