



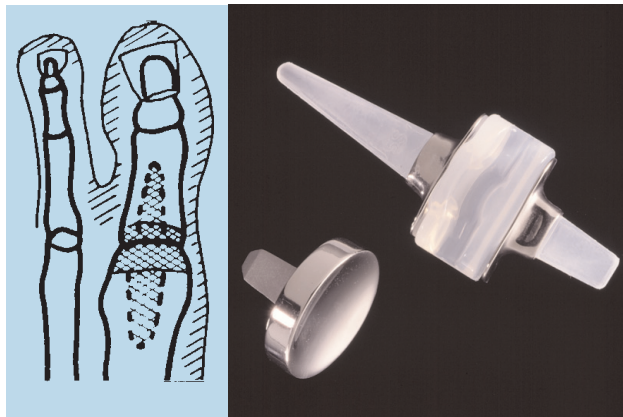
## Joint replacement can be a better alternative than living with pain.

Joint replacement surgery has been popular in orthopedic surgery for more than 35 years. Hip and knee joint replacements were the first to be tried and perfected, and are probably still the most well-known joint replacement procedures the world-over today. Joint replacement in the foot, similar in design and function to joint replacements of the hand and wrist, have been routinely performed since the late '70s.

### The Breakdown of Joints

Painful joints, more commonly known as arthritic joints, are the result of three kinds of damage according to Dr. Kenneth Leavitt:

- 1) Autoimmune diseases – such as rheumatoid arthritis,
- 2) Joint damage – such as an accident causing damage to the bone, cartilage and the soft-tissues surrounding the joint – and/or
- 3) Joint damage the result of *biomechanical malfunction* – joints that move abnormally because of malposition of the joint when it moves causing joint damage around the edges of the joint. Bunions are a prime example.



Typical joint implant.

Arthritis is most often associated with break down of the cartilage in joints, Leavitt said. Cartilage is the pearly whitish layer that covers the inside surfaces of joint to the very edge of the joint. Cartilage is a living substance, but if damaged it cannot heal itself, and it cannot be replaced.

Between the cartilage surfaces of a joint, the body's natural lubricating oil, synovial fluid, allows the two cartilage surfaces to glide against one another without friction. Since there are no nerve endings in cartilage, or in the bone beneath the cartilage. It is very common for there to be joint cartilage damage, but no pain in the joint.

### Cause of Joint Pain

Joint pain results when the tissues along the very edges of the joint become inflamed/upset and then painful. Surrounding joint tissue can become inflamed because of diseases such as rheumatoid arthritis. Rheumatoid arthritis

can cause cartilage and bone damage around the edges of the joint. Most commonly, if the cartilage along the edges of the joint wears away because of poor joint position (bad *biomechanics*), and/or there is a crack in the cartilage and underlying bone (joint damage can also cause bad biomechanics), the bone along the edges makes contact, grows bone spurs, which then pinch the tissue around the joint causing inflammation and pain. It is at this point that a joint replacement will help stop pain.

### Joint Replacement in the Foot

When does a joint need to be replaced? The first answer to that question is “*never*”, according to Dr. Leavitt. Joint replacement



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# FootCare Update



## Joint Replacements (continued)

surgery is “elective”, meaning that joint replacements were designed and are performed to enhance the quality of life. Joint replacement is never mandatory, Leavitt said.

Unfortunately, most joints of the feet when damaged and painful cannot be replaced. They are not simple joints like the hip, knee and shoulder. When most foot joints become damaged and very painful, the joint is removed and the bone ends fused together. BUT, the most common joints in the feet that become arthritic can in fact be replaced.

Improvements in design and the strength of materials have produced foot joints that can last up to 20 years or longer, providing excellent relief from pain, and joint motion that allows the foot to function well.

The most common joint replacement in the foot is the Big Toe Joint. The Big Toe Joint, the first metatarsal phalangeal joint, gets the most wear and tear of any joint in the foot except for the ankle joint. The second most common joint replacement in the foot is in the joints of the less toes, the lesser Metatarsal Phalangeal Joints. And thirdly, the Ankle Joint Replacement, with its most recent design, the Agility Ankle from Johnson and Johnson Depuy, has come into common use beginning in the early 1990's.

## Big Toe Joint Replacements

In the early 1970s, the first big toe joint replacements were made of rigid silicone polymer, the same as that used in breast implants, only much firmer. Though often used in patients with severe rheumatoid arthritis (“RA”) and older patients who are not very active, the use of silicone joint replacements in the Big Toe Joints has not been common since 1985. Though firm, they will break apart and fragment into small pieces in patients who are very active. Dr. Leavitt still routinely uses silicone joint replacements in young and old alike who have RA, regardless of age.

The most common Big Toe Joint replacement is the partial joint replacement, the **hemi-titanium joint** (*hemi= half joint*). This type of replacement removes one part of the arthritic joint and replaces it with a metal that the body is fooled into thinking does not exist. This joint replacement acts like a “spacer”, as if the space where the joint was formerly arthritic, was occupied by a vacuum. This spacer keeps bones from rubbing against one another.

The other Big Toe Joint replacement, less commonly used, but very, very effective for big toe joints that are all but destroyed, is the **total joint replacement**. The total joint replacements are composed of two metal pieces that replace both sides of the joint with a wafer of very rigid plastic in between. The tissues which surrounded the bad joint still produce lubricating synovial fluid, fluid that allows the exposed metal side of the joint replacement to slide effortlessly over the plastic side.

## Is a Joint Replacement Appropriate For You?

Dr. Leavitt has been doing joint replacement surgery for 20 years. During that time the science has progressed from the days when only silicone joints were used to when he inserted his first titanium joint replacement in an active 40 year old nurse in 1988, the first doctor to use this technique in the Boston area. With a proper evaluation and most importantly a new set of x-rays, Dr. Leavitt will be able to provide a solution for a painful arthritic joint.



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