

# Replacement with non-allergenic joints can provide relief

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Credit: National Jewish Health

Allergies to metals used in artificial joint hardware, or to the bone cement used to secure them, can cause severe pain, itching, swelling and loosening of the joint, according to research at National Jewish Health. Replacement with implants that contain only non-allergenic components can provide relief for this group of patients.

"Allergies to the metals or [bone cement](#) used in [artificial joints](#) are an under-appreciated cause of artificial joint failure," said Karin Pacheco, MD, professor of medicine at National Jewish Health and senior author of the paper, published in the *Journal of Allergy and Clinical Immunology: In Practice*. "Testing for allergies and replacement of the [joints](#) with non-allergenic materials can provide significant improvement in pain and limitation."

More than one million joints are replaced in the United States every year, and the vast majority of artificial joints improve function and provide tremendous benefit. However, about 10% of these, or about 100,000 joint replacements, will fail per year. Many fail due to infection or mechanical issues, which can be diagnosed by surgeons. However, a significant portion of those failures have no clear cause. For more than 10 years, Dr. Pacheco and her colleagues have been identifying allergies as a cause of these failed artificial joints and recommending replacement with non-allergenic components. The current paper outlines the causes of allergic reactions among patients with failed joints and the success of replacements with non-allergenic components.

Dr. Pacheco and her colleagues evaluated 105 patients with joint failure referred by their orthopedic surgeons who had excluded infection and mechanical issues as causes. Knees were the most commonly failed joint. Testing of metals in the hardware and bone cement used to secure them identified 61 patients (59%) with allergies to those components. Thirty-nine were allergic to bone cement, 34 were allergic to [metal](#), and 11 were allergic to both metal and bone cement. Nickel was the most common metal [allergy](#), followed by cobalt and chromium.

Swelling, pain and a loose or unstable joint were the most [common symptoms](#) reported by both allergic and non-allergic patients. A sense of 'internal itching' was common among allergic patients. While some of the allergic patients reported previous skin rashes or itching caused by

jewelry, watchbands or jean snaps, almost two-thirds of allergic patients reported no such previous experience.

The researchers were able to follow up with 67 patients nine to 12 months later. Thirty-five had had [replacement](#) surgery at the time of follow up. The majority (71%) of both allergic and non-allergic patients described significant improvement with similar rates among both groups. However, the allergic patients whose artificial joints were replaced with ones containing non-allergenic components, reported significantly greater improvement in specific symptoms of pain, swelling and instability.

"Replacement of joints due to allergies clearly improves outcomes," said Annyce Mayer, MD, associate professor of medicine at National Jewish Health and first author on the paper. "Although all patients with revised implants improved, the patients with allergies benefited the most." The authors conclude that implant allergy should be considered and tested in joint failure patients with no other common cause of failure.

**More information:** Annyce S. Mayer et al, Sensitization to Implant Components Is Associated with Joint Replacement Failure: Identification and Revision to Nonallergenic Hardware Improves Outcomes, *The Journal of Allergy and Clinical Immunology: In Practice* (2021). [DOI: 10.1016/j.jaip.2020.12.068](https://doi.org/10.1016/j.jaip.2020.12.068)

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