

Hip Technology is requisite in 2025

TRAVIS SCUDDAY M.D.

Hoag Orthopedics.

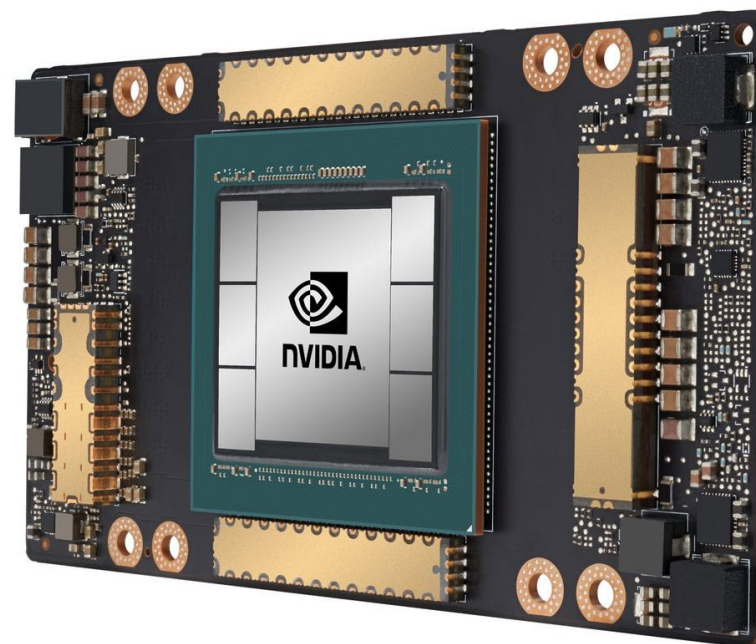
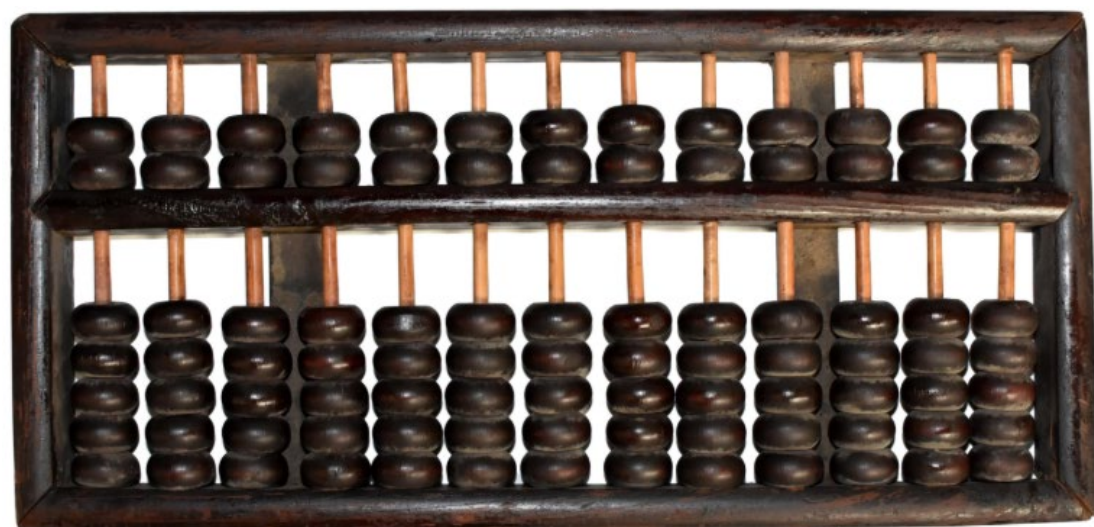
Research • Education • Community Outreach

A solid orange horizontal bar spanning the width of the slide at the bottom.

Disclosures

- Ownership
 - Hoag Orthopedic Institute
 - Main Street Surgery Center
 - Sylke
- Consulting
 - Corin
 - Exactech





Safe zone

- Conventional methods poor at safe zone
- Safe zone isn't safe
- Need personalized safe zone
- Moving target

Table 2. Classification System and Terms Used to Describe Different Spinopelvic Patterns

