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Supplementary Appendix A1

Search strategies scoping review hip microinstability and FAI

Search strategy Ovid (for MEDLINE)

1. hip.ab.
2. hip.ti.
3. exp Hip Joint/ or exp Femoracetabular Impingement/
4. 1 or 2 or 3
5. micro-instability.af.
6. microinstability.af.
7. exp Joint Instability/cl, di, dg, et, pa, pp, pc, rh, su, th [Classification, Diagnosis, Diagnostic Imaging, Etiology, Pathology, Physiopathology, Prevention & Control, Rehabilitation, Surgery, Therapy]
8. hip instability.af.
9. 5 or 6 or 7 or 8
10. 4 and 9

Search strategy CINAHL (EBSCO host)

#	Query	Limiters/Expanders	Last Run Via	Results
S10	S4 AND S9	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display
S9	(S5 OR S6 OR S7 OR S8)	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display
S8	joint instability	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display

S7	AB micro-instability OR TI micro-instability	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display
S6	AB microinstability OR TI microinstability	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display
S5	MW instability	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display
S4	S1 OR S2 OR S3	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display
S3	femoroacetabular impingement or femoral acetabular impingement or hip impingement	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display
S2	MW hip joint	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display
S1	TI hip OR AB hip	Expanders - Apply equivalent subjects Search modes - Find all my search terms	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Complete	Display

Search strategy EMBASE

No.	Query	Results
#20	#13 AND #19	2071
#19	#16 OR #17 OR #18	15694
#18	'hip instability'	634
#17	'joint instability'	12210
#16	#14 OR #15	148
#15	'micro instability'	27
#14	microinstability	145
#13	#11 OR #12	183224
#12	'femoroacetabular impingement'	3896
#11	hip:ab,ti	182669

Supplementary Appendix A2

Data Charting Form Scoping Review Hip Microinstability and FAI

Author / Year	Title	Country	Type of Source	Topic	Key Message(s)
<i>Name(s) of author(s) and year of publication</i>	<i>Title of the study</i>	<i>Country where the study was run</i>	<i>What kind of article/study this is</i>	<i>Which of the following topics were covered in this article?</i> <i>Definition, Aetiology, Diagnosis, Treatment or Prevalence</i>	<i>Extraction of the key message(s) based on the respective topic(s)</i>

