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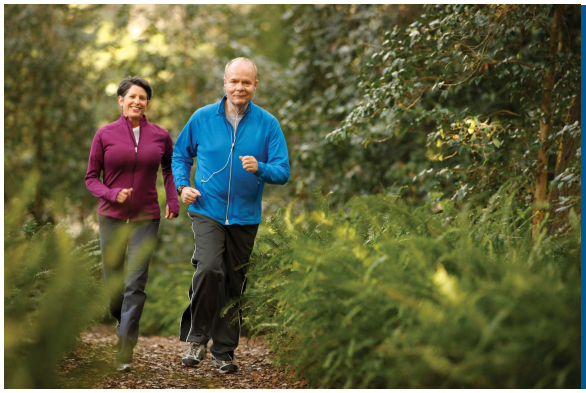

Single Wedge Femoral Stem Designs are Associated With a Higher Risk for Revision After Cementless Primary Total Hip Arthroplasty

Cementless total hip arthroplasty (THA) femoral stems are the most commonly selected prostheses in the United States, although optimal stem geometry remains controversial. This study published in *The Journal of Arthroplasty*, compared cause-specific stem revision of type 1 single-wedge versus type 2 double-wedge stem designs from a multicenter US cohort.

> Type 1 single wedge stems became popular due to their broach only and minimally invasive techniques, however we found that caution should be used when using this stem geometry in male patients and young female patients due to the increased risk of revision for aseptic loosening.
>
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Study Details

• 43,462 primary elective cementless THAs were identified from 2001 to 2018, including 11,082 type 1 single-wedge and 32,380 type 2 double-wedge stem designs.

• Comparing type 1 to type 2 stem designs and adjusting for covariates, type 1 stems had higher aseptic revision risk and aseptic loosening as a specific revision reason. No differences were found for septic revision, instability, periprosthetic fracture, or other revision reasons.

• Comparing type 1 to type 2 stem designs and stratifying by age and gender, type 1 stems had higher revision risk for aseptic reasons in all male age groups, while no differences were observed for any female age groups. Revision risk specifically for aseptic loosening was observed in type 1 stems for both younger men and women age < 65.

Practice Considerations

Stem geometry should be considered when selecting a cementless femoral implant and understanding the survivorship of designs is needed to inform surgeons, counsel patients, and ensure optimal outcomes. While both designs showed excellent 14-year survivorship, type 1 have higher risk of aseptic revision regardless of patient age and sex, with higher revision risk specifically for aseptic loosening.

Link to Full Publication

Reddy N, Chang R, Prentice H, Paxton E, Kelly M, Khatod M (2023). **Single Wedge Femoral Stem Designs are Associated With a Higher Risk for Revision After Cementless Primary Total Hip Arthroplasty**. *J Arthroplasty*, 38 (2023): 855-861.