Type	Synonyms	Description	Definition	Component Targets
1A	Normal Flexible-balanced ³⁰	Normal sagittal alignment Normal motion	Alignment: PI-LL <10° or standing APP <10°-13°	Cup anteversion 15°-25° Combined anteversion 30°-45° Standard target ^a
			Motion: ΔSS >10°	
1B	Rigid-balanced ³⁰ "Stuck-standing" ²⁷	Normal sagittal alignment Decreased spinopelvic motion	Alignment: PI-LL <10° or standing APP <10°-13°	Cup anteversion 25°-30° Combined anteversion 40°-50° Avoid decreased cup inclination
			Motion: ΔSS <10°	
2A	Flexible-unbalanced ³⁰ Flatback deformity ²⁸	Loss of lumbar lordosis Standing posterior pelvic tilt Normal motion	Alignment: PI-LL >10° APP posterior tilt >10°-13°	Cup anteversion 20°-30° Combined anteversion 35°-45° Avoid excessive combined anteversion
			Motion: ΔSS >10°	
2B	Rigid-unbalanced ³⁰ Stiff flatback deformity ²⁸ "Stuck-sitting" ²⁷	Loss of lumbar lordosis Standing posterior pelvic tilt Decreased spinopelvic motion	Alignment: PI-LL >10° APP posterior tilt >10°-13°	Cup anteversion 20°-25° Combined anteversion 40°-45° Avoid excessive combined anteversion
			Motion: ΔSS <10°	

Computer-Assisted Navigation Is Associated with Reductions in the Rates of Dislocation and Acetabular

Com

TABLE 3 Analysis of the anteversion angle and the inclination angle 3 months after surgery.

Variate	Index statistics	Experimental group	Control group	Statistic value	p value
Anteversion angle (°)	N (missing)	58 (4)	55 (7)	-2.74 ^a	0.01
	Mean (SD)	19.5 (5.1)	22.7 (7.2)		
	Median (Q1, Q3)	20.2 (15.8, 22.9)	23.1 (17.8, 28.2)		
	Min, max	8.3, 32.5	4.5, 34.0		
Inclination angle (°)	N (missing)	58 (4)	55 (7)	-0.57 ^a	0.57
	Mean (SD)	40.4 (4.9)	41.0 (5.8)		
	Median (Q1, Q3)	40.0 (37.0, 43.0)	40.4 (35.8, 46.3)		
	Min, max	32.4, 51.9	29.7, 53.9		
Anteversion angle in the safe zone (%)	N (missing)	58 (4)	55 (7)	24.58 ^b	0.00
	Yes	55 (94.8%)	30 (54.5%)		
	No	3 (5.2%)	25 (45.5%)		
Inclination angle in the safe zone (%)	N (missing)	58 (4)	55 (7)	0.40 ^b	0.53
	Yes	57 (98.3%)	53 (96.4%)		
	No	1 (1.7%)	2 (3.6%)		
Both in the safe zone (%)	N (missing)	58 (4)	55 (7)	25.25 ^b	0.00
	Yes	54 (93.1%)	28 (50.9%)		
	No	4 (6.9%)	27 (49.1%)		

Abbreviation: SD, standard deviation.; ^aTwo-tailed independent t-test.; ^bChi-squared test.



The Use of Arthroplast

A Study of 6,912 A

Sujit Agarwal, MBBS, M
Andrea Peng, MMed(Epi&

Primary Hip

Can Robot-Assisted Total Hip Arthroplasty Improve the Incidence of Self-Reported Leg-Length Discrepancy? A Multicenter, Propensity Score Matching Comparative Study

Jiewen Zhang, MD ^a, Hua Tian, MD, PhD ^b, Zhanjun Shi, MD, PhD ^c,
Kunzheng Wang, MD, PhD ^a, Pei Yang, MD, PhD ^a, Run Tian, MD ^{a,*}

^a Joint & Ankle Section, The Second Affiliated Hospital of Xi'an Jiaotong University, Xi'an, China

^b Department of Orthopedics, Third Hospital of Peking University, Beijing, China

^c Department of Orthopedics, Nan Fang Hospital of Nan Fang Medical University, Guangzhou, China



- Step cut required
- Imaging older than 6 months



Supine-to-stand -8°
Stand-to-seated $+46^{\circ}$
Standing PT $+1^{\circ}$
Lumbar flexion **N/A**
PI-LL mismatch **N/A**

Supine cup inclination
— 45° +

Supine cup anteversion
— 24° +

Operative hip is
7 mm short
pre-operatively

Lengthening
4 mm
Offset change
+9 mm

Stem version (native)
 23° (17°)

