Minimum Two-Year Outcomes of Iliopsoas Tunnel Deepening with Primary Hip Arthroscopy: A Propensity Matched Comparison

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Disclosures

I (and/or my co-authors) have something to disclose.

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Background:
Iliopsoas Impingement Management

- "Painful internal hip snapping" reported in up to 21% of athletes with hip pain
- Etiology – believed to be mechanical in nature
- Surgical management has evolve, yet remains a controversial topic

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Benjamin G. Domb, M.D., Editorial Board, and David R. Maldonado, M.D., Editorial Board

Purpose

- **To report** minimum two-year outcomes of iliopsoas tunnel deepening (ITD) during hip arthroscopy
- **Compare** their results to a propensity-matched cohort undergoing iliopsoas fractional lengthening (IFL) during hip arthroscopy
- **Null Hypothesis:** ITD and IFL will yield similar improvements in iliopsoas impingement symptoms when utilized during primary hip arthroscopy

Methods: Patient Selection

- Primary hip arthroscopy
  - Treating Iliopsoas impingement + FAI + Labral tears
- Minimum 2-year follow-up
- No ipsilateral conditions
- Excluded Tonnis > 1
- Excluded dysplastic hips (LCEA <18°)

Figure 1. Circumduction maneuver to elicit internal snapping. The hip is brought into deep flexion followed by abduction and external rotation and then returned to extension.

Methods: Patient Selection

- Matching Criteria (1:1 Ratio)
  - Age
  - Sex
  - BMI
  - Acetabular Outerbridge Score
  - Labral Treatment
  - Capsular Treatment

