

A person wearing a light blue checkered shirt is sitting and reading an open book. Their right hand is resting on the page. They are surrounded by several tall stacks of old, thick books on either side of them. The background is a soft, out-of-focus blue.

AHF 2026 ePosters

Femoral Complications During Direct Anterior Total Hip Arthroplasty in Patients with Sickle Cell Disease

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Introduction

Patients with sickle cell disease (SCD) undergoing total hip arthroplasty (THA) for avascular necrosis (AVN) present unique technical challenges due to bony characteristics specific to remodeling resulting in challenges in canal preparation [1], [2]. One recognized complication of THA performed through the direct anterior approach (DAA) as well as hip replacements in patients with SCD is cortical perforation and fracture during preparation of the femoral canal [3]. However, data describing femoral complications in SCD patients undergoing THA through DAA is limited.

Methods

- **Study Design:** Retrospective cohort of SCD patients undergoing DAA THA for AVN (n=36)
- **Outcome:** Incidence of intraoperative femoral complications (perforation, fracture)
- **Analysis:** Univariate comparisons using parametric/non-parametric tests
- **Modeling:** Firth penalized logistic regression to assess associations with complications

Results

- **Complication Rate:** 22% overall (8/36); perforation 13.9%, fracture 8.3
- **Operative Factors:** Complications associated with longer operative time (173 vs 83 min) and higher blood loss (300 vs 200 mL)
- **Fracture Subgroup:** Older patients (40.3 vs 32.2 years) with increased blood loss (300 vs 200 mL)

References:

1. M. L. Al-Otaibi, S. Waliullah, and V. Kumar, "Total Hip Replacement in Sickle Cell Disease Patients with Avascular Necrosis of Head of Femur: A Retrospective Observational Study," *Indian J Or*
2. A. K. Ocloo, A. Kwafo-Armah, and S. Q. Lartey, "An Overview of Avascular Necrosis of the Hip in Patients with Sickle Cell Disease," *J West Afr Coll Surg*, vol. 15, no. 2, pp. 197–202, 2025, doi: 10.4103/jwas.jwas.21_24.
3. C. DeMaio, C. Patrick, G. Domingue, J. Fox, J. Dvorak, and R. Thakral, "Total Hip Arthroplasty Complications in Patients With Sickle Cell Disease: A Comparison Study," *Arthroplast Today*, vol. 30, p. 101512, Dec 2024, doi: 10.1016/j.artd.2024.101512.
4. A. Ganguly, W. Boswell, and H. Anliq, "Musculoskeletal Manifestations of Sickle Cell Anaemia: A Pictorial Review," *Anemia*, vol. 2011, p. 794283, 2011, doi: 10.1155/2011/794283.

Acknowledgements: Funded in part by the Matheson Foundation

Table 1 Baseline Characteristics Stratified by Femoral Complication

Characteristic	No Femoral Comp. (n=28)	Any Femoral Comp. (n=8)	P-value
Demographics			
Age	34.2 (19.1-54.2)	32.7 (23.7-51.3)	0.551
Body Mass Index	28.9 (16.6-36.6)	29.8 (22.6-38.1)	0.547
% Female	82.8%	42.9%	0.089
Intraoperative Metrics			
Operative Time	83 (62-93)	173 (145-183)	<0.001
Estimated Blood Loss	200 (75-500)	300 (150-1000)	0.043

Table 2 Femoral Complication Rates

Outcome	N (%)
Any Femoral Complication	8 (22.2%)
Femoral Perforation	5 (13.9%)
Femoral Fracture	3 (8.3%)

Figure 1 Intraoperative Femoral Perforation

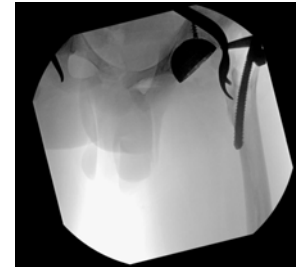


Figure 2 Intraoperative Femoral Fracture



Discussion

- **High Risk Population:** SCD patients undergoing DAA THA demonstrated a high rate of femoral complications (22.2%), reflecting challenging femoral anatomy (sclerosis, cortical thinning, abnormal canal morphology) [4]
- **DAA-Specific Challenge:** Limited femoral exposure with the DAA may further increase risk of perforation and fracture in this population
- **Context with Literature:** Fracture rate (8.3%) aligns with prior reports, but overall complication rate higher when including perforations – an underreported event
- **Takeaway:** Femoral preparation is a key point of vulnerability, requiring careful preoperative planning, intraoperative vigilance, and a low threshold to adjust technique

Conclusions

- **High Risk:** SCD patients undergoing DAA THA have a substantial rate of intraoperative femoral complications (22.2%)
- **Clinical Implication:** Femoral preparation represents a key intraoperative vulnerability
- **Takeaway:** Careful preoperative planning and heightened intraoperative vigilance are essential to mitigate risk.

Selective Screw Use in Acetabular Fixation: A Single Institution's Experience with 15,000 Hips

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ξ – No Conflicts to Disclose, § – Paid consultant for 2ndMD and Zimmer Biomet; Research Support from Zimmer Biomet, § – Royalties, Paid Consultant, Paid Presenter/Speaker, and Research Support from DePuy, a Johnson & Johnson company; Royalties and Paid Consultant for Onkros Surgical and Total Joint Orthopedics; Research Support from Zimmer Biomet and Inova Health Care Services; AAHKS and Knee Society Board/Committee

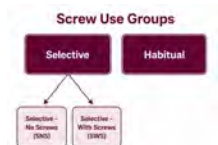


Introduction

Early acetabular component stability is critical for bone ingrowth and long-term cup stability in total hip arthroplasty (THA). The use of acetabular screws in primary THA remains a topic of debate, especially in patients where good initial press-fit fixation can be achieved. While screws can provide supplemental fixation when initial stability is challenging, their routine use may be unnecessary. This study examines whether low rates of acetabular loosening can be achieved by surgeons who selectively use screws in primary THA.

Materials and Methods

- Retrospective cohort study using institutional registry data
- A total of 15,428 primary THAs were included
- Study Timeframe: January 2000 – March 2025
- 9 high-volume arthroplasty surgeons
 - 2 habitual screw users



- All cases utilized cementless press-fit fixation
- Most common implant systems
 - Pinnacle Acetabular Cup System (DePuy Synthes)
 - G7 Acetabular System (Zimmer Biomet)
 - Duraloc Acetabular Cup System (DePuy Synthes)
 - Trident PSL Acetabular System (Stryker)
- The primary outcome measure was revision for aseptic acetabular loosening.
- Secondary outcomes included all-cause revision, aseptic revision of any component, and survivorship.

Table 1. Baseline Characteristics

	Selective – No Screws (SNS)	Selective – With Screws (SWS)	Habitual Screws
Count (n hips)	11,250	455	3,723
Female (%)	56%	75%	59%
Age at surgery (years)	64.6 ± 11.3	65.0 ± 11.2	64.7 ± 11.3
Height, inches	67.2 ± 4.2	67.0 ± 4.1	67.1 ± 4.2
BMI	28.6 ± 5.9	29.3 ± 6.4	28.7 ± 6.0

*Mean ± Standard Deviation (range)
P < 0.05 is considered statistically significant

Results

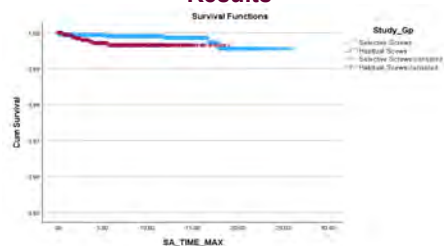


Figure 1. Kaplan-Meier Survivorship Curve with Cup Revision as Endpoint among Selective (not subdivided) and Habitual Screw Use Groups ($P = 0.016$)

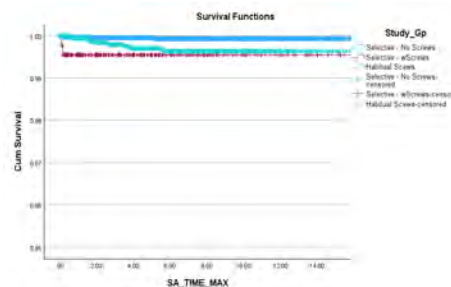


Figure 2. Kaplan-Meier Survivorship Curve with Cup Revision as Endpoint among SWS, SNS, and Habitual Screw Use Groups

Table 2. Mean Time to Revision

Group	Time to Revision (years)
Selective – No Screws (SNS)	3.8 ± 4.4
Selective – With Screws (SWS)	2.4 ± 4.0
Habitual screws	1.7 ± 2.9

- SNS significantly longer time to revision than habitual screw use group ($p < 0.001$)
- No significant difference in time to revision between SNS, SWS, and habitual screw use groups in a 3-way ANOVA

Table 3. All-Cause Revision Rate

Reason for Revision	Selective – No Screws (SNS)	Selective – With Screws (SWS)	Habitual Screws
Infection	0.5%	1.1%	1.0%
Instability	0.4%	0.4%	1.1%
Femur fracture	0.1%	0.4%	0.6%
ALTR	0.4%	0.7%	0.2%

- SNS significantly higher infection risk vs SWS ($P < 0.05$)
- No significant difference in instability, femur fracture, or adverse local tissue reaction (ALTR) between groups
- Very low rates of acetabular loosening across groups ($\leq 0.2\%$)

Discussion and Conclusions

- No clear clinical advantage to habitual screw use
- Selective – No Screws (SNS) group:
 - Longer time to revision than SWS
 - Lower infection rate than SWS
- Very low rates of acetabular loosening across all groups
- High survivorship across all groups
- Differences likely reflect surgeon decision-making and patient selection, not fixation strategy alone
- Supports individualized decision-making

VIDEO SUBMISSION

Winner

Femoral Osteotomies via the Direct Anterior Approach

Frans-Jozef Vandeputte & Kristoff Corten

SCAN HERE





Equality in Hip Arthroplasty Outcomes Can Be Achieved Regardless of Patient Socioeconomic Status

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Background

Socioeconomic deprivation is associated with disparities in orthopaedic access and outcomes. However, it is unclear whether these disparities persist when patients receive standardized THA care with individualized education and follow-up.

Objectives

To evaluate the short- to mid-term effect of socioeconomic deprivation on patient reported outcomes (PROs) following total hip arthroplasty (THA)

Methods

- May 2008 – May 2023:** Data was collected prospectively on all patients undergoing THA at a single institution
- Patients stratified into 4 groups by Social Deprivation Index
- PROs assessed preoperatively, 3 months, 1 year, 2 years, and 5 years: mHHS, HHS, HOOS-JR, FJS, VAS
- Inclusion Criteria:** documented residence ZIP code, PRO measures completed at minimum 5-year follow-up.
- Exclusion Criteria:** previous hip conditions, prior ipsilateral hip surgery, workers compensation.
- All patients received **standardized** perioperative protocols and **individualized** education/follow-up

Preoperative

1:1 education + expectation setting

Intraoperative

Standardized THA protocol + anatomy-specific implant positioning

Postoperative

Standardized rehab + individualized follow-up guidance

Results

Figure 1. Patient Selection

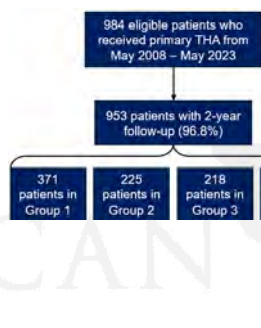
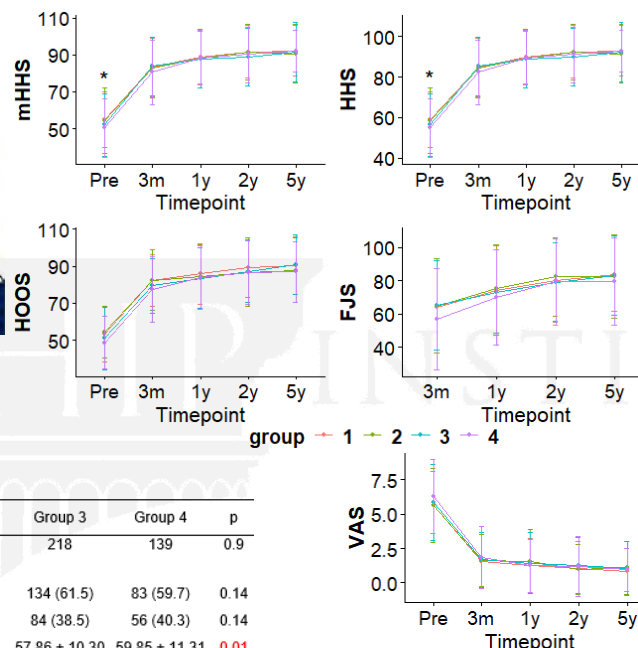


Table 1: Patient Demographics

Patient Demographics	Group 1	Group 2	Group 3	Group 4	p
Count (n) [†]	371	225	218	139	0.9
Sex [†]					
Women	207 (55.8)	115 (51.1)	134 (61.5)	83 (59.7)	0.14
Men	164 (44.2)	110 (48.9)	84 (38.5)	56 (40.3)	0.14
Age (years) [‡]	60.69 ± 9.92	59.22 ± 9.81	57.86 ± 10.30	59.85 ± 11.31	0.01
BMI (kg/m ²) [‡]	29.23 ± 5.73	29.86 ± 6.25	29.63 ± 6.10	30.19 ± 6.98	0.7
Approach (Direct)	318 (85.71)	191 (84.89)	190 (87.16)	123 (88.49)	0.76
Anterior [‡]					
Robotic	324 (87.3)	200 (88.9)	199 (91.3)	121 (87.1)	0.48
Assisted [‡]					
Follow-Up Time (months) [‡]	62.89 ± 33.27	65.78 ± 34.07	61.08 ± 31.56	60.04 ± 34.53	0.3

[†]The values are given as the number of hips, with the percentage in parentheses.

[‡]The values are given as mean and the standard deviation; BMI: Body Mass Index



Key Findings

- 953 patients included with minimum 2-year follow-up
- Higher** SDI was associated with **lower** baseline mHHS/HHS
- Postoperative PROs were **comparable** across SDI groups
- PASS and revision-free survivorship were similar across groups

Conclusions

- THA patients achieved comparable short- and mid-term outcomes across SES groups.
- Higher social deprivation was associated with worse baseline function, but comparable postoperative recovery.
- Standardized surgical protocols with individualized education may help promote equitable THA outcomes.

Porous Tantalum Cup in Cup with Half Cage and Cemented Cup for Pathologic Periacetabular Fracture Through Extensile Direct Anterior Approach

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Background

70M with ESRD on HD, metastatic prostate cancer with pathologic right anterior column/anterior wall fracture with protrusio and chronic left femoral neck fracture.

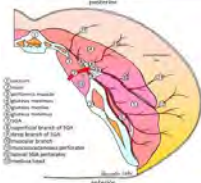


Images 1-2.

Radiograph and 3D CT rendering showing right acetabular fracture with protrusio and left femoral neck fracture

Key Operative Considerations

- Extensile proximal approach – major points
 - TFL Management
 - Superior gluteal artery and abductor musculature origin
- DAA provides advantage of fluoroscopy for cup and screw placement
- Use Contralateral Half-Cage in DAA for better orientation and contouring



Direct Anterior Approach



Image 3.

Standard Hueter interval incision with proximal extension along iliac crest (red line).



Image 4.

Extensile exposure: Subperiosteal peel of Tensor Fascia Lata (TFL) off ilium with 1cm cuff for repair. Direct head of rectus tenotomy off Anterior Inferior Iliac Spine (AIIS)

Acetabular Inner and Outer Cup Preparation

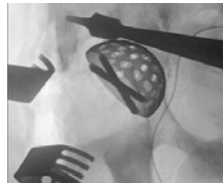


Image 5. Reverse reaming with size 58 reamer until adequate resistance to establish medial footing.

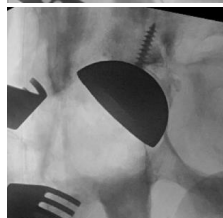


Image 6-7.

Outer cup prepared by retaining a size 58 trial cup as a medial footing. Forward reaming until reamer basket engages ischium and rim of ilium with 68 reamer. Size 58 tantalum shell was used as medial footing augment with one screw placed in ilium.

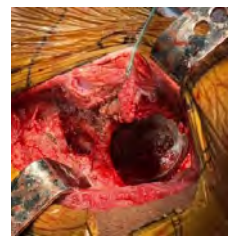
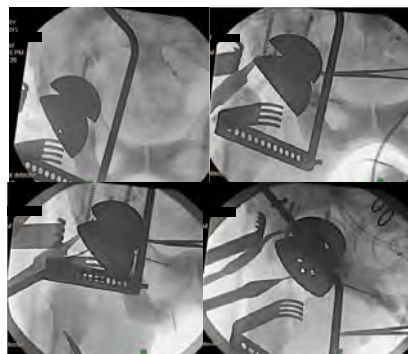


Image 8. Back table preparation of tantalum shell with removal of peripheral ring and 3.2mm helicoidal rasp to pre-drill paths for multiple screws, planned to be in ilium, ischium, and pubic ramus



Image 9-12. Size 68 Outer cup impacted with less anteversion and more inclination than planned final cup placement. Six screws inserted into ilium, ischium, and pubic ramus. Inlet and outlet views used for ramus screw insertion



Acetabular Component Modification and Implantation



Image 13.

Both shells unitized with cement via Toomey syringe for controlled injection under fluoroscopic guidance

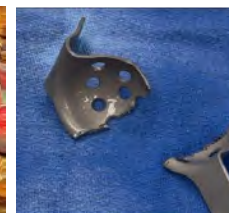


Image 14.

Use L side d cup for R acetabulum when placed from anterior approach for optimal fit. Cup cut with burr and contoured with plate benders.



Image 15.

DM liner impacted into final cup on back table



Image 16-18.

Half cage placed with multiple screws passed through iliac flange. Final cup cemented in place under fluoroscopic guidance.

Femoral Preparation and Final Construct

- Proximal extensile exposure allows for better femoral access for broaching
- Cemented primary femoral stem was used given pathologic bone without a diaphyseal lytic lesion

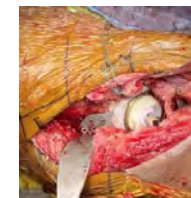


Image 19-20.

Final construct with cemented femoral stem, dual mobility liner, cemented cup in half cage, medial footing augment

25 Years of Experience with a Modular, Porous-Coated Hemispheric Acetabular Implant Design: A Single Center Study

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Introduction

Hemispheric porous-coated acetabular components are widely used in primary total hip arthroplasty. The Pinnacle acetabular system has remained one of the most commonly implanted cup designs due to its modularity, cementless fixation, and compatibility with multiple bearing surfaces. However, historical concerns have included metal-on-metal bearings, adverse local tissue reactions, polyethylene liner dissociation, and long-term fixation durability.

Purpose

To evaluate 25 years of single-center experience with the Pinnacle acetabular component in primary THA, focusing on:

1. Long-term survivorship using all-cause revision, aseptic revision, and aseptic acetabular revision as endpoints
2. Revision reasons and early complications
3. Patient, surgical, and implant factors associated with revision risk

Methods

- Retrospective cohort study using prospectively collected institutional registry data.
- Included 12,282 primary THAs performed with the Pinnacle acetabular component from July 2000 to September 2025.
- Excluded patients <18 years old, hemiarthroplasties, and revision THAs.
- Mean follow-up was 5.7 ± 5.1 years
- Primary endpoint was revision for any reason.
- Secondary endpoints included aseptic revision, aseptic loosening, and aseptic acetabular revision.
- Revision reasons were confirmed by operative reports, clinical documentation, and radiographic review.
- Kaplan-Meier analysis was used to evaluate implant survivorship.
- Cox proportional hazards regression was used to identify factors associated with revision risk.

Results

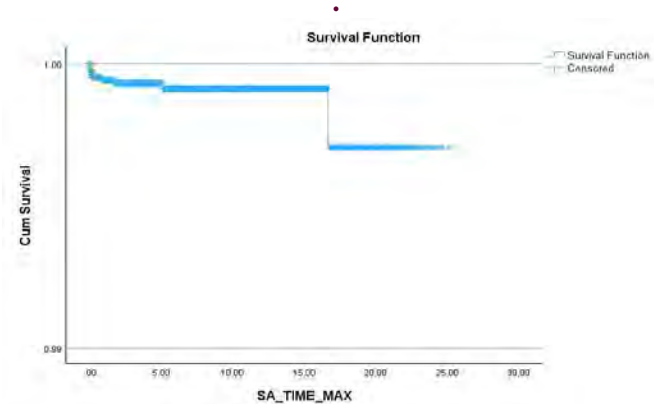


Figure 1. Kaplan-Meier Survivorship Curve with Revision for Any Reason as the Endpoint

Table 1. Most Common Reasons for Revision

Revision Reason	Number of THAs	Percent of Revisions
ALTR / infection	136	52.30%
Instability	55	21.20%
Stem loosening	24	9.20%
Stem breakage	7	2.70%
Femur fracture	15	5.80%
Liner disengagement	5	1.90%
Ceramic liner fracture	1	0.40%

Note: Adverse Local Tissue Reaction (ALTR) and infection were grouped because historically, ALTR may have been recorded as infection prior to ALTR being a known complication.

Table 3. Cox Regression Findings for Revision Risk

Factor Associated with Revision	Hazard Ratio	95% CI	P-value
Metal liner	2.79	2.12 to 3.66	<0.001
Trilock stem	2.10	1.34 to 3.28	0.001
Posterior approach	1.90	1.43 to 2.53	<0.001

Discussion and Conclusions

- The Pinnacle cup demonstrated excellent long-term survivorship with very low aseptic acetabular loosening.
 - Most revisions were related to ALTR/infection, instability, or stem failure rather than cup loosening.
 - Metal liners, Trilock stems, and posterior approach were associated with increased revision risk.
- Conclusion
- Over 25 years, the Pinnacle cup showed durable fixation and reliable survivorship in primary THA.
 - Aseptic acetabular loosening was rare at 0.04%.
 - These findings support the continued use of the Pinnacle cup, particularly with contemporary non-metal-on-metal constructs.



A Wear-Indicating Stainless Steel Acetabular Reamer System is Associated with Reduced Reaming Time and Improved Operative Efficiency in Total Hip Arthroplasty

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INTRODUCTION

- Efficient acetabular preparation is critical to successful total hip arthroplasty (THA).
- Conventional acetabular reamers undergo progressive edge degradation with repeated use, yet lack a standardized method to identify cumulative wear.
- Prior investigations demonstrate variability in cutting accuracy, heat generation, and reaming efficiency between sharp and dull reamers, contributing to prolonged reaming times.

PURPOSE

Compare intraoperative reaming time between a novel wear-indicating stainless steel reamer system and legacy conventional reamers in primary direct anterior THA.

HYPOTHESIS

The novel wear-indicating reamer system would be associated with reduced and more consistent reaming time compared to legacy reamers.

