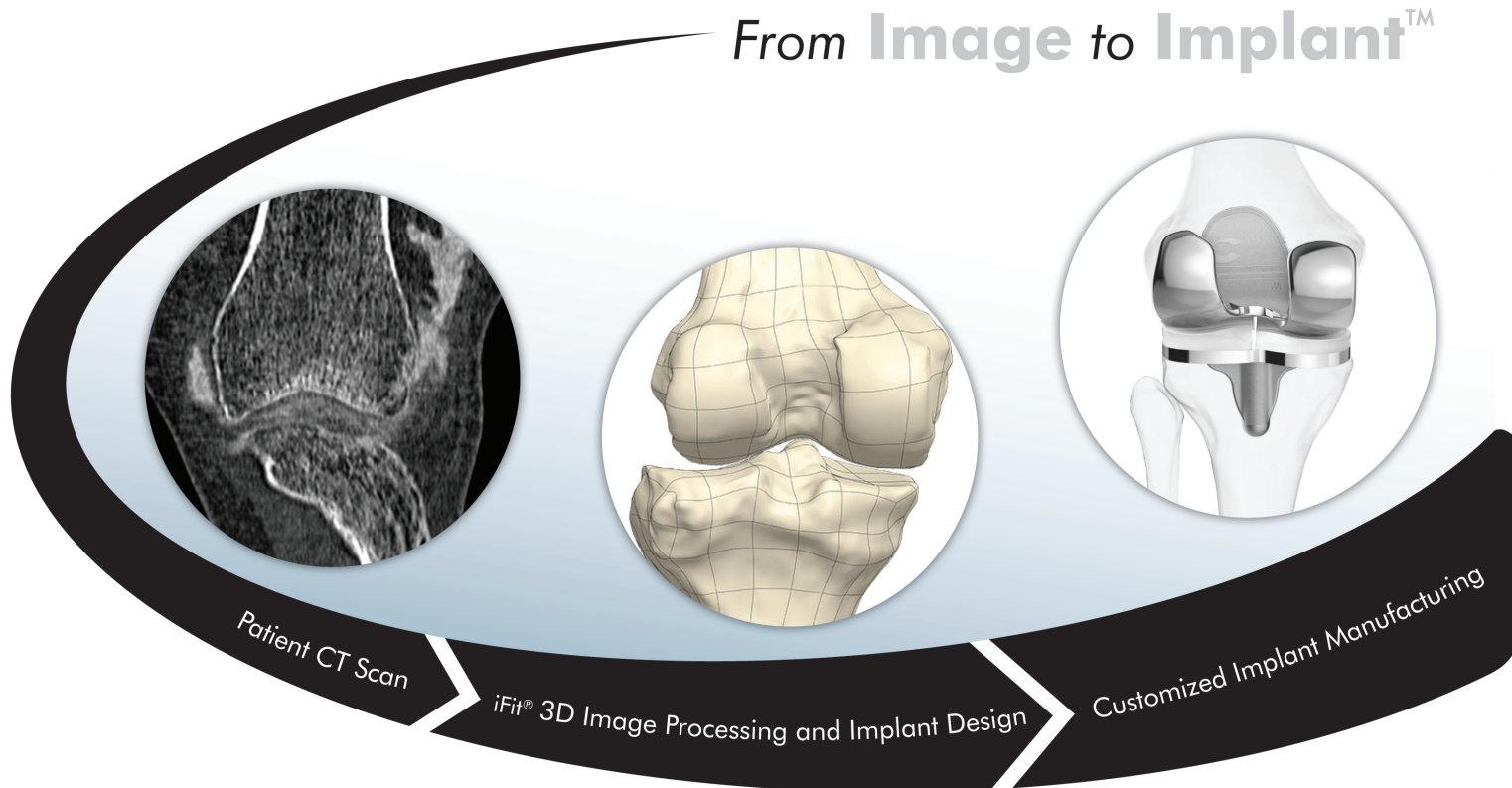


## From Image to Implant™



## The Perfect Fit—Customizing Your Knee Replacement Surgery

By Dr. Richard G. Buch

People living with advanced knee arthritis often experience severe pain when climbing stairs, exercising or even just walking. Medication, physical therapy, and injections are commonly prescribed to treat the pain associated with arthritis, but these options often provide only short term or partial relief. For many patients a knee replacement is the only option left.

There are only two different types of knee implants available: “off-the-shelf” standard implants that are premade or customized implants that are produced individually to fit a specific patient. Standard implants are the most commonly advertised knee replacements. Understanding the differences between these options can help patients better prepare for a discussion with your physician about knee implant surgery.

### Off-the-shelf implants

Off-the-shelf knee implants are manufactured by the majority of companies, and were for many years the only

type of implant available. Most off-the-shelf knee implants are manufactured in a range of sizes—usually with six or seven size options. Because every knee has a unique size and shape, surgeons have to take steps to try to fit off-the-shelf knee implants to a patient’s knee. To do this, surgeons must surgically remove more of the patient’s healthy bone and tissue. Even with these steps, surgeons are often unable to align an off-the-shelf implant precisely for a perfect fit. In many cases, the implants are slightly wider or narrower than the patient’s surrounding bone. Even minor differences in fit can affect knee function and studies show this occurs in 20-25% of patients, causing pain, stiffness, swelling, and loss of motion.

