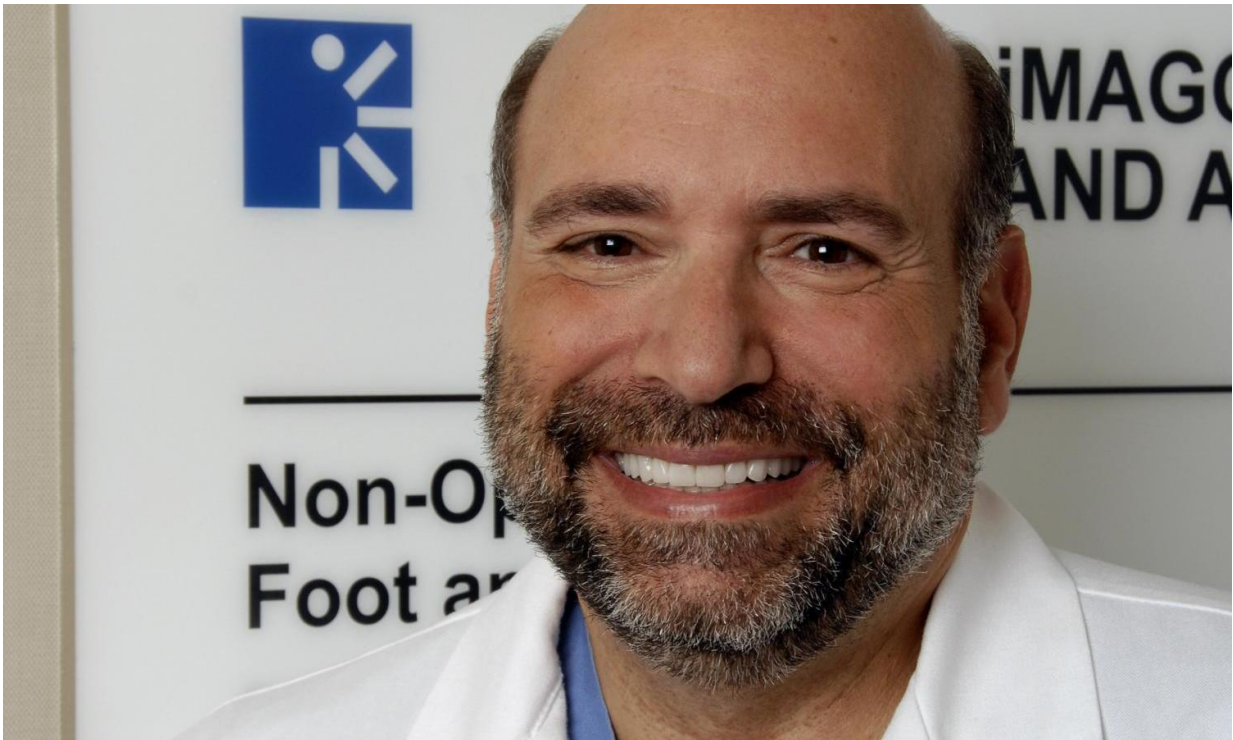


Foot pain? New study says look at hip and knee for complete diagnosis

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Dr. Rock Positano at Hospital for Special Surgery. Credit: Hospital for Special Surgery

A study by researchers at Hospital for Special Surgery (HSS) and Harvard Medical School suggests new guidelines may be in order for evaluating and treating lower extremity pain. Investigators set out to determine if there was a relation between foot pain and lower extremity

joint pain, and they found a significant association between foot pain and knee or hip pain.

"Our overall goal was to provide practitioners with evidence-based guidance for evaluation and options for treatment for their patients," the researchers wrote in their paper, which appeared in the *Journal of the American Podiatric Medical Association*.

"The study shows that a physician evaluating a patient for [foot](#) pain should also ask about possible hip or knee pain, and vice versa, so we can address all of a patient's issues. In medicine, many times it comes down to 'what does your MRI look like or what does your x-ray look like?' But it's really important to conduct a thorough medical history and physical exam," says Brian Halpern, MD, a sports medicine physician at HSS and study co-author. "A comprehensive orthopedic evaluation may prompt a broader treatment strategy and possibly a referral to another specialist."

"Studying the interaction between the knee and the foot, or the hip and the foot is very important because it's a kinetic chain," says Rock G. Positano, DPM, MPH, director of the Non-Surgical Foot and Ankle Service, Joe DiMaggio Sports Medicine Foot and Ankle Center at HSS.

The kinetic chain, the notion that the body's joints and segments have an effect on one another during movement, can play a key role in pain.

"The foot is the first part of the body that makes contact with the ground. Its primary function is a shock absorber. If the shock-absorbing capability of the foot is somehow altered or minimized, it's going to affect other body parts," Dr. Positano explains.

"The foot is also the foundation of the body," he adds. "If the foundation is not sound, it could have a deleterious effect on the joints above the foot and ankle, namely the knee and the hip."

In the population-based study, investigators analyzed information from a database of 2,181 people who had participated in the NIH-funded Framingham Foot Study between 2002 and 2008. "Access to this rich database was indispensable to test our hypothesis that there was a relation between foot pain and hip or knee pain," explained Howard Hillstrom, PhD, director of the Motion Analysis Laboratory at HSS and co-investigator of the Framingham Foot Study. "It would have been very difficult to organize such a large study from scratch."

Participants completed a questionnaire evaluating foot pain, pain location (including side of pain) and severity. They also indicated whether they had experienced pain, aching or stiffness in the hip or knee and specified the side of any reported pain. In the study, 16% of participants reported bilateral foot pain, 6% right foot pain only and 5% left foot pain only. Slightly more women than men reported foot pain.

Researchers found that foot pain was associated with bilateral and same-side knee pain in men and women. For example, men with right foot pain compared to those with no foot pain were five to seven times more likely to have pain in their right [knee](#) or in both knees.

Foot pain was also associated with hip pain on the same side in men. In women, bilateral foot pain was associated with hip pain on both sides, on the same side or on the opposite side.

A theory that may explain study results looks at how an individual modifies his movements and postures when experiencing pain. This can result in malalignment and other problems, and the challenge for physicians is to develop a treatment plan to address all issues, according to the study authors. "The correlated and compensatory posture and movement theory^[1] may explain how multi-joint arthritis develops, as well as other abnormalities and associated pains that can result from overuse or trauma to one or more structures in the kinetic chain," the

researchers wrote.

They went on to state that the findings "advocate for a change in the paradigm of how patients with lower extremity pain should be evaluated clinically... In a world where medical imaging has come to the forefront of patient diagnoses and care, these results remind health care providers that the basic physical examination and patients' history remain important in identifying [pain](#) and related patterns in patients."

Dr. Positano notes that it is also up to patients to be proactive, making sure they discuss all orthopedic issues they may have during the doctor visit.

More information: [1] Riegger-Krugh and Keysor, JOSPT. 1996

Provided by Hospital for Special Surgery

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