METHODS

Inclusion (both): (1) ≥ 1 high-risk criterion — T2DM, immunocompromised, active smoker, BMI >30 , or revision surgery; (2) received silk fibroin or ciNPT, attending is reaming

- Retrospective cohort, November 2025 – May 2026
- Single academic institution, single surgeon
- 92 primary direct anterior THAs (novel n=46; legacy n=46)
- Reaming time recorded intraoperatively via standardized stopwatch
- Mann–Whitney U test; Levene’s test for variance; Welch t-test
- Multivariable linear regression adjusting for age, BMI, and sex

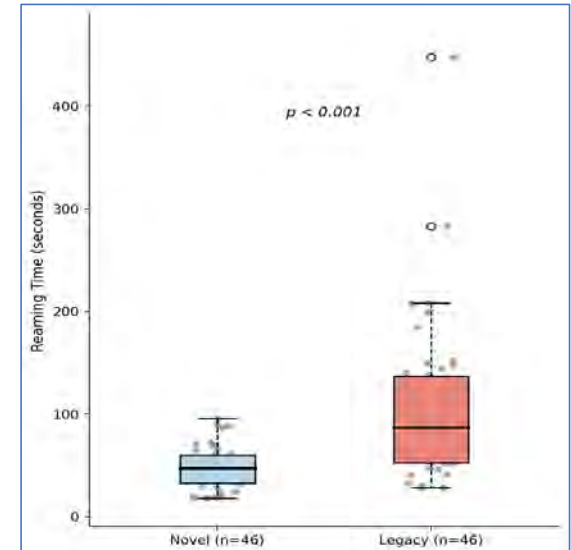
RESULTS

- Median reaming time: 47.5 s (IQR 33.020*) novel vs 87.0 s (IQR 57.25) legacy — 39.5-s reduction ($p < 0.001$)
- Mean reaming time: 54.1 $\pm$ 23.3 s (novel) vs 106.5 $\pm$ 72.9 s (legacy); mean difference 52.3 s (95% CI 28.7–76.0)
- Legacy group demonstrated substantially greater variability (Levene’s $p = 0.060$)
- Multivariable regression: legacy reamer independently associated with +61.5 s ($p < 0.001$)
- Male sex also associated with longer reaming time (+36.8 s, $p = 0.020$)
- Age and BMI not significantly associated with reaming time

TABLE 1. REAMING TIME SUMMARY

	Novel (n=46)	Legacy (n=46)	P-value
Median time (s)	47.5	87.0	<0.001*
IQR (s)	33.25	57.25	—
Mean $\pm$ SD (s)	54.1 $\pm$ 23.3	106.5 $\pm$ 72.9	<0.001*
BMI (kg/m ²)	29	28	—
Max time (s)	110	460	—
n	46	46	—
Regression β (s)	Reference	+61.5	<0.001*
Male sex β (s)	+36.8	+36.8	.25

FIGURE 1. REAMING TIME BY GROUP



DISCUSSION

- Novel reamer reduced median reaming time by 39.5 seconds vs legacy reamers.
- Legacy wider distribution of reaming times, reflecting real-world variability from reamer degradation.
- Effect persisted on multivariable regression (+61.5 s, $p < 0.001$), controlling for age, BMI, and sex.
- Limitations: retrospective design, single institution, single surgeon; data limited to November 2025–May 2026.

EXTENSILE ANTERIOR APPROACH FOR CATASTROPHIC HIP RESURFACING FAILURE WITH MASSIVE ACETABULAR BONE LOSS

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Mayo Clinic, Phoenix, AZ

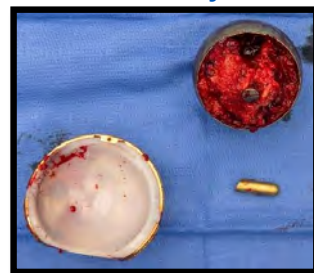
Background

Catastrophic failure of hip resurfacing may result in severe osteolysis, pseudotumor formation and complex acetabular bone loss. Management of **Paprosky 3B defects** often remains technically demanding and controversial, with many surgeons favoring posterior exposure for cup-cage reconstruction. This case demonstrates successful management using an **extensile anterior approach**.

Surgical Technique

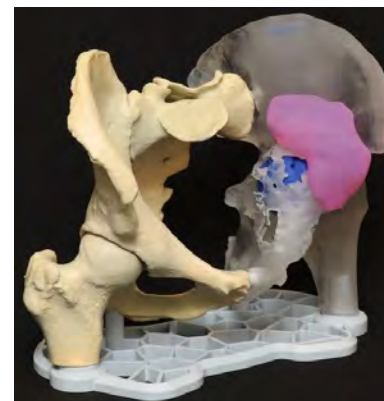
Revision was performed through an extensile Smith-Petersen approach using a Hana table. Following debridement of severe medial and superomedial osteolysis, reconstruction was achieved with **cancellous allograft**, a **74-mm** trabecular metal revision shell with column fixation, a modified half cage, and a cemented dual mobility liner.

Femoral revision restored leg length and offset under fluoroscopic guidance. At **1-year follow-up**, the patient was pain free, ambulating independently, with stable cup-cage fixation and no radiographic migration.



Case Presentation

A 64-year-old male with rheumatoid arthritis presented **9** years after hip resurfacing with progressive dysfunction, mechanical block to motion and 2–3 cm limb shortening. Imaging demonstrated gross acetabular loosening with superomedial migration, extensive osteolysis consistent with a Paprosky 3B defect and a large **8 cm** anterior pseudotumor extending into the iliacus muscle. Infection workup was negative.



Outcome Definition Influences Reported Failure After Treatment of Hip Periprosthetic Joint Infection

John R. Tyler, BS, Whisper Grayson, MD, Amy Wozniak, MS, Daniel Schmitt, MD, Nicholas M. Brown, MD

BACKGROUND

- Periprosthetic joint infection (PJI) remains one of the most serious complications after total hip arthroplasty.
- Reported success rates after PJI treatment vary widely, in part because treatment failure is not defined uniformly.
 - Modern frameworks such as the Musculoskeletal Infection Society Outcome Reporting Tool (MSIS ORT) and Delphi criteria were developed to standardize outcome reporting, but they may not fully capture clinically meaningful patient outcomes.
- A pragmatic Clinical definition may better reflect real-world treatment failure by incorporating recurrent infection, unplanned implant removal, chronic suppressive antibiotics, and PJI-related death.

PURPOSE: To compare reported failure rates after treatment of hip PJI using three outcome definitions: MSIS ORT, Delphi criteria, and a pragmatic Clinical definition.

METHODS

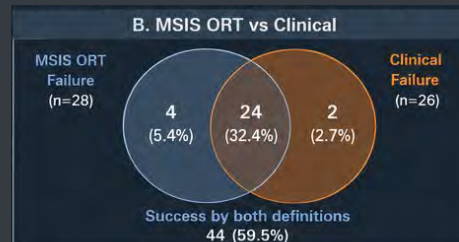
STUDY DESIGN

- Single-center retrospective cohort at a Level I academic center (January 2007 – January 2024)
- The primary analytic cohort included 74 episodes with either:
 - a documented failure event before 12 months, or at least 12 months of follow-up after the index PJI procedure.
- Treatment strategies included debridement, antibiotics, and implant retention (DAIR) or staged revision.
- Failure rates were calculated using MSIS ORT, Delphi, and a pragmatic Clinical definition.

STATISTICAL ANALYSIS

- Agreement between definitions was assessed using cross-tabulations.
- Sensitivity analysis evaluated the Clinical definition in the full 81-case hip cohort, including a conservative assumption that episodes without documented Clinical failure and with less than 24 months of follow-up were classified as failures.

DEFINITION AGREEMENT / DISCORDANCE



- Key finding:
 - 2 of 46 MSIS ORT-defined successes (4.3%) were Clinical failures.
 - 2 of 50 Delphi-defined successes (4.0%) were Clinical failures.

RESULTS

Cohort	Count
Total THA PJI episodes	81
Primary analytic cohort	74
DAIR	55/74
Staged Revision	19/74

FAILURE RATES BY OUTCOME DEFINITION

Group	MSIS ORT	Delphi	Clinical
Overall	37.8%	32.4%	35.1%
DAIR	41.8%	34.5%	38.2%
Staged Revision	26.3%	26.3%	26.3%

SENSITIVITY ANALYSES

- In the full 81-episode hip cohort, the Clinical failure rate was:
 - 32.1% at last available follow-up
 - 48.1% when episodes with less than 24 months of follow-up and no documented Clinical failure were conservatively counted as failures

CONCLUSIONS

- Failure after treatment of hip PJI remained common regardless of the outcome framework applied.
- Although MSIS ORT and Delphi produced similar aggregate estimates, they were not fully interchangeable with a pragmatic Clinical definition at the patient level.
- Definitional choice materially influences interpretation of hip PJI treatment outcomes and should be clearly reported when comparing outcomes across PJI studies.

Clinical Relevance

Reported PJI "success" depends on how failure is defined.

For hip PJI, consensus definitions produced broadly similar failure rates, but patient-level classification differed, indicating that some clinically meaningful failures may be missed depending on the outcome framework used.

Introduction

Cementless femoral stems are widely utilized in primary total hip arthroplasty (THA), with modern designs focused on optimizing metaphyseal fit, axial and rotational stability, and early osseointegration. Triple-tapered, collared stem designs may reduce early mechanical complications while supporting reproducible fixation in same-day discharge ambulatory surgery center (ASC) settings [1-3]. Automated impaction devices (AID) may further enhance consistency of femoral preparation and stem seating while reducing surgeon physical demand [4]. This study evaluated the early survivorship, complications, patient-reported outcomes, and operative efficiency of a modern collared, triple-tapered cementless femoral stem in primary direct anterior THA.

Methods

- Retrospective review of 525 consecutive primary THAs performed between September 2024 and August 2025.
- Procedures performed by 15 fellowship-trained arthroplasty surgeons across multiple ASCs.
- All cases utilized a direct anterior approach and same-day discharge pathway.
- Primary outcomes:
 - 90-day all-cause revision survivorship
 - Stem-specific survivorship
 - Early complications including periprosthetic fracture, dislocation, and infection
- Secondary outcomes:
 - HOOS-JR [5,6]
 - FJS-12 [7,8]
 - VR-12 MCS and PCS
 - Patient satisfaction
 - Operative time
- PROMs collected preoperatively and at 12 weeks postoperatively.
- Mean age was 66 ± 11 years (range, 23–91), with 52% women and 48% men; mean BMI was 30 ± 6 kg/m² and mean Charlson Comorbidity Index was 2.46 ± 1.37.
- Osteoarthritis was the primary indication in 97% of cases

Results

- Mean follow-up: 110 ± 39 days.
- 90-day all-cause survivorship: 99.6%, stem-specific survivorship: 99.8%.
- Early periprosthetic fracture rate: 0.2%.
- No intraoperative femur fractures or cases of early aseptic loosening were observed.
- Two patients (0.4%) required revision within 90 days:
 - One Vancouver B2 periprosthetic femur fracture treated with stem revision and cabling
 - One acute prosthetic joint infection treated with DAIR and modular component exchange
- One additional patient underwent immediate reoperation for suspected occult fracture; no fracture was identified, a prophylactic cable was placed, and recovery was uneventful.
- Five dislocations (1.0%), all managed with closed reduction.
- Significant improvement in all PROMs at 12 weeks:
 - HOOS-JR: +28.7 points (84.2% MCID achievement)
 - FJS-12: +41.9 points (85.5% MCID achievement)
 - VR-12 PCS: +13.2 points
 - VR-12 MCS: +5.0 points
- 95.9% of patients reported being satisfied or very satisfied.
- AID utilized at surgeon discretion in 82% of cases.
- AID-assisted cases demonstrated shorter operative times, although within-surgeon comparisons were limited by small sample sizes.

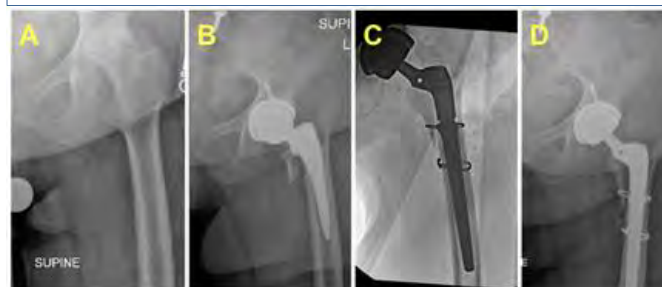


Figure 1. Preoperative (A) and postoperative (B) radiographs demonstrating a periprosthetic Vancouver B2 fracture. The patient began feeling pain overnight on postoperative day 15. They reported to the emergency department, and a fracture was found. Stem was revised, and two cables were placed (C). New stem stable 4 weeks postoperative (D).

Discussion

- The collared, triple-tapered stem demonstrated excellent early survivorship and low complication rates in an ASC same-day discharge population.
- Findings are consistent with prior literature supporting triple-tapered stem geometry and collared fixation for early mechanical stability [1-3].
- Absence of early aseptic loosening supports reliable initial fixation and osseointegration.
- Functional outcomes exceeded MCID thresholds, demonstrating meaningful early recovery.
- High AID utilization suggests controlled automated impaction can be safely integrated into high-volume ASC workflows [4].
- Operative time differences may partially reflect surgeon utilization patterns rather than device effect alone, for it was more commonly employed by higher-efficiency surgeons.

Conclusions

A modern collared, triple-tapered cementless femoral stem demonstrated excellent early survivorship, low complication rates, and clinically meaningful functional improvement following primary direct anterior THA in a same-day discharge ASC setting. Automated impaction was not associated with increased intraoperative complications and integrated effectively within ambulatory arthroplasty pathways.

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High Risk, High Reward: A 25-Year Experience with Total Hip Arthroplasty in Patients with Super Morbid Obesity

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ξ – No Conflicts to Disclose, δ – Paid consultant for 2ndMD and Zimmer Biomet; Research Support from Zimmer Biomet

Background

- The prevalence of super morbid obesity (BMI ≥ 50 kg/m²) among THA patients continues to rise
- Patients with super morbid obesity have higher rates of wound issues, infection, and early infection.
- Despite optimization strategies, the extent to which extreme BMI influences implant survivorship and functional recovery remains uncertain.

Objective

Evaluate implant survivorship and clinical outcomes in super morbidly obese patients undergoing primary total hip arthroplasty.

Materials and Methods

- Design: Retrospective cohort study; IRB-exempt
- Data Source: Single-institution joint arthroplasty registry
- Cohort: Adults undergoing primary THA (2000-2025)
- Exclusions: Revision or conversion THA and age < 18
- Final sample: 83 primary THAs performed by 9 surgeons

Results

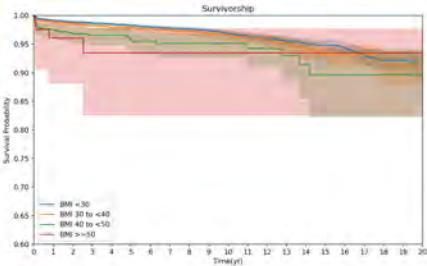


Figure 1. Kaplan-Meier Survival Curve with All-Cause Revision as Endpoint

Table 1. Patient Demographics and Follow-Up

	No BMI Data	BMI < 30	BMI 30 to < 40	BMI 40 to < 50	BMI ≥ 50	Total
Number of Cases	53	11,712	5,371	875	83	18,094
BMI (kg/m ²)	N/A	25.3 ± 2.9 (10.2 - 30.0)	33.7 ± 2.7 (30.0 - 40.0)	43.4 ± 2.6 (40.0 - 50.0)	53.3 ± 3.7 (50.0 - 69.3)	28.8 ± 6.1 (10.2 - 69.3)
Height (inches)	70.5 ± 0.7 (70.0 - 71.0)	67.1 ± 4.1 (50.0 - 86.0)	67.4 ± 4.3 (49.0 - 81.0)	65.6 ± 4.0 (49.0 - 78.0)	65.3 ± 4.4 (55.0 - 76.0)	67.1 ± 4.1 (49.0 - 86.0)
Weight (lbs.)	162.4 ± 72.5 (68.0 - 235.0)	162.7 ± 29.6 (69.0 - 273.0)	218.7 ± 32.2 (110.0 - 345.0)	266.7 ± 34.5 (145.0 - 394.0)	324.5 ± 42.5 (245.0 - 440.0)	185.2 ± 44.9 (68.0 - 440.0)
Gender (% Women)	58.5%	58.0%	51.4%	69.4%	63.9%	56.60%
Age at Surgery (y)	74.5 ± 11.5 (52.1 - 100.3)	65.7 ± 11.5 (18.2 - 98.3)	63.6 ± 10.3 (18.7 - 96.4)	61.4 ± 9.8 (19.7 - 88.2)	58.4 ± 9.3 (28.9 - 78.4)	64.9 ± 1.1 (18.2 - 100.3)
Average Follow-up Time (y)	1.1 ± 3.0 (0.0 - 19.7) *Mean ± Standard Deviation (range) P < 0.001, trend statistically significant	5.8 ± 5.2 (0.0 - 25.9)	5.3 ± 5.0 (0.0 - 25.8)	4.5 ± 4.8 (0.0 - 24.0)	4.1 ± 4.7 (0.1 - 22.1)	5.6 ± 5.1 (0.0 - 25.9)

Table 2. All-Time Revision Causes by BMI Group

	NO BMI DATA	BMI <30	BMI 30 to <40	BMI 40 to <50	BMI ≥50	Total
Instability	0	70	29	9	0	108
Infection	0	44	32	16	5	97
Adverse Local Tissue Reaction	0	55	17	4	0	76
Fracture Femur	0	27	14	2	0	43
Stem Loosening	0	18	13	0	0	31
Poly wear	0	14	4	0	0	18
Cup loosening	0	10	4	1	0	15
Component fail	0	7	7	0	0	14
Osteolysis	0	6	1	0	0	7
Wound Complication	0	2	3	2	0	7
Metallosis	0	4	0	0	0	4
Component malposition	0	1	2	0	0	3
Fracture Acetabulum	0	2	1	0	0	3
Leg Length Discrepancy	0	0	1	0	0	1
Pelvic discontinuity	0	0	1	0	0	1
Other	0	4	1	0	0	5

Table 3. Mean Preoperative and Last-Follow-Up HOOS Scores with Absolute Change by BMI Group

BMI group	Pre HOOS, mean ± SD	Last HOOS, mean ± SD	Δ Last-Pre (points)
No BMI data	45.5 ± 2.7	81.6 ± 18.4	36.1
BMI < 30	55.0 ± 15.0	87.3 ± 15.3	32.3
BMI 30 to < 40	50.9 ± 15.2	85.2 ± 15.9	34.3
BMI 40 to < 50	45.5 ± 15.9	83.2 ± 16.0	37.7
BMI ≥ 50	41.8 ± 18.9	82.6 ± 20.7	40.8
Total	53.0 ± 15.4	86.5 ± 15.6	33.5

HOOS = Hip dysfunction and Osteoarthritis Outcome Score
Pre HOOS = Preoperative HOOS score
Last HOOS = Most recent HOOS score

Key Takeaways

- THA in patients with BMI ≥ 50 shows lower early survivorship, driven largely by infection-related revision
- Mechanical failure modes were not increased in super morbidly obese patients
- Patients with BMI ≥ 50 begin with the poorest baseline function, but often achieve the greatest functional gains postoperatively
- Successful outcomes require preoperative medical optimization, rigorous infection prevention, and clear counseling regarding elevated early risk

Conclusion

THA can be a reasonable and beneficial option for select patients with BMI ≥ 50 when performed with careful optimization, enhanced infection-prevention strategies, and appropriate expectation setting. Despite higher early complication risk, many patients experience substantial functional improvement and meaningful postoperative recovery.

Less Femoral Subsidence After Primary Direct Anterior Total Hip Arthroplasty with Triple-Taper Compared to Dual-Taper Femoral Stem

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Introduction

Femoral stem subsidence following direct anterior (DAA) total hip arthroplasty (THA) is associated with poor early implant fixation and may influence long-term outcomes. Comparative data between dual-taper and triple-taper femoral stems remain limited. This study evaluated differences in subsidence, complications, and patient-reported outcome measures (PROMs) between dual and triple-taper cementless stems.

Methods

- Retrospective cohort study of 826 primary direct anterior total hip arthroplasties (2020–2024) performed at a single tertiary academic center
- Compared dual-taper collared cementless stems (Avenir Complete®, n=439) versus triple-taper collared cementless stems (ACTIS®, n=387)
- Primary outcome: femoral stem subsidence at 8 weeks, assessed radiographically as both incidence and magnitude (mm)
- Secondary outcomes included clinically significant subsidence (≥ 2 mm), complications, and PROMs through 2 years
- Multivariable logistic regression evaluated independent predictors of subsidence, including taper design, age, BMI, sex, and collar-calcus contact

Results

- Subsidence occurred more frequently with dual-taper stems compared with triple-taper stems (8.3% vs 1.8%, $P < 0.001$)
- Clinically significant subsidence ≥ 2 mm was more common in the dual-taper cohort (4.3% vs 0.3%, $P < 0.001$)
- Median subsidence magnitude was greater in dual-taper stems (1.5 mm vs 1.0 mm, $P = 0.010$)
- On multivariable analysis, dual-taper design independently predicted subsidence (OR 2.53, 95% CI 1.17–6.09; $P = 0.025$)
- Collar-calcus contact was strongly protective against subsidence (OR 0.05, $P < 0.001$)
- Major complication rates were low and similar between groups, with no differences in PROM improvement through 2 years

Table 1. Logistic Regression Analysis of Factors Associated with Subsidence Following THA

Characteristic	OR (95% CI)	P-value
Dual vs. Triple-Taper	2.53 (1.17-6.09)	0.025
Collar on Calcar	0.05 (0.02-0.13)	<0.001
Age (per year)	1.01 (0.98-1.04)	0.51
BMI (per kg/m ²)	0.99 (0.92-1.05)	0.69
Female Sex	0.52 (0.24-1.04)	0.074

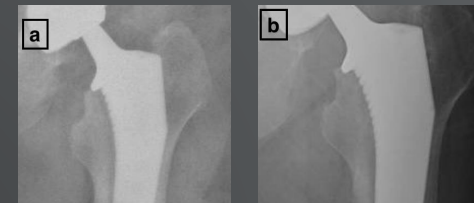


Figure 1. (a) Primary dual-taper THA patient without collar-calcus contact shown on intraoperative x-ray vs (b) 3 mm stem subsidence shown on an 8-week postoperative radiograph. Measurable subsidence occurred in 8.6% of patients implanted with dual-taper femoral stems.

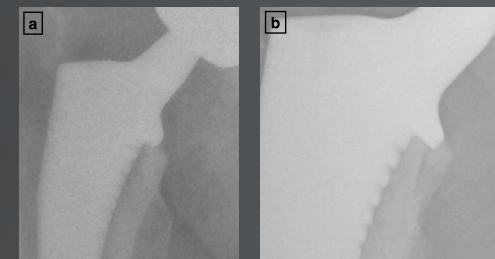


Figure 2. (a) Primary dual-taper THA patient with initial collar-calcus contact shown on intraoperative x-ray vs (b) 3 mm stem subsidence and a nondisplaced calcar fracture at 4 weeks postoperatively. Two patients (0.4%) in the dual-taper cohort had these early postoperative calcar fractures, both of which healed uneventfully.

Discussion

- Triple-taper stem geometry demonstrated superior early mechanical stability compared with dual-taper stems following DAA THA
- Findings suggest taper geometry independently influences early implant fixation beyond patient demographic factors
- Achievement of collar-calcus contact appears critical in minimizing stem migration regardless of implant design
- Although subsidence rates differed, all cases stabilized radiographically without progressive migration
- Despite differences in early fixation characteristics, both stem designs achieved substantial and sustained PROM improvement

Conclusions

- Triple-taper femoral stems demonstrated significantly lower rates and magnitude of early subsidence following primary DAA THA, while dual-taper design independently increased subsidence risk.
- Collar-calcus contact was strongly protective against stem migration, and both stem designs demonstrated low complication rates with favorable clinical outcomes.

Acknowledgments: Funded in part by the Matheson Foundation.

To Cement or Not To Cement

Peri-prosthetic fracture rate in elderly population undergoing Total Hip Arthroplasty

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Background

Peri-prosthetic fractures (PPFX) remain a significant concern in total hip arthroplasty (THA), particularly among elderly patients.

This study evaluates the risk of PPFX rates in elderly patients (≥ 70 years) undergoing THA with a modern cementless triple tapered stems (TTS) compared to class of other stem designs.

Methods

Database: The Premier Healthcare Database (US hospital billing data)

Cohort: Patients were divided into two cohorts: those who received modern cementless TTS (ACTIS, $n = 15,780$) and those who received other types of femoral stems ($n = 200,306$).

