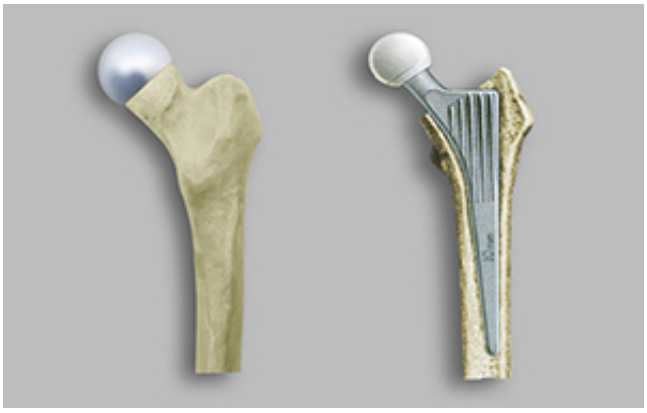
Some patients may benefit from hip resurfacing over replacement

February 28 2014, by Jim Dryden



Hip resurfacing (left) preserves more of a patient's thigh bone than a traditional total hip replacement (right). In hip replacement, a metal stem is run down the middle of the femur. Young, active patients were more likely to return to activities following hip resurfacing surgery than total hip replacement.

When a person loses mobility because of arthritis, surgeons can replace the faulty hip joint with a new one. A new study led by researchers at Washington University School of Medicine in St. Louis suggests that a different procedure called hip resurfacing may be a better option for some patients, particularly those who are young and active.

Hip resurfacing preserves more of a patient's thigh bone than a traditional total hip replacement. The resurfacing implant also tends to be made completely of metal, unlike the implants often used in total hip

replacement surgery, which are made of plastic and metal.

In a study of 806 active patients aged 60 and younger who had hip replacement or hip resurfacing surgery, researchers found that a year after the operations, those who had the resurfacing procedure reported that they were less likely to limp, experience thigh pain or perceive a discrepancy in the length of their legs. Those who had resurfacing surgery also were more likely to return to the activities that were the most important to them. These included distance running, walking for long distances and even high-impact sports like martial arts.

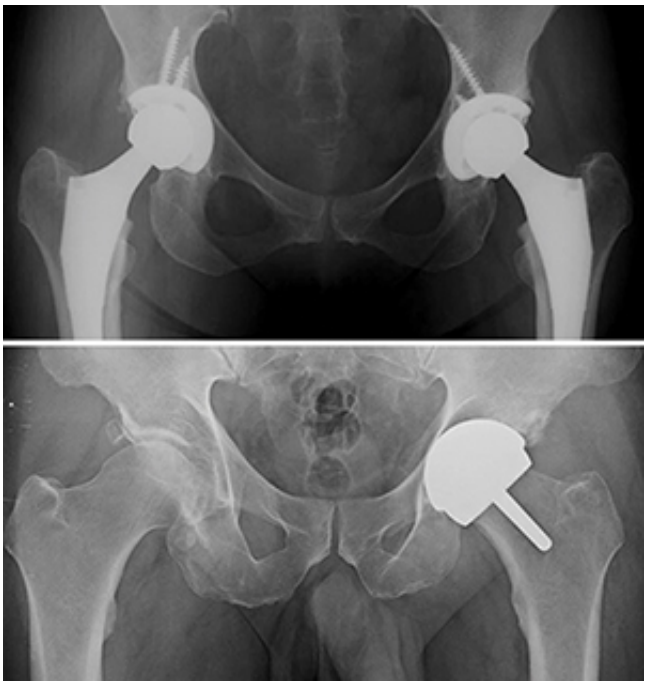
The study was published in the journal *Clinical Orthopaedics and Related Research*.

"Hip resurfacing wasn't approved by the Food and Drug Administration until 2006," said first author Robert L. Barrack, MD. "The implants cost a bit more, the procedure is technically more challenging for the surgeon, and there potentially are some complications unique to the procedure, such as allergy or tissue reaction to metal particles, but these are very uncommon in properly implanted, FDA-approved devices.

Barrack is the Charles F. and Joanne Knight Distinguished Professor of Orthopaedic Surgery and co-chief of Adult Reconstructive Surgery at Washington University School of Medicine. He's also the chief of service for orthopaedic surgery at Barnes-Jewish Hospital.

