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CORR Insights

# *CORR* Insights®: Is There a Benefit to Modularity in 'Simpler' Femoral Revisions?

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## Where Are We Now?

Cementless distal fixation for femoral revision is an established and effective surgical technique [1, 3]. Failure of these femoral revisions at 10 years is typically less than 10%. However, the failure rate is correlated with the extent of femoral bone loss. When the femoral diaphyseal bone is damaged or of poor quality, failure of distal fixation increases [3]. Modular body femoral stems were developed to facilitate reconstruction of the most difficult femoral revisions. The modular construct allows surgeons to improve distal fixation with a wide range of distal implant sizes and shapes. After the distal segment is secured, the modular proximal body is attached; this step typically offers the surgeon many options in terms of lengths as well as the ability to control rotation independently from the distal stem portion. Potential advantages of modular-body revision stems include easier surgery, better restoration of leg length, and a lower likelihood of hip dislocation. The disadvantages include the potential for mechanical failure of the modular junction and increased cost.

Some surgeons use modular body stems for femoral revisions that show only mild or moderate femoral bone loss. We must recognize that the present healthcare environment places a major emphasis on value-based care. In light of that, and given the disadvantages of modular body stems, should surgeons continue to use these components for milder femoral bone loss when nonmodular body stems have been proven to be effective for these defects?

The authors addressed this question with a retrospective multicenter study. In their study, the authors also determined the relative value of modular and monoblock femoral components. While rerevisions were less common in patients treated with modular stems, intraoperative fractures were more common in this group. Modular stems also failed to show benefits in terms of the risk of dislocation or the likelihood of osseointegration. Because the authors could not conclude superiority of one technique they recommended avoidance of unnecessary modularity in patients that have lesser degrees of femoral bone loss.

## Where Do We Need To Go?

The addition of patient satisfaction, function, and quality of life scores would be an important topic to address in future studies comparing these two techniques. This is illustrated in a similar

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retrospective single-center study that compared tapered modular body implants to extensively porous coated implants for femoral revision [2]. In that study, all patients were retrospectively administered WOMAC, SF-12, Oxford-12, UCLA activity score, and satisfaction scores. Richards and colleagues found that the tapered fluted modular body stems had better patient scores that supported the authors' recommendation for these stems. Studies about our reconstructive techniques should measure and present patient-reported outcomes whenever possible; without those, an important angle in the value equation—the patient's perspective—cannot be inferred.

## How Do We Get There?

As researchers, we should look for funding to perform prospective randomized trials. Specialty societies might be able to fund studies of this type. One of the main expenses of a prospective randomized study is the cost and time it takes to complete enrollment. This topic may be easier than some to investigate in the context of a randomized trial because a number of important elements already are in place: The implants are approved for use, most revision hip surgeons are facile with both approaches, and the patterns of bone loss that we are most interested in here (namely, mild to moderate bone loss) are common. The fact that the study by Huddleston and colleagues could not determine superiority of one implant over the other illustrates the need for a prospective randomized trial and provides much of the data for the power analysis, which is needed to design such a study. Although the current study has a lower level of evidence, it was the first to ask an important question regarding modular body stems: Should surgeons continue to use these components for milder femoral bone loss when nonmodular body stems are proven to be effective for these defects? Future researchers inspired by the current study—and "empowered" by it, as it were—now can design a study that will be able to answer the question more definitively.

## References

1. Baktır A, Karaaslan F, Gencer K, Karaoğlu S. Femoral revision using the Wagner SL Revision Stem: A single-surgeon experience featuring 11-19 years of follow-up. *J Arthroplasty*. 2015;30:827–834.
2. Richards CJ, Duncan CP, Masri BA, Garbuz DS. Femoral revision hip arthroplasty: A comparison of two stem designs. *Clin Orthop Relat Res*. 2010;468:491–496.
3. Weeden SH, Paprosky WG. Minimal 11-year follow-up of extensively porous-coated stems in femoral revision total hip arthroplasty. *J Arthroplasty*. 2002;17(4 Suppl 1):134–137.