Supplementary Table A1 general demographic and source information

author / year	title	country	type of source	topic
Abrams et al. (2016) (88)	Decreased Synovial Inflammation in Atraumatic Hip Microinstability Compared With Femoroacetabular Impingement	USA	prospective cohort study	Diagnosis
Agten et al. (2016) (78)	Hip Imaging in Athletes: Sports Imaging Series	Switzerland	review article	Diagnosis
Atzmon and Safran (2022) (75)	Arthroscopic Treatment of Mild/Borderline Hip Dysplasia with Concomitant Femoroacetabular Impingement-Literature Review	USA	review article	Diagnosis Treatment: surgical management
Bayer et Sekiya (2010) (96)	Hip instability and capsular laxity	USA	technical note	Aetiology Treatment : surgical management
Beck et al. (2019) (123)	Contemporary Hip Capsular Management and Closure Using a Suture Passing Device	USA	technical note	Treatment : surgical management
Bedi et al. (2011) (100)	Capsular management during hip arthroscopy: from femoroacetabular impingement to instability	USA	technical note	Aetiology
Bellabarba et al. (1998) (26)	Idiopathic Hip Instability An Unrecognized Cause of Coxa Saltans in the Adult	USA	prospective case series study	Aetiology Diagnosis
Berthelot et al. (2023) (63)	Update on contribution of hip labral tears to hip pain: A narrative review	France	review article	Aetiology Diagnosis
Blakey et al. (2010) (103)	Secondary capsular laxity of the hip	UK	prospective cohort study	Aetiology
Bolia et al. (2019) (39)	High Specificity of the Hip Dial Test to Diagnose Anterior Capsular Insufficiency in Patients with FAI-Related Microinstability of the Hip	USA	Abstract: prospective diagnostic accuracy study	Diagnosis
Bolia et al. (2016) (20)	Microinstability of the hip: a previously unrecognized pathology	USA	review article	Definition Aetiology Diagnosis Treatment: conservative management / surgical management
Bowman et al. (2010) (97)	A clinically relevant review of hip biomechanics	USA	review article	Aetiology Treatment : surgical management
Boykin et al. (2011) (38)	Hip instability	USA	review article	Aetiology Diagnosis Treatment : conservative management / surgical management
Brusalis et al. (2020) (128)	Periacetabular Osteotomy as a Salvage Procedure Early Outcomes in Patients Treated for Iatrogenic Hip Instability	USA	intervention study	Treatment: surgical management
Canham et al. (2016) (98)	Atraumatic Hip Instability	USA	review article	Aetiology
Casartelli et al. (2016) (93)	The management of symptomatic femoroacetabular impingement: what is the rationale for non-surgical treatment?	Switzerland	Editorial	Aetiology Treatment : surgical management
Cerezal et al. (2012) (18)	Emerging topics on the hip: ligamentum teres and hip microinstability	Spain	review article	Definition Aetiology Treatment : conservative management / surgical management
Chahla et al. (2016) (116)	Ligamentum Teres Tears and Femoroacetabular Impingement: Prevalence and Preoperative Findings	USA	prospective cohort study	Aetiology
Charbonnier et al. (2011) (102)	Assessment of congruence and impingement of the hip joint in professional ballet dancers: a motion capture study	Switzerland	prospective descriptive laboratory study	Aetiology
Charles et al. (2023) (125)	Treatment of Hip Microinstability with Arthroscopic Capsular Plication: A Retrospective Case Series	Belgium	retrospective cohort study	Treatment: surgical management
Cohen et al. (2023) (73)	The Radiographic Femoroepiphyseal Acetabular Roof Index Is a Reliable and Reproducible Diagnostic Tool in Patients Undergoing Hip Preservation Surgery: A Systematic Review	Canada	systematic review	Diagnosis
Cohen et al. (2023) (46)	Hip microinstability diagnosis and management: a systematic review	Canada	systematic review	Diagnosis Treatment: surgical management
Curley et al. (2023) (138)	Editorial Commentary: Evaluate for the Beighton Score and Additional Radiographic Signs of Instability Prior to Proceeding With Hip Arthroscopy in Patients With Combined Borderline Hip Dysplasia and Excessive Femoral Anteversion	USA	Editorial commentary	Treatment: surgical management
Curtis et al. (2022) (44)	Hip Microinstability: Understanding a Newly Defined Hip Pathology in Young Athletes	USA	Abstract: Info graphic	Aetiology Diagnosis Treatment: conservative and surgical management
Curtis et al. (2023) (53)	Can Hip Passive Range of Motion Predict Hip Microinstability? A Comparative Study	USA	retrospective case control study	Diagnosis
Curtis et al. (2023) (83)	The diagnosis of hip microinstability is correlated with ease of intra-operative hip distraction	USA	retrospective case series study	Diagnosis
Curtis et al. (2022) (47)	Female gender, decreased lateral center edge angle and a positive hyperextension-external rotation test are associated with ease of hip distractibility at time of hip arthroscopy	USA	retrospective case series study	Diagnosis
Cvetanovich et al. (2020) (77)	Assessment of Hip Translation In Vivo in Patients With Femoroacetabular Impingement Syndrome Using 3-Dimensional Computed Tomography	USA	prospective cohort study	Diagnosis
d'Hemecourt et al. (2019) (24)	Can Dynamic Ultrasonography of the Hip Reliably Assess Anterior Femoral Head Translation?	USA	prospective diagnostic reliability study	Definition Diagnosis
Dangin et al. (2016) (1)	Microinstability of the hip: A review	France	review article	Definition Aetiology Diagnosis Treatment : conservative management / surgical management
Domb et al. (2013) (22)	Arthroscopic capsulotomy, capsular repair, and capsular plication of the hip: relation to atraumatic instability	USA	systematic review	Aetiology Treatment : surgical management
Dusak et Clatawi (2023) (74)	The Application of the Novel Femoral-Epiphyseal Acetabular Roof (FEAR) Index	Indonesia	Abstract: systematic review	Diagnosis
Economopoulos et al. (2019) (7)	The Pull Test: A Dynamic Test to Confirm Hip Microinstability	USA	prospective diagnostic accuracy study	Diagnosis Prevalence
Eijer et Hogervorst (2017) (105)	Femoroacetabular impingement causes osteoarthritis of the hip by migration and micro-instability of the femoral head	Switzerland and Netherlands	expert article	Aetiology
Ejnisman et al. (2022) (121)	Effectiveness of Nonoperative Management of Hip Microinstability	USA	retrospective case series study	Treatment: conservative management
Featherall et al. (2022) (114)	Inverse Relationship of Hip Capsular Thickness on Magnetic Resonance Imaging and Increased Axial Distraction Under Anesthesia: Further Characterization of Hip Laxity	USA	retrospective cohort study	Diagnosis
Featherall et al. (2021) (79)	Three-Dimensional Magnetic Resonance Arthrography of Post-Arthroscopy Hip Instability Demonstrates Increased Effective Intracapsular Volume and Anterosuperior Capsular Changes	USA	prospective diagnostic case series study	Diagnosis
Foissey et al. (2023) (76)	Predictive radiological parameters of failure following surgical management of femoroacetabular impingement associated with borderline acetabular dysplasia	France	retrospective case series study	Diagnosis
Friel et al. (2017) (108)	Current Techniques in Treating Femoroacetabular Impingement: Capsular Repair and Plication	USA	technical note	Aetiology
Govd et al. (2022) (67)	Evaluation of additional causes of hip pain in patients with femoroacetabular impingement syndrome	USA	review article	Aetiology Diagnosis
Graesser et al. (2020) (71)	Development and External Validation of a Novel Clinical Score to Quantify the Presence of Instability Characteristics in Patients with Borderline Acetabular Dysplasia	USA	Abstract: retrospective cohort and prospective diagnostic validity study	Diagnosis
Hammoud et al. (2014) (101)	The recognition and evaluation of patterns of compensatory injury in patients with mechanical hip pain	USA	review article	Aetiology
Harris (2019) (25)	Hypermobile Hip Syndrome	USA	review article	Definition Aetiology Diagnosis Treatment : conservative management / surgical management
Harris et al. (2016) (23)	Microinstability of the Hip and the Splits Radiograph	USA	case report	Definition Aetiology Diagnosis Treatment : conservative management / surgical management
Hatem et al. (2020) (55)	Anteroinferior Hip Instability in Flexion During Dynamic Arthroscopic Examination Is Associated With Abnormal Anterior Acetabular Horn	USA	retrospective case-control study	Diagnosis

