Advances in Joint Replacement
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Total hip and knee surgeries are among the most successful procedures performed in all of medicine. Studies have been performed which show these surgeries improve quality of life more substantially than any other procedures. By far the most common indication for a joint replacement is osteoarthritis, a condition where the cartilage covering the ends of the bones in a joint wears out. Osteoarthritis can be caused by a congenital defect or trauma, but most commonly it is simply caused by "wear and tear" in people with a genetic predisposition. In other words, some people are prone to osteoarthritis because their parents and/or grandparents had it.

After failing conservative treatment such as anti-inflammatories and/or injections, total hip or knee replacement may be recommended. During the surgery, the ends of the bones which lack cartilage are covered with metal and plastic and the pain caused by the "bone on bone" is gone when the patient wakes up in the recovery room. The surgical pain then takes a while to subside, but when it does, patients typically are no longer limited by pain in that joint. A well designed implant put in place by a skilled surgeon in the proper patient is a life changing procedure. The remainder of this article is directed at that specific situation.

Total hips and knees have been performed for over 40 years and we have made significant advances during that period of time. Initially, fixation to the bone was an issue but it is seldom a problem with today's implants. In the USA, the majority of knees are fixed to the bone with acrylic cement and the majority of hips are designed for bone on growth without cement. Loosening due to implant design is rare. Typical implant materials used today almost never break and are chosen to give the greatest longevity to the implant system. The articulation is an area of controversy – though less today than several years ago. One side of the joint – the ball in the hip joint and the end of the femur, or thigh bone, in the knee is almost always metal though it can be ceramic. The hip socket is usually metal with a plastic liner and in knees, the metal plate on top of the tibia, or leg bone, has a piece of plastic which is locked onto it and this plastic in both joints can wear out. Some of the most significant advances in the past few years have centered on making the plastic as durable as possible.

In the 1990's some of the plastic wore out at an alarming rate and efforts were directed at replacing the plastic with metal or ceramic in hip replacements. While lab studies were very promising, these articulations had their own set of problems – some worse than the problems they were designed to solve. Ceramic on ceramic hip implants can work extremely well but can also fracture or squeak. Metal on metal implants had a higher rate of persistent pain as well as inflammation caused by metal particles. Most joint surgeons have returned to either metal or ceramic on plastic in hip replacements and continue to use metal on plastic in the knee. A potentially promising procedure, hip resurfacing, has also been abandoned by many joint surgeons due to its metal on metal articulation and less predictable results than total hip replacement. During a hip resurfacing, an all metal socket is placed and articulates with a metal cap on the end of the thigh bone. It saves a some bone but requires more soft tissue dissection to implant. It was discovered in the late 1990's that the way that plastic for joint replacements was being sterilized led to high rates of early failure. Sterilization methods today are much improved and are no longer an issue. Improving the strength of the plastic through various methods has been promising and it is anticipated that the plastic used in most hip and knee systems today has a realistic chance of lasting 20 years of longer if the joint is implanted properly and the patient doesn't abuse the joint.

The post-operative physical therapy regimen has a significant impact on how quickly a patient recovers from a joint replacement. Several surgical approaches to the hip, including the mini-posterior and anterior supine have similar results if a similar physical therapy protocol is employed. The two incision technique, which was popular several years ago, has largely been abandoned due to complications. Older incisions, like the antero-lateral, which take down large areas of important muscles around the hip, are becoming obsolete. Due to being such a large joint, approaches to the knee need to be relatively larger in order to place the implants in properly. In summary, most total hip and knee implants today are well designed and, put in properly, should give the patient a much improved quality of life for many years. The most significant recent advances have included improved plastic and approaches to the joint and physical therapy protocols.

We are fortunate in our community to have many places to turn for orthopedic care. When seeking medical treatment for knee and hip pain, be sure to select the physician who is most highly qualified through advanced training in the latest techniques and in experience. Take time to ask about medical school education, areas of specialization, residency training, and experience with your particular issue. Dr. O. David Taunton, Jr. is a board certified orthopedic surgeon that is fellowship trained in joint replacement of the hip and knee. Dr. Taunton is on staff at Texas Health Harris Methodist Hospital Southlake, Bear Creek Surgical Center, Texas Health Harris Methodist HEB, and Baylor Regional Medical Center at Grapevine.

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