### Customized implants

In recent years, a company called ConforMIS introduced customized knee implants. Each implant is developed based on a CT scan of the patient’s own knee. The scan is first used to develop a full 3D map of the knee. Using 3D printing, ConforMIS then produces a precise wax implant mold. This mold is then used to form the metal components of

the implant. With this process, the resulting implant is an “exact match” for the shape and size of the patient’s natural knee.

With this process, the instruments used in surgery are also customized to each patient. ConforMIS uses the data from the CT scan of the knee to produce all of the cutting and positioning instruments that the surgeon will need to implant the knee. These instruments are designed for use in only your knee.

A customized implant replaces your own natural anatomy. This reduces the ill fit that can occur with standard knee implants. As a result, many patients report that they experience less pain and a faster and fuller recovery. Patients also say that the custom implant feels like their normal knee. All knees are different in shape and size, yet patients are still having an off-the-shelf product implanted in their knee. With ConforMIS implants we can recreate the natural knee.

### Recovery after knee surgery

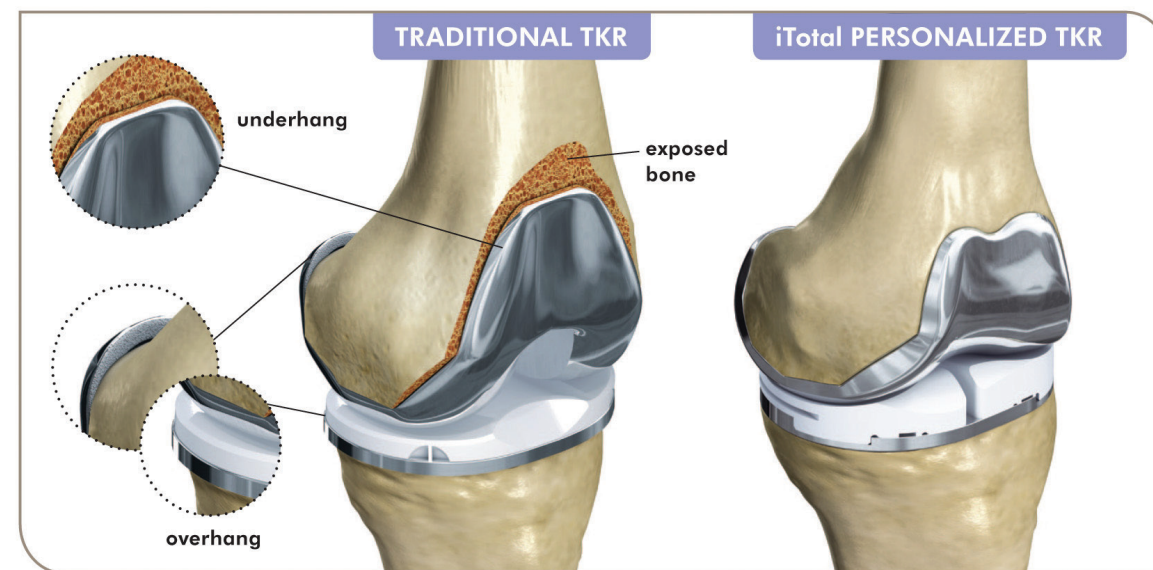
Short-term recovery after knee replacement surgery is defined as the time it takes for a patient to walk without assistance or pain. For many patients, short term recovery after total knee replacement surgery with an off-the-shelf implant can take up to 12 weeks or more. With the use of customized implants, some patients report that they are able to walk without assistance or pain in as little as two to six weeks. Recently I completed a bilateral knee replace-

ment procedure for Donald Plum who was living with severe pain in both knees for many years. Before surgery he experienced periods of pain where he was unable to stand or walk for longer than 15 minutes. Following surgery, where we replaced both of his knees with ConforMIS customized implants, he was able to walk again without assistance or a cane after only two weeks.

### Long lasting benefits

Knee replacement surgery is an important option for many people who want to remain active and continue to work and enjoy life to the fullest by eliminating pain due to arthritis in the knee. Often people delay making a decision about surgery because they are concerned about pain and recovery time. With customized knee implants, patients may be able to regain their full range of motion, walk without pain and return to their normal routine faster. Because a customized knee implant typically fits better than an off-the-shelf implant, it may also be able to function for a longer period of time, potentially reducing the need for repeat surgeries in the future. If you are living with severe knee pain and are a candidate for knee replacement, a customized knee implant might be a great option for you. For more information, please call my office at 469-443-0924 or visit [www.dallaskneecare.com](http://www.dallaskneecare.com).

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*The ConforMIS approach makes sure that your implant is made to fit you precisely, avoiding sizing and fit issues common to standard total knee implants.*