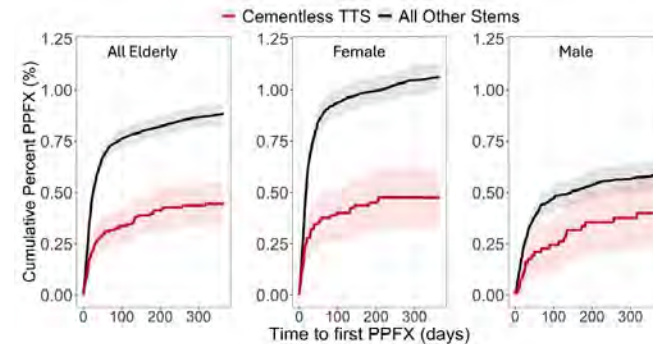
Covariate balancing: Covariates were balanced using Covariate Balance Propensity Score (CBPS) methodology and included patient, provider and procedural characteristics.

Outcomes: Risk of PPFX within 1-year

The study findings suggest that femoral stem design may be a more important predictor of PPFX risk than fixation technique

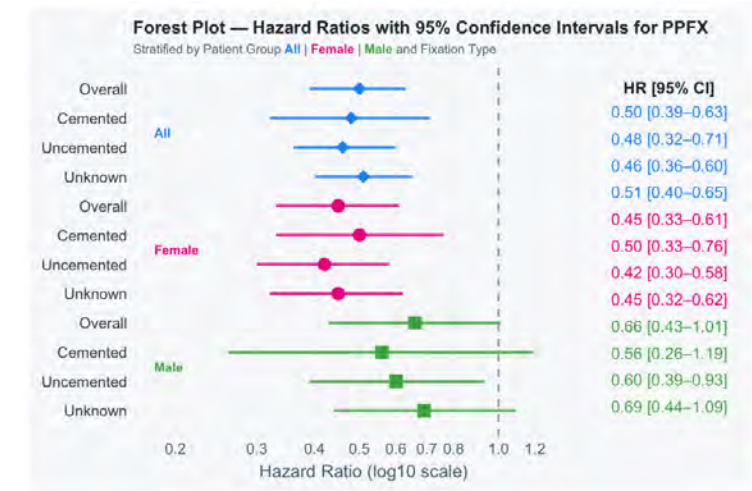
Results & Discussion

Figure 1: Kaplan-Meier (KM) curve adjusted for covariates demonstrating the cumulative percent peri-prosthetic fracture (PPFX) rate. (a) All elderly patients (b) Elderly Female patients (c) Elderly Male patients.



The cementless TTS group had approximately half the 1-year cumulative PPFX rate (0.44%) compared to the other stems group (0.88%; HR 0.50, 95% CI [0.39–0.63], $p < 0.001$).

Figure 2: Forest plot showing the hazard ratio (HR) stratified by patient group and fixation type. HR less than 1 signify lower risk of PPFX for cementless TTS cohort while referencing all other femoral stems, with 95% CI less than 1 signifying statistical significance.



- Female patients had low risk of PPFX (HR 0.45 [0.33–0.61], $p < 0.001$) using cementless TTS.
- Among females, cementless TTS had lower PPFX risk compared to both the cemented non-TTS subgroup (HR 0.5) and the uncemented subgroup (HR 0.42).
- In males, the overall PPFX trend favored TTS but did not reach significance although among uncemented males TTS showed significantly lower risk (HR 0.60).

A Comparison Study Between One-Stage and Two-Stage Debridement, Antibiotics and Implant Retention in Treating Acute Prosthetic Joint Infection in Total Hip Arthroplasty

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Introduction

Prosthetic joint infection (PJI) is a rare but devastating complication following total hip arthroplasty (THA). Revision surgery is effective for chronic PJI, however, it carries high morbidity and mortality. Debridement, antibiotics, and implant retention (DAIR) offers a less morbid option for acute PJI (aPJI), though infection control rates vary significantly from 50-90%. Emerging studies suggest repeat (two-stage) DAIR may improve infection control and over the long term can be more cost-effective than single DAIR. This study aims to demonstrate that two-stage DAIR results in higher success rates in treating aPJI compared to one-stage DAIR in THA.

Methods

A retrospective chart review was performed of 32 patients treated with single- or two-stage DAIR for acute PJI following primary or revision THA over a 10-year period at a single academic medical center. aPJI is defined as infection ≤ 90 days from index procedure,

- Patient Population: Surgical age and body mass index (BMI) were not significantly different between groups ($P=0.505$, $P=0.502$, respectively).
- Data Abstraction: Patient demographics, infection history, peri- and post-operative complications were abstracted from medical records.
- Primary outcome: failure rate of DAIR, which was defined as the recurrence of infection requiring additional surgery.
- Statistics: Independent t-tests, chi-square tests, odds ratios calculated.

Results

- Failure rate was lower following two-stage DAIR (7.14%) compared with single-stage DAIR (44.44%, $P=0.020$, OR=10.4, 95% CI=[1.111, 97.335], Figure 1).
- No significant differences were observed in days from index procedure to infection onset or laboratory values between single- and two-stage DAIR groups.

	Single DAIR	Two-Stage DAIR
Index Procedure		
Primary THA (n)	15	8
Revision THA (n)	3	6
Surgical Age, mean $\pm$ SD	60.8 $\pm$ 15.3	64.0 $\pm$ 9.2
BMI, mean $\pm$ SD	30.5 $\pm$ 7.5	32.3 $\pm$ 6.9

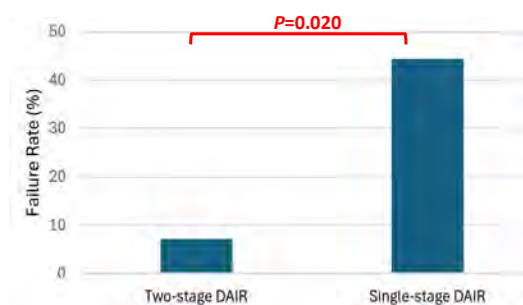


Figure 1. Failure rate following single- and two-stage DAIR

- Infecting microorganisms, days between index procedure and infection onset, management and outcome of patients who failed either single- or two-stage DAIR are summarized below:

Intervention	DAIR Timing from index	Microorganism	Status
Two-stage DAIR	26 days	Proteus mirabilis	Post distal femoral replacement on chronic suppression
Single DAIR	36 days	MSSA	Post repeat DAIR on chronic suppression
Single DAIR	77 days	MRSA	Post reimplantation, off antibiotics
Single DAIR	13 days	MSSA	Post reimplantation on chronic suppression
Single DAIR	24 days	Pseudomonas	Post reimplantation
Single DAIR	61 days	Negative culture	Post reimplantation
Single DAIR	90 days	Negative culture	Managed conservatively with chronic suppression
Single DAIR	35 days	Negative culture	Post reimplantation on chronic suppression
Single DAIR	59 days	Group B Strep	Post reimplantation on chronic suppression

	Single DAIR	Two-Stage DAIR	P-Value
Days between index and infection onset	46	31.9	0.086
Serum ESR (mm/hr)	11.2	8.1	0.358
Serum CRP (mg/dL)	57.8	46.7	0.539

Conclusion

Two-stage DAIR demonstrated a lower failure rate in treating acute postoperative THA PJI compared to single-staged DAIR. These findings support further investigation of staged DAIR as treatment of aPJI in THA.

Variation in Spinal Anesthesia Failure During Primary Total Hip Arthroplasty and Implications for Operating Room Efficiency

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TABLE 1. SPINAL ANESTHESIA OUTCOMES

	Successful (n=167)	Failed (n=59)	P-value
Anesthesia Start-to-Ready (min)	15 ± 6	25 ± 12	<0.001
Incision Close-to-Exit (min)	9 ± 5	16.9 ± 12	<0.001
Total Additional OR Time (min)	—	+18	<0.001
Mepivacaine Block Inadequacy	5.8%	—	0.041
Ropivacaine Block Inadequacy	17.4%	—	(ref)
Total Spinal Attempts	167 (73.9%)	59 (26.1%)	—
Inadequate Block	—	32 (54.2%)	—
Conversion to General Anesthesia	—	27 (45.8%)	—

BACKGROUND

- Spinal anesthesia is commonly used for primary THA and is associated with reduced transfusion and favorable perioperative outcomes compared with general anesthesia.
- However, spinal failure, defined as technical inability to place the block or inadequate block, may introduce operative delays and workflow disruption.
- In high-volume arthroplasty settings, both provider-level factors and anesthetic selection may influence spinal performance.

PURPOSE

Evaluate provider-level variation in spinal anesthesia failure rates, assess the association between anesthetic agent and spinal failure, and determine the impact of spinal failure on operating room time during primary THA.

HYPOTHESIS

Provider-level variation in spinal anesthesia failure and anesthetic agent selection represent modifiable contributors to operating room efficiency in high-volume arthroplasty.

METHODS

- A retrospective review of 278 consecutive primary direct anterior THAs at a single institution was performed.
- After excluding 52 planned general anesthesia cases, 226 spinal attempts by 13 anesthesiologists were analyzed.

RESULTS

- Among 226 spinal attempts, 59 failed (26.1%): 32 due to inadequate block and 27 requiring conversion to general anesthesia.
- Conversion to general anesthesia accounted for 45.8% of failures (27/59); the remaining 54.2% (32/59) were due to inadequate block requiring supplemental anesthesia at incision

DISCUSSION

- Spinal anesthesia failure occurred in approximately one quarter of cases and varied significantly across providers.
- Highly variable by provider — suggesting a training and standardization opportunity
- Mepivacaine may offer a block adequacy advantage over ropivacaine in primary THA
- Failed spinals add ~18 minutes of non-operative OR time, a meaningful efficiency cost in high-volume arthroplasty
- Anesthetic agent selection and provider-level practice patterns are potentially modifiable levers for improving OR efficiency
- Limitations: retrospective design, single surgeon/institution, and inability to account for patient-level anatomical factors that may independently predict spinal difficulty



Early-Stage Osteoarthritis Predicts Inferior Outcomes After Total Hip Arthroplasty Compared to Late Osteoarthritis: A Propensity-Matched Analysis

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Background

OA severity at the time of THA may influence postoperative outcomes and clinically meaningful improvement. However, limited data exist evaluating the impact of radiographic OA severity on postoperative PROs, PASS achievement, and revision rates following THA.

Purpose

To compare postoperative PROs, clinically meaningful outcome achievement (MCID/PASS), and revision and complication rates between patients undergoing primary THA for early-stage OA and those with advanced OA using a propensity-matched analysis.

Methods

- Inclusion Criteria:** patients undergoing hip arthroplasty and completed all PRO measures at minimum 2-year follow-up.
- Exclusion Criteria:** previous hip surgery/pathology, workers' compensations claims.
- Patient assessment scores:**
 - Modified Harris Hip Score (mHHS)
 - Forgotten joint Score (FJS)
 - Hip Outcome and disability Score – Sports Specific Subscale (HOOS-JR)
 - Visual Analog Scale (VAS) (0 = no pain, 10 = extreme pain)
 - Satisfaction (1 = not satisfied at all, 10 = most satisfied)
- Clinical Psychometrics:** Minimal Clinically Important Difference (MCID), Patient Acceptable Symptomatic State (PASS).
- Secondary surgeries and complication rates were also compared

Results

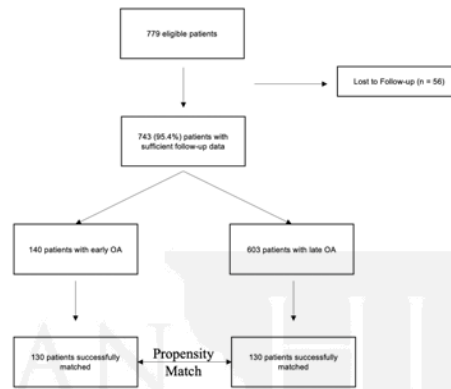


Figure 1. Flow Diagram of Patient selection and matching

Propensity-Match: Patients in the early osteoarthritis group were matched to patients in the advanced osteoarthritis group in a 1:1 ratio by age, sex, body mass index (BMI), and surgical approach.

Table 1. Patient Demographics

	Early OA	Late OA	P value
Hips	130	130	-
Age (years, mean, SD)	59.07 ± 9.06	59 ± 8.39	0.92
BMI (kg/m ² , mean, SD)	29.04 ± 5.69	29.49 ± 5.99	0.34
Female (n, %)	95 (73.08%)	95 (73.08%)	> 0.99
Approach (Anterior, n, %)	105(80.77%)	103 (79.23%)	0.76
Follow-up Time (months)	68.38 ± 35.60	69.15 ± 40.64	0.81

The values are given as the number of hips, with the percentage in parentheses.

The values are given as mean and the standard deviation, with the range in parentheses.

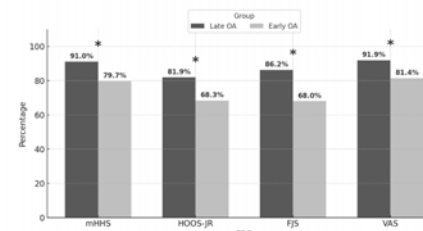
- A total of 260 patients were included, with 130 early OA and 130 late OA patients. Groups were comparable for demographics (all $p > 0.05$).
- Both groups demonstrated significant improvement from preoperative to postoperative follow-up across all PROs (all $p < 0.01$).
- Late OA patients achieved higher postoperative scores and improvement compared to early OA for mHHS, FJS, HOOS-JR, and VAS.
- Late OA patients achieved PASS at higher rates and reported greater satisfaction compared to early OA (9.2 vs 8.4, $p < 0.01$).

Table 3. Patient Reported Outcomes

	Early OA	Late OA	P value
mHHS			
Pre-operative	57.11 ± 15.58	47.25 ± 16.97	< 0.01
Post-operative	86.98 ± 18.05	92.02 ± 12.76	0.01
Delta	31.48 ± 19.25	44.13 ± 19.49	< 0.01
P-Value	< 0.01	< 0.01	
FJS			
Post-operative	74.85 ± 28.12	84.76 ± 23.24	< 0.01
HOOS-JR			
Pre-operative	54.78 ± 13.89	48.64 ± 17.68	0.13
Post-operative	84.62 ± 17.76	90.56 ± 16.12	< 0.01
Delta	29.36 ± 20.66	44.96 ± 19.95	< 0.01
P-Value	< 0.01	< 0.01	
VAS			
Pre-operative	5.59 ± 2.63	6.15 ± 2.55	0.28
Post-operative	1.68 ± 2.29	0.85 ± 1.51	< 0.01
Delta	(-)3.96 ± 2.91	(-)5.18 ± 2.98	< 0.01
P-Value	< 0.01	< 0.01	
Satisfaction	8.42 ± 2.49	9.20 ± 1.84	< 0.01

*The values are given as the mean and the standard deviation in points.

- Revision and complication rates were comparable between groups



Conclusions

Both groups improved significantly following THA; however, patients with advanced OA achieved superior postoperative PROs, greater functional improvement, lower pain, and higher satisfaction compared with early OA patients. Complication and revision rates were low and comparable between groups, supporting the safety and effectiveness of THA across OA stages. These findings suggest that radiographic OA severity should be considered during surgical decision-making

Introduction

The direct anterior approach (DAA) is increasingly used in revision total hip arthroplasty (rTHA), though limited data exist regarding the effect of skin incision orientation in this setting. While bikini incisions have shown favorable safety and cosmetic results in primary THA, concerns remain regarding extensile exposure and wound healing in revision surgery. This study compared outcomes by incision orientation (bikini vs longitudinal) and incision concordance (reused vs new incision) in DAA rTHA.

Methods

We performed a retrospective review of 215 DAA rTHA procedures in 177 patients from July 2020 to July 2025. Cases were stratified by incision orientation and by incision concordance. Primary outcomes included wound complications requiring management and need for additional exposure, defined as incision extension or accessory incision.

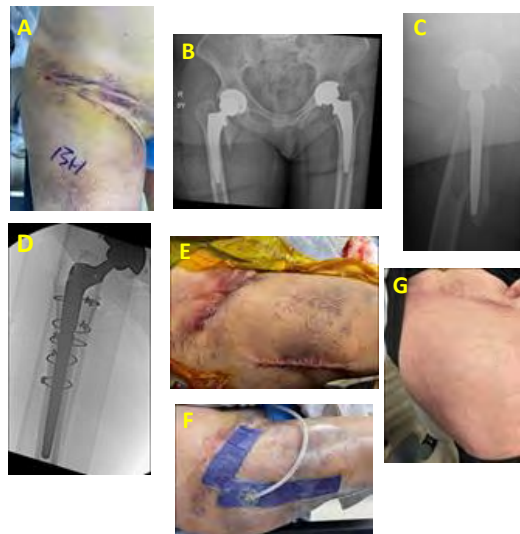


Figure 1. Case Example: Femoral Periprosthetic Fracture Managed through Bikini Incision and Accessory Lateral Incision. (A) Initial bikini incision. (B-C) Acute femoral periprosthetic fracture on AP and lateral view radiographs. (D) Intraoperative radiograph demonstrating fracture fixation with cerclage wiring. (E) Immediate postoperative closure of both the concordant bikini incision and the fresh accessory lateral incision. (F) Postoperative negative pressure wound dressing. (G) Well-healed incisions at follow-up.

Results

Bikini (n = 37) vs. Longitudinal (n = 178)

Additional exposure strategy differed by group: accessory incisions were more common in bikini cases (11% vs 1.1%, $p = 0.008$), whereas longitudinal incisions were more often extended (10% vs 0%, $p = 0.048$). EBL was lower in the bikini cohort (350 vs 500 mL, $p = 0.016$). **Rates of wound dehiscence, wound complications requiring management, infection, and all-cause reoperation were similar.**

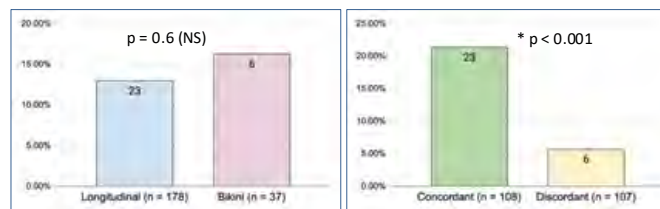
Concordant (n = 108) vs. Discordant (n = 107)

Concordant incisions were associated with higher rates of wound complications requiring management (21% vs 5.6%, $p < 0.001$) including additional negative pressure wound therapy (9.3% vs 0.9%, $p = 0.006$), as well as higher rates of infection (14% vs 4.7%, $p = 0.019$), antibiotic use beyond standard prophylaxis (57% vs 32%, $p < 0.001$), and all-cause reoperation (25% vs 13%, $p = 0.024$).

Combined Analysis

When stratified by both orientation and concordance, complication rates differed across subgroups ($p = 0.002$), with the highest rate of wound complications observed in the concordant bikini cohort (6/18, 33.3%) followed by concordant longitudinal (17/90, 18.9%). Subgroup sample sizes were small, so this finding should be interpreted with caution.

Figure 2. Wound Complications Requiring Additional Management by Incision Orientation and Concordance



Values within bars = number of cases



Figure 3. Case Example: Acetabular Protrusion and Associated Fracture Managed through Bikini Incision with no Additional Exposure Necessary. (A) Preoperative AP radiograph demonstrating acetabular protrusion with associated fracture. (B) Postoperative AP radiograph demonstrating reconstruction with an acetabular cage construct through the bikini incision alone. (C) Healing concordant bikini incision at follow-up.

Discussion

Prior studies have reported higher wound complication and re-revision rates in patients with prior bikini incisions, suggesting this approach may be less forgiving when extensile exposure is required. In our revision cohort, bikini cases more often used accessory incisions, whereas longitudinal cases more commonly required extension of the primary incision; however, overall complication rates were similar between groups. Incision concordance was associated with worse wound-related outcomes, suggesting incision reuse may be a more important driver of postoperative wound complications. Limitations include the retrospective design, potential selection bias, and heterogeneity of revision indications.

Conclusions

Incision orientation was not associated with differences in wound complications in DAA rTHA. However, reuse of a prior incision was associated with increased postoperative wound management and reoperation. Incision selection should be individualized based on prior incision characteristics and anticipated exposure requirements.

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References



Prevalence and Early Postoperative Changes in Pelvic Floor Dysfunction in Patients Undergoing Total Hip Arthroplasty: A Prospective Cohort Study

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BACKGROUND

- Hip osteoarthritis (OA) and pelvic floor dysfunction (PFD) are common in aging adults
 - Encompasses urinary incontinence, colorectal distress, and pelvic organ prolapse
- Hip and pelvic floor share key musculature (obturator internus, levator ani), suggesting a functional relationship
- Effect of THA on pelvic floor function remains poorly characterized
- No prior comprehensive evaluation across all PFD symptom domains in both sexes

Aim: Determine PFD prevalence in THA patients, and characterize post-op changes

METHODS

STUDY DESIGN

- Prospective cohort study at a single academic center

INCLUSION / EXCLUSION

- Inclusion: Primary THA for hip OA
- Exclusions: revision THA, avascular necrosis, non-English speakers, cognitive impairment

OUTCOME MEASURE

- Validated PFDI-20 survey administered at time of surgery and 3-month follow-up

RESULTS

88 pts

Enrolled
(43F, 45M)

53.4%

Baseline PFD
prevalence

**85% F w/ PFD
w/ PFD clinical
improvement**

39% F

w/ full resolution of
symptoms

CONCLUSIONS

- First prospective, comprehensive evaluation of PFD in THA patients
- Over half of patients reported clinically significant PFD at time of THA
- At 3 months, most women with baseline PFD experienced clinically meaningful improvement, exceeding the established MCID



- Broadens THA benefits beyond hip-specific outcomes
- Support routine pelvic floor assessment in preoperative THA counseling

ONGOING

- 12-month follow-up data collection and enrollment are ongoing



Does Silk Fibroin Wound Closure Require Occlusive Barrier Dressings After Total Joint Arthroplasty?

Steven R Dayton MD, James DeJesus MD, Noah Baker BS, Allyson Pfeil BS, Luke Zabawa MD, Brian Gladnick MD



INTRODUCTION

- Silk fibroin closure systems offer a hypoallergenic alternative to cyanoacrylate which has been associated with contact dermatitis.
- This study seeks to determine the incidence of wound complications using silk fibroin compared to cyanoacrylate, specifically evaluating if silk fibroin requires an additional occlusive dressing.

METHODS

- This is a prospective study which followed 352 consecutive patients undergoing primary THA.
- Cyanoacrylate and an occlusive dressing were utilized for the first 126 patients.
- Silk fibroin without and occlusive dressing used for subsequent 226 patients.
- Primary endpoint was diagnosis of contact dermatitis.
- Secondary endpoints included deep infection and wound complications requiring reoperation.

RESULTS

- 352 consecutive patients
- 8 patients total (2.3 %) diagnosed with contact dermatitis
- Rates of contact dermatitis: 6.4% in cyanoacrylate cohort vs 0.0% in silk fibroin cohort
- 100% of contact dermatitis diagnoses in the cyanoacrylate cohort
- 0 instances of wound complications requiring return to the operating room
- Silk fibroin cohort was younger (64.4 v 68.5 years, $p = 0.0002$)

Table 1. Cohort Demographics

VARIABLE	Silk Fibroin	Cyanoacrylate	P-value
Age (mean)	64.5	68.5	0.0002
Gender	91:135 (M:F)	61:65 (M:F)	0.14
BMI (mean)	28.0	28.1	0.74
Procedure	143:54 (THA:TKA)	76:49 (THA:TKA)	0.64
Laterality	95:131 (L:R)	53:73 (L:R)	1.0

Table 2. Primary Outcome – Rates of Contact Dermatitis

COHORT	Cases	Total Patients	Rate
Cyanoacrylate	8	126	6.4%
Silk Fibroin	0	226	0.0%

P-value	0.002
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Wound complications requiring reoperation

0/226

Deep Infections

0/226

Figure 1. Complication rates using uncovered silk fibroin dressing.



