

## The Surgical Management of Knee Arthritis

Website information

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The onset of a stiff and painful knee was once considered a necessary evil of aging or the consequence of an active life well-lived. The spectrum of knee arthritis ranges from the occasional aches and pains to its most severe forms with unremitting pain and compromised mobility. The discomfort of the degenerative process commonly begins to creep insidiously into a person's life in their latter years and may thereafter profoundly impair the quality of life. Fortunately, modern medicine now offers several regimens for the relief of knee pain. The majority of patients with mild symptoms are effectively treated with a conservative regimen of lifestyle changes, physical therapy, injections and anti-inflammatories.

The management of advanced knee arthritis, however, requires a more aggressive approach. Over time, a subset of patients will continue to suffer from pain and worsening of disease despite even the most effective medical management. These patients may instead achieve a dramatic improvement in symptoms through surgical means. Options include osteotomy, the Unispacer, and unicompartmental and total knee replacement. The task of the health care team is to match the optimal procedure to the patient. Just as each patient is unique, so is their disease process, and it is therefore essential to tailor surgical treatment to the individual. The decision making process itself is quite sophisticated, but can be simplified for the sake of discussion into those procedures that realign the knee and those that replace the damaged cartilage.

Osteotomy is an option which may be ideal for the young active man who wants to continue participating in competitive sports or heavy labor. In this procedure, the surgeon cuts and realigns the bones around the knee in order to shift weight from the diseased half of the knee to the healthier side. Although postoperative rehabilitation may be lengthier, there are few if any activity restrictions for the individual once healed. Osteotomy has a long history of success, but is notable for a slightly increased risk of persistent aches and a recurrence of symptoms over time. A minority of patients will benefit from eventual conversion to total knee replacement years later.

An exciting new alternative also designed to realign the knee is the Unispacer. Although intended to shift weight like an osteotomy, it does not require any bone cuts. Rather, a unique self-centering metal bearing is inserted through a small incision into the diseased half of the knee. Knee mechanics are effectively rebalanced, and the implant provides a smooth gliding surface to enhance knee motion. Recovery may be expedited, and patients may return to a moderately active lifestyle. Although the indications and durability of the Unispacer are still being defined, the ideal patients are thought to be those with isolated early arthritis and minimal deformity who wish to defer knee replacement. Future total knee replacement is still readily possible should the need arise. Early surgical experiences are encouraging, but investigative work continues and the procedure is available only through specially trained surgeons.

The past several years are remarkable for a resurgence in the popularity of unicompartmental knee replacement. To review, the knee is compromised of three major compartments. In moderate stages of arthritis, often only one of these is severely effected. Unicompartmental knee replacement (or partial knee replacement) targets resurfacing of only the damaged area while preserving healthier portions of native cartilage and ligaments. The procedure has been widely available for over 30 years, but ongoing advances have recently yielded dramatic improvements in biomaterials, the development of minimally invasive surgical techniques, and a clearer understanding of the ideal patient. The best candidates are those close to their ideal body weight with isolated knee arthritis, localized pain, minimal deformity, good motion, and without an associated inflammatory disease. Studies in these patients have found that unicompartmental knee replacement offers predictable pain relief, quick recovery, improved motion and may last as long as traditional total knee replacement.

Perhaps among the most significant medical developments of the 20<sup>th</sup> century is total knee replacement. Patient after patient will often attest to the dramatic improvements in their lives after surgery. Even in the most painful end stages of arthritis, total knee replacement offers the hope of pain relief, improved walking and stair climbing, and restored function. Conceptually, total knee replacement involves excision of the painful arthritic surfaces and restoration of the knee's normally smooth contours with highly polished metal alloys and plastic. Unlike the other procedures described above, total knee replacement is widely applicable for appropriate candidates of nearly any age, size, or severity of disease. After successful surgery, patients may return to work and are even

encouraged to engage in low impact recreation such as golf, doubles tennis, swimming and cycling. In contrast to popular misconception, the implants are quite durable, with up to 95% of knee replacements lasting beyond 10 years.

Clearly, any decision to proceed with surgery is significant and mixed with both hope and anxiety. Surgical alternatives are appropriate when medications and life-style modifications fail to provide relief. Fortunately, ongoing advances in knee arthritis surgery have yielded technological breakthroughs and an ever expanding array of treatment options, and these surgical alternatives available are safe and predictable in our hands. Patients need to be informed - they need to be aware of their disease process, their prognosis, and their options. A detailed discussion regarding the risks and options of treatment is critical.