Hohmann 2022 (139)	Editorial commentary: Hip Arthroscopy for Femoroacetabular Impingement in Patients With Borderline Dysplasia Does Not Result in Inferior Outcomes Compared With Outcomes in Patients Without Dysplasia: Do Not Fear	USA	Editorial commentary	Treatment: surgical management
Hoppe et al. (2017) (5)	Diagnostic Accuracy of 3 Physical Examination Tests in the Assessment of Hip Microinstability	USA	prospective diagnostic accuracy study	Diagnosis Prevalence
Horton et al. (2020) (72)	Imaging Markers of Hip Instability are Associated with Worse Outcomes at Two to Four-year Follow-up in Female Patients Undergoing Hip Arthroscopy for Femoroacetabular Impingement	USA	retrospective cohort study	Diagnosis
Hunt (2021) (106)	Editorial commentary: Hip Cam Overresection May Result in Inferior Outcomes: The Goldilocks Paradox of Too Little, Too Much, or Just Right?	USA	Editorial commentary	Aetiology
Jackson (2021) (107)	Editorial commentary: Microinstability After Cam Osteochondroplasty Results From Over-Resection - Everything in Moderation	USA	Editorial commentary	Aetiology
Jean et al. (2023) (35)	Hip microinstability: fact or fiction?	Canada/USA	Editorial commentary	Diagnosis
Jimenez et al. (2021) (131)	Achieving Successful Outcomes in High-Level Athletes With Borderline Hip Dysplasia Undergoing Hip Arthroscopy With Capsular Plication and Labral Preservation: A Propensity-Matched Controlled Study	USA	retrospective case-control study	Treatment: surgical management
Kalisvaart et al. (2017) (133)	Hip instability treated with arthroscopic capsular plication	USA	prospective cohort study	Treatment: surgical management
Kalisvaart et Safran (2015) (8)	Microinstability of the hip-it does exist: Aetiology, diagnosis and treatment	USA	review article	Definition Aetiology Diagnosis Treatment: conservative management / surgical management
Kaya et al. (2014) (118)	Factors contributing to the failure of conservative treatment for acetabular labrum tears	Japan	prospective cohort study	Aetiology
Khanduja et al. (2023) (36)	Diagnosing Hip Microinstability: an international consensus study using the Delphi methodology	UK	consensus paper	Diagnosis
Krych et al. (2012) (99)	Is posterior hip instability associated with cam and pincer deformity?	USA	retrospective cohort study	Aetiology
Lall et al. (2020) (45)	Teamwork in hip preservation: the ISHA 2019 Annual Scientific Meeting	Spain	scientific meeting	Aetiology Diagnosis Treatment: conservative and surgical management
Larson (2022) (61)	Editorial Commentary: Restoration of Hip Capsular Tension Is More Important Than Repair Construct Configuration	USA	Editorial commentary	Diagnosis Treatment: surgical management
Maas et al. (2017) (65)	Posterior hip instability relocation testing: a resident's case report	USA	case report	Diagnosis
MacDonald et al. (2023) (70)	The posterior crescent sign on MRI and MR arthrography: is it a marker of hip dysplasia and instability?	New Zealand	retrospective cohort study	Diagnosis
Magerkurth et al. (2013) (64)	Capsular Laxity of the Hip: Findings at Magnetic Resonance Arthrography	Switzerland and USA	retrospective case-control study	Diagnosis
Maldonado (2019) (80)	CORR Insights SM : Can Dynamic Ultrasonography of the Hip Reliably Assess Anterior Femoral Head Translation?	USA	commentary	Diagnosis
Martin et al. (2022) (33)	Pre- and intraoperative decision-making challenges in hip arthroscopy for femoroacetabular impingement	UK	expert article	Definition Aetiology Diagnosis Treatment: surgical management / conservative management
Martin et al. (2012) (117)	Ligamentum teres: a functional description and potential clinical relevance	USA	laboratory model and retrospective cohort study	Aetiology
Martin et al. (2019) (115)	Clinical Relevance Of The Ligamentum Teres: A Literature Review	USA	review article	Aetiology
Mascarenhas et al. (2021) (27)	Hip, Pelvis and Sacro-Iliac Joints	Portugal	book chapter	Definition Diagnosis
Matthewson et al. (2023) (120)	Effective Management Options for Treatment of Microinstability of the Hip: a Scoping Review	Canada	scoping review	Treatment: conservative management / surgical management
Meyer et al. (2022) (58)	FEARindex in predicting treatment among patients with femoroacetabular impingement and hip dysplasia and the relationship of femoral version	USA	retrospective validation study	Diagnosis
Mitchell et al. (2016) (30)	Radiographic Evidence of Hip Microinstability in Elite Ballet	USA	cross sectional study	Aetiology Diagnosis
