

# OA's Impact on Gait Depends on Knee Anatomy

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FORT LAUDERDALE, FLA. — The walk of a patient with osteoarthritis differs by which knee compartments are affected, according to researchers who linked radiographic findings with sophisticated motion analysis.

Knee osteoarthritis (OA) leads to alterations in gait that can further impair function for patients, Dr. William F. Harvey said at the World Congress on Osteoarthritis. To find out if there are gait alterations unique to the compartments of the knee that are affected by OA, Dr. Harvey and his associates assessed 448 patients in North Carolina enrolled in the Observational Arthritis Study in Seniors (OASIS).

Participants' mean age was 72 years and all were more than 65 years old; all reported knee pain. Just more than half, 51%, were women; 83% were white; and the mean body mass index was 30 kg/m<sup>2</sup>.

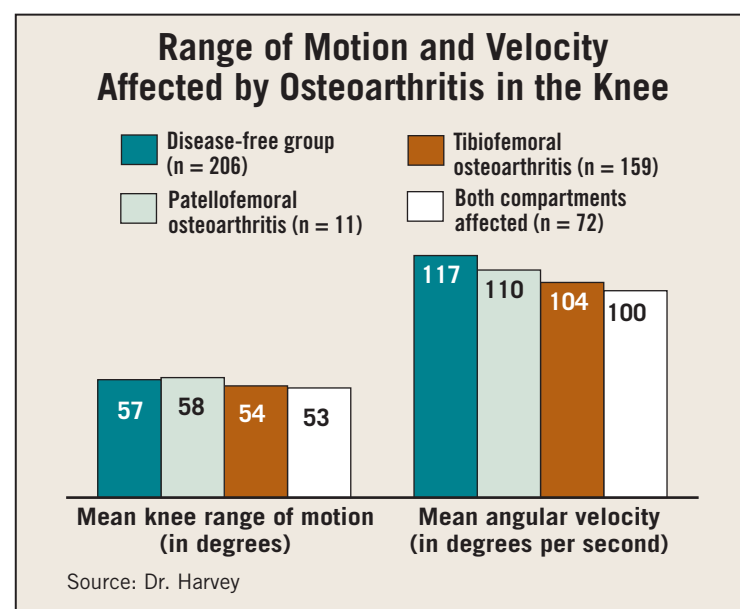
At baseline, researchers found that 166 patients had grade 0 Kellgren-Lawrence (KL), 51 patients had grade 1 KL, 47 patients had grade 2 KL, 126 patients had grade 3 KL, and 58 patients had grade 4 KL; in general, the higher the KL grade, the worse the meniscal pathology and chondral degradation, Dr. Harvey, a fellow in rheumatology at Boston University, said at the meeting, which was sponsored by the Osteoarthritis Research Society International.

Kinematic measures of gait were performed during self-paced walking in the sagittal plane only, with outcomes based on an average of three trials. Peak angular range of motion, mean angular velocity (of the hip, knee, and ankle joints), stride length, walking velocity, cadence, and stance and swing times were measured. Mean values were compared between groups. Results were adjusted for age, race, gender, body mass index, and walking velocity.

Patients with isolated tibio-

femoral (159 participants), and both tibiofemoral and patellofemoral osteoarthritis (72 participants) had a significantly lower knee range of motion and mean angular velocity, compared with those with no osteoarthritis (206 participants), Dr. Harvey said. The mean knee range of motion angle was 54 degrees in the tibiofemoral group and 53 degrees in the combined group, compared with 57 degrees in the unaffected group. The mean value for the patellofemoral osteoarthritis group, 58 degrees, was not statistically significant because of the small number of patients in the category.

In addition, there was a statistically significant difference in mean angular velocity of the knee between the same groups. Those with tibiofemoral osteoarthritis and both compartments affected had a lower mean angular velocity, compared with those without osteoarthritis, Dr. Harvey said. Expressed as degrees per second, the values were 104 in the tibiofemoral group,



100 in the group with both compartments affected, and 117 in the comparison, disease-free, group without disease. Again, the 110 degrees per second finding in the patellofemoral group was not significant.

Stance time was another variable that was significantly different between groups. The

patellofemoral group and doubly affected group spent more time in stance versus swing, compared with the tibiofemoral osteoarthritis group or the unaffected patients.

The study was funded by Wake Forest University and a grant from the National Institutes of Health.

## Pain Catastrophizing Increases OA Disability in Overweight Patients

FORT LAUDERDALE, FLA. — Pain catastrophizing and pain-related fear are associated with increased disability and worse physical functioning among overweight patients with osteoarthritis, according to a study presented at the World Congress on Osteoarthritis.

