

Total knee replacements increase mobility and motor skills in older patients

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According to a new study from researchers at Duke University, total knee arthroplasty (TKA) procedures performed in older patients with osteoarthritis of the knee result in long-term, significant improvement of physical functioning and motor skills when compared to patients who do not receive TKA.

Published in the July 2009 issue of [Medical Care](#), the study examined physical functioning and gauged outcomes in a national sample of Americans aged 65 and older for up to four years—a longer period than previous TKA studies. Relative to the untreated comparison group, recipients of total knee replacements experienced significant improvement in function, including a 17.5% increase in mobility, a 39.3% improvement in motor skills; and a 46.9% decrease in limitations in activities of daily living such as bathing and dressing oneself.

The number of total knee replacements performed in the United States has increased dramatically since 1990; currently 581,000 such procedures are performed every year. This number is expected to increase markedly as Baby Boomers age.

"In this era of cost-cutting, policymakers have underscored the importance of evaluating treatments in terms of effectiveness and benefits to patients," says lead author Frank Sloan, Ph.D., McMahan professor of health policy and management and professor of economics at Duke University. "Our findings show that knee replacements are effective in treating patients with advanced [osteoarthritis](#), contributing to

reduced disability and improved quality of life for these individuals. Such findings are extremely important for the broader context of discussions about healthcare reform, cost-containment, device quality, and patient safety."

For the study, Duke researchers identified 2272 patients diagnosed with osteoarthritis of the lower leg using data from the Health and Retirement Study (HRS) linked to [Medicare](#) claims from 1994 through 2006. Of that group, 516 underwent TKA procedures and 1756 did not. Researchers used propensity score matching to generate 515 pairs of treated and untreated individuals who were matched on relevant, measurable factors such as baseline functional status, other health conditions, socioeconomic characteristics, and time before TKA or diagnosis.

Among the patients who underwent TKA, baseline physical functioning measures were taken at an interview before and closest to surgery. For the comparison group, these measures were taken from an interview preceding and closest in time to the year of their first diagnosis with osteoarthritis of the lower leg. Each pair was followed for up to four years, and their resulting physical abilities were compared.

The study's mobility, gross motor skills, large muscle activities, and limitations in activities of daily living indices accounted for a wide breadth of physical activities, including getting in and out of bed; the ability to bathe and dress oneself; sitting for two hours; getting up from a chair; stooping, kneeling, and crouching; walking across the room, one block, and several blocks; climbing one flight and several flights of stairs; and pushing and pulling a large object.

The study comes at a time when Congress and the nation's healthcare agencies are looking for ways to identify diagnostics and therapies that offer the greatest value to patients and the healthcare system.

Representatives Bill Pascrell Jr. (D-NJ) and Lloyd Doggett (D-TX) have introduced legislation to establish a federally-funded registry of patients who have received artificial hips or knees, providing researchers and policymakers with an ongoing source of data about patient outcomes with such devices and related surgical procedures.

According to Sloan, total knee replacement has repeatedly been shown to offer clinical benefits for patients with osteoarthritis, a major risk factor for disability in the United States. Recently, a team at Brigham and Women's Hospital and the Boston University School of Public Health confirmed that, for older adults with advanced osteoarthritis, total knee replacement also appears to be a cost-effective procedure across all patient risk groups.

"We know that the inability to perform activities of daily living is highly predictive of nursing home admittance, as patients can no longer care for themselves," says Sloan. "TKA offers the potential for extending independence and therefore delays the need for assisted living."

Source: The Institute for Health Technology Studies

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