



Getting Back on Your Feet

Thanks to advances in technology, people suffering from severe joint pain have an increasingly effective option—replacement surgery.

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Veteran journalist Hugh Downs and television and stage actress Angela Lansbury number among the 365,000-plus Americans annually opting for knee replacement surgery, according to data from the American Academy of Orthopaedic Surgeons. For Lansbury, years of dancing exacted their toll. Diagnosed with osteoarthritis in both knees, Downs opted for surgery, televising his bilateral knee replacement experience to millions of viewers on a 1996 segment of 20/20.

“The deterioration over a 15-year period had reached a point where if I walked seven or eight city blocks, I was ready to sit on a curb and wait for a cab because the pain was too overwhelming,” Downs told a Congressional committee in 1998. “As a result of the physical therapy and continuing regimen, I recovered muscles that had atrophied over the years, notably quadriceps, and the pain, of course, disappeared almost instantly. After 10 months I found I could run upstairs again. That’s something I hadn’t done for 12 years.”

When knees become severely damaged by arthritis or injury, even routine activities such as walking, shopping, or climbing stairs can be very painful experiences. After medications, weight loss, or other lifestyle modifications fail to alleviate the condition, total knee replacement surgery can help many resume normal activities.

Considered one of the most important surgical advances of the century, knee replacement surgery was first performed in 1968, and improvements in surgical and material technology have greatly increased its effectiveness. And with the aging of the American population coupled with a growing desire to remain healthy and fit in our senior years, experts predict that more and more Americans will consider joint replacement surgery. To learn more about the procedure and useful guidelines for the consumer considering the operation, the Post spoke with Richard Kyle, M.D., professor of orthopaedic surgery at the University of Minnesota and a widely recognized expert on knee replacement.

Post: Who are ideal candidates for knee replacement surgery?

Kyle: Most people who undergo knee replacement surgery experience severe pain in their knee joint that restricts daily activities—walking, exercise, and routine activities such as going to the grocery store. The pain is so excruciating that many have to stop doing what they're doing and sit down. Another key symptom is pain in the knee at night, which prevents the patient from sleeping or wakes them up. If unable to get a good night's sleep due to pain, one's whole world changes.

Post: Is osteoarthritis the principal cause?

Kyle: The majority of patients we see have osteoarthritis, but rheumatoid arthritis also affects joints, including knees. Someone who experiences trauma and has had a broken bone, torn knee ligament, and/or other sports injury can later develop a post-traumatic form of arthritis that can lead to knee replacement surgery.

Post: Do joggers often experience knee trauma?

Kyle: I am a jogger. I see both hip and knee arthritis among joggers. In the many research studies done on the possible connection between jogging and joint deterioration, there appears to be no direct link. On the other hand, the body's articular cartilage, in lay language, has just so many miles in it. When knee cartilage wears out, it wears out. Genetically, how long it lasts may vary. Some people appear to be able to jog forever and it doesn't bother them, while in others, the frequency of jogging leads to arthritic changes. It also depends on the way some people are built. If a person is very lightweight, jogging may not become a problem. Heavier people put more pressure on their knees. It's a combination of physics, genetics, and the frequency with which people jog. I advise people to cross-train—biking, rollerblading, and weight lifting. Alternate jogging with other activities.

Post: Is there an upper limit to the age for the procedure?

Kyle: No. If the patient is healthy, there really isn't an upper age limit.

Post: Do other health conditions limit one's options?

Kyle: Yes. If a patient has severe cardiovascular disease, he or she would be at higher risk for anesthesia. If you can't put someone to sleep or administer a spinal because their medical condition is so fragile, any operation might cause a problem, so we would not operate on that population. If you have severe peripheral vascular disease (PVD) in the lower extremity with insufficient blood supply, the problem should be corrected before

knee replacement surgery, or the surgery should not be performed.

Post: Have most of these people exhausted conventional therapies and/or surgeries?

Kyle: Absolutely. Knee replacement surgery is performed only after all conservative measures have been tried. Conservative measures include quadriceps exercises, weight reduction, and anti-inflammatory medicines to control the inflammation. Sometimes we try bracing. For people with milder arthritis or knee pain from torn cartilage, arthroscopy will sometimes help. In a younger person, it could be an alignment problem due to a deformity, and surgeons will perform an osteotomy to realign the knee. Exercising the muscle, through straight-leg raises, will sometimes help. The leg muscles act like shock absorbers to decrease the load that the knees receive. Lifestyle modifications such as losing weight, exercising, and the use of anti-inflammatories represents our first line of defense. After trying those interventions, we might administer an injection of a thickened form of synovial fluid or cortisone. If all measures fail, we then consider total knee replacement, depending on the patient's physiological age and medical condition. We generally follow some patients for some time before they actually decide to undergo a total knee replacement. When I see a patient considering a total knee, I thoroughly cover alternatives to surgery, the benefits of surgery and the risks.

Post: What are the benefits of the procedure?

Kyle: The major benefit is pain relief and correction of the deformity. People ask, "Is it going to be a normal knee?" It isn't a normal knee; it's an artificial knee that is very functional with improved range of motion that doesn't hurt. Is it going to be a knee like you had when 20 years old? No. I'm 60, and I don't have a knee like I had when I was 20 years old.