Dynamics

Cup

Stem

Advanced ▾

Cup

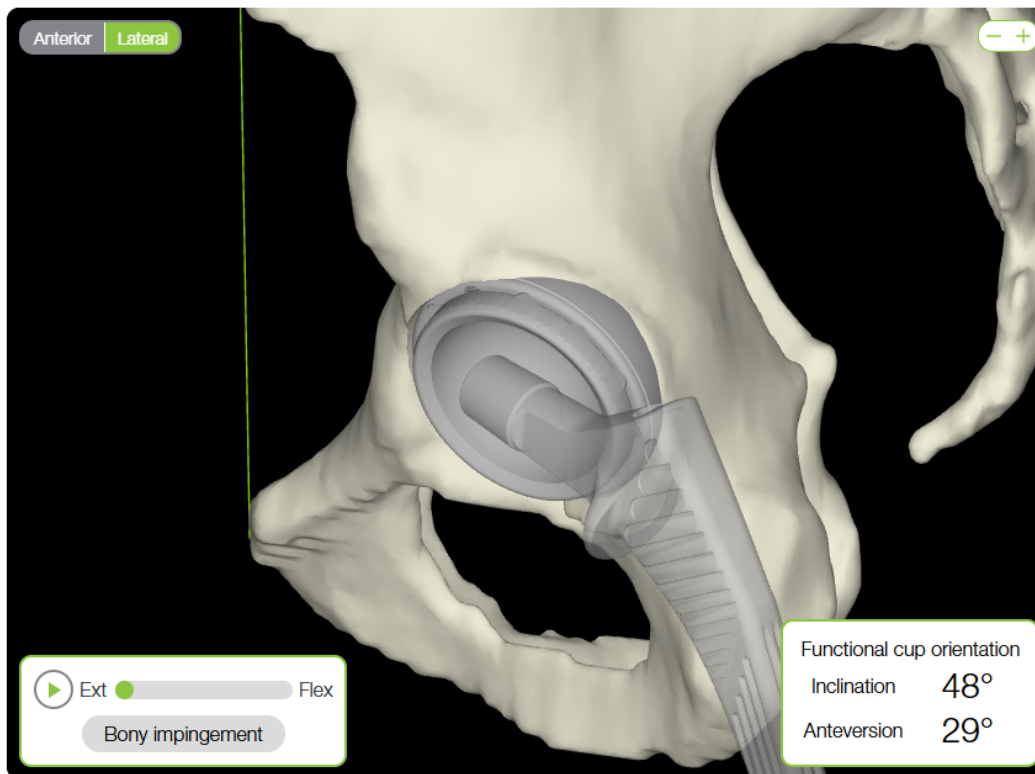
Trinity™ ▾
— 50(l) mm +
Poly Offset ▾

Stem

MetaFix™ Coll ▾
— Size 3 +
125 Std ▾

Head

Ceramic ▾
36 mm ▾
— 4 mm +





- Step cut required
- Imaging older than 6 months



Supine-to-stand **-8°**
Stand-to-seated **+46°**
Standing PT **+1°**
Lumbar flexion **N/A**
PI-LL mismatch **N/A**

Supine cup inclination
- **45°** +

Supine cup anteversion
- **24°** +

Operative hip is
7 mm short
pre-operatively

Lengthening
4 mm
Offset change
+9 mm

Stem version (native)
23° (17°)

