

## Joint Replacement Surgery

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Before the advent of replacing worn out joints, patients left crippled from injury, disease or infection would live with the problem or face a joint fusion. A joint fusion, also known as an arthrodesis, provided a pain free joint, but functionally left some patients with a poor result due to loss of motion. Despite this drawback, arthrodesis is still performed in certain joints in specific clinical situations.

The loss of motion following a fusion, especially in the hip and knee, became the impetus of the early pioneers of joint replacement surgery. The hip and knee joints were the main focus of attention because of their importance in ambulation. Eventually the shoulder, elbow, wrist and finger joints would become areas of interest. A better understanding of joint biomechanics and utilization of different materials paved the way for an improved joint replacement procedure.

The goals of joint replacement are something that has not changed: elimination of pain, restoration of function and achieve consistent long-term results with as little side effects as possible. Although patients tend to focus on specific aspects of joint replacement surgery, when considering this procedure they should keep the big picture in mind. For example, are you a candidate for replacement surgery? Have conservative measures failed? As it pertains to knee replacement, do your x-rays show a degree of degenerative changes that would require total joint replacement, or should you consider a partial replacement? During the early stages of arthritis patients should try conservative measures such as medications, injections and modification of activities. The timing of surgery is important in the management of a patient with arthritis.

If patients fail conservative treatment, then joint replacement may be considered as an option. However, joint replacement is a major surgical procedure and therefore requires a complete and thorough medical evaluation before surgery. It is very important for all patients considering this surgery to have a clear understanding of the indications and expectations of hip or knee replacement.

Typically this type of surgery is done as an inpatient, and although some physicians/hospitals perform this surgery as an outpatient, I really see no advantage of this. Before surgery many patients are concerned with their recovery time, which I tell patients should be approximately 6—8 weeks to be 80% recovered. During this interval, physical therapy and overall recovery from surgery should be your major concern. Also, please remember that we all react differently to surgery. Try not to burden yourself by comparing your recovery or results to that of a friend, relative or neighbor who reportedly had a knee replacement and was playing golf in two weeks.

The big question in joint replacement was and still is what material should the prosthesis be made of? Historically these materials have included stainless steel, titanium, trabecular metal (tantalum), ceramic, and polyethylene to name a few. Also, the method of fixation of the prosthesis to the bone has been an important concept in total joint replacement. One major development in total hip and knee replacement was the utilization of acrylic cement (polymethylmethacrylate) for fixation of the prosthesis. To this day, cement fixation is commonly used in total knee replacement.

One question I am often asked before surgery is how long will my replaced joint last? The answer to this question, which represents the core of the research and

development of the procedure is related to three factors: 1) materials 2) fixation and 3) technique. Materials have improved to the point that wear and breakdown of the bearing surface has been significantly decreased. Fixation has improved due to multiple factors including improved cement and cementing techniques. Non-cemented fixation, currently more commonly seen in hip replacement, is improved due to a combination of design and materials which allow better bone ingrowth. Techniques of joint replacement have seen considerable change ranging from improvement of old school styles to a return to previous approaches and even development of new approaches. Long-term results show that patients can expect a survivorship of the prosthesis of approximately 15 years. However, with improved materials such as more durable plastic and better design, the longevity should increase.

Following successful joint replacement surgery, patients should expect less pain and improved function. Post-operatively, physical therapy is indicated almost routinely and I think universally appreciated by the patient. Results following joint replacement are not guaranteed, but are very good in the majority of patients. Although complications do occur, they are uncommon.

Patients who understand this procedure and have reasonable expectations will do well.

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