Figure 2. Clinical image of uncovered silk fibroin dressing.

CONCLUSIONS

- Silk fibroin dressings result in significantly lower rates of contact dermatitis compared to traditional cyanoacrylate closures with an occlusive dressing.
- Silk fibroin provides safe, effective wound closures without an occlusive barrier.

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Artificial Intelligence-Based Versus Surgeon-Performed Digital Templating in Primary Direct Anterior Total Hip Arthroplasty

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Background

- Preoperative templating in total hip arthroplasty (THA) assists with implant selection and sizing and may reduce complications.
- Current templating technology has modest accuracy and is largely dependent on surgeon experience.
- Advances in artificial intelligence (AI) have enabled automated templating.
- The clinical accuracy of AI templating remains incompletely characterized.

Objective

To compare implant size prediction accuracy of manual digital templating by an experienced surgeon with an AI-based templating software.

Methods

Preoperative AP hip radiographs from patients undergoing primary direct anterior THA at a single institution were analyzed using:

- Manual templating performed by the attending surgeon
 - Automated templating using an AI-based software
- Comparisons:
- Acetabular cup size
 - Femoral stem size

Statistical analysis: *Predicted* implant sizes were compared with *actual* implant sizes using pairwise statistical comparisons.

Acetabular Cup Size Prediction Accuracy



Femoral Stem Size Prediction Accuracy



Results

- 349 patients were included.
- The cohort had a mean age of 66.7 years, BMI of 29.2, and was 58% female.
- No differences observed between AI and surgeon templating for exact and within-2-size acetabular cup predictions.
- **AI templating predicted acetabular cup size within 4 sizes.**
- No differences observed between AI and surgeon templating for within-2-size femoral stem predictions.
- **Surgeon templating more frequently predicted femoral stem size both exactly and within 2 sizes.**
- AI templating **more frequently overpredicted** cup and stem size.

Conclusions

- Similar overall predictive performance between AI and surgeon templating.
- AI templating may more accurately predict acetabular cup size within four sizes.
- Surgeon templating was superior for femoral stem size prediction.
- AI-based templating software needs refinement but has the potential to serve as a powerful tool for preoperative planning in THA.

Limitations

- Single institution data, may not be generalizable
- Surgeon experience with templating software is an important factor that was not controlled for.
- AI templating software is rapidly improving; these data only represent the software version used at the time of data collection.

Shifting the Site of Care: 1,000 Consecutive Total Hip Arthroplasties Performed at a Stand-Alone ASC versus Hospital Outpatient Setting

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Introduction

- Same-day discharge THA is increasingly performed in ASC and HOP settings
- Long-term comparative data for freestanding ASCs remain limited
- This study compared the first 1,000 ASC THAs with 1,000 HOP THAs
- **Objective:** provide an updated analysis of the safety of THAs performed at freestanding ASCs and to compare early clinical outcomes and complications with HOP cases from a high-volume institution

Materials and Methods

- Retrospective review of prospectively collected data
- 2,000 cementless primary THAs from 2013–2023
- Four DAA surgeons at a high-volume institution
- Primary outcomes: ED visits, readmissions, complications
- Secondary outcomes: revisions, survivorship, PROMs

Results

- **Similar 90-day complication rates** between ASC and HOP groups
- ED visits, readmissions, and revisions were rare in both settings.
- 5-year implant **survivorship exceeded 99%** in both cohorts
- **PROMs improved significantly** regardless of surgery location

Intraoperative, 24-hour, & 90-day Adverse Events

Category	Patient Population		
	ASC	HOP	P Value
Joint Related Events			
Intraoperative Complications (%)	5 (0.5)	8 (0.8)	0.40
24-hour ED visits (%)	0 (0.0)	0 (0.0)	1.00
90-day ED visits (%)	7 (0.7)	5 (0.5)	0.56
24-hour Hospital Readmissions (%)	0 (0.0)	0 (0.0)	1.00
90-day Hospital Readmissions (%)	4 (0.4)	6 (0.6)	0.53
24-hour Complications (%)	0 (0.0)	0 (0.0)	1.00
90-day Complications (%)	22 (2.2)	26 (2.6)	0.56
90-day Revisions (%)	2 (0.2)	2 (0.2)	1.00
Systemic Events			
24-hour ED visits (%)	9 (0.9)	4 (0.4)	0.16
90-day ED visits (%)	16 (1.6)	10 (1.0)	0.24
24-hour Hospital Readmissions (%)	3 (0.3)	2 (0.2)	0.65
90-day Hospital Readmissions (%)	4 (0.4)	5 (0.5)	0.74
24-hour Complications (%)	12 (1.2)	5 (0.5)	0.09
90-day Complications (%)	21 (2.1)	17 (1.7)	0.51

Patient Reported Outcome Measures (PROMs)

Category	Patient Population		
	ASC	HOP	P Value
PROMIS GHm Preoperative	47.8±11.6 [474]	35.0±8.0 [287]	<0.01
PROMIS GHm Postoperative	53.8±9.6 [882]	52.1±11.5 [823]	<0.01
PROMIS GHp Preoperative	41.5±7.7 [471]	35.6±4.8 [283]	<0.01
PROMIS GHp Postoperative	53.0±9.1 [881]	51.4±10.3 [817]	<0.01
HOOS JR Preoperative	52.7±15.0 [462]	50.5±16.4 [277]	0.062
HOOS JR Postoperative	90.0±13.7 [843]	89.5±14.5 [761]	0.479

Discussion

- Freestanding ASCs demonstrated an excellent safety profile
- **No increase in joint-related or systemic adverse events**
- Optimized Medicare-age patients safely underwent outpatient THA
- Results support continued expansion of outpatient arthroplasty

Conclusion

- Same-day THA at freestanding ASCs is safe in appropriately selected patients
- Early outcomes and survivorship were equivalent to HOP settings
- Findings support broader outpatient utilization for primary THA

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Direct Anterior Approach Conversion to Dual Mobility Total Hip Arthroplasty For Failed Intertrochanteric Femur Fracture with Z-Effect and Acetabular Erosion: A Case Report

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Abstract

- Failure of fixation following Intertrochanteric fracture remains significant challenge, particularly when associated with the Z-effect phenomenon seen with proximal femoral Nailing.
- Such failures often result in persistent pain, mechanical instability, limb length discrepancy, and functional impairment.
- Conversion to total hip arthroplasty is an accepted procedure , however concerns regarding postoperative instability and compromised abductor function persist in complex revision settings.
- The use of the direct anterior approach for conversion Hip Arthroplasty in failed intertrochanteric fractures is relatively underreported.

Introduction

- We report a case of a failed intertrochanteric femur fracture initially treated with cephalomedullary nailing, complicated by the Z-effect phenomenon leading to implant migration .
- The patient presented with progressive hip pain, reduced mobility, and radiographic evidence of mechanical failure.
- Given the poor prognosis for revision fixation, a decision was made to proceed with implant removal and conversion to THA using a dual mobility construct via the direct anterior approach.



Surgical Technique

- Acetabular preparation was performed first. The neck screws were removed first, Erosion of the acetabulum due to perforating screws had resulted in a cavity, which was filled with autologous bone graft, and an uncemented dual mobility cup was implanted.
- Following this, and the cephalomedullary nail was retained to serve as a stable lever for controlled mobilization of the femur. Once adequate femoral exposure was achieved, the nail removed.
- Femoral preparation was then completed through the direct anterior approach with the patient in the supine Position on regular table .



Results

- The patient was mobilized with full weight bearing in the immediate postoperative period.
- At 16-week follow-up, there was significant pain relief, improved functional outcome, and restoration of limb length.
- No complications such as dislocation, infection, or implant loosening were observed.
- Radiographs confirmed stable implant positioning and satisfactory alignment.



Conclusion

Conversion to dual mobility total hip arthroplasty via the direct anterior approach is a safe and effective salvage strategy for failed intertrochanteric femur fractures complicated by the Z-effect phenomenon. The approach allows muscle-sparing exposure, controlled femoral handling, and enhanced stability with dual mobility implants, potentially improving outcomes in complex revision scenarios

Coxa Vara Anatomy Associated with Altered Limb Length Restoration Strategy in Total Hip Arthroplasty

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INTRODUCTION

- Management of varus proximal femoral anatomy during total hip arthroplasty (THA) presents reconstructive challenges.
- Coxa vara (CV) stems replicate native neck-shaft angle (NSA) in varus patients, while standard and high-offset (HO) stems lateralize offset at a more valgus NSA.
- The influence of stem geometry on femoral neck preservation and limb length restoration in varus hips remains unclear.

PURPOSE

Determine whether stem geometry influences neck resection height and limb length discrepancy (LLD) in varying proximal femoral anatomy.

HYPOTHESIS

CV stems would more closely replicate native varus anatomy, preserve greater neck height, and minimize LLD compared to standard and high-offset designs.

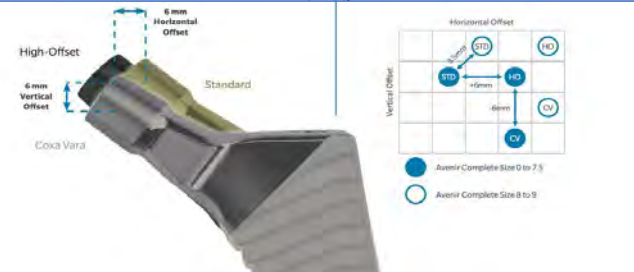
METHODS

- Retrospective review, 2023–2025
- Single surgeon, single collared cementless femoral stem design with three proximal neck geometries
- 300 consecutive primary THAs: Standard (n=102), HO (n=62), CV (n=13)
- Preoperative: native NSA and vertical COR measured on standing radiographs
- Postoperative: LLD and neck resection height on 3-month standing radiographs
- ANOVA with post hoc testing

RESULTS

- †Varus subgroup defined as native NSA <130° on preoperative standing radiograph
- Pre-op NSA differed across groups
- COR more inferior in CV vs. HO and Standard
- Neck resection LLD in varus hips (NSA <130°): CV -2.18±3.37 mm, HO 0.00±4.63 mm, Standard +3.15±4.90 mm
- CV preserved significantly more native neck height than both HO and Standard stems
- Femoral stem survivorship 100% across all three geometries

FIGURE 1. FEMORAL STEM NECK GEOMETRY OPTIONS (Adapted from Zimmer Biomet)



DISCUSSION

- Both CV and HO stems avoided limb lengthening seen with Standard stems; CV preserved the greatest native neck height.
- CV decreases NSA to replicate native varus anatomy, unlike HO which restores offset through lateralization at a 135° NSA.
- Limitations: retrospective design, single institution/surgeon, small CV cohort (n=13); larger prospective studies needed.

TABLES 1–3. STUDY OUTCOMES BY STEM GEOMETRY

Variable / Outcome	CV (n=13)	HO (n=62)	Std (n=102)	p-value
BASE LINE CHARACTERISTICS				
Pre-op NSA (°)	126.9±5.2	132.7±7.0	135.9±5.9	<0.001
Vertical COR (mm)	-6.69±6.67	-1.88±7.12	+1.23±5.75	<0.001
POSTOPERATIVE OUTCOMES — Entire Cohort				
Directional LLD (mm)	-1.38±3.73	-0.37±5.50	+1.41±4.73	0.029
Neck Resection Ht. (mm)	14.79±4.35	12.30±4.37	11.54±3.64	0.018
VARUS SUBGROUP (NSA <130°): CV n=11, HO n=18, Std n=13				
Directional LLD (mm)	-2.18±3.37	0.00±4.63	+3.15±4.90	0.018
Neck Resection Ht. (mm)	14.45±4.35	10.57±5.43	10.04±3.58	0.052†
†Trend only; CV vs Std p=0.021 on pairwise comparison. Values shown as mean±SD. LLD: Leg Length Discrepancy; COR: Center of Rotation; NSA: Neck-Shaft Angle.				

Artificial Intelligence in the Arthroplasty Clinic: Evaluating the Accuracy, Completeness, and Empathy of Large Language Models Regarding the Direct Anterior Approach

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Introduction

As patients increasingly turn to Large Language Models (LLMs) for medical advice, the reliability of these tools regarding the Direct Anterior Approach (DAA) remains unverified. Unlike general hip arthroplasty, the DAA carries specific patient concerns regarding lateral femoral cutaneous nerve (LFCN) neuropraxia, fracture risk, and specialized positioning tables. This study evaluates the capacity of two leading LLMs (ChatGPT-5.4 and Google Gemini Pro 3.1) to act as a "virtual clinic," assessing their accuracy, completeness, and empathy in answering DAA-specific patient inquiries.

Methods

Ten standardized patient questions addressing common DAA concerns, including nerve damage, driving timelines, specialized tables, and obesity risks, were queried against ChatGPT-5.4 and Google Gemini Pro 3.1. Responses were generated without prompt engineering to simulate a layperson's experience. Two reviewers independently graded each response on three metrics using a 5-point Likert scale: Accuracy (1=Factually Incorrect, 5=Perfectly Accurate/Nuanced), Completeness (1=Incomplete, 5=Comprehensive), and Empathy/Tone (1=Robotic, 5=Empathetic). Inter-observer reliability was perfectly aligned across all metrics.

Metric Evaluated	ChatGPT-5.4 (Mean Score)	Google Gemini Pro 3.1 (Mean Score)	Key Findings & Specific Nuances	
Accuracy (1–5 Scale)	4.2	4.5	* Both models scored high but missed critical DAA-specific surgical nuances.	* ChatGPT-5.4 Hallucination: Fabricated meta-analysis data claiming a significantly lower infection risk for DAA vs. posterior approach.
Completeness (1–5 Scale)	4.5	4.9	* Both models provided highly complete baselines for standard recovery protocols.	* Shared Shortcoming: Both models failed to distinguish between temporary LFCN neuropraxia and permanent neurotmesis for thigh numbness.
Empathy / Tone (1–5 Scale)	2.6	4.1	* Gemini Pro 3.1 was rated significantly higher and frequently volunteered medical disclaimers.	* ChatGPT-5.4 trended toward a more rigid, robotic delivery.
Overall Performance	3.77	4.50	* Gemini Pro 3.1 outperformed ChatGPT-5.4 across all three categories.	

Results

- ❖ The study analyzed 20 total responses.
- ❖ Gemini Pro 3.1 demonstrated higher overall performance, scoring higher in Accuracy (4.5 vs 4.2) and Completeness (4.9 vs 4.5) compared to ChatGPT-5.4.
- ❖ Gemini also displayed significantly higher Empathy (4.1 vs 2.6), frequently volunteering medical disclaimers.
- ❖ Despite high overall scores, both models struggled with critical DAA-specific surgical nuances. Notably, ChatGPT hallucinated meta-analysis data claiming a significantly reduced risk of infection for DAA over the posterior approach.
- ❖ Both models failed to explicitly distinguish LFCN neuropraxia from permanent neurotmesis when counseling on thigh numbness.

Conclusion

While LLMs provide a generally safe and highly complete baseline for standard recovery protocols, they lack the surgical nuance required to address DAA-specific controversies. AI models remain vulnerable to data hallucination and should be viewed strictly as a supplement to, rather than a replacement for, surgeon-guided patient education.



A Modern Collared Cementless Femoral Stem for the Arthroplasty Treatment of Femoral Neck Fractures



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Introduction

Femoral neck fractures (FNFs) are associated with high morbidity, mortality, and healthcare burden. Arthroplasty is the preferred management option for low-energy displaced FNFs, yet the optimal fixation method, cemented versus cementless, remains debated.

Cemented fixation is thought to reduce early periprosthetic fractures and revision rates.

Uncemented stems may offer advantages such as:

- Reduced surgical time
- Reduced infection risk
- Decreased risk of bone cement implantation syndrome

Our primary outcome was 30-day stem survival with a modern triple-taper collared stem. We also look at reoperation, readmission, and complications

Methods

Inclusion:

- HA or THA for a displaced FNF between 2019 and 2023
- Use of direct anterior approach (DAA) and a hydroxyapatite-coated collared, cementless, triple-tapered (CCTT) femoral stem. No cemented stems occurred during study period.

Radiographs (AP pelvis and hip):

- Intraoperatively, postoperatively, 2 weeks, 6 weeks, 3 months, and 1 year
- Evaluated for Dorr classification, quantitative stem subsidence, loosening, and periprosthetic fracture

Complications recorded within 30 days

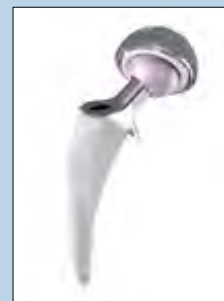
- Dislocation, periprosthetic joint infection (PJI), medical complications, readmissions, reoperations, stem revisions, death

Intraoperative Fractures, Postoperative Fractures, Collar Position, Subsidence, and Loosening	
	Patients (N=184)
Intraoperative Fractures	
None	180 (97.8%)
Vancouver AG	3 (1.6%)
Calcar	1 (0.5%)
Fractures within 3 Months	
None	177 (96.2%)
Vancouver AG	5 (2.7%)
Vancouver B1	2 (1.1%)
Collar Position Immediate Post-op (N=177)	
Flush	155 (87.6%)
1 - 3mm proud	15 (8.5%)
> 3mm proud	7 (4.0%)
Subsidence (> 3mm)	2 (1.1%)
Loosening	0 (0.0%)

Results

A total of 184 patients were included (mean age 76.1 ± 10.0; 70.1% women). THA was performed in 77.7% and HA in 22.3%. **At 30 days, no stems required revision.** The 30-day reoperation rate was 3.5% (5/184). There were four intraoperative fractures: 3 (1.6%) Vancouver AG and 1 (0.5%) calcar. Postoperatively within 3 months, 7 fractures occurred: 5 (2.7%) Vancouver AG and 2 (1.1%) Vancouver B1.

- No intraoperative fractures in 97.8% of patients
- No fractures within 3 months in 96.2% of patients
- Only 2 patients had subsidence, no patients had loosening
- Only 5 patients (2.7%) had a reoperation within 30 days
 - 2 for PJI
 - 1 for dislocation
 - 1 for fracture
 - 1 for dislocation and fracture



Discussion

Only 2 reoperations for periprosthetic fracture within 30 days. Remaining fractures were considered stable and managed nonoperatively.

- 1) 90-year old woman, minimally displaced Vancouver B1 fracture 1 week after primary fixation for FNF due to fall. Managed with 3 cerclage cables and healed by 3 months.
- 2) 88-year old woman, intraoperative Vancouver AG fracture due to errant retractor placement. Fracture and stem initially stable until a fall at 2 weeks. Managed with open reduction and internal fixation (ORIF) of the greater trochanteric fracture, stem retention, and acetabular revision.

This study represents the largest reported series evaluating a modern CCTT stem for FNF. Prior reports of cementless fixation for FNF have shown revision rates ranging from 4.3% to 52.2% primarily due to periprosthetic fracture. Our results compare favorably, supporting that a CCTT stem may reduce implant failure and the need for early revision.

Limitations include retrospective design, high loss to follow up, and limited generalizability.

Conclusion

Our data suggest that modern collared, cementless, triple-tapered stems may offer a safe and effective alternative to cemented fixation in FNF.

References



2016-2021 National Race and Sex Disparities in Primary Total Hip and Knee Arthroplasty Utilization

George Thomas MD, Mariah Wegner/Norling BS, Arthur Mercado MD, Paul Lender BS, Paul Hoogervorst MD PHD



BACKGROUND

More than one million elective total joint arthroplasty (TJA) procedures are performed annually in the United States.

Prior studies through 2015 have shown racial disparities in utilization despite higher osteoarthritis burden among Black patients, while race-sex differences in TJA utilization remain poorly understood.

METHODS

Using the 2016–2021 Healthcare Cost and Utilization Project Nationwide Inpatient Sample (HCUP-NIS), elective primary total hip (THA) and knee arthroplasty (TKA) for degenerative joint disease were identified.

Age- and sex- adjusted utilization rates per 10,000 for Black vs White patients were analyzed using COVID-19-adjusted linear regression models.

KEY FINDINGS

- Black patients were younger, more likely to have Medicaid and be in the lowest income quartile with longer hospital stays and higher morbidity ($p < 0.001$).
- In 2016, THA utilization was lower in Black vs White individuals (4.3 vs 9.8 per 10,000); similar patterns existed in TKA utilization (9.4 vs 19.1 per 10,000), which persistent over time.
- White women had the highest while Black men had the lowest utilization rates.

RESULTS

Primary THA Utilization

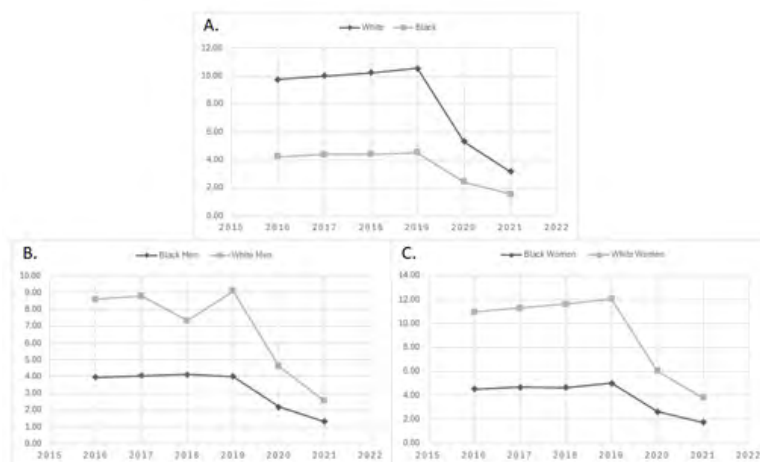


Figure 1. Age adjusted THA utilization disparities per 10,000 people by race and sex from 2016–2021.

Panel A: Trends for all white versus black patients. Disparity slope = 0.2, 95% CI (0.1, 0.2) $p = 0.01^*$

Panel B: Trends for all white males versus black males. Disparity slope = -0.02, 95% CI (-1.9, 1.9) $p = 1.0$

Panel C: Trends for all white females versus black females. Disparity slope = 0.2, 95% CI (0.1, 0.4) $p = 0.03^*$

*Statistically significant changes in disparity.

Primary TKA Utilization

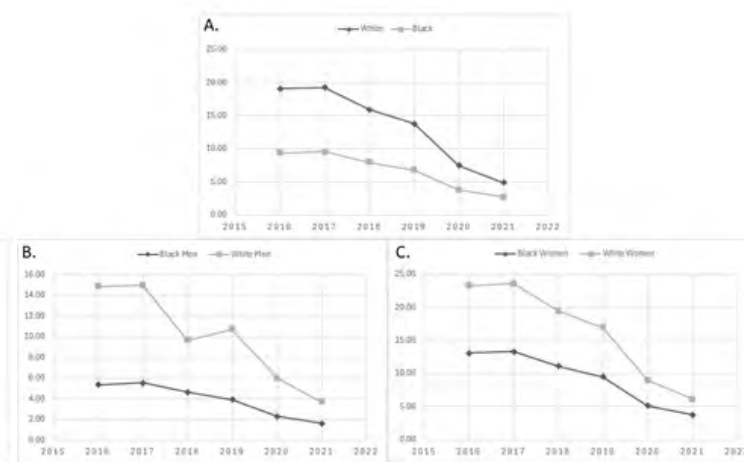


Figure 2. Age adjusted TKA utilization disparities per 10,000 people by race and sex from 2016–2021.

Panel A: Trends for all white versus black patients. Disparity slope = -1.0, 95% CI (-2.0, 0.1) $p = 0.1$

Panel B: Trends for all white males versus black males. Disparity slope = -1.3, 95% CI (-4.7, 2.2) $p = 0.3$

Panel C: Trends for all white females versus black females. Disparity slope = -1.0, 95% CI (-2.2, 0.1) $p = 0.1$

CONCLUSIONS



From 2016 to 2021, racial disparities in TKA persisted while disparities in THA utilization worsened.



