The Impact of Self-Reported Cannabis Use on Functional Outcomes after Hip Arthroscopy: A Matched-Controlled Study

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INTRODUCTION: There is a paucity of literature investigating the impact of cannabis usage on short-term outcomes after primary hip arthroscopy surgery to treat symptomatic labral tears.

METHODS:
This prospective matched control cohort study includes patients who underwent primary hip arthroscopy for symptomatic labral tears secondary to femoroacetabular impingement by a single surgeon after failing conservative treatment. Included patients were ≥18 years old and completed baseline through 2-year post-operative outcomes surveys. Excluded patients were < 18 years of age, had incomplete follow-up data, had ipsilateral hip surgery or revision surgery, and/or hip dysplasia (LCEa ≥ 20°). Patients were divided into two groups based on if they were cannabis naïve (CN) or cannabis users (CU). The two groups were then propensity-matched 1:1 by age, sex, BMI, and Tönnis grade. Patient-reported outcome measures (PROM) included the modified Harris Hip Score (mHHS), Nonarthritic Hip Score (NAHS), Hip Outcome Score–Activities of Daily Living (HOS-ADL), HOS–Sports Specific Subscale (HOS-SSS), 33-item International Hip Outcome Tool (iHOT-33), Lower Extremity Functional Score (LEFS), and RAND-36 pain subscale (Pain).

RESULTS:
In total, 72 patients were included (age, 31.7±9.48). Of these, 36 patients had self-reported cannabis use and 36 did not report use. All PROM scales were similar at baseline (P>0.05). Cannabis use was not a predictor of functional outcomes at any timepoint including 2-year follow-up for all PROM scales (P>0.05). A linear regression model adjusting for cannabis use frequency found pain scores worsened with increased usage (Adjusted mean difference, -3.72; 95% CI, [-7.35, -0.11]; P=0.047). Further analysis showed no differences in achieving MCID, PASS, or SCB (P>0.05).

DISCUSSION AND CONCLUSION: While some prior investigations demonstrate that cannabis use can negatively impact postoperative recovery after orthopaedic surgery, the present study finds that self-reported cannabis usage has no impact on functional outcomes after surgery. Significantly worse pain scores were associated with increased cannabis usage. Orthopaedic surgeons should still inform patients of the proven effects of cannabis usage on postoperative recovery, as this study does not analyze its potential impacts in the long term.

Table 1: Patient Demographics and Radiographic Findings

	CN (n=36)	CU (n=36)	P value
Age, years	32.0 (9.50)	31.4 (9.57)	0.777
BMI, kg/m²	25.7 (3.19)	25.0 (3.41)	0.378
Sex			>0.99
Female	12 (33.3)	11 (30.6)	
Male	24 (66.7)	25 (69.4)	
Laterality			>0.99
Right	23 (63.9)	24 (66.7)	
Left	13 (36.1)	12 (33.3)	
Race			>0.99
Asian	1 (2.8)	1 (2.7)	
White	35 (97.2)	34 (94.6)	
Other or not reported	0 (0.0)	1 (2.7)	
Tönnis grade			>0.99
Grade 0	21 (58.3)	20 (55.6)	
Grade 1	15 (41.7)	15 (41.7)	
Grade 2	0 (0.0)	1 (2.7)	

*Data are reported as mean (SD) or No. of patients (%). **Boldface** denotes statistical significance (P<0.05). Abbreviations: BMI, body mass index; CN, cannabis naïve; CU, cannabis user

