

*CUSTOM IMPLANTATION AVAILABLE TO REPLACE PART OR ALL DAMAGED PARTS OF YOUR KNEE...*



## **LESS PAIN AND FASTER RECOVERY WITH CURRENT ADVANCES IN TOTAL KNEE REPLACEMENT SURGERY**

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Dr Lawrence Schrader founder of Midsouth Orthopedic Associates first introduced Partial or Unicompartmental Knee Replacement (PKR) to the Southeast US twelve years ago. This has been highly successful and following his lead, many Orthopedic surgeons in the region have become qualified to perform this procedure. In addition to that procedure now Dr. Schrader is the first Surgeon in the area to use the Custom Fit Knee Replacement with Otis Knee which offers similar benefits of less tissue damage and blood loss and rapid recovery with less pain and less physical therapy needed. How this works will be outlined in this article.

### **KNEE ARTHRITIS AND SURGERY**

Presently about 500,000 people will have knee replacement surgery this year. Studies show that this number will increase dramatically over the next ten years. Unfortunately many who can benefit from this highly successful surgery are afraid to have it. Total knee replacement is “perceived” as a last resort because it is a big operation with a lot

of blood loss which can require a week in the hospital followed by a nursing home or rehabilitation center and months of painful therapy. This is not true. Of course there are anecdotes of people with poor results which worsens this perception. Knee replacement surgery is first of all a Quality of Life procedure, and is to treat arthritic knee pain that limits your ability to do or enjoy normal daily activities or common recreational activities including hiking, swimming, golf, and even light tennis or skiing. If you have these symptoms and your X-ray shows arthritis, then resurfacing the damaged part of the joint can restore pain free or near pain free function. Next you need to know how big the surgery is, and how painful it may be. Finally you want to know how fast recovery is and how long the replacements will last. That will determine if the operation is right for you. In general you will want to know your doctor’s experience and success with other patients.

### **LESS IS MORE**

Osteoarthritis or “Wear and Tear” arthritis is when the rubbery cushions in the ends of the bones of the joint become worn down because of age and or injury.

Eventually the cushions are so thin that they are ineffective and it hurts to bear weight or be active. Most people only wear down one side (usually the inside but not always) of the two weight bearing parts of the knee, and this can be seen with standing X-rays (your doctors should be able to show you this). Some people when first seen have wear on both sides of the knee to some extent. There are different operations needed to replace the worn out cushions and resurface your knee depending on what is worn. If only one side of your knee is worn and the other is not, then it is sensible to only replace the worn part. Dr Schrader was the first in the Midsouth to do this with a smaller approach the he learned 13 years ago from Dr Repicci in Buffalo, New York. By limiting the surgery to only half the knee, a small incision of 2-3 inches is all that is needed. Since the kneecap (patella) is not dislocated and no ligaments are cut, patients routinely can walk and bear weight immediately. There is little pain or blood loss (aided by special techniques) so that most patients would be safe to go home that day. Traditional physical therapy is not needed and patients do simple home exercises. Part of the success of this new way of

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doing a partial knee is that the surgeon actually sizes and fits the new implants to your ligaments restoring, your knee to its natural God given alignment not some laboratory “average”. This is Anatomic Balancing of your knee and produces less pain and swelling with more rapid return of motion . This also restores your kneecap alignment to your “Normal.”

Most long term studies show that partial knees have a success rate of about 90% at 10, 15, and 20 years just as total knees do. If a partial knee does fail, it can generally be replaced with a traditional Total Knee with a standard operation.

## TOTAL KNEES MADE BETTER

Now these principles are being applied to Total Knee Replacement (TKR). Traditional TKR is done through a much larger incision. The kneecap must be dislocated to get to the whole knee. This may cause much of the pain afterward. Typically long metal guide rods are placed through holes in the end of each bone and are used to apply large metal guides that are set to “average” alignment. The bone is measured for size, and the ends of the bones are “shaved” to fit the new pieces. The surgeon uses his or her judgment to adjust a few of these, but the guides determine the rest based on the average bone. The pieces generally fit well but when the new cushions are applied, the ligaments are either too tight or loose on either side and the general solution is to cut what is tight to balance the knee. While the new knee is applied to the bones well, it does not match your normal knee alignment, so ligaments are cut to make you fit the new knee. Clearly this might be expected to cause pain and make return of motion difficult,

including how your kneecap works. Typically after surgery up to several units of blood are lost, which infrequently will require transfusion. Discharge averages 4 days and therapy is often forceful and painful which may be attributed to the cut ligaments or kneecap. Each surgeon approaches this differently.