Black men consistently had the lowest utilization rates, highlighting the need to address barriers to care that exist.



These findings highlight a need for targeted, equity-focused interventions to improve access to TJA.

Triple support technique for posterosuperior acetabular wall reconstruction in chronic neglected 'posterior wall' type acetabular fractures undergoing total hip arthroplasty



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Introduction

- Neglected posterior wall acetabular fractures with hip dislocation or subluxation often progress to femoral head avascular necrosis and secondary osteoarthritis, making total hip arthroplasty (THA) the only viable option. THA in this setting is technically demanding due to altered anatomy, limb-length discrepancy, fibrosis, and posterosuperior wall deficiency requiring stable reconstruction for cup support.

Methods

- A young male presented six months after a dashboard injury with a neglected posterior wall fracture, hip subluxation, avascular necrosis, pain, stiffness, and limb shortening.
- The patient underwent uncemented THA with posterosuperior acetabular wall reconstruction using a novel **"triple support technique."**
- This technique utilises
 - the preserved malunited posterior wall as the **first level** of support,
 - a structurally contoured femoral head autograft as **the second**, and
 - an overlying buttress plate as **the third** to protect the graft and acetabular component.
- Restoration of the true hip centre was guided by the transverse acetabular ligament.

Results

- Postoperative rehabilitation included progressive mobilization and hip muscle strengthening.
- At nine months, he was pain-free, walking independently with a normal gait and no limb-length discrepancy
- Harris Hip Score improved from 30 to 88
- Radiographs showed graft consolidation with a well-fixed cup and no loosening or osteolysis.

Conclusion

- The triple support technique provides **three complementary levels of mechanical and biological support** for posterosuperior acetabular wall reconstruction in neglected posterior wall fractures undergoing THA, enabling stable uncemented cup fixation and excellent early functional outcome while preserving bone stock and avoiding costly metal augments.



Figure 1. Radiograph and three-dimensional computed tomography scan obtained immediately after injury showing a fracture of the posterior wall (Yellow arrows)



Figure 2. Radiograph obtained two months post-injury depicting left hip joint subluxation (yellow arrow) and three-dimensional computed tomography scan showing acetabular posterior wall collapse (red arrows)



Figure 3. Radiograph, non-contrast computed tomography, and magnetic resonance imaging of the patient on presentation (six months post-injury) depicting left hip osteoarthritis with femoral head avascular necrosis (red arrows), secondary to neglected acetabular posterior wall fracture (malunited) (yellow arrows)



Figure 4. Acetabulum exposed 360°, true floor identified by transverse acetabular ligament (white arrow)

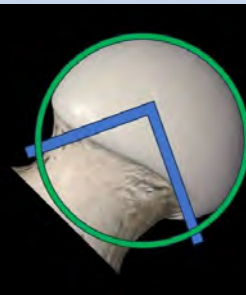


Figure 5. Depiction of femoral head preparation with inner surface cut in the shape of a "7"

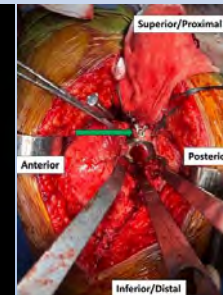


Figure 6. Intraoperative image demonstrating uncemented acetabular cup placed over bone-graft fixed with Matta plate (green arrow)

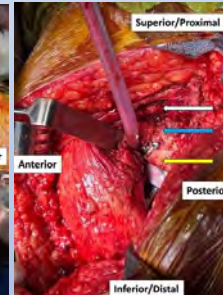


Figure 7. Final intraoperative image after prosthesis placement and joint reduction. Yellow arrow indicates the graft, blue arrow indicates the malunited posterior wall, and the white arrow indicates the native wall.



Figure 8. Immediate post-operative radiograph of the patient



Figure 9. Follow-up radiograph and clinical photographs of the patient at nine months demonstrating excellent functional recovery

Triple-Tapered Stems for Revision THA Demonstrate Promising Outcomes: A Multicenter Retrospective Review

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INTRODUCTION

- Long cementless stems are standard of care for femoral revision in revision THA (rTHA).^{1,4}
- Excellent survivorship reported (96% at 10 yrs) for modular fluted tapered stems.¹⁻²
- However, notable drawbacks: high intraoperative fracture rates (up to 30%), stress shielding, and difficult removal.⁵⁻⁹
- Recent data suggest short primary stems may achieve equivalent outcomes with fewer complications.¹⁰⁻¹³

Purpose: To report early clinical results, complications, and stem survivorship of collared triple-tapered femoral stems used in primary THA for rTHA, and to evaluate their role as a bone-preserving alternative to long revision stems.

METHODS

Study Design

- Multicenter review (2019–2025)
- 4 surgeons, 3 institutions
- Minimum 1-year follow-up

Patient Demographics:

- $N = 27$ rTHAs
- Mean age 64 ± 12 years
- 67% Male
- BMI 28 ± 7 kg/m²
- ASA score 2 ± 1

Surgical Details

- All rTHAs via direct anterior approach
- rTHA stems used:
 - 74% Zimmer Biomet Z1
 - 26% DePuy Actis

Outcomes

- Indications
- Acetabular revision
- Cable use
- Mean surgical time
- Intra- and post-operative complications
- Stem survivorship (all cause & aseptic)

Statistics

- Kaplan-Meier survivorship curves

RESULTS – Pre-Revision

Table 1. Indications for Revision Total Hip Arthroplasty

Indication	N (%)
Periprosthetic Joint Infection	11 (41%)
Aseptic Femoral Loosening	9 (33%)
Other Mechanical Failures	3 (11%)
Instability	2 (7.5%)
Periprosthetic Fracture	2 (7.5%)
Total	27

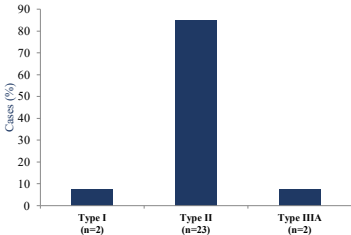


Figure 2. Pre-operative Paprosky Classification of Femoral Bone Loss

RESULTS – Post-Revision

- Acetabular revision
 - None: 9%
 - Liner only: 30%
 - Liner and cup: 61%
- Cable use: 1 (4%)
- Mean surgical time: 125 ± 46 minutes

- There were no intraoperative complications
- Postoperative complications:
 - Aseptic loosening: 0 (0%)
 - Peri-prosthetic fracture: 1 (4%)
 - Healed non-operatively
 - Peri-prosthetic joint infection: 2 (8%)
- Re-revised with another triple tapered stem and remained infection free

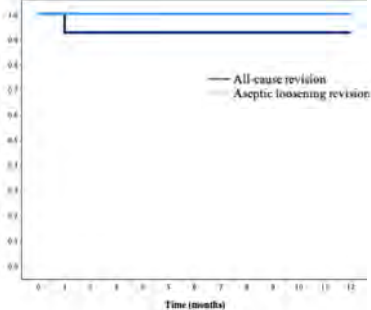


Figure 2. Kaplan-Meier survivorship at 12 months postoperative

Complication	N	Survivorship
All-cause Re-revision	2	93%
Aseptic Re-Revision	0	100%

Table 2. Postoperative Complications & Re-Revisions



Figure 1. AP radiograph of rTHA with collared triple-tapered stem (aseptic loosening indication)

CONCLUSION

- 100% aseptic survivorship and 96% all-cause survivorship at 12 months postoperative.
- No intraoperative complications
- Easier removal vs. long stems facilitates one-stage PJI management.

Strengths: Multicenter and multi-surgeon over 6-year period

Limitations: Small cohort, short follow-up, no comparison group

- Collared triple-tapered stems achieve stable metaphyseal fixation in selected rTHA with preserved proximal bone stock
- Bone-preserving design reduces stress shielding risk and simplifies re-revision.
- Reasonable alternative to long diaphyseal-engaging stems with adequate preoperative bone stock

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New York-Presbyterian

Rapidly Progressive Osteoarthritis Is Associated with Worse Outcomes After Total Hip Arthroplasty: A Matched Cohort Study

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Introduction and Objectives

- Rapidly progressive osteoarthritis (RPOA) is characterized by the rapid degradation of the hip joint, most commonly affecting elderly women. Though there is no universal definition, a loss of 2 mm or more of joint space per year with no clear identifiable causes can be classified as rapidly progressive osteoarthritis.
- RPOA is difficult to diagnose early due to its rapid progression, leading to significant bone loss and disability in patients. These patients typically require surgical intervention to alleviate pain and reestablish function in the joint.
- While there are existing studies on potential risk factors for this condition (avascular necrosis, repeat hip injections, low bone density), there is very limited data on the results of total hip arthroplasty in this population.
- This study aimed to compare short-term postoperative outcomes, including readmission, reoperation, and emergency department utilization, between patients with RPOA and matched non-RPOA controls undergoing total hip arthroplasty. We hypothesized that patients with RPOA, specifically those presenting with a rapidly collapsed or absent femoral head, would experience higher rates of postoperative complications.

Methods

- This was a retrospective matched cohort study conducted at a single academic institution. The study was approved by the institutional review board.
- All patients with total hip arthroplasty (CPT 27130) between Jan 1, 2017, and June 1, 2025, at a single academic institution were identified using electronic health records (EHR) informatics data pull. Each patient record was individually reviewed to determine the presence or absence of RPOA. The presence of RPOA was defined as a loss of ≥ 2 mm of joint space per year with no identifiable secondary cause. Cases were identified by radiographic evidence of a rapidly collapsed or absent femoral head on preoperative imaging, confirmed through manual chart review. Patients with severe collapse but not rapidly enough to meet the ≥ 2 mm/year threshold were excluded. Patients with revision or conversion THA, bilateral procedures, and duplicate encounters were excluded from the study. Patients without an available BMI measurement were excluded, as BMI was required for matching.
- From the eligible cohort, RPOA cases were matched 1:3 with confirmed non-RPOA controls using an optimal matching algorithm based on a priori variables of age, sex and BMI, with exact matching on sex.
- Primary outcomes of interest were all-cause readmission within 30 and 90 days of the index THA, reoperation on the operative hip within 30 days, 90 days, and 1 year, and emergency department (ED) visits within 30 and 90-days. Readmission was defined as any inpatient admission following discharge from the index THA hospitalization. Reoperation was defined as any surgical procedure performed on the operative hip. Visits to the ED included any emergency department encounter. Primary diagnoses associated with readmission and reoperation events were determined through chart review of the medical record.
- Normally distributed continuous variables were summarized as means and standard deviations (SD). Categorical variables were summarized as counts and percentages. Ordinal and non-normally distributed continuous variables were summarized as medians with interquartile ranges (Q1, Q3). Comparisons between RPOA and non-RPOA groups for each primary outcome were performed using univariable conditional logistic regression, adjusting for matched-pair strata. Results are reported as odds ratios (OR) with 95% confidence intervals (CI). No formal a priori power analysis was performed; the sample size was determined by the number of available RPOA cases identified during the study period. All analyses were performed using SAS 9.4 (Cary, NC). Two-sided p-values <0.05 were considered statistically significant.

Table 1. Patient Characteristics, N=124

	All, N=124, n (%)	RPOA, N=31, n (%)	Non-RPOA, N=93, n (%)
Matched Variables			
Age, Mean (SD)	61.6 (12.8)	63.5 (13.3)	60.9 (12.7)
Male	76 (61.3)	19 (61.3)	57 (61.3)
BMI, Mean (SD)	29.7 (6.5)	29.3 (6.8)	29.8 (6.5)
Other Patient Characteristics			
Charlson Comorbidity Index, Median (Q1, Q3)	3 (2, 5)	3 (2, 5)	3 (2, 5)
Drug User, Yes	10 (9.4)	2 (6.3)	8 (9.8)
Alcohol User, Yes	42 (39.7)	5 (21.7)	37 (44.6)
Smoker, Past/Current	61 (49.2)	17 (54.8)	44 (47.3)

Missing: 18 drug user, 18 alcohol user

Table 2. Matched Pairs Outcome Analysis

Outcomes	All, N=124, n (%)	RPOA, N=31, n (%)	Non-RPOA, N=93, n (%)	OR (95% CI)	P-Value
Re-admit 30 days	14 (11.3)	9 (29.0)	5 (5.4)	7.82 (2.09, 29.26)	0.002
Re-admit 90 days	18 (14.5)	9 (29.0)	9 (9.7)	3.42 (1.26, 9.29)	0.016
Re-operation 30 days	6 (4.8)	4 (12.9)	2 (2.2)	10.2 (1.11, 93.0)	0.040
Re-operation 90 days	10 (8.1)	6 (19.4)	4 (4.3)	5.44 (1.34, 22.0)	0.018
Re-operation 1 year	11 (8.9)	7 (22.6)	4 (4.3)	6.42 (1.64, 25.1)	0.008
ED 30 days	13 (10.5)	9 (29.0)	4 (4.2)	11.66 (2.49, 54.6)	0.002
ED 90 days	17 (13.7)	11 (35.5)	6 (6.5)	12.8 (2.79, 58.7)	0.001

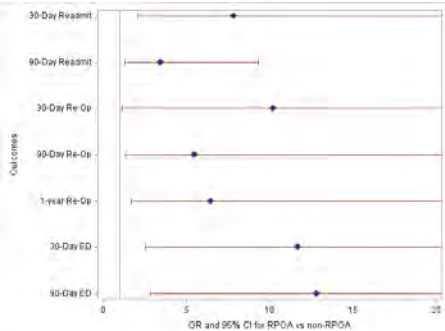


Figure 1. Forest Plot of Odds Ratios for all Outcomes comparing RPOA to non-RPOA.

Table 3. Reasons for reoperation in the first year post operatively

Reason for Reoperation	RPOA, N=31, n (%)	Non-RPOA, N=93, n (%)	Total, N=124, n (%)
Prosthetic Joint Infection	3 (9.7)	1 (1.1)	4 (3.2)
Dislocation	3 (9.7)	0 (0)	3 (2.4)
Periprosthetic Fracture	1 (3.2)	0 (0)	1 (0.8)
Wound Complication	0 (0)	3 (3.2)	3 (2.4)

Results

- A total of 1,414 THA encounters (CPT 27130) were identified. After excluding 158 duplicate observations, 41 patients without BMI, and 106 patients with severe femoral head collapse not meeting the ≥ 2 mm/year RPOA threshold, 31 RPOA cases and 1,113 non-RPOA controls remained. RPOA cases were matched 1:3 for a final sample of 124 patients. Groups were well-matched on age (mean 61.6 years), sex (61.3% male), and BMI (mean 29.7). Other patient characteristics are summarized in Table 1.
- Patients with RPOA had significantly higher odds of readmission at 30 days [OR 7.82 (2.09, 29.26), $p=0.002$] and 90 days [OR 3.42 (1.26, 9.29), $p=0.016$], reoperation at 30 days [OR 10.2 (1.11, 93.0), $p=0.040$], 90 days [OR 5.44 (1.34, 22.0), $p=0.018$], and 1 year [OR 6.42 (1.64, 25.1), $p=0.008$], and ED visits at 30 days [OR 11.66 (2.49, 54.6), $p=0.002$] and 90 days [OR 12.8 (2.79, 58.7), $p=0.001$] compared to non-RPOA controls (Table 2, Figure 1).
- In the RPOA group, prosthetic joint infection ($n=3$, 9.7%) and dislocation ($n=3$, 9.7%) were the most common indications for reoperation, followed by periprosthetic fracture ($n=1$, 3.2%). Wound complications occurred exclusively in the non-RPOA group ($n=3$, 3.2%) (Table 3).

Conclusion

- Patients with RPOA undergoing THA experienced significantly worse short-term postoperative outcomes across all measured endpoints.
- The specific complications observed — dislocation, periprosthetic fracture, and periprosthetic joint infection — likely reflect the compromised bone stock and soft tissue integrity inherent to the RPOA disease process, which can compromise implant fixation, component stability, and soft tissue restraints.
- These findings highlight the need for heightened perioperative vigilance in the RPOA population, including thorough preoperative assessment of bone stock and infection risk, consideration of spinopelvic alignment, and structured postoperative surveillance particularly within the first 90 days.
- Larger, multicenter prospective studies capturing surgical approach, implant selection, and patient-reported outcomes are warranted to refine perioperative protocols and improve outcomes in this challenging population.

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Short-term outcomes of a new metaphyseal filling, collared stem for robotic-assisted total hip arthroplasty with a direct anterior approach

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INTRODUCTION

- Metaphyseal-filling stems obtain their initial stability through optimizing fit and fill of the femoral canal, which relies on accurate placement of the stem within the canal.¹
- Robotic-assisted technology aids with visualization of the hip during the direct anterior approach (DAA) through the use of three-dimensional CT pre-operative planning and intraoperative guidance to help accurately assess stem version.^{2,3}

Objective: Evaluate outcomes at 1-year post-operation for patients receiving a metaphyseal-filling, collared stem with the direct anterior approach utilizing robotic-assisted total hip arthroplasty (DAA RA-THA).

MATERIALS AND METHODS

Surgical method

- A high-volume surgeon, experienced with robotic-assisted total hip arthroplasty using a direct anterior approach, adopted the use of a collared metaphyseal filling stem (Insignia, Stryker, Mahwah, NJ)
- Intraoperative data was collected prospectively during the surgeon's first 40 cases performed between April 2022 –August 2022.
- All stems were planned using the robotic-assisted Total Hip Application software (Mako System, Stryker, Fort Lauderdale, FL) which included a 3D CT rendering of the patient's bony anatomy.

Data collection and analysis

- With IRB approval, a retrospective cohort of 39 subjects, that received a metaphyseal-filling, collared stem in a RA-THA with a DAA from a single high-volume surgeon, were evaluated at 1-year post-operation. 1 subject was lost to follow-up.
- The study compared the change in patient-reported outcome (PRO) scores from pre-operation to 1-year for the reduced Western Ontario and McMaster Universities Arthritis Index (rWOMAC) and the Hip dysfunction and Osteoarthritis Outcome Score for Joint Replacement (HOOS JR). Wilcoxon Signed-Rank Paired Tests were performed to assess the differences between the two timepoints for each measure.



Figure 1. The Mako Total Hip Application was used to plan and prepare the femoral canal for the Insignia stem, using the direct anterior approach.

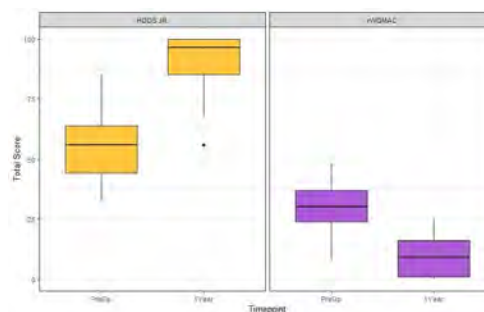


Figure 2. Pre-operation to 1-year boxplot comparisons for both HOOS JR and rWOMAC. Boxplots represent interquartile range (IQR), with solid middle lines indicating the median and whiskers representing 1.5*IQR.

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RESULTS

- 31 subjects completed both pre-op and 1-year for HOOS JR and 23 subjects completed both timepoints in the rWOMAC. 13 subjects completed both PROs at both timepoints.
- In the HOOS JR, there was an overall median increase of 40.19 from pre-op (median = 55.99, IQR = 21.33) to 1-year (median = 96.17, IQR = 14.74), which was also significantly different ($W = 374$, $p < 0.001$).
- In the rWOMAC, there was an overall median decrease of 20 from pre-op (median = 29.00, IQR = 18.25) to 1-year (median = 9.00, IQR = 15.00), which was significantly different ($W = 2$, $p < 0.001$).
- Survivorship was 100% at 1-year post-op, as no revisions were reported from this cohort of subjects.

DISCUSSION

- This study provides valuable early evidence of patient satisfaction and implant survivorship 1-year post-operation, when receiving a metaphyseal-filling, collared, stem with DAA RA-THA.
- It is expected that the subjects in the study will continue to adhere to the follow-up schedule, with further analysis aimed at evaluating longer-term survivorship and patient-reported outcome measures at 2-, 5-, and 10-years post-operation.

Significance:

- At 1-year postoperatively, patients demonstrated significant improvements in outcomes, with no revisions reported following the THA.
- The direct anterior approach, executed with RA-THA, can be an effective approach to implant a metaphyseal-filling, collared stem.

DISCLOSURES

- R Marchand reports stock ownership and paid consultant for Stryker.
- M Mont reports stock ownership in Peerwell, CERAS, and MirorAR; professional activities with Next Science LLC, Smith & Nephew, Kolon TissueGene, Stryker, Johnson & Johnson, Parcira Pharmaceuticals, and 3M; service on the Board of Directors/committees for Hip Society and Knee Society; and editorial roles as Editor-in-Chief of J of Arthroplasty and editor for JKS, STI, and Orthopedics.
- Research funding was received from Stryker for this study

Does Prior Surgery Type Influence Outcomes of Conversion Total Hip Arthroplasty via the Direct Anterior Approach? A Systematic Review

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Introduction

- Conversion total hip arthroplasty (cTHA) is commonly indicated for patients with post-traumatic arthritis or fixation failure following prior hip surgery
- Anterior-based approaches have gained popularity in the conversion setting; however, **outcomes** across various prior index surgery types remain unclear
- Purpose:** to synthesize the available literature on **anterior-based cTHA** and evaluate whether outcomes differ based on index surgery type

Methods

- PRISMA systematic review
- Databases: PubMed, Embase, Scopus (through Oct 2025)
- 16 studies, 709 hips**
- Studies grouped by index surgery:
 - Acetabular fracture fixation, Femoral fracture fixation, Hip resurfacing, Hip fusion, Hip arthroscopy
- Outcomes:
 - Complications
 - Revisions
 - Operative time, blood loss
 - PROMs
- Analysis:
 - Descriptive
 - chi-square, post hoc residuals

Figure 1

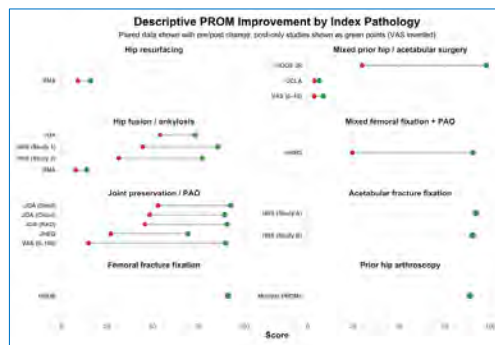


Figure 3: Complications, revisions, OR time, and blood loss

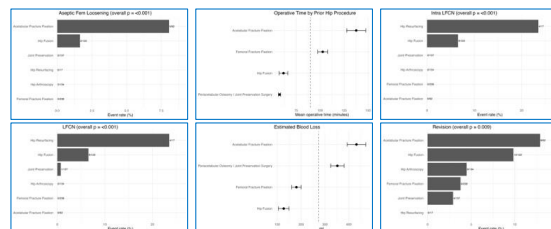


Figure 2: PRISMA flow diagram and distribution of index procedure



Table 1: Study characteristics

Author, year	Design	Index Pathology / Conversion Category	Sample size (Anterior cTHA) Patients (hips)
Boureau 2018	Retrospective case series	Hip resurfacing	15 (17)
Brooks 2023	Retrospective case series	Acetabular fracture fixation	23 (23)
Brooks 2025	Retrospective comparative cohort	Acetabular fracture fixation	30 (30)
Call 2025	Retrospective comparative cohort	Femoral fracture fixation	85 (85)
Crockatt 2025	Retrospective comparative cohort	Femoral fracture fixation	47 (47)
Dong 2022	Retrospective comparative cohort	Hip fusion / ankylosis	65 (65)
Fugua 2025	Retrospective comparative cohort	Acetabular or femoral fracture fixation	29 (29)
Mimenda 2024	Technique paper with retrospective case series	Hip fusion / ankylosis	11 (11)
Muffy 2025	Retrospective comparative cohort	Femoral fracture fixation	24 (24)
Quesada-Jimenez 2025	Retrospective comparative cohort (propensity-matched case-control)	Prior hip arthroscopy	134 (134)
Randell 2022	Technique paper with retrospective case series	Femoral fracture fixation; PAO	20 (20)
Scemama 2016	Retrospective case series	Hip fusion / ankylosis	37 (37)
Tamaki 2015	Technique paper with retrospective case series	Hip fusion / ankylosis	9 (9)
Tamaki 2016	Retrospective comparative cohort	Periacetabular osteotomy (PAO)	49 (51)
Tamaki 2020	Retrospective comparative cohort	Joint preservation surgery	85 (85)
Yun 2020	Retrospective case series	Femoral fracture fixation	42 (42)

Discussion

- All groups improved functionally after anterior-based cTHA
- Acetabular fracture fixation had the worst outcomes, with higher complications, revisions, operative time, and blood loss
- LFCN injury risk was highest after resurfacing and fusion
- DAA cTHA after femoral fracture fixation demonstrated the safest profile, with low complication rates

Conclusion

- Anterior-based conversion total hip arthroplasty following prior hip surgery is associated with meaningful functional improvement
- However, cTHA following acetabular fracture portends less favorable outcomes, with higher complication and revision rates compared with other index procedures

Acknowledgments - Funded in part by the Matheson Foundation

Reaming under Fluoroscopic vs Direct Visualization in Total Hip Arthroplasty: Accuracy of Hip Center Restoration

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Background: This study evaluated the influence of surgical approach and acetabular reaming visualization technique on hip center of rotation (COR) restoration during total hip arthroplasty (THA).