Candidates for knee replacement are in a lot of pain that is adversely affecting the way they live. They gain weight because they can't exercise, their back hurts because they're limping, and they often can't sleep at night—these people are candidates for the procedure because their immobility affects their entire body, not just their knee.

Post: What risks are associated with the surgery?

Kyle: The major risk factor, which is quite rare, is infection. The current infection rate is less than one percent in most hospitals. But if infection sets in, it needs to be dealt with immediately. Most of the time it is necessary to remove the prosthesis, put in a spacer treated with antibiotics, allow time for the body to clean up the infection. We generally wait six weeks for the infection to clear while the patient is on antibiotics and then re-implant the new knee. To regain range of motion in the joint, you may need physical therapy. Some people need more than others, but we want to make sure we rehabilitate the knee in some way to obtain the optimum range of motion and strength.

Post: What happens during the procedure?

Kyle: That’s an excellent question because some people think that you make an incision, cut off the bone above and below the knee, throw the whole knee away, and then put in a brand new knee. In reality, we have a very precise set of instruments that machine the end of the bone to remove the area where the cartilage has degenerated or disappeared. Then, you cement a cap over that area—somewhat like capping a tooth. You remove the diseased bone and cement the cap over it. In osteoarthritis, pain results from bone on bone rubbing. In knee replacement surgery, you eliminate that area and replace it with a smooth surface that has a low coefficient of friction. The replacement parts glide very easily due to the very highly polished hard femoral component meeting with a smooth high-density polyethylene surface on the tibia. Basically, it replaces the damaged articular cartilage with an artificial material that is smooth and has a low coefficient of friction. The muscles and majority of the ligaments of the knee remain; we are simply resurfacing the bone.

Post: How long does it take for the knee to heal?

Kyle: For a total knee to completely heal, the patient is looking at three to six months, but in most cases only in the first three to four weeks does the patient need pain medicine.

Post: What are the guidelines for activity?

Kyle: I advise patients, “No jumping or jogging on the knee.” Smooth repetitive motions, such as that used in golfing, biking, cross-country skiing, intermediate downhill skiing, doubles tennis, and rollerblading are OK. In doubles tennis, for example, patients must realize they can’t be charging back and forth up to the net or going for the side shots, but they can volley at the back court. Restricted activities include jogging, volleyball, or basketball—sports where you’re jumping up in the air. Twisting and turning with heavy loads can also cause problems. In general, I recommend walking as the single best exercise. Sports such as golf, biking, swimming, cross-country skiing and rollerblading are completely acceptable.

Post: What can patients do to optimize recovery after surgery?

Kyle: They need to do range-of-motion and muscle-strengthening exercises. Weight loss may also be helpful. When you have your operation, it is a good time to start on a diet because you’re going to be able to be more active than before.

Post: How long do these artificial knees generally last?

Kyle: On average, the knee prosthesis lasts from 15 to 20 years, so longevity is quite good.

Post: Who are candidates for partial knee replacement as opposed to the total procedure?

Kyle: The knee joint has three compartments—an inside compartment called the medial compartment, an outside compartment called the lateral compartment, and the patella/femoral junction. Those three compartments make up the sliding articular surface of the knee. Some patients are suffering from arthritis of one compartment only—usually the medial compartment—because as people age, they tend to become somewhat bow-legged and stress this area. When you ask a patient where the pain is and they point to the inside part of the leg down along the tibia, those patients may be candidates for unicompartmental knees if the other two compartments do not have arthritis. The procedure is not as common as the total knee, but there are indications for it. There are some very elderly people who have more global arthritis, but the main pain originates from the inside medial compartment, and they simply don't want to go through the whole rehab of a total knee. The partial replacement is a smaller operation, and I've had very good success using this procedure in the correct population. The patient may not be completely pain free, but the majority of the pain is alleviated, and they're very happy with that. The rehabilitation is faster, and this alleviated pain is desirable for the very elderly.

Post: Could you share insights with people considering the procedure?

Kyle: Today, people have access to more medical information than any other time in history. One of the goals of the American Academy of Orthopaedic Surgeons (AAOS) is to help educate patients and the public about orthopaedic surgery, including knee replacement. Our research and medical information is on our Web site—www.aaos.org—which addresses joint replacement issues. Patients can help inform themselves. My biggest plea is, don't be afraid to ask your doctor questions—How many surgeries he/she has done, what type of knee is used, what about rehabilitation? How long will I be off work? The AAOS is promoting shared decision making, so the patient really understands the procedure and shares in the decision about surgery. The patient should be completely comfortable with, and have confidence in, their surgeon. If they do not, they should seek a second opinion.

Post: For patients focusing on prevention and who want to preserve the integrity of their knee joint, what's the best option?

Kyle: To preserve knee function, muscle strengthening exercises that are smooth and repetitive are of great value. Walking, biking, swimming and cross-country skiing are excellent exercises. Cross training to avoid impact loading daily is of value. Maintaining a normal weight is important to decrease the load on the knees.

**For more information, please visit Dr. Grimm's website at
www.DavidGrimmMD.com**

**Review information about total joint replacement and total knee replacement in the
"Patient Education & Info" section under the topic headings
"General Information" and "Knee".**

As always, please don't hesitate to contact us with any questions or concerns at:

(585) 394-1960.