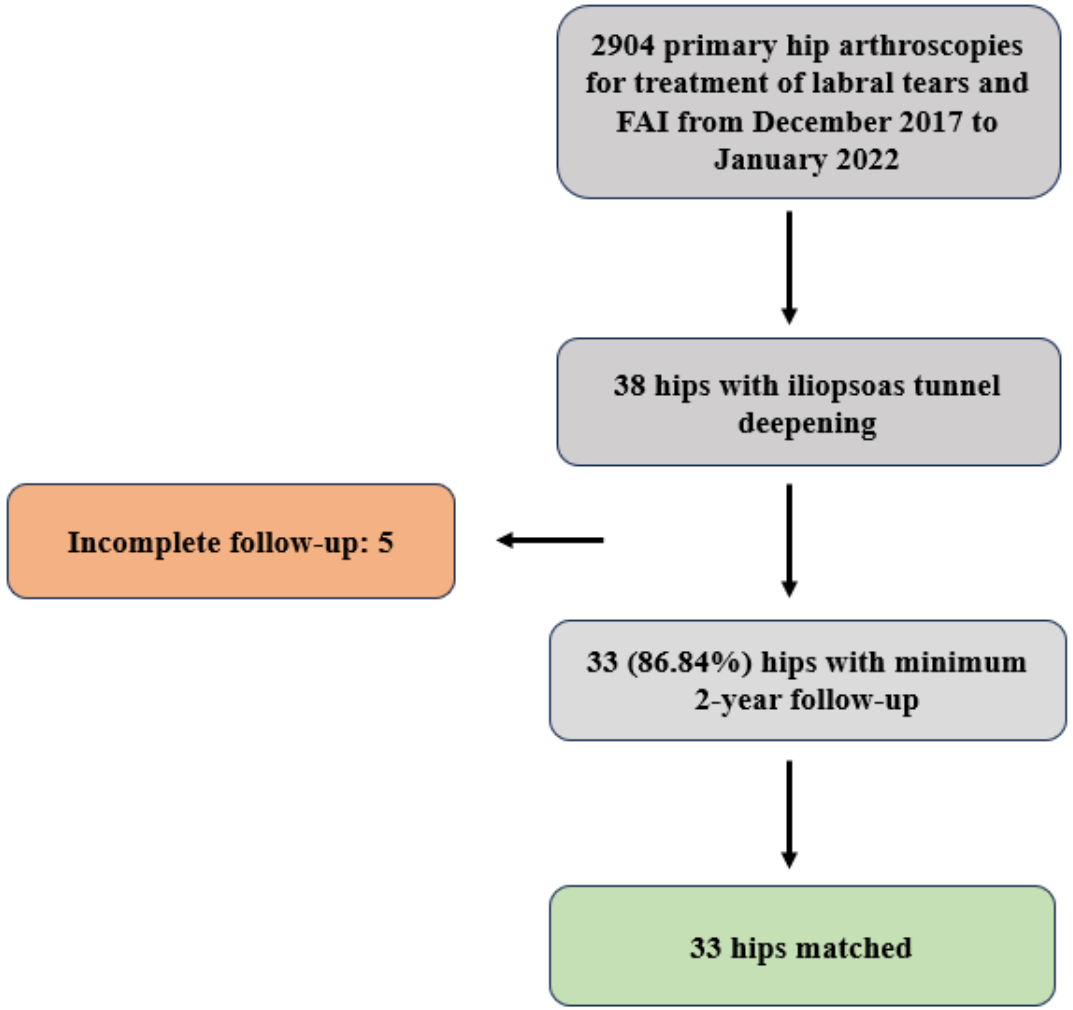

Figure 2. Exclusion criteria

Results: Demographics

Table 1. Demographic Information for ITD and IFL Groups

	ITD	IFL	P Value
Total Eligible*	33	440	NA
Total Matched*	33	33	NA
Follow-up time, mo†	27.9 ± 9.6	56.3 ± 23.9	**<0.01**
Age at surgery, yr†	31.4 ± 12.5	33.0 ± 13.0	0.64
BMI (kg/m^2) †	24.3 ± 3.9	23.7 ± 5.2	0.28
Female‡	30 (90.1%)	29 (87.9%)	>0.99

*The values are given as the number of cases.

†The values are given as the mean and standard deviation.

‡The values are given as numbers (percent)

Results: Radiographic Findings

Table 2. Preoperative Radiographic Findings

	ITD	IFL	P Value
Tonnis Grade*			
0	27 (81.8%)	27 (81.8%)	>0.99
Lateral Center-Edge Angle (deg) †	29.5 ± 6.4	29.7 ± 6.2	>0.99
ACEA (deg) †	29.4 ± 8.5	29.2 ± 6.1	0.73
Alpha Angle (deg) †	56.7 ± 9.5	59.0 ± 12.7	0.57

*The values are given as number (percent)

†The values are given as the mean and standard deviation

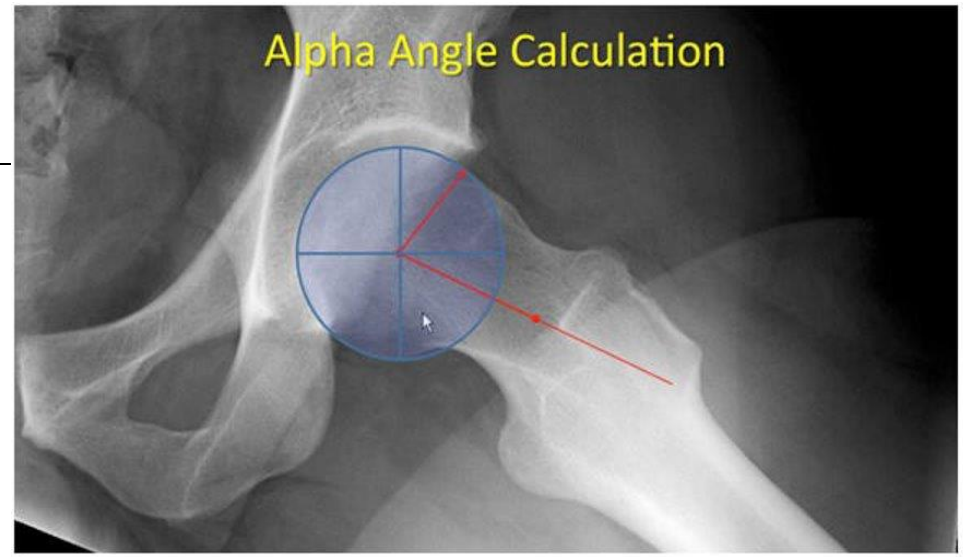

Figure 1 – Alpha angle calculation – Formed by a line drawn from the center of the femoral head through the center of the femoral neck, and a line from the center of the femoral head to the femoral head/neck junction at the point at which the femoral neck diverges from a circle drawn around the femoral head

Results: Patient-Reported Outcomes

- Significant improvement in both groups
- Similar Preoperative PROs
- Similar Postoperative PROs