He said for doctors to recommend hip resurfacing, it's important to demonstrate that a patient stands to benefit over traditional hip replacement. Earlier studies in Europe, Canada and Australia made claims that patients could be more active with fewer limitations, but other studies recommended against resurfacing, particularly in women and men of small stature.

Hip resurfacing only reshapes the surface of the hip joint, which is where the head of the thigh bone, or femur, plugs into the cup-shaped surface of the pelvis. In a total hip replacement operation, the entire femoral head and a portion of the femoral neck is removed and discarded, and a stem is inserted several inches into the middle of the femur (thigh bone) to connect it with the hip joint's "ball and socket," where the head of the femur connects to the pelvis.



The study found that total hip replacement (done in both hips in the top X-ray) was less likely to allow young, active patients to return to their previous levels of activity than hip resurfacing (bottom X-ray).

Working with surgeons from other leading centers, Barrack and his colleagues compared outcomes from total hip replacement to hip resurfacing. The operations were performed using several different types of hip replacement devices and the most commonly used hip resurfacing

device.

The researchers surveyed patients who had received traditional plastic-and-metal hip replacement devices. But the study also looked at total hip replacement components that were metal-on-metal, devices that were ceramic-on-ceramic, replacement devices with large heads to fit into the hip socket, and others with smaller heads.

The surgeries were performed at Thomas Jefferson University in Philadelphia, the Anderson Orthopaedic Clinic in Virginia, Midwest Orthopaedics at Rush in Chicago and the Center for Hip and Knee Surgery in Indiana.

The University of Wisconsin Survey Center collected data from telephone surveys of the more than 800 patients involved in the study. Those conducting the surveys didn't know which procedure a patient had undergone, helping to eliminate bias in the study's results.

Barrack and his colleagues compared people of about the same age with similar activity levels, using a scoring metric developed at UCLA. All of the patients who took part in the study had a UCLA activity score of at least 6 on a scale of 1 (least active) to 10 (most active).

"We wanted to ensure that every patient enrolled in the study had a very high activity score before being limited by hip problems," Barrack said. "When patients spoke to the surveyors a year after their operations, the vast majority of resurfacing patients had attempted to return to a high level of activity, but that wasn't true for hip replacement patients."

More than 70 percent of hip resurfacing patients reported that they hadn't limped in the past 30 days, compared with about half of patients who had total hip replacements. And only slightly more than half of hip replacement patients had attempted to walk for more than an hour during

the past month, versus 68 percent of the resurfacing patients.

More than 90 percent of resurfacing patients reported that they had attempted to run in the months after surgery compared with about 70 percent of hip replacement patients. A quarter of those hip resurfacing patients reported successfully running more than a mile. The number was closer to 10 percent in the hip replacement group.

The resurfacing patients also reported less thigh pain. In a subsequent study presented in the fall at the annual meeting of the American Association of Hip and Knee Surgeons, Barrack's colleague, Ryan M. Nunley, MD, assistant professor of orthopaedic surgery, reported that total hip replacement patients were more than three times as likely to have thigh pain than hip resurfacing patients.

"With a hip replacement, you have a stem that goes down the middle of the femur," Barrack said. "So it makes sense that if you're very active and you have a stem in the middle of your femur, you also may be more likely to limp or to have thigh pain."

Another recent publication from the Washington University group that followed hip resurfacing and hip replacement patients of similar ages and activity levels showed that hip resurfacing results in less bone loss over time.

Many of Barrack's patients come to him because they want hip resurfacing rather than a replacement procedure, but he said that not everyone is a candidate.

"Surface replacement isn't for everyone," he said. "Only about 10 percent of patients are ideal candidates, and a study in The *Journal of Bone & Joint Surgery* recently recommended that most women and men of small stature avoid surface replacement, but if a person has arthritis

without complications, is young and active and wants to return to a high level of activity after surgery, the data suggest there may be advantages to surface replacement over total replacement."

More information: Barrack RL, Ruh EL, Berend ME, Della Valle CJ, Engh CA, Parvizi J, Clohisy JC, Nunley RM. "Do young, active patients perceive advantages after surface replacement compared to cementless total hip arthroplasty?" *Clinical Orthopaedics and Related Research*, vol. (2013) 461, pp.3803-3813, December 2013.

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