



**Medical
Blueprints**

IS IT TIME FOR NEW JOINTS? THREE QUESTIONS TO ASK REPORT #2685

BACKGROUND: Joint replacement is a surgical procedure in which parts of an arthritic or damaged joint are removed and replaced with a metal, plastic or ceramic device called a prosthesis. The prosthesis is designed to replicate the movement of a normal, healthy joint. Hip and knee replacements are the most commonly performed joint replacements, but replacement surgery can be performed on other joints, including the ankle, wrist, shoulder, and elbow. A joint is where the ends of two or more bones meet. The knee is considered a "hinge" joint because of its ability to bend and straighten like a hinged door. The hip and shoulder are "ball-and-socket" joints in which the rounded end of one bone fits into a cup-shaped area of another bone. Joint pain is caused by damage to the cartilage that lines the ends of the bones either from arthritis, a fracture, or another condition. Total joint arthroplasty (TJA) is one of the most cost-effective and successful interventions in medicine. There are more than 1 million performed in the United States annually and this number is expected to increase to nearly 4 million by 2030.

(Source: <https://orthoinfo.aaos.org/en/treatment/total-joint-replacement/> and <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5485224/>)

CAUSES AND TREATMENT: The most common causes of the joints not working properly are osteoarthritis and rheumatoid arthritis. Several things may contribute to joint weakening and lead to arthritis, such as heredity (runs in the family), genetic (inherited), minor repetitive injuries, and even severe trauma to the joint cartilage (the cushioning tissue at the end of the bones). While being overweight does not necessarily cause arthritis, it can contribute to early joint problems that can get worse quickly. Surgery is usually the last line of treatment, when all other treatments such as physical therapy and medications have not helped the patient. Joint replacement surgery is a highly-effective way of eliminating joint pain, correcting a deformity, and helping improve the patient's mobility. It is also performed to treat advanced arthritis. People who are considered for joint replacement surgery often have severe joint pain, stiffness, limping, muscle weakness, limited motion, and swelling.

(Source: <https://my.clevelandclinic.org/health/treatments/8856-joint-replacement>)

SURGICAL ADVANCES IN JOINT REPLACEMENTS: Medical and surgical advances offer better treatment options for painful knees. Minimally invasive surgery calls for shorter incisions, but the incisions are still long enough to achieve predictable, precise results. Huge incisions are a thing of the past. Orthopedic surgeon, Kristoffer Breien, MD, out of Minnesota says, "As imaging technology advances, we begin using imaging during the surgical procedure to increase the accuracy of implant placement and maintain limb alignment." The move toward smaller incisions begin to reduce pain. Anesthesiologists use a nerve block approach for even more pain control. "These blocks interrupt the message sent by angry nerves to the brain. During surgery, we also have longer-acting Novocain to numb all the tissues that we cut," continued Dr. Breien. Patients benefit from local anesthetic in the tissues and nerve blocks. Multimodal pain management make the first one or two days of recovery a much more comfortable experience.

(Source: <https://www.summitortho.com/2018/02/28/dr-breien-discusses-surgical-advances-knee-replacement/>)

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