FAQ: Knee Replacements
Signature™ Personalized Patient Care*

Signature Oxford Specific FAQ

Q1: How will *physicians* benefit from Signature™ Personalized Patient Care paired with the Oxford® Partial Knee system?

A1: Biomet's Signature™ Personalized Patient Care system utilizes magnetic resonance imaging to create a three-dimensional model of the patient's joint anatomy. Surgeons are then able to preoperatively plan a knee replacement surgery and develop Signature™ custom positioning guides for personalized instrumentation.

Together with the Oxford® Partial Knee system, which enables surgeons to preserve and restore normal knee function and movement by only replacing the diseased compartment of the knee, these innovative technologies may help improve overall surgical efficiency.[1]

Q2: How will *patients* benefit from Signature™ Personalized Patient Care paired with the Oxford® Partial Knee system?

A2: Proper alignment and stability of an implant are key factors for success in joint replacement surgery. For patients, the cutting-edge surgical planning and personalized alignment guides allow for a more customized planning of the Oxford® Partial Knee. The procedure removes 75 percent less bone and cartilage when compared to a total knee replacement, allowing patients to recover more rapidly with less postoperative pain.[2-4]

Signature Specific FAQ

Q3: What is Signature™ Personalized Patient Care?

A3: The Signature™ Personalized Patient Care system utilizes information derived from a patient's MRI (Magnetic Resonance Image) to personalize the total knee replacement procedure. The MRI creates a three-dimensional image of the patient's joint anatomy, enabling the surgeon to preoperatively plan the patient's knee replacement. The three-dimensional MRI is also used to create personalized guides for the patient's joint replacement implants, as compared to planning based on two-dimensional X-rays.

Q4: What makes Biomet's Signature™ Personalized Patient Care system unique?

A4: Typically, surgeons use X-rays to choose the size of joint replacement components before surgery. During the knee replacement procedure, the surgeon uses an assortment of instruments to verify component sizing and to establish proper positioning. Knee replacement sometimes uses instruments placed inside the femur (thighbone) and/or tibia (shinbone) to assist with implant alignment.

Signature™ personalized positioning guides are placed directly onto the patient's femur and tibia, and therefore do not require instrumentation in the bone canal, allowing for a potentially less invasive procedure. Signature™ personalized positioning guides enable the surgeon to use a reduced number of instruments during surgery to execute the preoperative plan.

With the MRI and Signature™ personalized positioning guides, surgeons have access to a greater level of detail and precision for implant position before the procedure. This allows for personalized instrumentation and may help enhance surgical efficiency.

Oxford® Partial Knee System Specific FAQ

Q5: What is the Oxford® Partial Knee system?

A5: The Oxford® Partial Knee system from Biomet Orthopedics is the only FDA-approved fully mobile bearing partial knee system in the United States.

Q6: What makes Biomet's Oxford® Partial Knee system unique?

A6: The Oxford® Partial Knee system is designed to help patients address loss of normal knee function resulting from chronic knee pain due to osteoarthritis. Unlike a total knee implant, which replaces all knee joint surfaces through a larger incision, the Oxford® Partial Knee implant can be positioned by making a much smaller incision and replacing only the affected (medial) side of the knee joint. This technique enables surgeons to preserve up to 75 percent more healthy bone, allowing for less pain, quicker recovery and more natural motion compared to a total knee replacement. [2-4]

Biomet's Oxford® Partial Knee system has 35 years of clinical experience, demonstrating 92.3 percent survivorship at 20 years after implantation[8]. When used in conjunction with the Signature™ system, the Oxford® Partial Knee system from Biomet allows surgeons to provide a more personalized instrument fit specifically for patients undergoing partial knee replacement.

Consumer Perspective FAQ

Q7: What causes joint pain?

A7: Causes of knee pain may include injury or infection. But many times, the pain is caused by arthritic conditions.

Q8: How will a patient know if joint replacement is necessary?

A8: If a patient has trouble walking and doing other day-to-day activities such as going to work, taking care of their home and interacting with family, it may be appropriate to consider joint replacement. Doctor's work with their patients to determine the most appropriate treatment options to alleviate the pain and restore more normal function of the knee, only a licensed health care physician can determine if knee replacement is appropriate.

Q9: What is the primary reason that joints are replaced?

A9: Osteoarthritis (OA) is the most common reason for joint replacement.

Q10: What is osteoarthritis?

A10: Osteoarthritis is a disease that involves the breakdown of cartilage in one or more joints. Cartilage is a strong, smooth material that caps the articulating, or moving, surfaces of the bones in the joint. It allows bone surfaces to glide against each other during motion. When the gliding cartilage breaks down or wears away, the bones grind against each other, which can cause pain and limit joint movement.

Q11: Is there a cure for osteoarthritis?

A11: There is no known cure. However, patients have many treatment options designed to restore motion and reduce pain. For end-stage osteoarthritis, joint replacement has proven effective in

accomplishing these goals for most patients.

Q12: Does joint replacement work?

A12: After joint replacement surgery, clinical research has shown that qualified individuals who have had partial knee replacements demonstrate excellent medium and long term results in both younger and older patients.[1] The performance and life span of an implant depends on many factors, including the patient's pre-surgical physical condition, anatomy, weight, activity and willingness to follow surgeon instructions before and after surgery. Another factor that can influence duration and durability is the positioning of the replacement knee.