Mortensen et al. (2021) (95)	Hip Capsular Deficiency—A Cause of Post-Surgical Instability in the Revision Setting Following Hip Arthroscopy for Femoroacetabular Impingement	USA	review article	Aetiology
Mortensen et al. (2022) (84)	Previous Arthroscopic Hip Surgery Increases Axial Distractibility Compared to the Native Contralateral Hip and May Suggest Instability	USA	prospective case control study	Aetiology
Neira et al. (2019) (41)	Evaluation of atraumatic hip instability measured by triaxial accelerometry during walking	Chili	review article	Diagnosis
Nepple (2020) (130)	Editorial Commentary: At the Intersection of Borderline Dysplasia and Femoroacetabular Impingement, Which Way Should We Turn?	USA	Editorial commentary	Treatment: surgical management
Nepple et al. (2021) (129)	Mid-term outcomes of combined hip arthroscopy and limited open capsular plication in the non-dysplastic hip	USA	retrospective case series study	Treatment: surgical management
Nepple et al. (2021) (113)	Decision-making in the Borderline Hip	USA	review article	Aetiology Treatment: surgical management
Nwachukwu et al. (2018) (86)	Labral hypertrophy correlates with borderline hip dysplasia and microinstability in femoroacetabular impingement: a matched case-control analysis	USA	retrospective nested case-control study	Diagnosis
O'Neill et al. (2020) (134)	Clinical and Radiographic Presentation of Capsular Iatrogenic Hip Instability After Previous Hip Arthroscopy	USA	retrospective case series study	Treatment: surgical management
Ortiz-Declet et al. (2017) (109)	Should the Capsule Be Repaired or Plicated After Hip Arthroscopy for Labral Tears Associated With Femoroacetabular Impingement or Instability? A Systematic Review	USA	systematic review	Aetiology
Packer et al. (2018) (3)	The Cliff Sign: A New Radiographic Sign of Hip Instability	USA	prospective cohort study	Diagnosis Prevalence
Packer et al. (2020) (82)	Capsular thinning on magnetic resonance arthrography is associated with intra-operative hip joint laxity in women	USA	retrospective cohort study	Diagnosis
Parvaresh et al. (2022) (40)	Editorial Commentary: Axial Stress Examination Under Anesthesia Provides a Highly Reliable Test for Measurement of Hip Distraction	USA	Editorial commentary	Diagnosis
Parvaresh et al. (2021) (28)	Hip Instability in the Athlete Anatomy, Etiology, and Management	USA	review article	Definition Diagnosis Aetiology Treatment: conservative management / surgical management
Philippon et al. (2013) (50)	The hip dial test to diagnose symptomatic hip instability	USA	prospective diagnostic accuracy study	Diagnosis
Philippon et al. (2007) (42)	Hip instability in the athlete	USA	expert article	Aetiology Diagnosis Treatment: surgical management
Pullen et al. (2022) (89)	Central Femoral Head Chondromalacia Is Associated with a Diagnosis of Hip Instability	USA	retrospective case control study	Aetiology Diagnosis
Ranawat et al. (2017) (51)	Foot Progression Angle Walking Test: A Dynamic Diagnostic Assessment for Femoroacetabular Impingement and Hip Instability	USA	prospective diagnostic accuracy study	Diagnosis Prevalence
Ranawat et al. (2015) (52)	Foot progression angle walking test- an effective dynamic test for the diagnosis of femoroacetabular impingement and hip instability	USA	prospective diagnostic accuracy study	Diagnosis Prevalence
Reiman et al. (2019) (66)	Accuracy of Clinical and Imaging Tests for the Diagnosis of Hip Dysplasia and Instability: A Systematic Review	USA	systematic review	Diagnosis
Rosinsky et al. (2022) (32)	Editorial Commentary: Hip Joint Laxity, Microinstability, or Instability Require Precise Definition: No Matter What You Call It, It's Here to Stay!	USA	Editorial commentary	Definition
Rosinsky et al. (2020) (87)	The Femoral Head "Divot" Sign: A Useful Arthroscopic Sign of Hip Microinstability	USA	retrospective case series study	Diagnosis
Safran (2019) (6)	Microinstability of the Hip-Gaining Acceptance	USA	review article	Definition Aetiology Diagnosis Treatment: surgical management / conservative management
Safran et al. (2021) (54)	Can hip microinstability be predicted by hip range of motion	USA	Abstract: retrospective case control study	Diagnosis
Safran et al. (2022) (85)	Criteria for the Operating Room Confirmation of The Diagnosis of Hip Instability: The Results of An International Expert Consensus Conference	USA	consensus paper	Diagnosis

