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NEW MATERIALS OFFER GREATER OPTIONS FOR HIP AND KNEE REPLACEMENTS

PEABODY, MA, Nov. 16, 2006 – A new generation of materials is expanding the options for people considering joint replacement surgery of the hip and knee. Nearly 400,000 hip replacements and 500,000 knee replacement surgeries take place in the U.S. each year. If you or a loved one is considering knee or hip surgery, the good news is that these new materials can potentially result in greater joint stability, earlier weight bearing and extended wear.

Knee replacement surgery is generally recommended for patients with severe knee pain and disability caused by damage to cartilage from rheumatoid arthritis, osteoarthritis or trauma. The knee joint components consist of the lower end of the thighbone (femur), the upper end of the shinbone (tibia) and the area behind the kneecap where the two bones connect (patella).

In a total knee arthroplasty (TKA), the diseased cartilage surfaces of the thighbone, the shinbone and the kneecap are replaced by prostheses made of strong metal alloys and high grade polyethylene, while connecting ligaments and muscles remain intact. In knee replacement, cement provides an immediate bond and allows earlier weight bearing and progressive activity. This surgery is highly successful in relieving pain and restoring joint function.

As with the knee, hips can also be damaged by arthritis, as well as by a fracture and other conditions. One of the largest weight-bearing joints in the human body, the hip consists of a ball at the top of the thighbone, and a rounded socket that is part of the pelvis. A smooth cover of articular cartilage on the ball and socket provide a cushion for the bones and allow them to move smoothly. In hip replacement, the head of the thighbone is replaced with an artificial head or prosthesis, and an artificial cup is inserted into the pelvic socket.

“Many different materials have been tried over the past 40 years with the goal of making the prosthetic joint last longer. We have seen significant improvements in the ability to attach the prosthesis to bone. Today, we can take advantage of new materials to address the problem of ‘wear debris’ within the joint itself that caused loosening and required a repeat replacement, or ‘revision’,” said William Murzic, M.D., a principal at New England Orthopedic Specialists.

In the past, joint replacement materials consisted of a prosthetic head made of chrome cobalt metal, and a metal cup socket lined with polyethylene. According to Murzic, metal on polyethylene joints were the “gold standard” in hip and knee arthroplasty for many years. However, while many prosthetic joints lasted 15 years or more, some failed due to wearing down of the polyethylene.

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Surgeons today can now use sockets lined with a new highly cross linked polyethylene. In lab testing, this material has demonstrated more than 10 times the wear resistance of standard polyethylene. While this material is still new, it is expected that it will perform equally well in actual patients.

Improvements have also been made in joints that are metal on metal, in which the socket is lined with the same chrome metal as the ball, and in ceramic joints, which consist of a ceramic ball that rubs against a ceramic liner within the cup. Improvements have also been made in the quality of the ceramic being used today. The newer materials offer another advantage for hip replacement, since a larger ball can be used, resulting in greater joint stability and reducing the possibility of dislocation.

While recovery time is not directly affected by the materials, the use of metal implants in hip arthroplasty that require no cement produce a better adhesion with growth of the bone into the prosthesis. "The bone grows into the metal and holds it in place," said Murzic. The use of bone growth instead of cement in hips provides a longer lasting bond especially in younger patients.

"Improved design of the prosthesis has also resulted in benefits such as earlier weight bearing. For example, advances in the geometry or shape of the hip prosthesis allow an 'instant fit.' The patient can walk within days, rather than weeks," said Murzic.

Which joint material is right for each patient is determined by the surgeon. At New England Orthopedic Specialists, x-rays are digitally templated to determine which total hip or knee product, and what size, will be a perfect fit. The software for this industry-leading ability to virtually fit each patient for the perfect implant before surgery was developed through a collaboration between Murzic and a firm in Israel. By using this advanced technology, the prosthesis has been virtually fitted to the patient's bone structure before the operation begins.

Located in Peabody, Massachusetts, New England Orthopedic Specialists (formerly Orthopaedic Trauma and Reconstructive Associates) is the premier orthopaedic care center in northeast Massachusetts. The practice is committed to providing patients with the most current, sophisticated, technologically-advanced treatments for virtually any orthopaedic need. New England Orthopedic Specialists is comprised of a diverse team of fellowship-trained, highly experienced and Board-certified physicians, each of whom focuses on a well-defined subspecialty within orthopedics. For more information, contact New England Orthopedic Specialists at 978-531-0800.

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