

Are Partial Knee Replacements a Passing Trend or the Future of Knee Care? 13 Responses

Written by Laura Miller | September 15, 2011

Here are 13 joint replacement surgeons and industry experts discussing whether partial knee replacements are a passing trend or the way of the future.

Michael E. Ciminello, MD, Orthopedic Surgeon, Peconic Bay Medical Center, Riverhead, N.Y.: I think partial knee replacements will always be an operation in a joint replacement surgeon's armamentarium, but I don't necessarily think it will replace totals as the mainstay of treatment. I do think that it is an excellent operation for a select few patients and I will perform the procedure for patients who are appropriate candidates. That being said, I don't often see those types of patients.

Additionally, I don't think the newer technology has much to do with implant longevity. Successful outcomes for joint replacement, in general, are more closely linked to proper patient selection and surgical technique than any particular implant. The outcomes of partial knee replacements are less predictable than total knee replacement because identifying an appropriate candidate for a partial is more difficult. The relatively unpredictable nature of partial knee replacement surgery is precisely why there have been multiple cycles of popularity throughout the decades amongst orthopedic surgeons. Total knee and hip replacements will not fall out of fashion because the operations work and are predictable.

J. Dean Cole, MD, Orthopedic Surgeon, Florida Hospital Fracture Care Center, Orlando.: We have seen clear advantages in partial knee replacements because they are a less invasive procedure and if we use a robot, we are able to restore the patients' kinematics in a positive manner. With that in mind, I believe we are going in the right direction and partial knee replacements will become more common place in the future. If we believe that the patients' arthritic process is mechanically related and the cartilage has degenerated, and the implants we use can stand up to wear, I think the procedure will last.

However, if the cartilage generation is from systemic factors, then the patient is faced with a progressive problem and the rest of the knee will be affected. In that case, unicompartmental knee replacement will only be a temporary fix. My experience is based on my patients' feedback, and I believe partial knee replacements will always have an important role in our armamentarium to treat knee arthritis. But, if expansion of the procedure takes over treatment for a larger patient population than it should, it will only result in failure.

Nicolas Colyvas, MD, Orthopedic Surgeon, El Camino Hospital Orthopaedic, Los Gatos, Calif.: As time goes by, I think there will be more of a place for partial knee replacements. Patient selection is important — physicians who select their patients carefully are the ones who do better. Partial knee replacements are going toward the outpatient setting or 23-hour stay situations and the patients are accelerated in their rehab programs. I think once the protocols are worked out, partial knee replacements will apply to more patients — this is happening as we speak.

Scott Desman, MD, Orthopedic Surgeon, Martin Memorial Health Systems, Stuart, Fla.: Historical data shows that the 10-year survival rate of partial knee replacements to be 90 percent. Only time will tell if the results using technology such as the MAKOplasty technique will be better, but we know that using the MAKOplasty technique eliminates improper positioning of the implant, which has been implicated as the primary cause for failure in the past.

As more patients receive partial knee replacements, and the word spreads about its advantages over total knee replacement in select patients, it will become more mainstream. If you speak with any of my patients from the past year who have undergone the MAKOplasty, you have to be impressed with their enthusiasm.

Charles Gatt, Jr., MD, University Orthopaedic Associates, New Brunswick, N.J.: There is a lot of data telling us the number

of knee replacement procedures is going to increase dramatically over the next five years, and there aren't enough fellowship-trained knee surgeons to meet those needs. New technology will help more general orthopedic surgeons perform good, reproducible knee replacements. I think there's a role for patient-specific replacements where they do an MRI or CT scan to custom design the cutting blocks because it allows the operation to be done without drilling a hole in the femoral canal for alignment. This plays a big roll in minimizing blood loss in the operation. The same holds true for robotics — you can use the robot without using the intramodullary cutting guides.

I don't think you are going to see a significant increase in the volume of unicompartmental knee replacements in the near future. Additionally, in the United States, surgeons are becoming less comfortable with high tibial osteotomies.

Henry Finn, MD, Medical Director, Chicago Center for Orthopedics at Weiss Memorial Hospital and Professor of Surgery, University of Chicago: At any given time, maybe 5-10 percent of knees are being done as partials. More often, orthopedic surgeons performing partial knee replacements have a philosophy that doing them is better for the appropriately selected patients. From my standpoint, after doing close to 10,000 knee replacements, I can't reliably guarantee a patient that they are going to be as satisfied with a partial as they are with a total, so that has limited my use of the partial.

If I was the patient, and the surgeon said that both partial and total knee replacements would have the same outcomes, I would pick the partial — but I just don't think that's the case. At this point, I would need to see more evidence-based literature that says partials are as reliable and as durable as total knee replacements. The results may change with better implant designs, but the way the partial is anchored to the bone creates more stress and sometimes patients have pain related to this stress. Partials tend to fail more quickly in that case. I don't know what the future will hold with new implants, but the current ones we have today are not proven in the literature to be as successful in both relieving pain and restoring function as the total knee replacement.