Dynamics

Cup

Stem

Advanced ▾

Cup

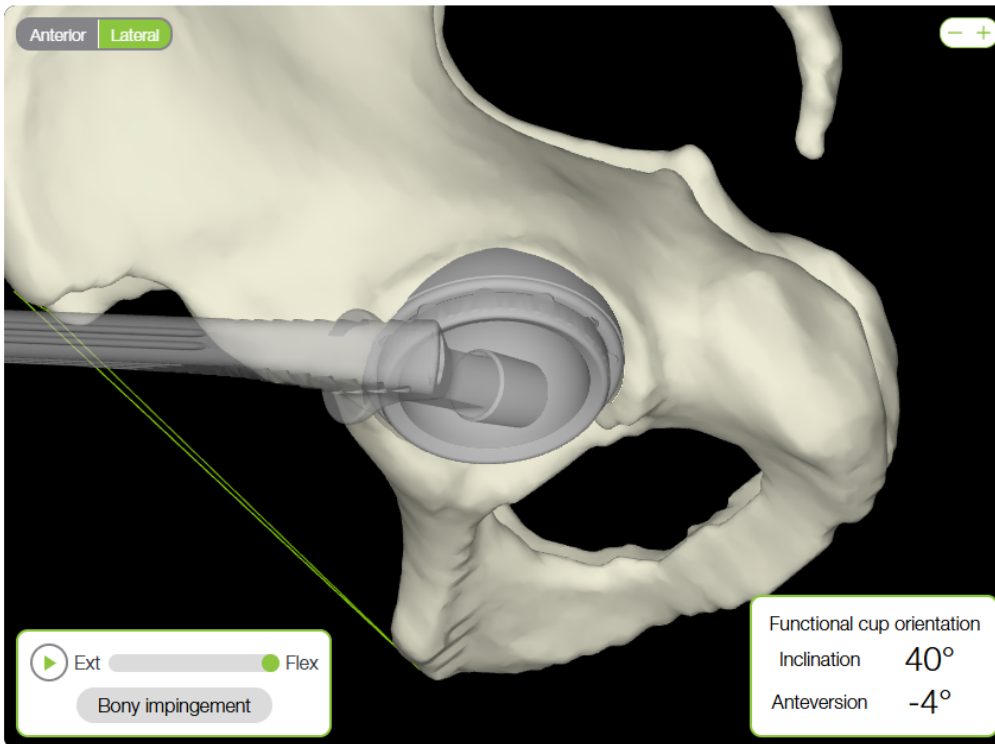
Trinity™ ▾
- 50(0) mm +
Poly Offset ▾

