

Guide to Knee Replacement Surgery



Hartford 
HealthCare
Bone & Joint Institute
at Hartford Hospital

Are you part of the Boomer Effect? The aging population born between 1946 and 1964, with knees (and other joints) now more vulnerable to damage by osteoarthritis and rheumatoid arthritis after years of wear and tear, is a prime reason for a spike in total knee replacement surgeries.

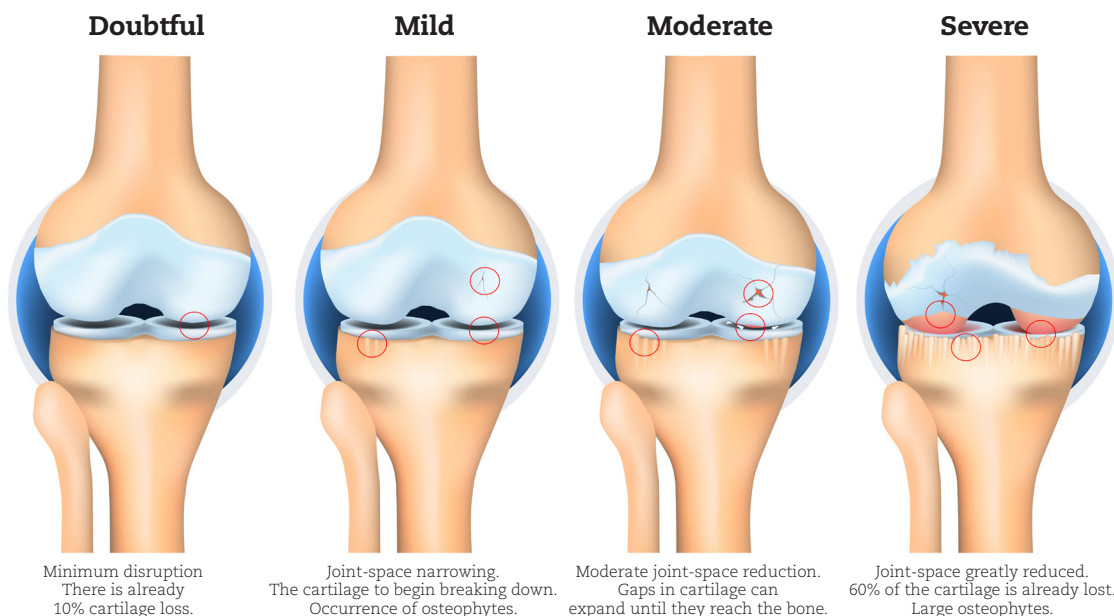
During a 14-year period ending in 2014, these surgeries increased almost 250 percent nationally. By 2030, 3.5 million knee-replacement procedures are expected each year in the United States, an increase of almost 700 percent over current levels.

Hartford HealthCare's response to the surge in demand for joint replacement surgery? The Bone & Joint Institute, a 75,000-square-foot orthopedic specialty hospital that opened in January 2017 at Hartford Hospital with a medical staff that included board-certified orthopedic surgeons fellowship trained in knee replacement.

What Is Osteoarthritis?

Osteoarthritis is a leading cause of most knee replacements. It affects more than 30 million people, making it the most common chronic joint condition in the United States. The pain and stiffness of osteoarthritis at a joint – the junction where two bones meet – are caused by the breakdown of protective tissue (cartilage) that leaves the bones in the knee, hip, wrist or shoulder rubbing together. Osteoarthritis is a degenerative condition, typically a byproduct of aging that makes it difficult to walk, climb stairs or rise from a chair.

Stages of Osteoarthritis of the Knee



To request a call from one of our Bone & Joint Institute experts, visit boneandjointinstitute.org/knee. Or call **1.833.203.9880** to find an orthopedic specialist.

What Is A Total Knee Replacement?

When damage to cartilage on the knee joint surface is so extensive that medication and other medical treatment no longer help, it might be time to consider knee replacement surgery.

Here's what happens during total knee replacement surgery:

1. To access the kneecap (patella), your surgeon makes an incision 8- to 10-inches long in the front of the knee. A procedure assisted by a robotic arm requires a shorter incision, typically 4 to 6 inches. This, of course, leaves a smaller scar but also leaves a smaller surgical space. In either case, using traditional surgery or robotics, your hospital stay is less than two days.
2. After turning the kneecap to view the surgical space, your surgeon removes damaged cartilage at the femur (thigh) and tibia (shin). Some bone just below the cartilage is also removed.
3. Metal implants (usually titanium) are placed on the femur and tibia, securing them to the bone.
4. A medical-grade polyethylene button is placed on the underside of the kneecap.
5. A medical-grade polyethylene spacer between the two metal components is the final piece that allows the artificial knee to replicate the movement of the original joint.

How Long Will My Implant Last?

In a recent study that tracked the long-term performance of common knee-replacement prosthetics, **96 percent of patients were still using the original implant 20 years after their surgery.**



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Mako Robotic-Arm Assisted Surgery: Channeling Computer Power and Robotics

Even though the country's first knee-replacement surgeries date to the early 1900s, the procedure did not become common until the Food and Drug Administration approved bone cement for both hip and knee prosthetics in the 1970s.

More recently, computer technology and robotics have transformed knee replacement surgery. Smaller incisions and a quicker recovery are among the benefits of the enhanced precision provided by robotics. The technology is particularly useful to surgeons in getting an accurate alignment of the joint during a partial knee replacement procedure.

Some Bone & Joint surgeons use Mako® Robotic-Arm Assisted Surgery technology, guiding a robotic arm to remove diseased bone and cartilage before placing the implant. With Mako, a 3D virtual model of your knee joint created from a CT scan is loaded into software that helps create a surgical plan. Though adjustments are always available, the Mako System keeps the surgeon within the plan's boundaries. This ensures both accuracy and preservation of ligament soft tissue.

What Is A Partial Knee Replacement?

A partial knee replacement, also known as partial knee resurfacing, replaces only an arthritic inner or top (or both compartments) of the knee joint, leaving healthy areas intact. Both the anterior cruciate ligament (ACL) and posterior cruciate ligament (PCL) – which help stabilize the knee – are preserved.

Here, Bone & Joint surgeons also can use robotic-arm assisted surgery for precise placement of the implant. In studies, the alignment of a patient's joint after partial knee replacement using Mako were more accurate than conventional methods. But despite this advantage, and less pain reported by patients after surgery, there was no discernible difference between robotic-arm assisted and traditional surgery outcomes after one year.

Talk to you doctor about which surgical method is best for you.



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