

Criteria for Return to Sport Following Surgery for Femoroacetabular Impingement: A Systematic Review

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INTRODUCTION: Femoroacetabular impingement (FAI) is a common cause of hip pain in young and athletic populations and frequently leads to surgical intervention to restore function and allow return to sport (RTS). While surgical outcomes are generally favorable, the decision-making process for RTS remains inconsistent, with no universally accepted criteria for clearance. Existing studies have proposed a wide range of benchmarks, including time-based restrictions, restoration of hip strength, functional testing, and pain-free range of motion, but substantial heterogeneity persists. This variability creates challenges for clinicians and athletes, giving rise to the need to synthesize current evidence and identify common elements of RTS assessment following FAI surgery.

METHODS: Following PRISMA 2020 guidelines, Pubmed, Embase, and Cochrane were searched from inception to July 2025 using search terms for “femoroacetabular impingement” and “Functional test” or “rehabilitation” or “return to sport”. Eligible studies included patients treated with hip arthroscopy for FAI, reported a rehabilitation protocol or return to sport criteria, and did not have concomitant injuries along with FAI. Two independent reviewers screened titles, abstract, and full texts with a third reviewer resolving disagreement. Data extraction included the author, year, study design, number of athletes, sport and level, RTS criteria, RTS rate, and RTS time frame.

RESULTS SECTION: The database identified 1392 articles; 964 articles remained after duplicate removal. Title and abstract screening were performed resulting in 85 articles for full text review. 7 studies met the inclusion criteria. These studies encompassed sports such as basketball, soccer, gymnastics, lacrosse, ice hockey, and dance with the level of competition ranging from recreational to professional. Muscle strength measures were the criteria for 6/7 studies, pain free range of motion for 5/7, pain free sport specific activities 4/7, functional testing 4/7, and 3 months of physical therapy 1/7 (Table 1). Hip strength within 85-90% of the uninvolved side for 5/7, passive and active ROM 90% of the non-operated leg without pain for 4/7, and single leg squat or hop tests within 85% of noninvolved side for 5/7 were common testing parameters and criteria cited. There were no comparisons of these criteria with postoperative outcomes. Time-based clearance was variably reported with most athletes returning between 5 and 6 months. Return rates ranged from 79% to 84% across studies.

DISCUSSION: This systematic review demonstrates that while most athletes can expect to return to sport within 5–6 months following FAI surgery, the criteria used to guide clearance vary widely. Pain-free range of motion, near-symmetric hip strength, and functional or sport-specific testing are the most consistently reported benchmarks, though variation in testing varied. With many of the performance metrics mirroring those used following anterior cruciate ligament reconstruction, there exists a need to identify performance metrics that influence postoperative outcomes. Establishing standardized, evidence-based RTS criteria will be essential to optimize athlete recovery, ensure safety, and improve research reproducibility in the field of hip arthroscopy.

SIGNIFICANCE/CLINICAL RELEVANCE: Standardized RTS criteria after hip arthroscopy for FAI would enhance clinical decision-making and ensure safer, more predictable return to play.

Table 1: Summary of studies evaluating return-to-sport (RTS) criteria following femoroacetabular impingement (FAI) surgery.

Author,Year	Study Design	N (Athletes)	Demographics	Sport/Level	RTS Criteria Used	RTS Rate, RTS TimeFrame
Chen (2019)	Retrospective Comparative Study	31	Avg Age: 30 Yrs Male: 65.5% Female 35.5%	Basketball	3 Months of physical therapy and demonstration of adequate gluteal/ core strength with single leg squat exercises	83.9%, 6 months
Kwielecien (2025)	Prospective	56	Avg Age: 36.6 Yrs Male: 60.7% Female: 39.2%	Ice Hockey, Soccer, Golf, Dancer	1. Hip strength within 10% of uninvolved side 2. Isokinetic test of quadriceps and hamstrings peak torque within 15% of uninvolved 3. Single hop for distance at least 85% of noninvolved if applicable to patient's sport 4. Step down test equal to noninvolved (unilateral squat)	79%, 5.3 months
Pasurka (2025)	Qualitative Interviews			NHL, MLB, NBA, MLS, Lacrosse, Alpine Skiing	Muscle strength measures, pain-free sport specific activities, physical examination (No hip pain in ROM), Functional testing (Full squats, Ober Test, FABER test, pain free FADIR)	
Saavedra (2016)	Observational, descriptive, longitudinal and retrospective study	48			1. confirm that hip flexion strength is higher than 85% with respect to the healthy side 2. ROM must be complete and pain free 3. the subject must be able to perform specific sport exercises at full speed and complete them successfully	×, 5 months
Tijssen (2015)	Observational Cohort	37	Avg Age: 40.5 Yrs Male: 56.7% Female: 43.2%	Recreational Athletes	1. Passive and active ROM 90% of nonoperated leg 2. Hip strength 90% of non-operated leg 3. Hip functional performance tests 90% of non-operated leg 4. Trunk and lower leg strength 90% of nonoperated leg 5. Pain free and correct motion during sport specific exercises	84%, 6 months
Martin (2023)	Modified Delphi technique was used with fourteen physical therapy experts, all members of the International Society for Hip Arthroscopy (ISHA)				Sit to stand test, Timed single leg stance test, pain free double leg squat, Y balance and SEBT, The timed stairs ascent test, timed walking test, deep squat test, single leg squat and step down test, hop lunge test, medial/lateral triple hop, modified agility T test	
Vera (2025)	Retrospective Review	40	Avg Age: 17.6 Yrs Male: 0% Female 100%	Dance, Soccer, Gymnastics, Softball, Basketball, Track, Lacrosse, Water Polo, Cheer	1. Pain-free range of motion 2. Hip strength >90% of the contralateral side 3. Ability to perform sport-specific drills without pain	