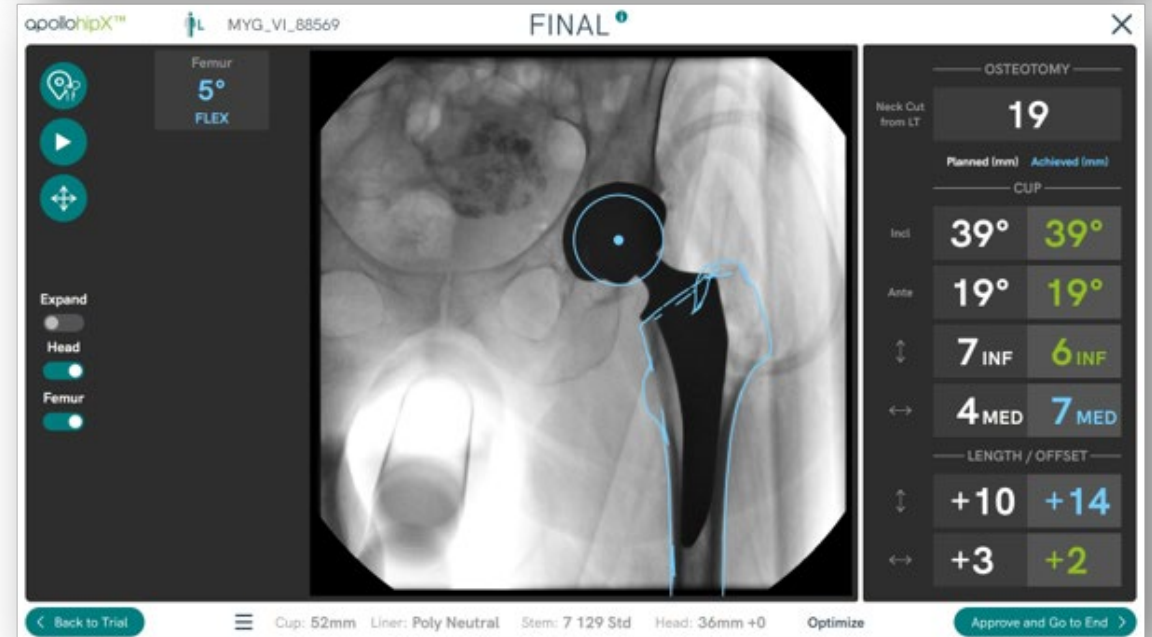
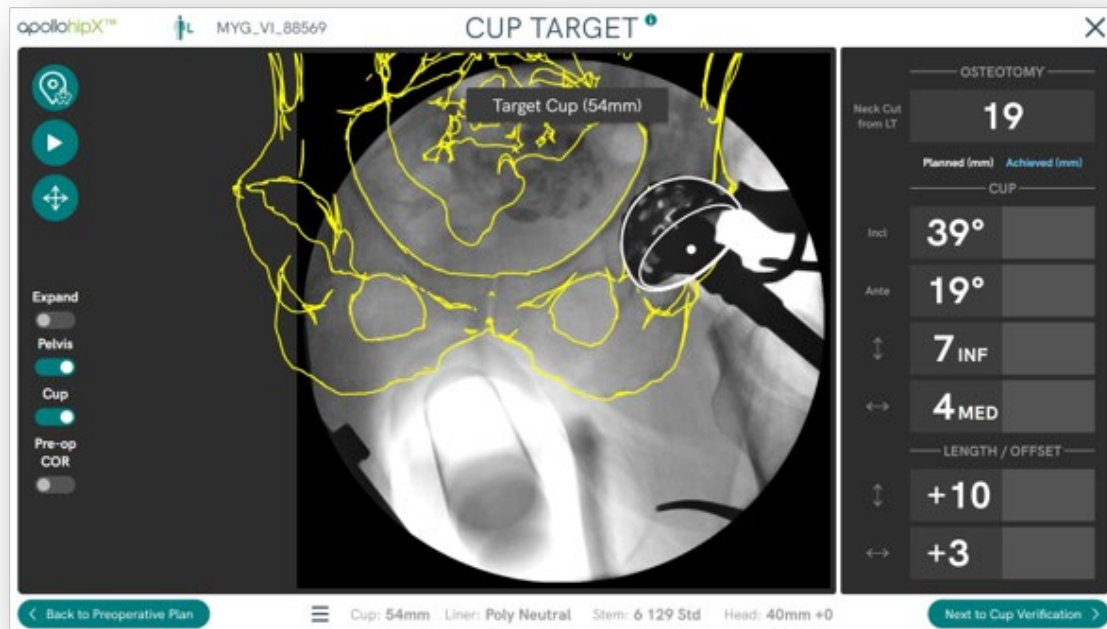
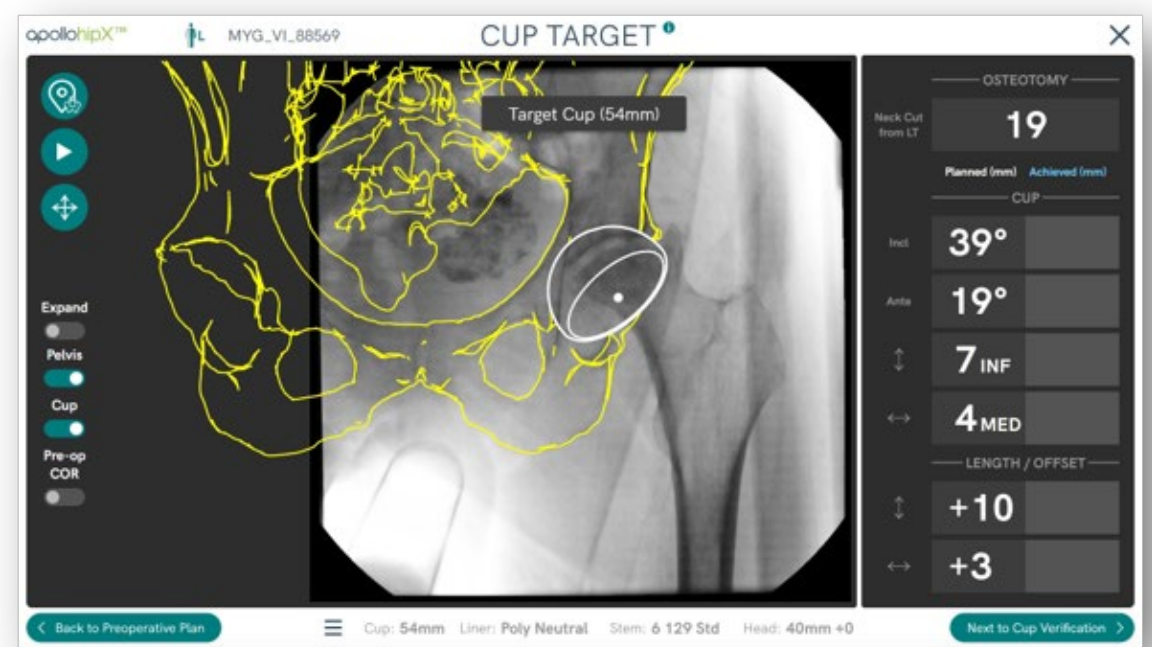
Stem

