

Technologies Help Precisely Restore Function to Arthritic Knees: Advanced Relief for Those Aching Joints

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Do your knees slow you down? Osteoarthritis or “wear and tear” arthritis is the most common type. Joints surfaces are covered by cartilage, smooth tissue that allows motion with minimal friction. The cartilage can wear, like a tire, leading to exposed bone, causing: pain, swelling, stiffness, deformity, grinding, catching, giving-way and weakness. Individuals reduce their activity levels to the tolerance of their joints. Symptoms can be insidious or acute. Either way, your knee can’t keep up.

What to do? Mild arthritis often responds to anti-inflammatories, acetaminophen, therapy (non-impact exercises, rest, ice), cortisone or visco-supplementation injections and possibly arthroscopy when there is an associated meniscus tear. When these remedies fail, the arthritis progresses and your function declines, it is time to consider alternatives.

When the arthritis involves all three compartments of the knee, a total knee arthroplasty is indicated. Fortunately, several technologies have emerged that markedly improve our ability to precisely restore knee function. Computer navigation utilizes GPS-like sensors to give the surgeon real-time data on the alignment of the extremity and positioning of components. With MRI based patient-specific guides, a custom mold of the knee is fashioned after component position is idealized on the computer; providing reference points so the surgery can be performed precisely. In addition, the balance of the ligaments on both sides of the knee is critical to function. Force measurement sensors are placed into the joint and the forces on both sides of the knee are balanced. These technologies facilitate a knee replacement that is precisely aligned and balanced, yielding a natural-feeling knee.

When only one or two compartments are involved, a robotically-assisted partial knee replacement can resurface just the arthritic part, leaving the ligaments and uninvolved compartments intact. Partials require precise placement for optimal function and durability, difficult to achieve using traditional techniques. Robotic technology yields consistent results: CT data creates a 3-D model of the knee. Components are ideally positioned in this virtual computer world. The surgeon assesses how tight or loose the knee is straight and bent. The components are virtually adjusted again so the knee is balanced. The robotic arm allows the surgeon to precisely prepare the bone to be resurfaced with the partial knee components, exactly as planned on the computer. This is done with a minimally invasive approach. Patients often go home the same day. The results are a more naturally functioning knee. See www.douchis.com for more info.

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