



# HealthTALK

## Minimally Invasive Total Joint Replacement

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Over the past few years, innovations in technology and surgical approaches have made it possible to perform total joint replacements through very small incisions. Total joint replacements have been performed for decades using standard incisions (eight to twelve inches) with excellent results. Other areas of orthopedic surgery have benefited from minimally invasive techniques, most notably sports medicine and arthroscopy. The success of these newer techniques has prompted surgeons subspecializing in joint replacements to pioneer new methods of implanting artificial joints through small incisions.

four inch incision. These unicompartmental knee replacements have become very popular because of their rapid recovery. However, not all patients are candidates for partial joint replacements. Therefore, surgeons have been working on methods to implant total knees through smaller incisions. More progress has been made with hip replacements. Modifying a standard posterolateral approach, a three to four inch incision can now be used. A newer method involves making two incisions: a two inch and a one inch. However, this method requires more training and is considerably different from conventional techniques.

replacement. No long term published data is available comparing the new techniques with traditional joint arthroplasty. The data that is available comes from the most experienced surgeons who typically perform hundreds of replacements each year. The new methods require additional training and in some ways are more difficult to perform. Obese patients are not good candidates for minimally invasive surgery. It is not known whether or not all orthopedic surgeons would be able to implement these new methods with the same success as they have enjoyed using these standard incisions. The most important surgical factors in long term success of joint replacements involve alignment and fixation of the components. If utilizing small incisions compromises alignment or fixation, then the joints will fail prematurely.

Joint replacements typically are used for the treatment of advanced degenerative joint disease which includes osteoarthritis and post-traumatic arthritis. While less common, inflammatory or rheumatoid arthritis often leads to total joint arthroplasty. A joint replacement consists of replacing worn out cartilage and bone on either side of a joint with metal and plastic parts. The metals used are cobalt chrome and titanium, and the plastic is high molecular weight polyethylene. Like a normal joint, the metal and plastic surfaces provide a low friction bearing surface. Since there are no nerves in metal or plastic, the pain caused by arthritis is alleviated.

Using smaller incisions has many potential benefits for patients. The obvious cosmetic benefit - less scarring - is only one aspect of the advantages. In addition to smaller skin incisions, the minimally invasive techniques require less muscle dissection. This has the effect of decreasing post-operative pain and speeding post-operative recovery. Other potential advantages include less blood loss and shorter hospital stays. The medical information available on the internet and through marketing has created public awareness and demand for these new techniques even though the long term outcome of joint replacement is not dependent on the size of the skin incision.

Total joint replacements are one of the most successful medical treatments for arthritis. Manufacturers have worked for years to improve the quality of the implants available. Academic surgeons have published techniques and taught courses to aid in successful outcomes. Minimally invasive joint replacements are the most recent addition to these techniques. However, time is needed to determine whether the benefits of this surgical technique outweigh its potential risks.

A number of years ago, orthopedic surgeons began replacing a portion of the knee joint through a three to

four inch incision. However, several questions remain regarding the safety and efficacy of minimally invasive total joint

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