

European Anterior Hip Meeting (EAHM)

**Integrating Spinopelvic Fluoroscopy Into Supine Direct Anterior THA:
Advancing Functional Stability Assessment and Component Positioning**

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Introduction / Purpose

- 1** **Direct anterior approach (DAA)** enables muscle-sparing access and fluoroscopic control of implant positioning
- 2** Spinopelvic alignment strongly influences impingement, instability, and optimal cup orientation

HYPOTHESIS

Combining supine DAA, intraoperative fluoroscopy, and real-time spinopelvic assessment will improve leg-length accuracy, define a reproducible intraoperative stability envelope, and refine patient-specific cup positioning and instability risk assessment.



Method

- Prospective observational study: THA via DAA in supine position with bilateral leg trapping
- Standardized intraoperative spinopelvic positions
- Lateral intraoperative fluoroscopy (Ziehm RFD 3D) during stability testing

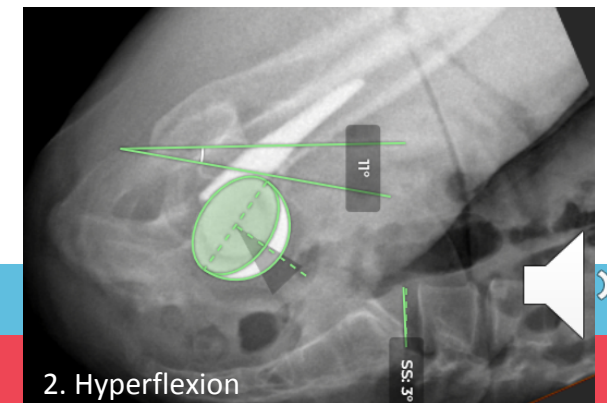
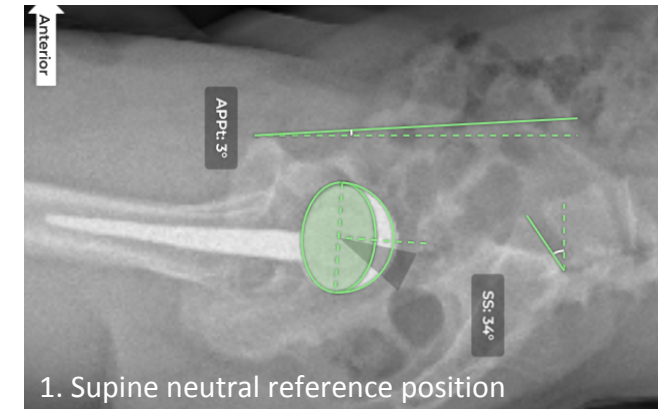
Intraoperative Standardized Positions:

- 1) supine neutral reference position with both legs extended, simulating the standing pelvic orientation
- 2) a unilateral 90° hip-flexion position of the operative limb
- 3) a bilateral 90° hip-flexion position, serving as an intraoperative surrogate for sitting

SPINOPELVIC PARAMETERS MEASURED

SS – Sacral Slope: supine, unilateral, and bilateral hip flexion

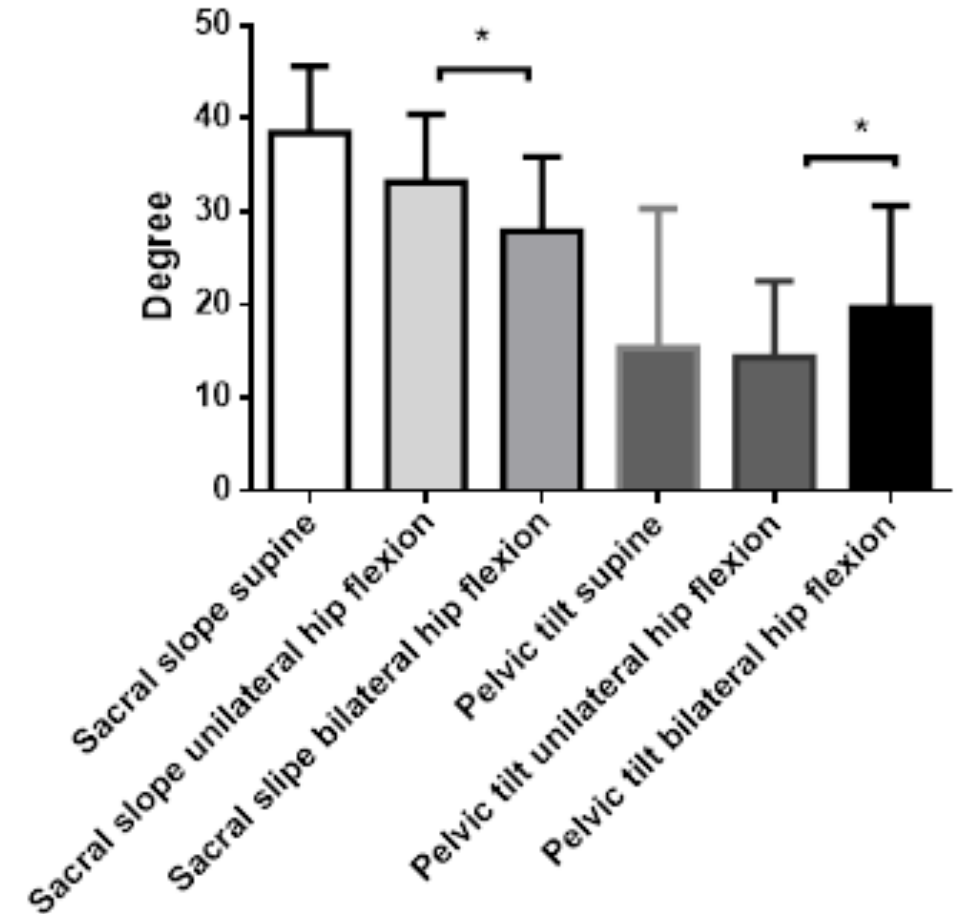
PT – Pelvic Tilt: supine, unilateral, and bilateral hip flexion



Results

- Increasing hip flexion leads to a decrease in sacral slope and an increase in pelvic tilt, reflecting functional posterior pelvic rotation
- Bilateral hip flexion results significantly different spinopelvic measurements as unilateral flexion

Patients (n = 9)	Age	BMI	Weight	Height
Median	54	28	81	174



Conclusion

Key advantage of an off-table direct anterior approach setup and bilateral sterile preparation:

- Both legs can be flexed intraoperatively
- Unique opportunity to assess spinopelvic mobility during off-table DAA

1

Improved Leg-Length Accuracy

Precise control via bilateral leg trapping

2

Reproducible Stability Data

Intraoperative envelope linked to
spinopelvic mechanics

3

Refined Cup Positioning

Patient-specific instability risk
assessment

Although preliminary and hypothesis-generating, these findings suggest that the off-table DAA may offer an additional functional advantage by enabling intraoperative evaluation of lumbopelvic adaptation under bilateral hip flexion.



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