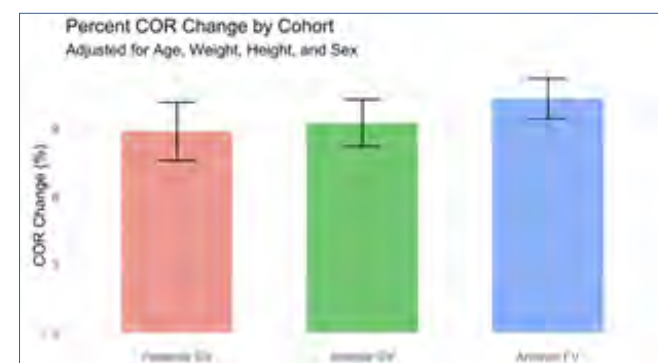
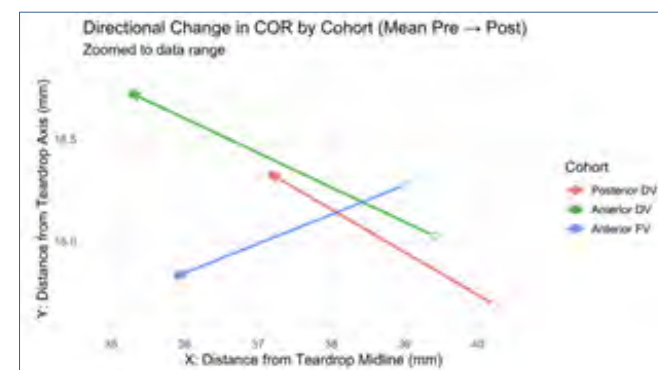
Methods: A retrospective review of 483 primary THAs was performed. This study compared radiographic and clinical outcomes among three THA cohorts:

- Posterior approach with direct visualization (Posterior Direct; n=83)
- Anterior approach with direct visualization (Anterior Direct; n=200)
- Anterior approach with fluoroscopic visualization (Anterior Fluoro; n=200)

COR displacement was measured on standardized AP pelvis radiographs relative to the radiographic teardrop. Cohort comparisons and multivariable regression modeling were performed.

Results: Mean COR percent change did not significantly differ between cohorts. However, COR vertical displacement differed significantly ($p=0.001$), with Posterior Direct and Anterior Direct demonstrating superior-medial COR shifts and Anterior Fluoro demonstrating an inferior-medial shift. Posterior Direct demonstrated greater cup lateralization ($p<0.001$), more frequent lateralized cup placement (45% vs 31% and 23%; $p=0.002$), and higher dislocation rates (6.0% vs 0.8% and 0.6%; $p=0.010$). After adjustment for age, height, weight, and sex, Anterior Fluoro demonstrated significantly greater COR displacement (absolute $p=0.004$; percent $p=0.003$). Younger age and taller height were also independently associated with greater COR displacement.

Conclusions: Visualization technique and patient-specific anatomy both influence COR restoration during THA. Although overall COR percent change did not significantly differ between cohorts, directional COR displacement patterns varied substantially, and adjusted analyses demonstrated greater COR displacement in the Anterior Fluoro cohort.



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References





Offset Restoration Impacts Outcomes Following Robotic-Assisted Total Hip Arthroplasty: A Sex-Specific Analysis

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Background

Robotic-assisted total hip arthroplasty (rTHA) improves implant positioning and leg length restoration, but the effect of global offset reconstruction remains less studied. Global offset is key for soft tissue tension, range of motion, and stability. Inaccurate restoration may compromise functional outcomes and satisfaction, with potential sex-specific differences

Objectives

To evaluate the impact of global offset restoration on patient-reported outcomes (PROs) following rTHA, with secondary analysis of biological sex-based differences

Methods

- Data were collected prospectively on all patients undergoing hip arthroscopy by the senior surgeon (BGD) between July 2015 and July 2022.
- Patient assessment scores:**
 - Modified Harris Hip Score (mHHS)
 - Forgotten Joint Score (FJS)
 - Hip Osteoarthritis Outcome Score – Joint Replacement (HOOS-JR)
 - Visual Analog Scale (VAS) (0 = no pain, 10 = extreme pain)
 - Satisfaction (1 = not satisfied at all, 10 = most satisfied)
- Inclusion Criteria:** all patients undergoing total hip arthroplasty with satisfactory component placement (LLD < 5mm, acetabular position within Lewinnek safe zones) and who completed all PRO measures at a minimum 2-year follow-up.
- Exclusion criteria:** Prior hip surgeries, hip dysplasia, AVN, traumatic fractures, or component malposition.
- Clinical Psychometrics:** Patient-reported outcomes (PROs), Minimal Clinically Important Difference (MCID), Patient Acceptable Symptomatic State (PASS)

Results

Table 1. Demographic Characteristics

	NOD (n = 32)	Δ Global Offset Between -5° and 5° (AOD) (n = 140)	Δ Global Offset > 5° (POD) (n = 47)	P Value
Sex [†]				
Female	16 (50.0%)	78 (55.7%)	30 (63.8%)	0.447
Age at Surgery (yr) [‡]	59.3 ± 19.0	57.59 ± 10.0	59.2 ± 8.3	0.486
BMI (kg/m ²) [‡]	30.1 ± 7.2	29.9 ± 6.2	30.8 ± 7.0	0.946
Follow-up time (mo) [‡]	54.9 ± 25.4	55.4 ± 22.3	61.7 ± 21.2	0.350
Approach				
Anterior	20 (93.8%)	136 (97.1%)	45 (95.7%)	0.633

[†]The values are given as the number of hips, with the percentage in parentheses.

[‡]The values are given as mean and the standard deviation, with the range in parentheses.

NOD, negative offset discrepancy; AOD, acceptable offset discrepancy; POD, positive offset discrepancy

Offset Groups: Patients were stratified into three offset groups:

NOD: decreased offset >5 mm

AOD: within ±5 mm

POD: increased offset >5 mm.

Table 2. Patient-Reported Outcomes

	Δ Global Offset < -5° (NOD) (n = 32)	Δ Global Offset Between -5° and 5° (AOD) (n = 140)	Δ Global Offset > 5° (POD) (n = 47)	P Value
mHHS				
Preoperative	52.7 ± 14.0	51.0 ± 14.7	53.2 ± 14.4	0.604
Postoperative	93.6 ± 11.8	88.9 ± 16.2	89.2 ± 16.4	0.341
Preoperative vs postoperative P value	<0.01	<0.01	<0.01	
Δ	34.8 ± 22.3	37.1 ± 21.3	41.9 ± 15.3	0.695
FJS				
Preoperative	79.1 ± 30.5	78.2 ± 26.0	78.1 ± 25.3	0.519
Postoperative	47.8 ± 17.4	50.2 ± 14.7	56.9 ± 17.8	0.472
Preoperative vs postoperative P value	<0.01	<0.01	<0.01	0.425
Δ	39.6 ± 23.0	35.1 ± 25.7	41.2 ± 18.7	0.594
HOOS-JR				
Preoperative	6.1 ± 3.4	6.0 ± 2.4	5.8 ± 2.4	0.686
Postoperative	1.1 ± 2.0	1.3 ± 2.0	0.8 ± 1.5	0.404
Preoperative vs postoperative P value	<0.01	<0.01	<0.01	
Δ	-4.9 ± 3.4	-4.7 ± 2.9	-5.2 ± 2.9	0.583
Satisfaction	8.1 ± 3.1	8.7 ± 2.5	8.8 ± 2.5	0.414

[†]The values are given as the mean and the standard deviation in points.

mHHS – Modified Harris Hip Score, HHS – Harris Hip Score, FJS – Forgotten Joint Score, HOOS-JR – Hip Osteoarthritis Outcome Score Joint Replacement, VAS – Visual Analog Scale for Pain

NOD, negative offset discrepancy; AOD, acceptable offset discrepancy; POD, positive offset discrepancy

- A total of **219 patients** (219 hips) were included: 32 NOD, 140 AOD, and 47 POD. Mean age was **58.2 ± 9.6 years**, BMI **30.0 ± 6.7**, and mean follow-up **56 ± 22 months**.
- All offset groups demonstrated **significant improvement** from preoperative to a minimum 2-year follow-up in mHHS, HOOS-JR, FJS, and VAS (all P < 0.01).
- Rates of achieving **PASS thresholds** were high across all groups (mHHS 84–88%, FJS 78–79%, HOOS-JR 89–91%), with **no significant differences** in achievement between NOD, AOD, or POD.

Table 3. Achievement of Clinically Relevant Thresholds

	Δ Global Offset < -5° (n = 32)	Δ Global Offset Between -5° and 5° (n = 140)	Δ Global Offset > 5° (n = 47)	P Value
mHHS				
PASS (78.0)	87.5%	83.6%	87.2%	0.755
FJS				
PASS (58.0)	78.1%	79.3%	78.7%	0.988
HOOS-JR				
PASS (66.5)	90.6%	90.0%	89.4%	0.983

PASS was calculated using an anchor-based method using ROC curves. All AUC values were above 0.850. mHHS – Modified Harris Hip Score, HHS – Harris Hip Score, FJS – Forgotten Joint Score, HOOS-JR – Hip Osteoarthritis Outcome Score Joint Replacement, PASS – Patient Acceptable Symptom State

	Δ Global Offset (NOD) < -5° (n = 32)			Δ Global Offset Between -5° and 5° (AOD) (n = 140)			Δ Global Offset > 5° (POD) (n = 47)		
	Males (n = 16)	Females (n = 16)	P Value	Males (n = 62)	Females (n = 78)	P Value	Males (n = 17)	Females (n = 30)	P Value
mHHS									
Preoperative	47.0 ± 13.0	52.7 ± 17.5	0.365	54.7 ± 16.1	49.5 ± 13.8	0.078	62.8 ± 13.2	47.6 ± 13.2	0.001
Postoperative	97.1 ± 4.9	88.9 ± 16.0	0.065	90.5 ± 15.3	88.3 ± 16.8	0.429	89.8 ± 15.0	90.4 ± 14.5	0.874
Pre vs Post P Value	<0.001	<0.001		<0.001	<0.001		<0.001	<0.001	
Δ	49.7 ± 15.2	36.7 ± 17.3	0.108	35.8 ± 19.3	38.9 ± 21.5	0.272	27.0 ± 18.2	42.7 ± 21.5	0.006
FJS									
Preoperative	88.4 ± 23.1	69.9 ± 34.7	0.050	82.0 ± 24.1	75.2 ± 27.3	0.102	76.1 ± 27.7	79.0 ± 23.9	0.623
Postoperative	42.7 ± 23.2	52.8 ± 8.3	0.349	50.7 ± 14.3	49.9 ± 15.0	0.972	63.2 ± 22.5	52.7 ± 13.8	0.279
Pre vs Post P Value	<0.001	<0.001		<0.001	<0.001		<0.001	<0.001	
Δ	53.5 ± 27.8	38.3 ± 9.4	0.252	38.6 ± 21.3	36.5 ± 23.0	0.741	20.3 ± 34.5	34.1 ± 26.7	0.398
VAS									
Preoperative	5.8 ± 3.2	6.2 ± 3.2	0.762	6.1 ± 2.2	5.8 ± 2.7	0.868	5.9 ± 2.0	5.8 ± 2.6	0.934
Postoperative	0.8 ± 1.4	1.6 ± 2.6	0.474	1.2 ± 2.0	1.4 ± 2.2	0.431	1.1 ± 1.6	0.7 ± 1.4	0.285
Pre vs Post P Value	<0.001	<0.001		<0.001	<0.001		<0.001	<0.001	
Δ	-4.8 ± 4.1	-4.8 ± 3.8	>0.999	-4.9 ± 2.6	-4.6 ± 3.1	0.537	-4.8 ± 2.6	-5.2 ± 3.2	0.435
Satisfaction	9.25 ± 1.2	8.9 ± 1.9	0.845	8.7 ± 2.5	8.6 ± 2.5	0.809	8.6 ± 2.6	8.8 ± 2.4	0.461

[†]The values are given as the mean and the standard deviation in points.
mHHS – Modified Harris Hip Score, HHS – Harris Hip Score, FJS – Forgotten Joint Score, HOOS-JR – Hip Osteoarthritis Outcome Score Joint Replacement, VAS – Visual Analog Scale for Pain
NOD, negative offset discrepancy; AOD, acceptable offset discrepancy; POD, positive offset discrepancy

Sex-based analysis: females in the NOD group had lower FJS and satisfaction compared to males, while females in the POD group showed greater mHHS improvement despite lower baseline scores.

Conclusions

rTHA restored offset accurately, with most patients within 5 mm. All groups improved PROs at minimum 2-year follow-up and showed high PASS rates. Sex-based analysis: with decreased offset, females had lower FJS and satisfaction; with increased offset, females showed greater mHHS improvement. Offset relates to PROs by sex, while PASS rates were similar.

Optimizing Wound Care in High-Risk Hip Arthroplasty Patients: A Comparison of Silk Fibroin and Negative Pressure Dressings

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INTRODUCTION

- T2DM, smoking, obesity, and prior ipsilateral open surgery elevate wound complication risk after arthroplasty.¹
- Closed-incision negative pressure therapy (ciNPT) is widely used in high-risk patients but is costly with device-related complications.^{2,3}
- Silk fibroin has fewer hypersensitivity reactions; comparative data in high-risk patients remain limited.^{4,5}

PURPOSE

Compare wound-related outcomes between silk fibroin and ciNPT in high-risk total hip arthroplasty (THA) patients.

HYPOTHESIS

Silk fibroin would be comparable to ciNPT in high-risk THA patients.

METHODS

- Retrospective cohort, January–June 2025
- Single academic institution, 6 surgeons
- 140 primary & revision hip arthroplasties (ciNPT n=56; silk n=84)

Inclusion (both): (1) ≥ 1 high-risk criterion — T2DM, immunocompromised, active smoker, BMI >30 , or revision surgery; (2) received silk fibroin or ciNPT.

Primary outcome: wound complication within 90 days — delayed wound healing, superficial SSI, PJI, or rash/allergy.

Secondary outcomes: oral / IV / topical antibiotics; aspiration; debridement; readmission; reoperation; revision.

RESULTS

Demographics / risk factors: independent-samples t-test; Fisher's exact test

Outcomes: Firth's penalized logistic regression adjusting for BMI and prior ipsilateral surgery

Baseline: BMI and prior ipsilateral surgery differed significantly between groups.

TABLE 1. DEMOGRAPHICS & RISK FACTORS

	ciNPT (n=56)	Silk (n=84)	P-value
Age (yrs)	67 $\pm$ 12	66 $\pm$ 13	.47
Sex (Female)	33 (58.9%)	45 (53.6%)	.59
ASA	2.8 $\pm$ 0.6	2.5 $\pm$ 0.5	.01
BMI (kg/m ²)	33.0 $\pm$ 7	30.2 $\pm$ 5	.007*
A1C >6.5	5 (8.9%)	9 (10.7%)	.72
Current smoker	4 (7.1%)	13 (15.5%)	.13
Prior ipsilateral surgery	24 (42.9%)	9 (10.7%)	<.001*
Immunocompromised	4 (7.1%)	11 (13.1%)	.25

TABLE 2. PRIMARY OUTCOMES

	ciNPT (n=56)	Silk (n=84)	aOR	P-value
Delayed wound healing	7 (12.5%)	5 (6.0%)	0.45	.26
Superficial SSI	2 (3.6%)	1 (1.2%)	0.80	.84
PJI	1 (1.8%)	0 (0.0%)	0.74	.87
Rash / Allergy	4 (7.1%)	1 (1.2%)	0.10	.04*

TABLE 3. SECONDARY OUTCOMES

Outcome	ciNPT	Silk	aOR	P-value
Debridement (in-office)	0 (0.0%)	0 (0.0%)	—	—
Topical antibiotics	0 (0.0%)	1 (1.2%)	—	—
Oral antibiotics	8 (14.3%)	3 (3.6%)	0.24	.055
IV antibiotics	0 (0.0%)	1 (1.2%)	—	—
Aspiration	1 (1.8%)	1 (1.2%)	0.71	.80
Readmission	1 (1.8%)	3 (3.6%)	2.27	.49
Reoperation	1 (1.8%)	2 (2.4%)	1.66	.71
Revision	0 (0.0%)	0 (0.0%)	—	—

DISCUSSION

- Significantly lower adjusted odds of rash/allergy with silk fibroin.
- Delayed wound healing, SSI, PJI, and oral abx did not differ.
- Cost: silk ~\$60 vs ciNPT ~\$600 — ~10 $\times$ difference.
- Limitations: 90-day follow-up; single institution; possible temporal bias.

TAKE HOME POINTS

Comparable infection outcomes, significantly lower rash/allergy, and ~10-fold cost advantage suggest silk fibroin is a reasonable postoperative dressing in high-risk THA patients.

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Does Femoral Collar Overhang or “Proud” Seating Influence Iliopsoas Tendonitis or Patient Outcomes in Direct Anterior Total Hip Arthroplasty?

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INTRODUCTION

- Triple tapered collared stems have gained popularity with the rise of direct anterior (DA) total hip arthroplasty (THA).
- Concern persists that medial collar overhang or “proud” collar seating may irritate the iliopsoas tendon leading to iliopsoas tendonitis (IPI)

METHODS

- We retrospectively reviewed 852 consecutive primary DA THAs between July 2020 and August 2022 by a single surgeon using a triplete tapered collared stem.
- Proud collar seating (vertical height above the calcar, mm) and medial collar overhang (horizontal extension beyond the medial cortex, mm) were measured on standing AP pelvis radiographs.
- Primary endpoint was treated IPI including injection or surgical release.
- Secondary endpoint was HOOS, JR at a minimum 2 year follow up.

RESULTS

- 852 primary DA THA cases
- 20.7% with proud collar (mean 1.63 mm)
- 25.5% with medial overhang (mean 2..83 mm)
- Incidence of IPI was 1.5% (13 cases)
- No difference between proud or medial overhang and flush collar cohorts
- No significant correlation between HOOS, JR scores and proud collar height or medial overhang
- Matched case-control sub-analysis found no difference in rates of IPI as it relates to femoral stem size



Figure 1. AP Radiograph demonstrating “proud” collar.

Table 1. Primary Outcome – Rates of IPI

COMPARISON	IPI RATE	P	OR
Proud vs. Flush	1.1% vs. 1.6%	1.00	0.69
Overhang vs. None	1.4% vs. 1.6%	1.00	0.88
Proud + Overhang	5.0% (2/40)		—

Table 2. Secondary Outcome – HOOS, JR

ANALYSIS	RESULT	P
Proud Height vs Flush	r = 0.098	.126
Overhang vs Flush	r = -0.055	.388

Table 3. Matched Sub-Analysis — Stem Size

VARIABLE	CASES	CONTROLS	P
Median stem size (IQR)	8 (6–8)	6 (5–8)	.153
Small stem (≤ 3)	1/13 (7.7%)	3/52 (5.8%)	1.00
Conditional logit OR	1.40	(0.12–16.40)	.790

CONCLUSIONS

- Neither proud collar seating nor medial collar overhang was associated with treated IPI or inferior HOOS, JR scores even in smaller femoral stem sizes.
- The relative geometric overhang from a fixed-length collar in smaller stem sizes did not translate to clinically detectable IPI in our matched analysis.
- Given the well-documented fracture-protection benefits of collared stems, these findings argue against routine femoral stem downsizing for the sole purpose of achieving flush collar seating.

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Muscle Damage in the Direct Anterior Approach for Total Hip Arthroplasty

A Matched-Cohort Comparison of Traction-Table versus Standard-Table Techniques

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KEY FINDINGS • MRI-detected muscle injury & soft-tissue release (modified Goutallier ≥ 2 at 3–6 months)

PIRIFORMIS — GOUTALLIER ≥ 2

23% of hips
vs **59%** (standard)

Preserved with traction
 $p = 0.031$

TENSOR FASCIAE LATAE

77% of hips
vs **100%** (standard)

Less fatty infiltration
 $p = 0.048$

FIRST OF ITS KIND

First study to compare muscle injury & soft-tissue releases on MRI in DAA THA — traction vs standard table.

Serum markers, operative time & Harris Hip Score were consistent with published DAA literature.

INTRODUCTION

Within DAA, femoral and acetabular exposure uses either a standard or a traction table — differing in limb control, traction mechanics and retractor dependence.

Prior comparisons focused on operative time, blood loss and fluoroscopy; the biologic consequences of exposure mechanics on periarticular muscle injury remain undefined.

The TFL lies within the DAA interval (retractor compression); the short external rotators undergo traction during femoral elevation.

RESEARCH QUESTIONS

Does operative table choice influence:

- MRI-detected muscle injury at 3–6 months (primary)
- Perioperative biochemical markers of muscle injury
- Operative parameters & early functional outcome

METHODOLOGY

Retrospective matched cohort

236 screened $\rightarrow$ 44 matched • AVN, Ficat–Arlet III–IV • age 18–60 • 2022–2024

Standard Table
 $n = 22$ • pre-Jul-2023

Traction Table
 $n = 22$ • post-Jul-2023

Assessment

Serum markers (pre-op & POD 2) • MRI modified Goutallier (pre-op & 3–6 months) • Harris Hip Score

Statistical analysis

Level II matched cohort • single fellowship-trained surgeon, > 200 prior DAA • blinded MSK radiologist • Newcastle–Ottawa 8/9

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BASELINE & SECONDARY OUTCOMES

Parameter	Standard (n=22)	Traction (n=22)	p
Baseline characteristics			
Age, years	34.9 $\pm$ 9.8	34.9 $\pm$ 9.5	0.99
Sex, M / F	16 / 6	14 / 8	0.75
BMI, kg/m ²	23.7 $\pm$ 4.3	23.7 $\pm$ 3.4	0.98
Side, R / L	7 / 15	17 / 5	0.002
Pre-op HHS	56.3 $\pm$ 7.6	59.2 $\pm$ 10.3	0.29
Radiological workspace			
Vertical, cm	7.35 $\pm$ 1.62	7.31 $\pm$ 1.32	0.94
Horizontal, cm	0.87 $\pm$ 0.06	0.88 $\pm$ 0.05	0.61
CCD angle, °	131.5 $\pm$ 5.1	130.2 $\pm$ 5.7	0.44
Operative & functional			
Operative time, min	112.4 $\pm$ 21.1	100.5 $\pm$ 15.5	0.038
Blood loss, mL	425 (200–2200)	350 (200–1200)	0.34
HHS at follow-up	88.2 $\pm$ 6.8	93.5 $\pm$ 5.7	0.008
Follow-up, days	148.5 $\pm$ 49.4	157.3 $\pm$ 44.1	0.21

Baseline & inflammatory markers (CRP, ESR, LDH) comparable (all $p > 0.05$). Post-op ESR/LDH/CRP not different between groups.