Q13: What is partial knee replacement?

A13: A partial knee replacement, also called a unicompartmental knee replacement, is intended to preserve healthy knee structures by replacing only the damaged side of the knee, allowing for a more natural feel and motion. Partial knee implants are available as fixed bearing or mobile bearing, which can enable patients to have greater movement and rotation.

Q14: Who is eligible for partial knee replacement?

A14: In order to qualify for partial knee replacement, candidates must have osteoarthritis limited to one compartment of the knee. Other factors such as medical history and physical condition may help surgeons determine if the procedure is suitable for the individual.[2] One report demonstrated that one in three knees that require knee replacement is appropriate for a partial knee replacement.[3]

Q15: What is the average patient age?

A15: In the United States, the average joint replacement patient is around 65-70 years old. However, advances in joint replacement technology are making it possible for younger patients to seek this treatment as an alternative option to address pain and restore mobility.

Q16: How long do partial knee replacements usually last?

A16: Biomet's Oxford® Partial Knee replacement system has a proven track record demonstrating a 94 percent success rate at 15 years and 92.3 percent success rate at 20 years after implantation.[7-9] The performance and life span of an implant depends on many factors, including the patient's pre-surgical physical condition, anatomy, weight, activity and willingness to follow surgeon instructions before and after surgery. Another factor that can influence duration and durability is the correct alignment and positioning of the replacement knee.

Surgery Details FAQ

Q17: What happens during knee replacement surgery?

A17: The surgery begins with an incision over the knee that will expose the joint. When the damaged bones are visible to the surgeon, surgical guides are sometimes placed inside the femur (thighbone) and/or tibia (shinbone) to align instruments that remove the damaged cartilage and shape the ends of the bones to accept the implants. With technology from Biomet called the Signature™ Personalized Patient Care System, surgeons place the patient-specific instruments directly on the bone, allowing for a less invasive procedure.

Once the damaged bone and cartilage are removed from the joint, trial, or temporary, implants are placed on the joint to ensure proper sizing, alignment, and to balance the soft tissue that surrounds the knee. Once verified, the final implants are secured to the bones. When the surgeon is satisfied with the fit and function of the implants, the incision will be closed.

A special drain may be inserted into the wound to drain the fluids that naturally develop at the surgical site. A sterile bandage will then be applied, and the patient will be closely monitored. Surgery usually lasts between one and three hours, depending on individual circumstances.

Q18: What is typical recovery following joint replacement surgery?

A18: The average hospital stay after knee joint replacement is usually three to five days. Patients who undergo partial knee replacement typically experience less postoperative pain compared to total knee replacement, and may leave after one to three days.[9] The vast majority of people who undergo partial knee joint replacement surgery see notable improvements approximately six weeks after surgery.

After knee joint replacement, people are standing and moving the joint the day after surgery. Patients may begin by walking with the help of parallel bars, and then they must use a walking device until their knee can support their full body weight. After about six weeks, most people are walking comfortably with minimal assistance. Following physical therapy and full restoration of muscle strength, people who have had knee joint replacement surgery can enjoy most activities (except running and jumping) (WebMD), although each patient's situation is unique and it is important to follow your surgeon's and therapist's instructions as to what activities are suitable for you.

Q19: What are the risks of joint replacement surgery?

A19: While uncommon, complications can occur during and after surgery. Some complications include, but are not limited to, infection, blood clots, implant breakage, malalignment, and wear, any of which can require additional surgery. Although implant surgery is extremely successful in most cases, some patients still experience stiffness and pain. Factors such as the patient's activities and weight can affect longevity. Patients considering joint replacement should ask their doctors about all potential risks. Additional information can be obtained at www.biomet.com.

*A partnership with Materialise N.V.

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[1] Lombardi, AV. Et al. "Patient Specific Approach in Total Knee Arthroplasty." OrthoSuper Site. Available at http://www.orthosupersite.com/view.aspx?rid=31419. Accessed January 23, 2012.

[2] Data on file at Biomet. Note: bench test results do not necessarily indicate clinical performance.

[3] Deshmukh, RV, Scott, RD. "Unicompartmental knee Arthroplasty: long-term results." *Clinical Orthopedics and Related Research*. 2001; 392:272-278.

[4] Murray, DW. "Mobile bearing Unicompartmental knee replacement." *Orthopedics.* 2005:28:985-987. Orthopedic Network News (July 2007).

[5] American Academy of Orthopaedic Surgeons. Unicompartmental Knee Replacement. Available at http://orthoinfo.aaos.org/topic.cfm?topic=A00585

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[7] Murray DW. Mobile bearing unicompartmental knee replacement. Presented at the Knee Society Specialty Day Meeting. March 13, 2010. New Orleans.

[8] Price, A.; et al.: "Ten-Year In Vivo Wear of a Fully Congruent Mobile Bearing Unicompartmental Knee Arthroplasty," *AAOS*, Paper No. 58, 2004.

[9] American Academy of Orthopaedic Surgeons. Unicompartmental Knee Replacement. Available at http://orthoinfo.aaos.org/topic.cfm?topic=A00585.