MetaFix™ Coll ▾
- Size 3 +
125 Std ▾

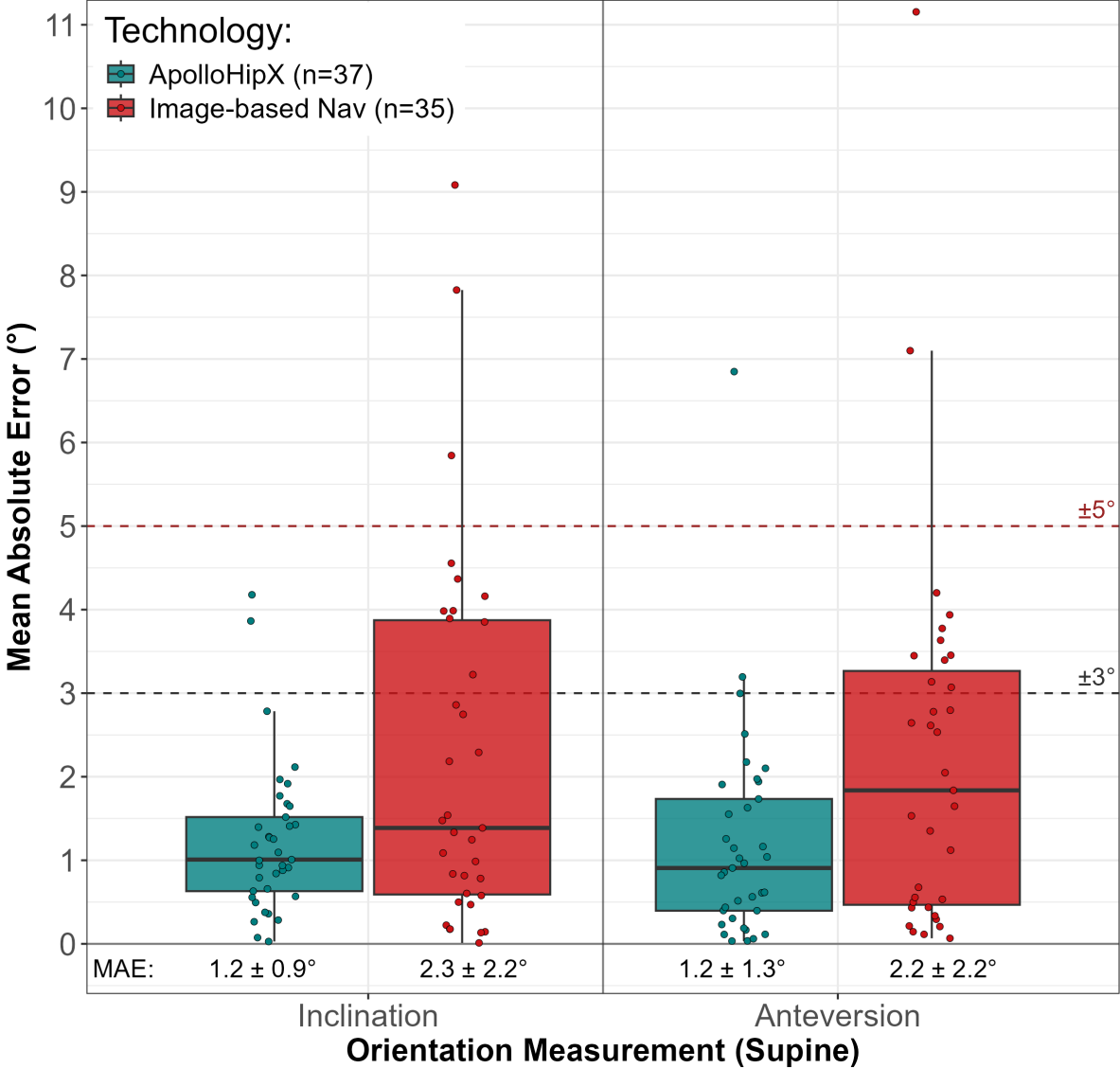
Head

Ceramic ▾
36 mm ▾
- 4 mm +

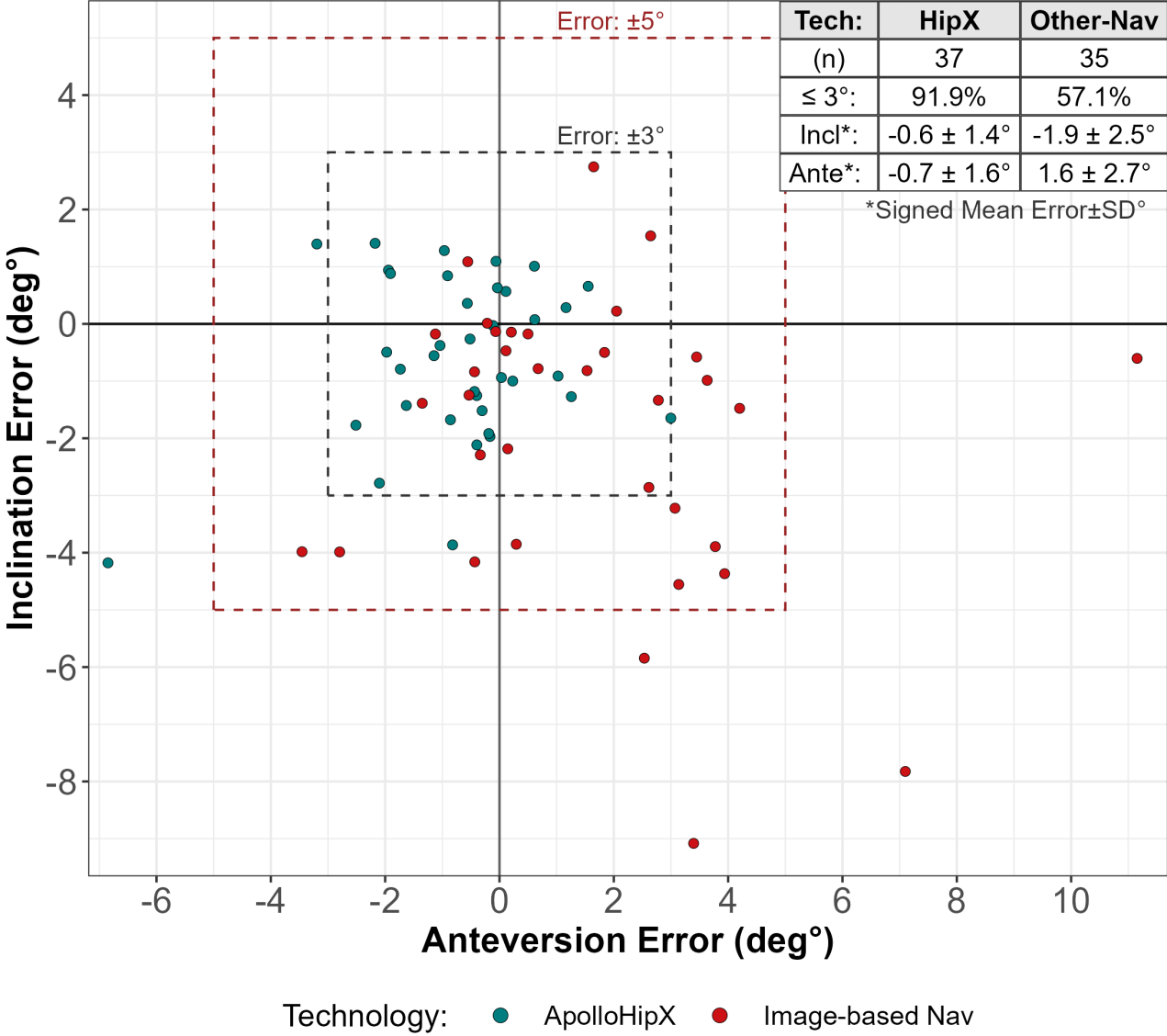