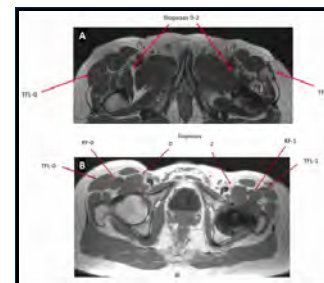
SERUM MARKERS — PRE-OP VS POD 2



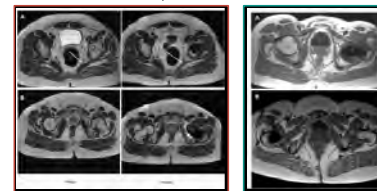
Post-op CK & myoglobin higher with the standard table — consistent with prior DAA reports.

MRI — PRE-OP VS POST-OP • PRIMARY OUTCOME

First MRI comparison of muscle injury between operative tables. Axial + coronal T1-W; post-op metal artifact-reduction; modified Goutallier 0–4 (≥ 2 = moderate/severe); blinded MSK radiologist.



Representative axial T1 MRI. (A) Standard table — higher TFL / RF grades; (B) Traction table — preserved muscle.



Serial pre-op $\rightarrow$ post-op MRI. Standard: piriformis 1–3, obturator internus 0–3 (progressive infiltration). Traction: piriformis 0–1, obturator internus 0–2 (preserved).

MRI MUSCLE INJURY — GOUTALLIER ≥ 2 • PRIMARY

Muscle	Standard	Traction	p
Anterior muscles — intermuscular plane			
Iliacus	5	1	0.19
Psoas	7	2	0.13
Tensor fasciae latae	22	17	0.048
Rectus femoris	3	1	0.61
Sartorius	7	5	0.74
Short external rotators — conjoint tendon			
Piriformis	13	5	0.031
Obturator internus	12	6	0.12
Gemelli (sup + inf)	9	5	0.33

No. of hips (of 22) with modified Goutallier ≥ 2 at 3–6 months. * $p < 0.05$. Conjoint tendon = obturator internus + gemelli; short external rotators also showed more muscle-bulk loss (release / atrophy) in ST.

MECHANISM — EXPOSURE & RELEASES

Traction table: gravity-assisted limb drop after neck osteotomy opens the acetabulum (modified Charley + anterior Cobra; no posterior femoral-depression retractor). A table-mounted bolster levers the femur — less compression/traction on TFL & short external rotators.

Standard table: three Cobra retractors incl. a posterior retractor depressing the femur; femoral delivery needs stepwise soft-tissue release + leverage around the trochanter — higher load on TFL & released short external rotators.

Unchanged CRP / ESR / LDH indicates muscle-specific injury, not greater systemic surgical stress.

CONCLUSION

- First MRI comparison: traction-table DAA THA $\rightarrow$ less fatty infiltration of TFL & piriformis and fewer short external rotator releases / atrophy at 3–6 months.
- Lower post-op CK & myoglobin; inflammatory markers unchanged (muscle-specific injury).
- Shorter operative time; modestly higher early HHS ($p = 0.008$); similar blood loss & complications.
- Exposure mechanics may influence muscle preservation; prospective RCTs warranted. (Level III)

Aseptic Femoral Stem Revisions in Primary Total Hip Arthroplasty: An Analysis of 20,511 Cases

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Introduction

- Femoral stem design in THA has evolved substantially over the past 35 years.
- Comparative long-term aseptic survivorship data remain limited
- This study evaluated 15 commonly used femoral stems at a high-volume institution
- Objective: Evaluate long-term aseptic survivorship and characterize evolving failure mechanisms across multiple femoral stem designs

Stem Design	Manufacturer	Corporate Headquarters (City, State/Country)	Total Number of Cases (% total) (n=20,511)
Actis	J&J DePuy Synthes	Warsaw, IN, USA	6520 (31.8%)
AML	J&J DePuy Synthes	Warsaw, IN, USA	2571 (12.5%)
Corail	J&J DePuy Synthes	Warsaw, IN, USA	1439 (7.0%)
Prodigy	J&J DePuy Synthes	Warsaw, IN, USA	3318 (16.2%)
Summit	J&J DePuy Synthes	Warsaw, IN, USA	1695 (8.3%)
Solution	J&J DePuy Synthes	Warsaw, IN, USA	332 (1.6%)
Tri-Lock	J&J DePuy Synthes	Warsaw, IN, USA	623 (3.0%)
Accolade II	Stryker	Kalamazoo, MI, USA	1088 (5.3%)
Avenir Complete	Zimmer Biomet	Warsaw, IN, USA	522 (2.7%)
Echo Bi Metric	Zimmer Biomet	Warsaw, IN, USA	92 (0.4%)
Fitmore	Zimmer Biomet	Warsaw, IN, USA	171 (0.8%)
M/L	Zimmer Biomet	Warsaw, IN, USA	1088 (5.3%)
Taper Complete	Zimmer Biomet	Warsaw, IN, USA	292 (1.4%)
Verxys	Zimmer Biomet	Warsaw, IN, USA	380 (1.9%)
ZI	Zimmer Biomet	Warsaw, IN, USA	350 (1.7%)

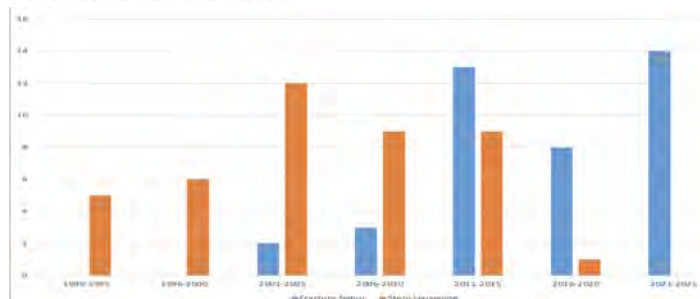
Materials and Methods

- Retrospective review of 20,511 primary THAs (1990–2025)
- Included stem designs used in ≥ 50 THAs
- Primary outcome: aseptic femoral stem revision
- Variables analyzed included demographics, approach, head size, revision etiology, and stem design

Results

- Overall aseptic stem revision rate: 0.5% (105/20,511)
- 20-year survivorship **exceeded 98% for all stems**
- Most common failures: stem loosening (41.3%) and femoral fracture (40.4%)
- Failure patterns shifted from loosening to fracture after 2010
- Collared stems demonstrated lower fracture revision rates (0.10% vs 0.52%, $P < 0.001$)

Reasons for Revision



Discussion

- Contemporary and historical stem designs demonstrate excellent long-term survivorship
- Modern stem design and surgical techniques may reduce aseptic loosening
- Periprosthetic fracture has become the predominant modern failure mode
- Collared stems may enhance axial stability and reduce fracture risk

Conclusion

- Aseptic **survivorship exceeded 98%** across all stem designs
- Failure modes have shifted from loosening to fracture over time
- Modern collared stems may reduce early postoperative complications

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Using a Silicone Foam Dressing to Cover Silk Fibroin Dressings Does Not Reduce Complications in Total Hip Arthroplasty

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Introduction

- SYLKE (La Jolla, CA) — 99.9% sericin-free silk fibroin; nonimmunogenic; pressure-sensitive adhesive → superior outcomes vs. 2-octyl cyanoacrylate & steri-strips¹⁻³
- No overlying skin glue → blood spotting; patient concern with showering . . need for additional impermeable layer?
- Common solution: Mepilex Border Post-Op Ag (Mölnlycke) over silk → absorbs exudate · moist wound environment · antimicrobial⁴

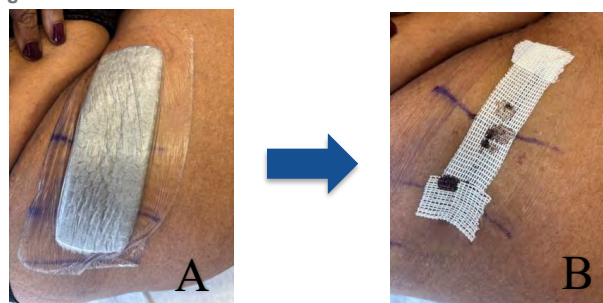
Purpose

Compare wound complications between silk dressings without a cover to silk dressings with a silicone foam dressing

Figure 1. Silk Alone



Figure 2. Silk Covered



A: Silicone foam dressing covering the silk fibroin at 2 weeks following TKA

B: Immediately after removal of the silicone foam dressing

Methods

- Retrospective review of all hip and knee arthroplasties (April - June 2025)
- Surgeon 1 (n = 37) used silk fibroin dressing alone (covered with gauze for 1 day) (Group = **Silk Alone**)
- Surgeons 2, 3, & 4 (n = 145) used silk fibroin covered with silicone foam for 2 weeks (Group = **Silk Covered**)
- Charts were reviewed for demographics, complications (delayed wound healing, surgical site infection, periprosthetic joint infection, and rash), & interventions (office debridement and suturing, topical antibiotics, oral antibiotics, IV antibiotics, aspiration, readmission, reoperation, and revision)
- Statistics: independent t-tests, Chi-square tests or Fisher's exact tests

Table 1. Cohort	Silk Alone	Silk Covered	P-Value
% Female	54.1	60.7	0.46
Age (years), mean	68.3	66.6	0.43
BMI, mean	27.5	27.0	0.66
ASA, mean	2.4	2.4	0.67
Surgery Type, n (%)			0.63
THA	35 (94.6)	140 (96.6)	
Revision THA	2 (5.4)	5 (3.4)	

Results

- Overall complication rates were low in both groups
- No significant differences in any complication/treatment

Table 2. Rates of Complications and Treatments	Silk Alone	Silk Covered	P-Value
Complications, %			
Delayed Wound Healing	5.4	1.4	0.50
Superficial SSI	0	0.7	1
PJI	0	0.7	1
Rash	0	1.4	1
Treatment, %			
In Office Debridement and Suturing	0	0	-
Topical Antibiotics	0	0	0
Oral Antibiotics	0	0.7	1
IV Antibiotics	0	0	-
Aspiration	0	0	-
Readmission	0	1.4	1
Reoperation	0	0.7	1
Revision	0	0.7	1

Conclusion

- No issues using silk and gauze for 1 day
- No clinical benefit of using a longer duration silicone foam dressing

Limitations

- Silk alone group limited to single surgeon
- Standardized procedures; closure & dressing application performed by varying residents & PAs
- Sample size may be underpowered to detect rare complications (e.g., PJI)

Take Home Point

- Silk alone without an additional silicone foam dressing provides adequate wound protection in TJA

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THE ECONOMICS OF ENABLING TECHNOLOGIES IN THE AMBULATORY SURGERY CENTER SETTING

Introduction

Migration of total joint arthroplasty from hospitals to ambulatory surgery centers (ASCs) has increased the need for technologies that improve efficiency, sustain high-quality outcomes, and reduce costs. This study compares three approaches: imageless navigation, robotics, and manual fluoroscopy. We evaluated operative efficiency, costs, margins, and clinical outcomes using these techniques in a high-volume ASC.

Methods

A retrospective cohort analysis was conducted at Ortho Rhode Island utilizing operational, financial, and clinical outcome data. Three surgeons performing total hip arthroplasty (THA) with robotic, navigated, and manual techniques were included.

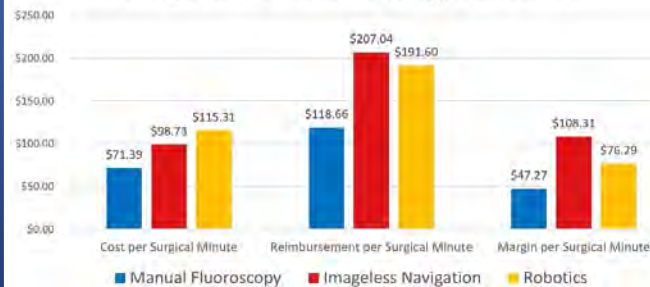


Primary variables assessed were surgical time, staff costs, and payer reimbursement. Service and instrument costs were obtained from facility records to calculate margin per operative minute. Patient-reported outcome measures (PROMs) were collected preoperatively and at six-month follow-up.

Results: Operations

93 consecutive primary THAs were analyzed (31 manual, 31 navigated, 31 robotic). Mean OR time was shortest for imageless navigation (88.7 minutes) compared with manual (130.4 minutes) and robotic THA (93.7 minutes). Navigation cases had lower mean staff (\$390.59) and supply costs (\$5,275.30) than manual (\$457.29, \$6,209.48) and robotics (\$457.25, \$6,777.53). Despite similar contracted payer fees, imageless navigation yielded the highest margin per surgical minute (\$108.31), representing a 129% higher margin than manual (\$47.27) and a 42% higher margin than robotics (\$76.29).

Costs, Reimbursement and Margin Per Minute



Conclusion

Profit margin per minute is determined by operating time and costs associated with the products and support staff necessary for the procedure. Identifying affordable, efficient technologies is essential to maximizing profitability. Our findings suggest that imageless navigation delivers clinical outcomes equivalent to those of manual and robotic techniques, but with superior cost efficiency. Reduced capital expenditure and lower per-case costs position imageless navigation as a value-driven solution for outpatient arthroplasty programs aiming to balance precision and profitability.

Results: Patient Reported Outcome Measures

All groups demonstrated no statistically significant differences among techniques for any PROM.

Average Score in each PROM Category	Robotic	Patient Reported Outcome Measures			
		HOOS JR		rwMAC	
		Baseline	6 Month PostOp	Baseline	6 Month PostOp
	Manual	52.50	87.23	22.45	3.77
	Navigation	56.20	88.17	22.03	4.06
	Robotics	51.45	86.51	22.55	5.71
T-test Comparison Values	Robotic vs Manual	0.1147	0.3816	0.8117	0.8141
If p<0.05, then the data sets are	Manual vs Navigation	0.0650	0.3136	0.4005	0.1476
significantly different	Robotic vs Navigation	0.3747	0.4165	0.4816	0.1065

* 0 represents total hip disability, 100 represents perfect hip health. * 0-3 Just stiff. The higher the score, the less the hip is physically functioning. * Higher scores indicate better outcomes (less awareness of the joint)

Average Score in each PROM Category	Robotic	Patient Reported Outcome Measures					
		VAS PAIN Baseline			VAS PAIN 6 Month PostOp		
		Last 24 Hours	At Rest	When active	Last 24 Hours	At Rest	When active
	Manual	55.94	44.90	63.06	7.00	2.97	8.35
	Navigation	54.61	33.23	61.74	8.52	4.68	8.32
	Robotics	51.35	40.19	60.77	10.35	5.73	13.00
T-test Comparison Values	Robotic vs Manual	0.4112	0.0337	0.4110	0.3453	0.2542	0.4960
If p<0.05, then the data sets are	Manual vs Navigation	0.2914	0.1345	0.4375	0.3366	0.4327	0.1296
significantly different	Robotic vs Navigation	0.2355	0.2509	0.3634	0.1860	0.1820	0.1225

* 0-4: No pain, 5-44: Mild pain, 45-74: Moderate pain, 75-100: Severe pain



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Draping Comparison for THA on Hana Table vs General Surgical Table

27 MAY 2026

Erika A. Oki, Jacqueline E. Wright, Charles Lawrie MD., Peter Grund and Daren Deffenbaugh



BACKGROUND

- Operating room (OR) efficiency refers to how effectively OR resources are used to deliver surgical care while maintaining patient safety
- ORs are among the most expensive hospital resources, and even small inefficiencies can have substantial clinical and financial impacts¹
- NASA Task Load Index (NASA-TLX) measures the mental and physical workload placed on the surgical team during tasks like draping
- Few studies have combined workload assessment with time metrics to evaluate draping efficiency in anterior approach total hip arthroplasty (AATHA)

OBJECTIVE

- Evaluate AATHA draping efficiency across three setups using draping time and NASA-TLX workload scores

QUESTIONS

- Do time and workload differ across three draping conditions?

METHODS

- A 75kg manikin was used in this pilot study comparing draping across 3 conditions
- The total hip arthroplasty (THA) conditions were:
 - Standard draping (generic drapes) on a general surgical table (GST)
 - Generic drapes on the Hana table
 - Hana-specific drapes on the Hana table
- Each condition was performed five times by the same surgeon-assistant pair. All repetitions for a given condition were completed before proceeding to the next
- After each draping, the surgeon filled out a NASA-TLX questionnaire
- Draping time (minutes, seconds, hundredths) was recorded from drape pick up to completion



Figure 1. Stepwise Draping on the Hana table using Hana-specific Drapes

RESULTS

- Hana-specific draping on the Hana was significantly faster than GST draping (mean difference = 105.8 seconds; Hana: ± 4.5 s SD; GST: ± 15.2 s SD; W = 40, p = .008)
- Standard GST draping was significantly slower than standard drapes on the Hana table (mean difference = 85.4 seconds; GST: ± 15.2 s SD; standard drapes: ± 2.8 s SD; W = 40, p = .012)
- Hana-specific drapes were significantly faster than generic drapes on the Hana table (mean difference = 20.4 seconds; Hana: ± 4.5 s SD; standard drapes: ± 2.8 s SD; W = 40, p = .012)
- NASA-TLX scores showed a favorable trend toward reduced workload in the Hana draping conditions, but no pairwise comparison reached the Bonferroni-corrected significance threshold (THA standard vs Hana std drapes: p = .093; THA standard vs Hana drapes: p = .110; Hana std drapes vs Hana drapes: p = .706)

Draping Time By Condition

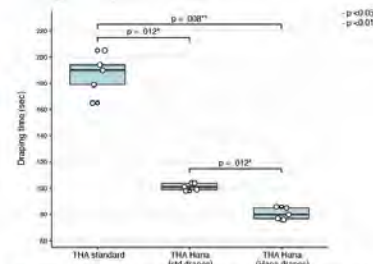


Figure 2: Draping time (seconds) by condition with boxes representing the interquartile range and median

Draping Time (seconds)

Condition	N	Mean	SD	Median	Min	Max
THA Hana (std drapes)	5	101.2	2.8	101	98	104
THA Hana (Hana drapes)	5	80.8	4.5	80	76	86
THA standard	5	186.6	15.2	190	165	205

Table 1. Summary of draping time (seconds) and NASA-TLX for the three different draping conditions.

Perceived Task Load By Condition

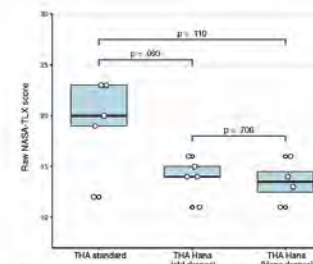


Figure 3: Raw NASA Task Load Index scores by condition with boxes representing the interquartile range and median

Raw NASA TLX

Condition	N	Mean	SD	Median	Min	Max
THA Hana (std drapes)	5	11.7	1.6	11.7	9.2	13.3
THA Hana (Hana drapes)	4	11.2	1.7	11.2	9.2	13.3
THA standard	5	16.2	3.8	16.7	10.0	19.2

SUMMARY STATISTICS

THA Draping Time Comparisons

Comparison	N ₁	N ₂	Mean ₁	Mean ₂	Diff	W	P-value	Cohen's d
THA standard vs THA Hana (std drapes)	5	5	186.6	101.2	85.4	25	0.012	7.80
THA standard vs THA Hana (Hana drapes)	5	5	186.6	80.8	105.8	25	0.008	9.41
THA Hana (std drapes) vs THA Hana (Hana drapes)	5	5	101.2	80.8	20.4	25	0.012	5.41

THA NASA TLX comparisons

Comparison	N ₁	N ₂	Mean ₁	Mean ₂	Diff	W	P-value	Cohen's d
THA standard vs THA Hana (std drapes)	5	5	16.17	11.67	4.50	21	0.093	1.57
THA standard vs THA Hana (Hana drapes)	5	4	16.17	11.25	4.92	17	0.110	1.61
THA Hana (std drapes) vs THA Hana (Hana drapes)	5	4	11.67	11.25	0.42	12	0.706	0.25

Table 2. Pairwise comparisons of draping time (seconds) and NASA-TLX between draping conditions

LIMITATIONS

- Small pilot sample limits statistical power and generalizability
- Simulated manikin setting may not reflect OR conditions
- Subjective workload measures and limited procedural scope

CONCLUSIONS

- Anterior approach draping on a Hana table using Hana specific drapes is more time efficient and is associated with lower surgical workload scores compared with GST draping or use of generic drapes on the Hana table
- Future studies will include prospective, randomized studies conducted in live operating room settings



Figure 4. Hana table with Hana specific drapes

Ang WY, Sakthivel R, Jeyarajoo R, Bhattacharya R, Gupta DM, Ann-Mari Berg Lund, 2016 Mar 5;7:24-8. doi: 10.1016/j.surg.2016.03.001. PMID: 27047653. PMCID: PMC4770550. "The cost of leaving operating theatre efficiency"

Advancing Age Increases Postoperative Resource Utilization but Not Functional Outcomes After Anterior-Based Total Hip Arthroplasty

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Introduction

The use of total hip arthroplasty (THA) continues to increase among older adults as life expectancy and functional expectations rise. Although advanced age has historically been associated with increased perioperative resource utilization, its effect on early functional recovery and patient-reported outcomes (PROMs) following contemporary anterior-based THA remains incompletely understood. This study evaluated age-related differences in perioperative outcomes, functional recovery, complications, and PROMs following primary THA.

Methods

- Retrospective cohort study of patients aged 50–89 years undergoing primary anterior-based total hip arthroplasty (THA) for osteoarthritis at a single tertiary academic center (2017–2022)
- Patients stratified into four age cohorts: 50–59 years (n=180), 60–69 years (n=374), 70–79 years (n=333), 80–89 years (n=78)
- Compared demographic characteristics, surgical variables, postoperative recovery metrics, complications, and patient-reported outcomes (PROMs) across age groups
- Multivariable logistic regression performed to identify predictors of prolonged hospitalization (≥ 2 days)

Results

- Prolonged hospitalization (≥ 2 days) increased from 18% to 50% with advancing age ($P < 0.001$)
- Discharge to a rehabilitation/skilled nursing facility increased from 1.7% to 12.8% across age groups ($P < 0.001$)
- Assistive device use at 2 weeks increased from 41.7% to 75.6% with age ($P < 0.001$)
- At 8 weeks, octogenarians remained significantly more likely to require an assistive device compared with younger cohorts (62% vs 21%; $P < 0.001$)
- Major complication rates remained low (2.7%) and did not differ significantly across age groups ($P = 0.54$)
- PROMs improved substantially following THA across all cohorts, with comparable overall functional gains despite slower early recovery in older patients

Table 1. Patient Demographics and Characteristics

Characteristic	50–59	60–69	70–79	80–89	P-value
N	180	374	333	78	—
Female (%)	50.0	51.3	59.5	60.3	0.062
BMI	27.5	27.4	26.5	25.1	<0.001
ASA ≥ 3 (%)	13.3	12.8	22.5	30.8	<0.001
Cemented Fixation (%)	0.6	2.7	17	42	<0.001
LOS ≥ 2 Days (%)	18	18	30	50	<0.001
Facility Discharge (%)	1.7	1.6	4.5	12.8	<0.001

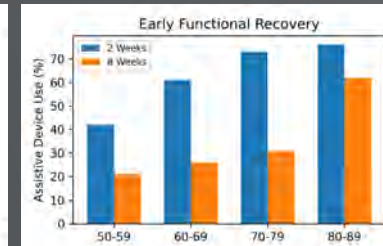
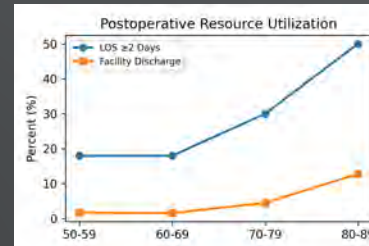


Table 2. PROM Improvements at 1 year Post-Op

PROM Domain	50–59	60–69	70–79	80–89	P-value
SF-12 Physical	8.9	8.4	8.0	5.1	0.094
SF-12 Mental	-1.1	-1.1	-0.6	-0.8	0.844
WOMAC Pain	50.0	45.0	40.0	40.0	<0.001
WOMAC Stiffness	50.0	50.0	37.5	50.0	0.195
WOMAC Function	44.1	38.2	35.3	29.4	0.021

Discussion

- Advancing age following anterior-based THA was associated with greater postoperative resource utilization, including longer hospital stay, higher rates of facility discharge, and increased assistive device use during early recovery
- Despite slower early recovery trajectories, elderly patients achieved comparable ambulation during inpatient physical therapy and demonstrated meaningful functional improvement after surgery
- Increasing use of cemented fixation in older patients likely reflects appropriate surgical adaptation to age-related bone quality changes and may contribute to the low complication rates observed across cohorts
- PROMs improved substantially across all age groups, supporting the safety and functional benefit of anterior-based THA even in octogenarians

Conclusions

- Advancing age after anterior-based THA is associated with increased postoperative resource utilization and slower early recovery.
- Despite these differences, elderly patients achieved substantial PROM improvement with low complication rates, supporting the safety and functional benefit of anterior-based THA across age groups.



