

Long-Term Outcomes of Primary Hip Arthroscopy: A Multicenter Analysis at Minimum 10-Year Follow Up

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INTRODUCTION: Hip arthroscopy is rapidly advancing, with literature increasingly reporting positive outcomes at short- and mid-term follow up; however, available long-term data remains limited. The purpose of this study is to evaluate long-term patient-reported outcomes (PROs) of primary hip arthroscopy at minimum 10-year follow up at two academic centers and determine the reoperation, revision, and arthroplasty rates.

METHODS: Primary hip arthroscopies performed between January 1988-April 2013 at two academic centers were retrospectively reviewed and evaluated for postoperative patient-reported outcomes (PROs) including Visual Analogue Scale (VAS) for pain, Tegner Activity Scale score, Hip Outcome Score Activities of Daily Living (HOS-ADL), and Sport Scale (HOS-SS), modified Harris Hip Score (mHHS), Nonarthritic Hip Score (NAHS), 12-item International Hip Outcome Tool (iHOT-12), surgery satisfaction, function ratings, and reoperations.

RESULTS: Two-hundred-ninety-four primary hip arthroscopies (age: 40±14 years, range 10-75; 66% female; BMI: 27±6) were followed for mean 12±3 years (range: 10-24). At final follow up, patients reported a mean VAS at rest of 2±2, with use of 3±3, iHOT-12 of 68±27, NAHS of 81±18, mHHS of 79±17, HOS-ADL of 82±19, HOS-SS of 74±25. Preoperative Tegner score was significantly greater in patients who underwent capsular repair, but there were otherwise no significant differences in postoperative PROs in patients who underwent labral repair versus debridement (p≥0.171) or in those who underwent capsular repair versus non-repair (p≥0.072). Ninety-six hips (33%) underwent at least one subsequent ipsilateral hip surgery, including 65 (23%) total hip arthroplasties (THAs) at mean 3±3 years (range: 1–9). Risk factors for THA included older age at the time of surgery (p<0.001), higher BMI (p<0.001), lower LCEA (p=0.039), larger Alpha angle (p=0.001), higher Tönnis grade (p=0.011), labral debridement (p=0.004), and capsular non-repair (p=0.030). Capsular non-repair had significantly lower rates of THA-free survival than capsular repair (p=0.032).

DISCUSSION AND CONCLUSION: At minimum 10-year follow up, patients undergoing primary hip arthroscopy demonstrated high rates of satisfaction and acceptable outcomes scores. Older age and higher BMI were identified as predictors of lower outcome scores. The all-cause reoperation, revision, and THA rates were 33%, 11%, and 23%, with reduced rates of THA seen in patients undergoing labral repair and capsular closure.

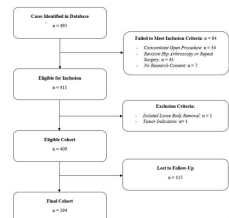


Figure 1. Inclusion Flowchart

Variable	Value
Mean Age at Surgery ^a	40.0 ± 13.8
BMI ^b	27.3 ± 5.9
Gender ^c	
Female	195 (66.5%)
Male	99 (33.5%)
Laterality ^d	
Left	123 (41.8%)
Right	171 (58.2%)
LCEA ^e	32.3° ± 6.5° (16.5-47)
Alpha Angle ^e	55.0° ± 11.6° (30.3-94.5)
Tönnis Angle ^e	5.7° ± 4.3°
Tönnis Grade ^e	
0	0.9 ± 0.7 (0-3)
1	146 (49.7%)
2	45 (15.3%)
Labral Treatment	
Debridement	121 (41.2%)
Repair	173 (58.8%)
Interportal Capsulotomy	289 (98.3%)
T Capsulotomy	5 (1.7%)
Capsular Repair ^b	30 (10.2%)
Cap Resection ^b	196 (66.7%)

^a Values displayed as mean ± standard deviation
^b Values displayed as number and percent of total
^c Values displayed as mean ± standard deviation (range)

PRO	Score	p-value
Tegner Activity Score ^a	4.2 ± 2.6	
Pre-operative	4.2 ± 2.6	0.157
Post-operative	3.8 ± 2.0	
VAS for Pain at Rest ^a	2.1 ± 2.4	
VAS for Pain with Use ^a	2.6 ± 2.6	
iHOT-12 ^a	68.4 ± 27.2	
mHHS ^a	78.6 ± 17.4	
HOS-ADL ^a	82.3 ± 18.9	
HOS-SS ^a	74.1 ± 25.4	
NAHS ^a	80.5 ± 17.8	
Surgery Satisfaction ^a	8.4 ± 2.4	
Current State ^b		
Satisfactory	110 (75.9%)	
Not Satisfactory	35 (24.1%)	
Current Level of Function ^b		
Normal	38 (27.5%)	
Nearly Normal	61 (44.2%)	
Abnormal	31 (22.5%)	
Severely Abnormal	8 (5.8%)	
Follow-up (Years) ^a	12.3 ± 2.6	

^a Values displayed as mean ± standard deviation
^b Values displayed as number and percent of total
^c Values displayed as mean and percent of total

PRO	Labral Debridement	p-value	Capsular Repair	No Capsular Repair	p-value
THA-free survival	44 (27)	0.77	53 (28)	40 (25)	0.028
Tegner	50 ± 19	0.002	48 ± 17	38 ± 21	0.001
VAS Rest	2.0 ± 2.4	0.004	1.9 ± 1.7	2.2 ± 2.1	0.007
VAS Use	2.0 ± 2.7	0.001	1.8 ± 2.2	2.8 ± 2.7	0.007
iHOT-12	68 ± 27	0.004	75 ± 27	67 ± 27	0.001
mHHS	78 ± 17	0.004	80 ± 16	76 ± 16	0.001
HOS-ADL	82 ± 19	0.004	83 ± 18	81 ± 19	0.001
HOS-SS	74 ± 25	0.002	76 ± 25	73 ± 25	0.001
NAHS	80 ± 18	0.002	82 ± 18	80 ± 17	0.001
Follow-up (Years)	11.2 ± 2.9	0.004	11.8 ± 3.1	12.0 ± 2.7	0.001

Endpoint	Number	Years from Primary Surgery ^a
Reoperation	91 (31.3%)	
Revision Arthroscopy	33 (11.2%)	3.2 ± 2.0 (0.1 - 9.5)
THA	65 (22.1%)	4.4 ± 2.0 (0.1 - 9.9)
THA	65 (22.1%)	5.8 ± 3.4 (0.3 - 28.6)

^a Values displayed as mean ± standard deviation
^b Values displayed as number and percent of total
^c Note: some patients reached more than one clinical endpoint during the study period