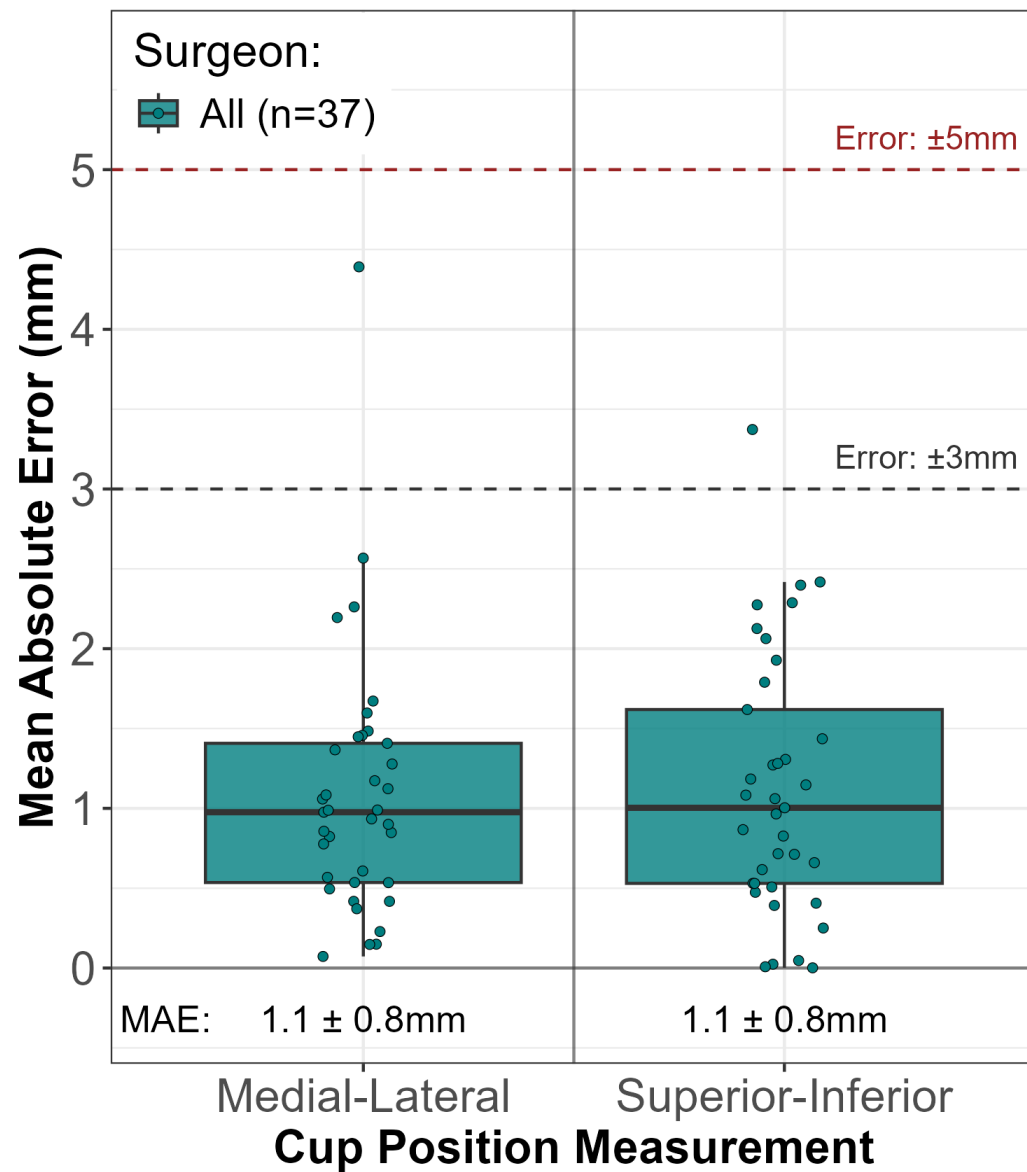
Orientation Accuracy



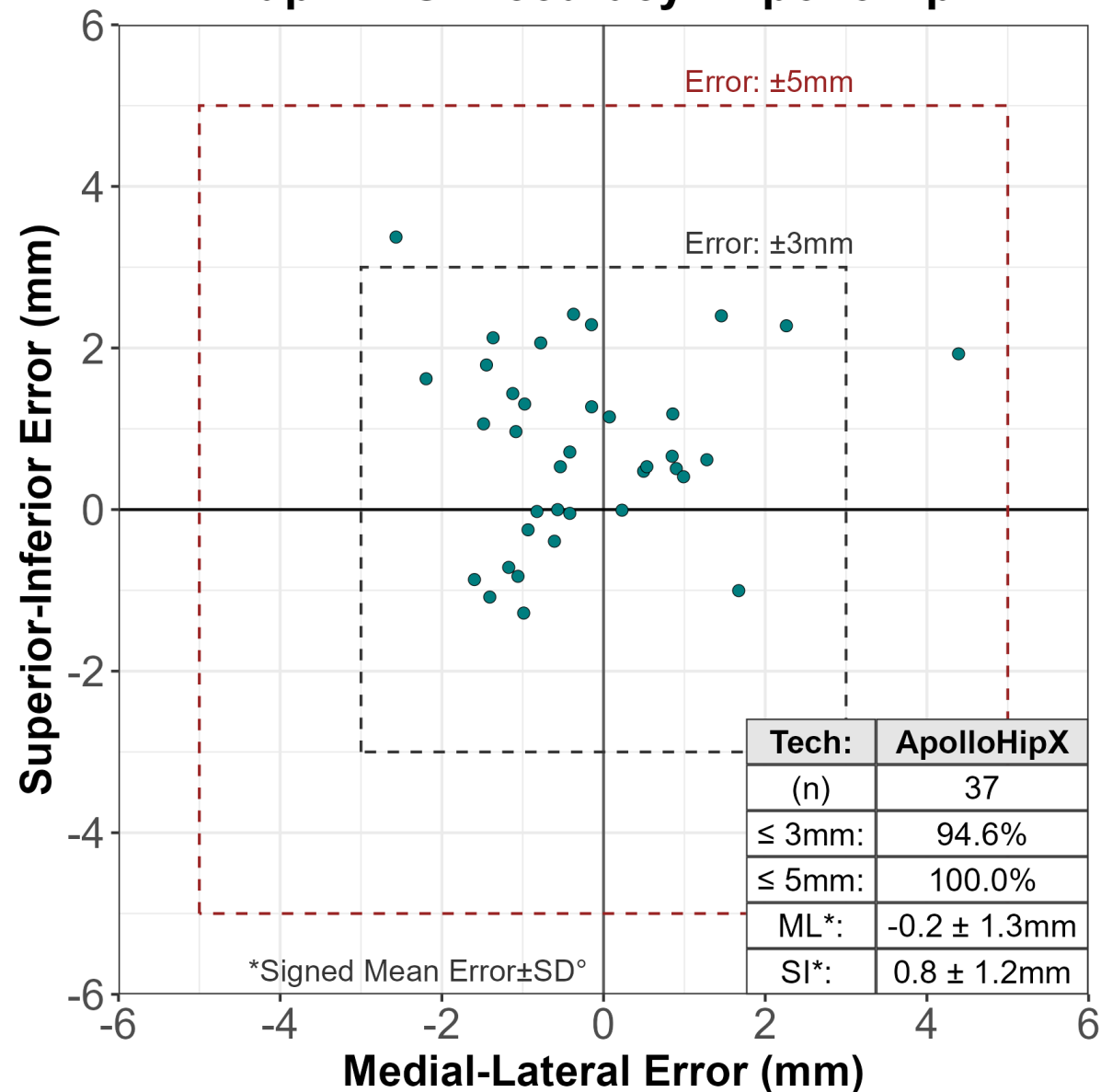
Orientation Accuracy - Supine



Cup ML/SI Position Accuracy



Cup ML/SI Accuracy - ApolloHipX



Conclusions

- Personalized safe zone
 - Tough to hit
- Decreased leg length discrepancy?
- Time neutral
- Defendable