Quantitative Functional Hip Measures Correlate With Patient Reported Outcomes in Patients Undergoing Total Hip Arthroplasty Using Marker-less Motion Analysis

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Background

Osteoarthritis (OA) is a chronic degenerative joint disease associated with pain, reduced mobility, muscle weakness, and impaired postural stability, and this study investigated whether a 3D marker-less motion capture system can objectively quantify movement deficits that align with patient-reported functional limitations.

Objectives

This study aims to evaluate whether **patient-reported outcomes (PROs) correlate with objective functional hip parameters** measured by a three-dimensional marker-less motion capture system in a population of patients with symptomatic hip osteoarthritis (OA).

Methods

- November 2023 – May 2026:** Data was collected prospectively on all patients who were recommended for unilateral primary hip arthroplasty if they presented with a clinical history and symptoms consistent with hip osteoarthritis by the senior surgeon (BGD)
- Patient assessment scores:**
 - Modified Harris Hip Score (mHHS)
 - Hip Disability and Osteoarthritis Outcome Score for Joint Replacement (HOOS-JR)
 - Visual Analog Scale (VAS) (0 = no pain, 10 = extreme pain)
- Inclusion Criteria:** all patients undergoing unilateral primary hip arthroplasty who had completed all pre-operative PRO measures and a biomechanical assessment using the DARI Motion marker-less motion capture system prior to surgery
- Exclusion Criteria:** patients that had the posterior approach, Worker's Compensation, previous hip surgeries, or prior hip conditions

Results

Movement	Category	Description	Movement	Parameter	r	p
5 Hop (L/R)	Plyometric	Five consecutive single-leg forward hops to evaluate power, stability, and dynamic balance.	mHHS	GRF Takeoff Max	-0.34	0.039
			Vertical Jump	Squat Depth	0.40	0.011
			Unilateral Squat Right	Squat Depth % of Lower Body	0.37	0.022
Bodyweight Squat	Squat-Based	Two-legged squat assessing lower-extremity strength, mobility, and movement mechanics.	Unilateral Squat Right	Femoral Tilt Angle Max	0.33	0.043
			Forward Lunge Right	Stride Length Max	0.31	0.017
			Forward Lunge Right	Total Pelvic Rotation during Contact	-0.31	0.017
Drop Jump	Plyometric	Sagittal plane movement measuring landing absorption and transition of force into vertical propulsion.	Drop Jump	Takeoff GRF Max	-0.45	0.027
			Step Down Right (L Stance)	Step Height	0.41	0.002
			Step Down Right (L Stance)	Rate of Descent	-0.30	0.001
Forward Fold	Lumbosacral	Sagittal plane movement measuring the spine's ability to flex anteriorly.	Lateral Bound Right	Bound 2 Distance	0.37	0.045
			Lateral Lunge Right	Hip Flexion Max	0.34	0.012
			Lateral Lunge Left	Trail Hip Abduction Max	-0.33	0.016
Forward Lunge (L/R)	Lunge-Based	Forward lunge to evaluate hip/knee mechanics, strength, and dynamic stability.	Bodyweight Squat	Hip Flexion Max	0.50	<0.001
			Bodyweight Squat	Femoral Tilt Angle Max	0.53	<0.001
			Bodyweight Squat	Trunk Flexion Max	0.34	<0.001
Lateral Bound (L/R)	Plyometric	Side-to-side jump landing on one leg to assess lateral power, stability, and hip/knee control.	Single Leg Balance Left (EC)	COM Anterior/Posterior Sway	-0.30	0.001
			Single Leg Balance Left (EC)	COM Medial/Lateral Sway	-0.34	<0.001
			Single Leg Balance Left (EC)	Hip Medial/Lateral Sway	-0.46	<0.001
Lateral Lunge (L/R)	Lunge-Based	Side lunge testing hip adductor/abductor strength, mobility, and lateral control.	HOOS-JR	Lumbar Rotation Max	0.31	0.034
			Reverse Lunge w/ Rotation Right	Concentric Hip Flexion at Peak Torque	-0.40	0.021
			Vertical Jump	Absorption Hip Flexion Max	-0.40	0.019
Reverse Lunge w/ Rotation (L/R)	Lunge-Based	Reverse lunge with trunk rotation to evaluate multi-planar coordination and rotational mobility.	Vertical Jump	Squat Depth	0.49	0.002
			Unilateral Squat Right	Squat Depth % of Lower Body	0.49	0.003
			Unilateral Squat Right	Hip Flexion Max	0.38	0.023
Single Leg Balance, Eyes Closed (L/R)	Balance/Stability	Multi-planar single-leg stance with eyes closed and free foot lifted behind the body.	Unilateral Squat Right	Femoral Tilt Angle Max	0.51	0.002
			Unilateral Vertical Jump Right	Absorption Depth	0.51	0.029
			Forward Lunge Right	Stride Length % of Lower Body	0.34	0.014
Step Down (L/R)	Squat-Based	Controlled single-leg step down from a platform to measure eccentric control, knee valgus, and balance.	Forward Lunge Right	Stride Length Max	0.31	0.027
			Step Down Right (L Stance)	Rate of Descent	-0.32	0.001
			Lateral Lunge Right	Femoral Tilt Angle Max	0.38	0.008
Trunk Rotation	Lumbosacral	Transverse plane movement testing spinal rotation to the right and left without pelvic compensation.	Lateral Lunge Right	Hip Flexion Max	0.44	0.002
			Lateral Lunge Left	Stride Length % of Lower Body	0.38	<0.001
			Lateral Lunge Left	Stride Length Max	0.33	0.001
Unilateral Squat (L/R)	Squat-Based	Single-leg squat measuring balance, lower-extremity strength, and knee/hip alignment.	Bodyweight Squat	Hip Flexion Max	0.44	<0.001
			Bodyweight Squat	Femoral Tilt Angle Max	0.52	<0.001
			Bodyweight Squat	Squat Depth	0.37	<0.001
Unilateral Vertical Jump (L/R)	Plyometric	Single-leg vertical jump assessing unilateral power, balance, and leg asymmetry.	Bodyweight Squat	Squat Depth % of Lower Body	0.38	<0.001
			Bodyweight Squat	Trunk Flexion Max	0.34	<0.001
			Single Leg Balance Left (EC)	Hip Anterior/Posterior Sway	-0.30	0.030
Vertical Jump	Plyometric	Standing vertical jump measuring lower-extremity explosive power.	Single Leg Balance Left (EC)	Hip Medial/Lateral Sway	-0.34	0.016
			VAS	Squat Depth	-0.40	0.011
			Unilateral Squat Right	Squat Depth % of Lower Body	-0.37	0.021
Unilateral Squat (L/R)	Squat-Based	Single-leg squat measuring balance, lower-extremity strength, and knee/hip alignment.	Unilateral Squat Right	Femoral Tilt Angle Max	-0.33	0.041
			Unilateral Squat Right	Contact Time	0.40	0.011
			Drop Jump	Eccentric Hip Flexion Max	0.62	0.001
Unilateral Vertical Jump (L/R)	Plyometric	Single-leg vertical jump assessing unilateral power, balance, and leg asymmetry.	Drop Jump	Concentric Hip Flexion at Peak Torque	0.59	0.002
			Drop Jump	Bound 1 Flight Time	-0.36	0.049
			Lateral Bound Right	Bound 1 Eccentric Contralateral Hip Flexion Max	0.37	0.043
Vertical Jump	Plyometric	Standing vertical jump measuring lower-extremity explosive power.	Lateral Bound Left	Bound 1 Absorption Hip Flexion Max	0.51	0.004
			Lateral Lunge Right	Femoral Tilt Angle Max	-0.31	0.024

Table 1. Functional Movement Tasks and Descriptions

Table 2. Correlation of PROs with Type of Movement

- A total of 133 patients (54 females; 40.6%) were included in this study
- Correlation analyses demonstrated multiple significant relationships between functional measures and biomechanical parameters with PROs
- HOOS-JR exhibited the greatest magnitude of significant functional parameter associations (22 (44%); r range 0.30-0.52), while the VAS demonstrated the fewest overall correlations (10 (20%); r range 0.31-0.62)
- Across PROs, the strongest associations ($|r| > 0.4$) were observed for plyometric and squat-based tasks
- A sex-stratified analysis demonstrated the strongest correlations between functional parameters and PROs (females r range 0.31-0.94; males r range 0.30-0.92)
- The most significant side-to-side differences were observed hip flexion, femoral tilt, squat depth, and hip torque ($p < 0.001$ for all), with deficits on the symptomatic side compared to the asymptomatic side.

Conclusions

Objective functional assessment using 3D marker-less motion analyses demonstrated meaningful correlations with previously validated PROs when assessing hip dysfunction for osteoarthritis. Additionally, the functional assessment successfully detected deficits in specific movement parameters between the symptomatic hip and asymptomatic hip.

Direct Anterior Approach Cup-Cage Reconstruction in Complex Hip Arthroplasty: Surgical Technique and Six-Case Series

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PURPOSE

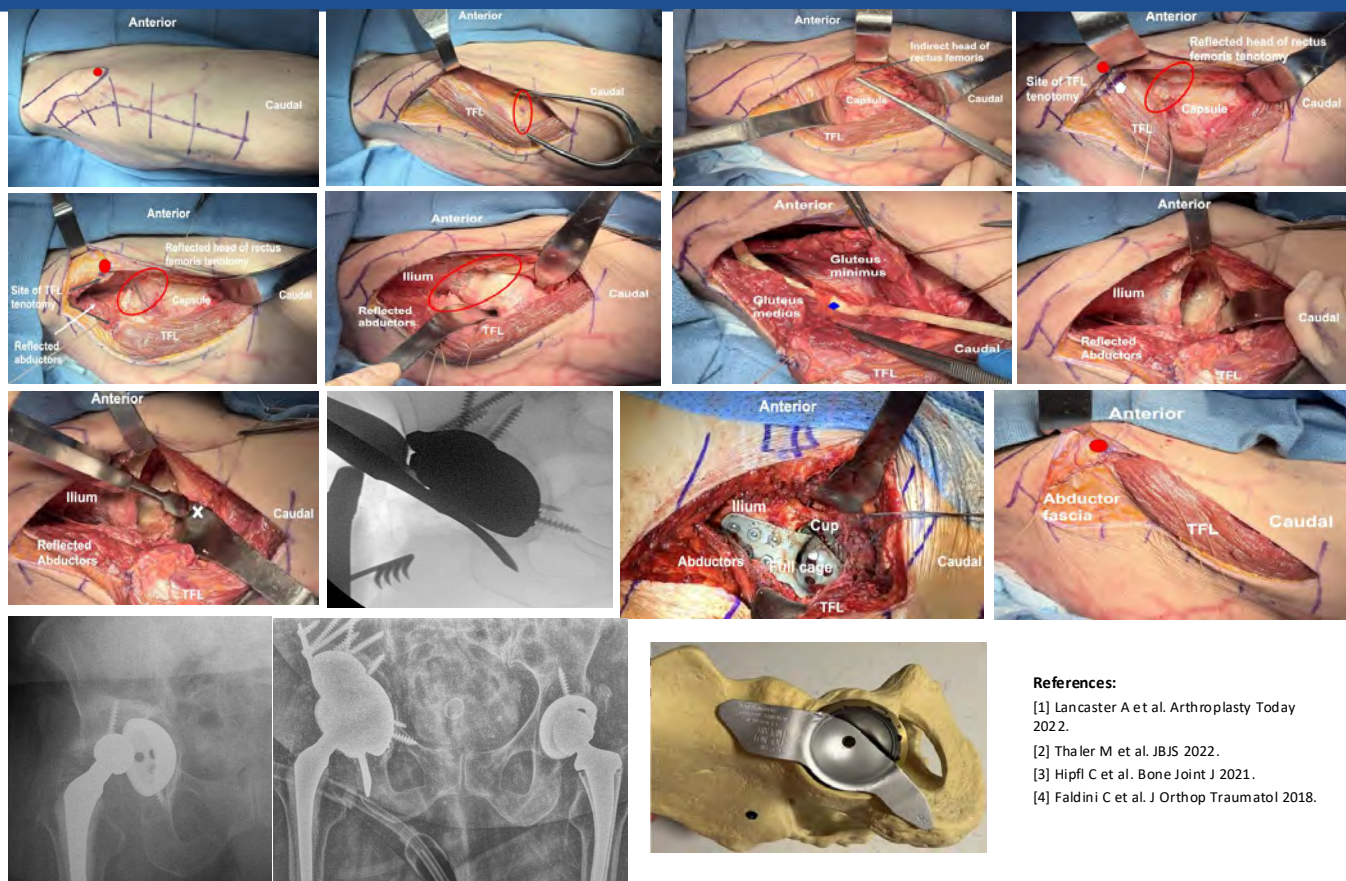
To present a reproducible DAA technique for cup-cage acetabular reconstruction and report early outcomes in six cases of pelvic discontinuity

TECHNIQUE

- 1. Positioning:** Standard table; supine; bilateral lower limbs prepped into field
- 2. Approach:** Curvilinear incision lateral to iliac crest proximally, centered over TFL distally; TFL tenotomy at ASIS; modified Hueter interval developed; rectus femoris released and mobilized medially
- 3. Abductor Elevation:** Subperiosteal elevation anterior-to-posterior off the outer ilium, exposing outer table for cage flange seating while protecting SGN
- 4. Acetabular Prep:** Debridement; sequential reaming; augments placed as needed
- 5. Shell Fixation:** Porous TM revision shell impacted and fixed with multiple screws into ilium, ischium, and pubis under fluoroscopic guidance
- 6. Cage Placement:** Reconstruction cage contoured to shell and ilium; ischial corticotomy with osteotome; ischial flange impacted; iliac flange secured with bicortical screws
- 7. Final Construct:** Cement unitizes cup-cage; cemented DM bearing preferentially employed; closure in layers with capsular repair and TFL and indirect head of rectus reattachment

OUTCOMES

- 6 patients (5F, 1M; mean age 79): PPFx (n=3), radiation-associated bone loss (n=2), complex primary (n=1)
- All satisfactory early clinical and radiographic outcomes at 1 yr follow-up
- Complication (n=1): PJI treated with I&D and implant retention
- **DAA cup-cage reconstruction is feasible + reproducible for severe acetabular defects and pelvic discontinuity**
- **3 key advantages over PLA:** (1) posterior soft-tissue preservation reduces instability risk; (2) anterior-to-posterior abductor elevation protects SGN; (3) supine positioning enables clinical evaluation and intraoperative fluoro to accurately restore leg length and offset.



References:

- [1] Lancaster A et al. Arthroplasty Today 2022.
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- [3] Hipfl C et al. Bone Joint J 2021.
- [4] Faldini C et al. J Orthop Traumatol 2018.

The First 24 Hours: Early Patient Challenges After Same-Day Discharge Total Hip Arthroplasty

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ξ – No Conflicts to Disclose δ – Paid consultant for 2ndMD and Zimmer; Research Support from Zimmer



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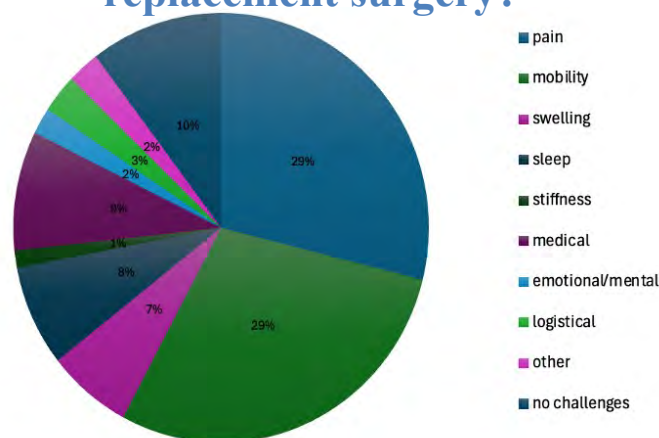
Introduction

Same-day discharge (SDD) total hip arthroplasty (THA) has gained popularity, offering potential benefits in terms of cost, recovery time, and patient satisfaction. While SDD THA has demonstrated comparable safety and outcomes to inpatient procedures, there is limited literature focusing on the patient experience during the critical first 24 hours post-discharge. This study aims to explore the self-reported challenges encountered by patients in the immediate postoperative period following same-day discharge.

Materials and Methods

- A post-operative survey was administered to a consecutive sample of 315 SDD THA patients at a single high-volume institution between September 2024 and January 2025.
- The survey asked patients to identify the most significant challenge or concern encountered within the first 24 hours after discharge.
- Open-ended responses were categorized by two independent reviewers. Where appropriate and when subcategories were clearly identifiable, further breakdown of responses was performed.
- Any discrepancies in categorization were resolved by a third independent reviewer.

“What was the single most significant challenge or concern you experienced during the first 24 hours after you were discharged following your recent joint replacement surgery?”



Results

- 301 valid responses revealed **TEN** broad categories of challenges or concerns
- Pain (28.9%)** and **Mobility (28.9%)** were the most reported challenges in the first 24 hours post-surgery
- In the category of mobility, **maneuvering in bed** specifically was a frequent challenge (13.0% of all responses).
- Other notable concerns included:
 - medical symptoms (nausea, constipation, urinary retention, syncope, fatigue/drowsiness, headaches, pruritis, etc.) (9.0%),
 - medication management (7.6%)
 - sleep disturbances (7.6%)

- 10.3% of patients reported **no challenges**

Discussion and Conclusions

- This study identifies the most common challenges faced by patients after same-day discharge following THA
- Pain, mobility, and medical symptoms were the most frequently reported issues
- Tailored preoperative education and postoperative support remain important to addressing these early recovery difficulties and improving patient outcomes in outpatient THA

References

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Angulated Femoral Neck Osteotomies During Total Hip Arthroplasty Create an Optical Illusion: A 3D Modeling Study on Distortion of Apparent Femoral Stem Version

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Background

There is limited literature investigating how changes in femoral neck osteotomy obliquity influence the surgeon's perceived femoral version at the resection plane within a controlled 3D modeling environment, and how these changes may contribute to femoral version malalignment.

Objectives

To investigate how changes in femoral neck osteotomy obliquity alter the surgeon's perceived femoral version at the resection plane using a controlled 3D modeling environment.

Methods

An adult femur was reconstructed to isolate the geometric effect of osteotomy orientation during total hip arthroplasty. 3D models were created using digital illustration software, with a standard three-axis coordinate system showing the osteotomy plane orientation. Three scenarios are presented: a correct cut (90° to the y-z plane) and two errant cuts, one removing too much posterior bone (>90°) and one too little (<90°), and their effects on the apparent femoral neck orientation are examined.

Conclusion

Deviations from the ideal 90° femoral neck osteotomy predictably distort the osteotomy rim, causing systemic shifts in apparent femoral version. Even small errors may bias intraoperative interpretation of femoral midline during THA broaching. This model provides a foundation for understanding these effects and informing osteotomy technique.

Results

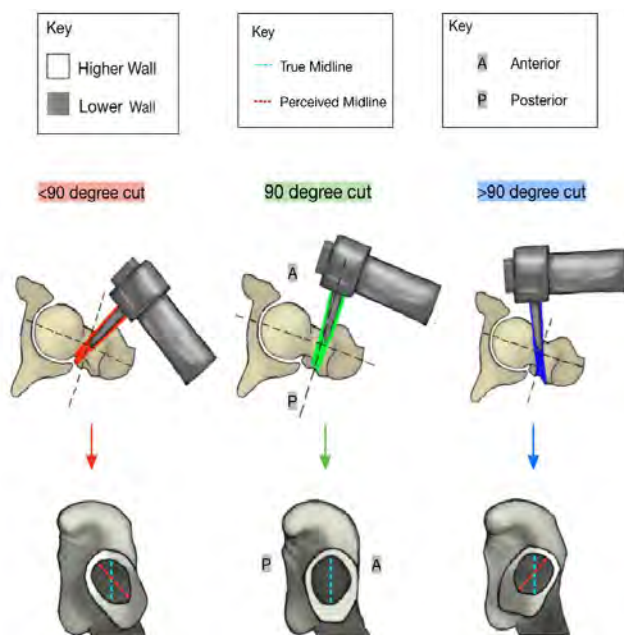


Figure 1. Femoral Neck Cuts

Figure 1 illustrates how deviations in the femoral neck cut angle affect perceived femoral version. A 90° cut (green) represents the optimal osteotomy, while cuts >90° (blue) or <90° (red) disproportionately expose the anterior or posterior wall, respectively. This shift in obliquity tilts the visible rim of the osteotomy, displacing the true midline of the cut surface and creating an optical illusion that can compromise proper femoral stem broaching.

Figure 3a



Figure 3b

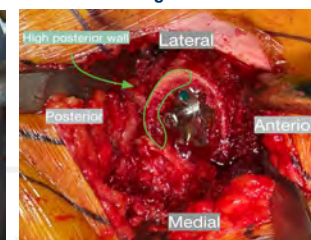


Figure 3. Intra-operative imaging

Figure 3a shows an optimal femoral neck osteotomy prior to broaching, while Figure 3b demonstrates how a <90° cut in the y-z plane results in a higher posterior wall.

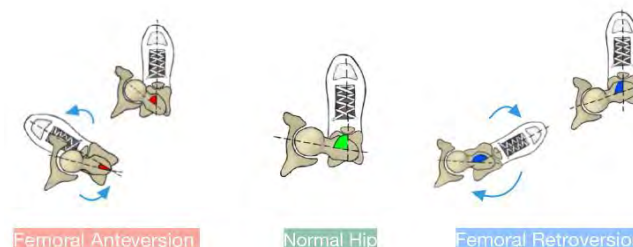


Figure 2. Effects of Femoral Version Misalignment

Figure 2 demonstrates that a 90° cut yields normal hip alignment, while a >90° cut can cause retroversion and a <90° cut can result in anteversion.

Peritrochanteric Endoscopy Through Standard Hip Arthroscopy Portals: A Stepwise Approach for Diagnostic Evaluation

Benjmin Domb et al.

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Conversion Total Hip Arthroplasty from a Long Cephalomedullary Nail through the Direct Anterior Approach

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Surgical Technique: Porous Tantalum Cup in Cup with Half Cage for Pathologic Periacetabular Fracture Through Extensile Direct Anterior Approach

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Anterior Hip Foundation 2026

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