## COMPUTER ASSISTED CUSTOM IMPLANTATION

You might think computerized or robotic surgery in the operating room could be used to fix this, but this is expensive and slow and still relies on surgeon “judgment” to prepare the knee. Results have not produced better alignment or function, and these are based on average or ideal bone position and do not solve the ligament problem.

Now we have a useful way to have the computer assist us. We can actually have the computer model your knee and build a useful, patient specific guide that the surgeon can use to accurately resurface your knee to its normal position based on your ligaments. Using the OTIS KNEE TECHNIQUE we now have a way to custom fit a total knee to you, and only you, just like the partial knee.

## HOW DOES IT WORK?

First an MRI scan is taken of your arthritic knee. I have been using the OTIS KNEE TECHNIQUE which is presently the first and the only system to use ligament or anatomic alignment for your knee. With the scan, the computer makes a 3-dimensional model of your arthritic knee. Then it rebuilds it back to your “Normal” by removing bone spurs and calcium deposits and filling in bone and cartilage defects to restore

your knee with ligaments intact. Now, the computer can build a guide that fits on your arthritic knee and allows the surgeon to shave off the precise amount of bone to fit your new knee in the exact position and the exact size that restore your knee to normal (custom) alignment for you. Technically, besides choosing the correct size, there are six variables that are determined for each side of the knee. So excluding thickness of the cushion, fourteen positions are determined and built into one guide at the top and one at the bottom. This process takes about 3 weeks and then the surgeon and hospital receive the custom guides.

These guides are much smaller than traditional instrumentation so that they can be used with techniques that minimize kneecap displacement. They do not require large holes for guide rods, which reduces bleeding and other complications caused by the rods. The guides fit precisely so there is no guesswork and the surgeon can proceed much more rapidly shortening surgical time. When the new cushions are applied, there are no adjustments needed to be made as the position was created to accommodate your ligaments. The final thickness of the cushion is determined and the pieces are fixed in position. The closure is generally simpler, as fewer things were surgically cut.

## NORMAL ALIGNMENT/ FASTER LESS PAINFUL RECOVERY

My patients receive a device that puts local anesthetic into the knee to minimize pain after surgery. In addition, when possible in surgery, a process is used on a small portion of your blood to extract  
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healing components that can be placed in the knee at the end of surgery to reduce bleeding and speed up wound healing. Surgery is 20 to 30 minutes faster than with traditional techniques.

After surgery, patients generally walk within a few hours bearing full weight and pain is usually minimal requiring pills rather than injections. The therapist teaches protective walking for safety and instructs in simple motion exercises

and muscle strengthening. Blood loss is monitored and has been less than with previous techniques. No patients to date have required transfusion. Typically patients are discharged home 2 days after surgery with a visiting nurse and physical therapist to monitor progress. No aggressive stretching is ordered. Generally, there is less swelling and stiffness, and only after the wound has healed and the swelling reduced would any more therapy be considered. Crutches

or a walker are used for safety only and can be discontinued in a few days to a few weeks.

## WHAT ARE THE BENEFITS?

1. Custom Fit
2. Less Pain and Blood Loss
3. Ligaments left intact
4. Less surgery time
5. Short Hospital Stay
6. Faster Recovery

## Summary:

Knee replacement is for pain due to worn cushions. Resurfacing your knee should be done to fit you, not modifying you to fit the knee. If only part of the knee is worn just repair that part. Now even a Total Knee Replacement can be made to fit you. These new techniques make knee surgery easy to tolerate and will not take 6 to 12 months of your life to recover.



## About The Author

**Dr. Lawrence F. Schrader** is a Board Certified Orthopedic Surgeon, a fellow of the American Academy of Orthopedic Surgeons, a member of The Fellowship of Christian Athletes, Christian Medical Society, and the American Academy of Disability Evaluating Physicians.

Dr. Schrader attended medical school at the University of California at San Francisco. He served in Iraq during Desert Storm as a trauma surgeon, receiving an Army Commendation. Dr. Schrader, a native Californian, lives in Memphis with his wife Kathy, and they have five sons. To contact Dr. Schrader call 901-465-4300

## New Custom Otis Knee Technique



Figure 1



Figure 2

## Traditional Instruments



Figure 3



Figure 4