Table 2: Patient-Reported Outcomes

Timepoint	PROM Scale	CN	CU	P Value
Enrollment	mHHS	64.4 ± 16.6	69.0 ± 13.8	0.228
	NAHS	68.8 ± 18.2	70.4 ± 17.5	0.706
	HOS-ADL	74.3 ± 19.8	76.7 ± 16.3	0.574
	HOS-SSS	49.7 ± 24.3	51.8 ± 21.6	0.694
	iHOT-33	43.5 ± 19.1	48.2 ± 17.6	0.287
	LEFS	49.5 ± 18.8	53.4 ± 14.6	0.380
24 months	mHHS	85.9 ± 15.4	83.9 ± 11.6	0.550
	NAHS	88.1 ± 12.7	88.6 ± 10.3	0.706
	HOS-ADL	90.6 ± 11.2	90.9 ± 8.80	0.574
	HOS-SSS	77.9 ± 22.8	79.0 ± 15.7	0.694
	iHOT-33	78.2 ± 20.7	74.5 ± 16.9	0.412
	LEFS	62.2 ± 19.5	69.3 ± 9.86	0.076

*Data are reported as mean ± standard deviation or No. (%) **Boldface** denotes statistical significance (P<0.05). Abbreviations: mHHS, Modified Harris Hip Score; NAHS, Nonarthritic Hip Score; HOS-ADL, Hip Outcome Score- Activities of Daily Living; HOS-SSS, Hip Outcome Score-Sports Specific Subscale; iHOT-33, 33-item International Hip Outcome Tool; LEFS, Lower Extremity Functional Score; pain, RAND-36 pain subscale; CN, cannabis naïve; CU, cannabis user

Table 3: Clinically Meaningful Outcomes at 2-Year

		Threshold	CN	CU	P value
MCID	mHHS	Δ >9.2	77.8%	66.7%	0.423
	NAHS	Δ >8.3	63.9%	75.0%	0.443
	HOS-ADL	Δ >9.7	55.6%	58.3%	>0.99
	HOS-SSS	Δ >14.3	69.4%	69.4%	>0.99
	iHOT-33	Δ >13.9	88.9%	80.6%	0.512
PASS	mHHS	>83.3	66.7%	61.1%	0.806
	NAHS	>85.6	72.2%	69.4%	>0.99
	HOS-ADL	>88.2	66.7%	72.2%	0.798
	HOS-SSS	>76.4	66.7%	55.6%	0.468
	iHOT-33	>72.2	69.4%	52.8%	0.227
SCB	mHHS	>85.8	58.3%	36.1%	0.098
	NAHS	>94.4	41.7%	41.7%	>0.99
	HOS-ADL	>91.9	52.8%	58.3%	0.813
	HOS-SSS	>77.9	66.7%	55.6%	0.468
	iHOT-33	>76.8	63.9%	44.4%	0.156

***Boldface** denotes statistical significance (p<0.05). Yates' continuity correction was used for all tests. Abbreviations: mHHS, Modified Harris Hip Score; NAHS, Nonarthritic Hip Score; HOS-ADL, Hip Outcome Score- Activities of Daily Living; HOS-SSS, Hip Outcome Score-Sports Specific Subscale; iHOT-33, 33-item International Hip Outcome Tool; CN, cannabis naïve; CU, cannabis user

Table 4: Linear Regression

Cannabis Use Frequency (per week)	Adjusted Mean Difference	95% CI Lower	95% CI Upper	P value
mHHS	-0.87	-3.36	1.63	0.490
HOS-ADL	-0.17	-2.03	1.70	0.857
HOS-SSS	1.13	-2.40	4.67	0.525
NAHS	-0.39	-2.53	1.75	0.716
iHOT-33	-0.13	-3.59	3.34	0.942
LEFS	0.97	-1.98	3.92	0.513
Pain	-3.72	-7.35	-0.11	**0.047**

Boldface denotes statistical significance (P<0.05). A higher Pain score represents less pain. Abbreviations: mHHS, Modified Harris Hip Score; NAHS, Nonarthritic Hip Score; HOS-ADL, Hip Outcome Score- Activities of Daily Living; HOS-SSS, Hip Outcome Score-Sports Specific Subscale; iHOT-33, 33-item International Hip Outcome Tool; LEFS, Lower Extremity Functional Score; Pain, RAND-36 pain subscale