"In the cognitive-behavioral area, what people are thinking about pain while they are having it can have a significant effect," said Francis J. Keefe, Ph.D. "We need to be thinking about pain-related cognitions. These can increase the patient perception of pain."

Researchers assessed pain among 106 patients with knee osteoarthritis. They also evaluated psychological disability, physical impairment, and walking velocity while controlling for pain levels. They measured walking velocity, stride length, and knee range of motion. Mean body mass index was 35 kg/m<sup>2</sup>, mean age was 58 years, and 77% were women. The mean Kellgren-Lawrence Scale score was 2.79.

Dr. Keefe and his associates sought to assess how pain catastrophizing and pain-related fear might affect psychological and physical functioning in this patient population. It already is well accepted that increased body weight can increase severity of knee osteoarthritis, he said.

People who catastrophize focus on their pain and magnify it. They can misinterpret pain as more threatening than it is and underestimate their ability to manage it. "Pain catastrophizing tends to increase the pain experience and disability. The reason people do this is it tends to pull other people into their situation," said Dr. Keefe, who is with the medical psychology division, psychiatry and behavioral sciences department, Duke University, Durham, N.C.

Pain-related fear includes excessive fear of experiencing pain during movement, or kinesiophobia. This phenomenon "is especially important in the obese with osteoarthritis if they are afraid to move," Dr. Keefe said at the meeting, which was sponsored by Osteoarthritis Research Society International.

"Clinicians need to be aware of the effects of pain catastrophizing," Dr. Keefe said.

All participants completed the Coping Strategies Questionnaire to assess pain catastrophizing, the Tampa Scale for Kinesiophobia to measure pain-related fear, and the Arthritis Self-Efficacy Scale. Self-efficacy for pain management was associated with improved physical functioning in the study.

Catastrophizing and pain-related fear were associated with higher psychological distress and lower pain self-efficacy. Pain-related fear, but not catastrophizing, was associated with worse physical functioning.

"The degree of catastrophizing was among the greatest we've seen," he said.

Addressing pain catastrophizing among overweight people with knee osteoarthritis might improve psychological functioning, Dr. Keefe said. An intervention aimed at improving pain-related fear could improve physical functioning as well. "Coping skills training or cognitive-behavioral therapy could improve these cognitions, but they are challenging to do."

Dr. Keefe and his associates plan to launch a new study that will randomize obese patients with osteoarthritis to behavioral weight management, pain coping skills training, both interventions, or control group. A posttreatment evaluation will be followed by reassessment at 6 and 12 months.

## Ethnicity Sets Attitudes on Total Knee Replacement

FORT LAUDERDALE, FLA. — Whites with osteoarthritis are twice as likely as are African Americans or Hispanics to have joint replacement surgery, and differences in access to care and socioeconomic status do not explain the disparity, according to a presentation at the World Congress on Osteoarthritis.

Overall, Hispanics are less familiar with the surgery. An educational intervention targeted toward ethnic patients could reduce this disparity, Dr. Maria Suarez-Almazor said at the meeting, which was sponsored by the Osteoarthritis Research Society International.

Researchers explored the "striking disparity" in the number of total joint replacement procedures between white and non-white patients in focus groups and a survey of nearly 200 people with knee osteoarthritis.

Willingness to undergo surgery depended upon a need to feel ready for the procedure and a belief that no other options remain, according to focus groups of people with knee osteoarthritis. Inner beliefs, familiarity with the surgery, trust in their physicians, and advice from others who had the procedure were also considered important. There were two focus groups of whites, two groups of African Americans, and two groups of Hispanics.

To assess cultural differences

more quantitatively, Dr. Suarez-Almazor and her associates surveyed 198 patients with knee osteoarthritis via telephone or in person.

Findings were adjusted for age, education, and other differences. "Access to care and socioeconomic status alone cannot explain the variation," Dr. Suarez-Almazor said.

White respondents had considered total knee replacement on their own the most often (42%), compared with 30% of African Americans and 25% of Hispanics, said Dr. Suarez-Almazor, professor in the department of general internal medicine, ambulatory treatment, and emergency care at the University of Texas MD Anderson Cancer Center, Houston.

A total of 100% of whites reported familiarity with total knee replacement surgery compared with 91% of African Americans and 80% of Hispanics. In addition, 80% of whites versus 70% of African Americans and 58% of Hispanics said they had a relative or friend who had the surgery.

Overall, Hispanics and African Americans thought surgery would be less beneficial than did whites. In addition, Hispanics reported they were less likely to undergo the procedure than, compared with whites, even if their osteoarthritis worsened and a doctor recommended the surgery.