

Hip, thigh implants can raise bone fracture risk in children

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Children with hip and thigh implants designed to help heal a broken bone or correct other bone conditions are at risk for subsequent fractures of the very bones that the implants were intended to treat, according to new research from Johns Hopkins Children's Center.

Findings of the Johns Hopkins study, based on an analysis of more than 7,500 pediatric bone implants performed at Hopkins over 15 years, will be presented Feb. 16 at the annual meeting of the American Academy of Orthopaedic Surgeons.

Although the absolute risk among the patients was relatively small — nine out of 1,000 hip and thigh implants were linked to hip and thigh [fractures](#) — it was 15 times higher than the risk for implant-related fractures in other bones, the researchers say. They urge orthopedic surgeons to carefully consider removing the implants a few years after surgery or once the bone has healed completely.

Implant related fractures are believed to stem from the pressure and stress that the implant exerts on the bone, especially in patients whose bones are still growing and in those with already weakened or brittle bones from preexisting conditions such as cerebral palsy and some rare skeletal syndromes. Indeed, most of the 25 implant-related fractures in the study occurred in children with such diagnoses.

The investigators note that hip and thigh bones experience the highest stress because their shape changes rapidly during growth, so removing

these implants may be especially important for children.

"Removing the implant early and as soon as the bone heals is a wise consideration for all children with hip and thigh implants, but even more so for patients with already vulnerable bone structure," says senior investigator Paul Sponseller, M.D., M.B.A., director of orthopedic surgery at Hopkins Children's.

Thigh implants carried the highest risk — 20 of the 25 fractures observed in the study involved hip and/or thigh implants, or nine fractures per 1,000 such implants. The overall risk for fractures caused by implants in any [bone](#) was three per 1,000, while the risk of fracture was less than one per 1,000 in the hand, arm, forearm, leg, ankle and foot bones.

Low-risk [implants](#) in healthy children are best left in, the researchers add, because the surgical risks of removing them may outweigh the benefits.

"To remove or not remove an otherwise asymptomatic implant has been a long-standing question in orthopedic surgery, and we hope that our findings will help surgeons and patients make such decisions," Sponseller says.

The average time between implant insertion and fracture was 2.6 years.

Provided by Johns Hopkins Medical Institutions

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