Table 5. Patient-Reported Outcomes

	ITD	IFL	P Value
mHHS			
Preoperative (n = 33, n = 33)	57.1 ± 16.8	65.0 ± 13.4	0.11
Postoperative (n = 29, n = 32)	83.4 ± 17.2	86.4 ± 15.0	0.47
Preop vs Postop P value	**<0.01**	**<0.01**	
Δ (n = 29, n = 32)	26.7 ± 18.1	20.7 ± 16.6	0.26
NAHS			
Preoperative (n = 33, n = 33)	59.2 ± 15.8	61.2 ± 11.7	0.63
Postoperative (n = 29, n = 32)	85.4 ± 17.1	85.0 ± 17.3	0.92
Preop vs Postop P value	**<0.01**	**<0.01**	
Δ (n = 29, n = 32)	26.5 ± 18.0	24.1 ± 18.7	0.48
HOS-SSS			
Preoperative (n = 29, n = 31)	35.8 ± 21.0	41.2 ± 19.1	0.54
Postoperative (n = 25, n = 31)	74.1 ± 27.6	74.5 ± 26.0	0.96
Preop vs Postop P value	**<0.01**	**<0.01**	
Δ (n = 25, n = 31)	37.7 ± 24.7	35.9 ± 27.1	0.92
iHOT-12			
Preoperative (n = 33, n = 33)	31.2 ± 17.9	34.0 ± 18.4	0.71
Postoperative (n = 29, n = 32)	72.7 ± 27.1	74.9 ± 26.9	0.75
Preop vs Postop P value	**<0.01**	**<0.01**	
Δ (n = 29, n = 32)	41.8 ± 27.0	42.0 ± 26.0	0.99
VAS			
Preoperative (n = 33, n = 33)	5.8 ± 2.5	5.3 ± 1.9	0.40
Postoperative (n = 30, n = 32)	2.2 ± 2.6	1.9 ± 1.9	0.53
Preop vs Postop P value	**<0.01**	**<0.01**	
Δ (n = 30, n = 32)	-3.8 ± 2.9	-3.51 ± 2.4	0.65
Satisfaction (n = 30, n = 32)	7.8 ± 2.5	8.1 ± 2.2	0.59

*The values are given as number (percent)

Results: Clinically Meaningful Thresholds

- Met MCID and PASS at similar rates

Table 6. MCID and PASS

	ITD	IFL	P Value
MCID			
mHHS (8.28/6.61)	26 (78.8%)	25 (75.6%)	>0.99
NAHS (7.79/5.77)	25 (75.8%)	27 (81.8%)	0.55
HOS-SSS (10.30/9.37)	20 (60.6%)	24 (72.7%)	0.30
iHOT-12 (8.81/9.06)	26 (78.8%)	29 (87.9%)	0.32
PASS			
mHHS (83.3)	18 (54.6%)	21 (63.6%)	0.45
NAHS (85.6)	20 (60.6%)	20 (60.6%)	>0.99
HOS-SSS (74)	16 (48.5%)	16 (48.5%)	>0.99
iHOT-12 (72.2)	19 (57.6%)	20 (60.6%)	0.80

Results: Alleviation of Painful Snapping

- Similar rates of improvement in snapping symptoms
- ~80% alleviation of painful snapping at 6 to 12 month postop visit

Table 7. Alleviation of Painful Internal Snapping

	ITD	IFL	P Value
Trouble from Grinding, Catching, Clicking			
Preoperative (n = 33, n = 33)†	41.7 ± 29.0	41.2 ± 31.1	0.84
Postoperative (n = 30, n = 32) †	70.8 ± 32.3	81.2 ± 23.7	0.29
Preop vs Postop P value	**<0.01**	**<0.01**	
Δ (n = 30, n = 32)†	29.3 ± 34.6	41.1 ± 33.3	0.20
Resolution of Painful Internal Snapping During Postop Exam*	26 (78.8%)	27 (81.8%)	0.76

Conclusion

- Both ITD and IFL improved mechanical symptoms and painful internal snapping when treating iliopsoas impingement during hip arthroscopy.
- ITDs had comparable improvements in PROs and clinical outcomes when compared to IFLs.
- ITD and IFL appear to be efficacious procedures when managing iliopsoas impingement.

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