John Lynch, MD, Orthopedic Surgeon, North Suburban Orthopedic, Malden, Mass.: In the past, the standard line against unicompartmental knee replacements said they would fail, so why do it if you'll have to replace it a few years later? Like with many things, the technology has made the procedure more durable. Even total knee replacements are revised — they don't last forever. A lot of your opinion on knee replacements depends on what statistics you look at. The majority of my practice is middle age or older patients who are asking to continue their athletic activities and if unicompartmental knees are done for those patients, there is more risk for failure. These patients push their agenda, which means more wear will be placed on the implant.

However, there are a lot of advances taking place in knee replacement. Who knows what surgeons will have 20 years from now — there might be a different material that would create a better replacement. For patients, partials are much less painful and they can begin rehabilitation quicker, so I feel happy for the patients who are candidates. I often have patients who are candidates for partials go to a larger academic medical center for a second opinion and are told they need totals. These patients often come back to me because they would rather have a partial. I think partials will create a niche: 20-30 percent of patients who have totals could do just as well with some definite advantages with partial knee replacements.

Surgeons still need to be careful because even though there are advantages to partial knee replacements, not everyone should have one. If it gets too popular, people will expand the limits too much. That's always a risk with new technology.

Eric Millstein, MD, Orthopedic Surgeon, DISC, Beverly Hills, Calif.: As we continue to expand our scope of minimally invasive procedures, the interest in partial (unicompartmental) knee replacement will also grow, among both surgeons and patients. That said, we must remember to exercise caution in considering patients for such a procedure, as not everyone will be a candidate. If the patient doesn't have isolated arthritis in one compartment, for example, they will ultimately be unhappy with the procedure, either immediately or within a few years of surgery.

David Payne, MD, Orthopedic Surgeon, Chapman Orthopedic Institute, Orange, Calif.: There is a lot of theory out there in orthopedics, but the actual real deal is more important than that. You have to undergo extensive training, including a joint replacement fellowship, in order to perform unicompartmental knee replacements well. The hospitals also have to be set up for the procedure — we have a joint program here that can support it. Patient selection is also very important for good outcomes. You want to make sure the patient is a compliant patient who understands the depth of what they are getting into.

Thomas Schmalzried, MD, Medical Director, Joint Replacement Institute, St. Vincent Medical Center, Los Angeles: I think partial knee replacements absolutely have a place in the future of knee care. It's a very good operation for the right patient. The functional result of the unicompartmental procedure can be better than those for a total knee in the appropriate patient.

Milton Smit, MD, Oak Orthopedics, Bradley, Ill.: I personally think that unicompartmental knee replacements can only be done in a very small number of patients. I don't think the patient population will ever grow to a large amount — over 5 percent of patients — because the indications are limited. The design is getting better for unicompartmental knee replacements, but so are the totals. In both instances, the outcomes will be better for surgeons who perform a higher volume of cases.

In the future, I think both procedures will continue to improve. There will be a lot of joint replacements performed within the coming years because there are more baby boomers who need them, and there are more people who wish to remain active later in life. Additionally, there are a lot of obese people who wear out their knees quickly, and we need to provide the best solution for them as possible.

Geoffrey Westrich, MD, Director for Research for Joint Replacement, Hospital for Special Surgery, New York City: As time goes on, the technology is always getting better. Not only does that help the design of the prosthesis and accuracy of placement, but it also improves the diagnostic modalities we have. As technology gets better, we'll have better ways to look at the knee before surgery. The strength of the magnet in an MRI is improving and we have better protocols for using MRI scanners to look at the cartilage than we did 10 years ago. Eventually, there will also be better technology during surgery where surgeons will be able to detect a problem that might not be visible to the naked eye.

The revision technology will also get better in the future and we won't be as apprehensive about converting partials into totals. It's not a surgery that should be done by someone who doesn't do a lot of them. There is a steep learning curve, and patients might do better if they go to a joint replacement hospital so they can have it done technically in the right way.

Delwyn Worthington, MD, Orthopedic Surgeon, Arizona Orthopaedic Associates, Phoenix: I think partial knee replacements will stick around, but we will further clarify the specific indications for the best outcomes. For patients who are active and have the appropriate indications, I think the data will hold out to show that partial knee replacements will provide them with a higher level of function than total knee replacements.

There is a lot of new technology coming out now for partial knee replacements and I think it is still in its learning stages. The idea of robotics is mostly to allow the surgeon to perform the procedure with a more predictable outcome, but it still takes an experienced surgeon to reach a good outcome. At some point in time, as the technology becomes improved and it becomes easier to use robotics, partial knee replacement may also become a faster procedure.