Sahr et al. (2023) (81)	Dynamic ultrasound assessment of hip instability and anterior and posterior hip impingement	USA	technical note	Diagnosis
Savic et D'Angelo (2019) (122)	Exploring the role of microinstability of the hip: an atypical presentation of femoroacetabular impingement (FAI) and labral tear in a collegiate endurance athlete: a case report	Canada	case report	Treatment: surgical management
Schwabe et al. (2020) (59)	Acetabular Dysplasia: Three-Dimensional Deformity Predictors of the Diagnosis of Symptomatic Instability Treated with Periacetabular Osteotomy	USA	Abstract: prospective cohort study	Diagnosis
Schwabe et al. (2022) (60)	External Validation of the FEAR Index in Borderline Acetabular Dysplasia	USA	retrospective diagnostic accuracy and prospective reliability study	Diagnosis
Selley et al. (2021) (94)	Capsular Complications and Subsequent Instability on the Rise as Indications for Revision Hip Arthroscopy	USA	Abstract: retrospective cohort study	Aetiology
Shibata et al. (2017) (90)	Is there a distinct pattern to the acetabular labrum and articular cartilage damage in the non-dysplastic hip with instability?	Japan/USA	retrospective cohort study	Prevalence
Shindle et al. (2006) (37)	Diagnosis and Management of Traumatic and Atraumatic Hip Instability in the Athletic Patient	USA	expert article	Aetiology Diagnosis Treatment: conservative and surgical management
Shu et Safran (2011) (17)	Hip instability: anatomic and clinical considerations of traumatic and atraumatic instability	USA	expert article	Definition Aetiology
Smith et Sekiya (2010) (43)	Hip instability	USA	review article	Diagnosis Treatment: conservative and surgical management
Spiker et al. (2020) (68)	Radiographic and clinical characteristics associated with a positive PART (Prone Apprehension Relocation Test): a new provocative exam to elicit hip instability	USA	retrospective diagnostic accuracy study	Diagnosis
Suter et al. (2015) (19)	MR findings associated with positive distraction of the hip joint achieved by axial traction	Switzerland	retrospective cohort study	Definition Aetiology Diagnosis
Tahoun et al. (2023) (111)	Superior outcomes after arthroscopic treatment of femoroacetabular impingement and labral tears with closed versus open capsule	Spain	prospective case control study	Aetiology
Tibor et al. (2013) (104)	Anteroinferior acetabular rim damage due to femoroacetabular impingement	Switzerland	retrospective case series study	Aetiology
Tibor et al. (2013) (91)	Two or more impingement and/or instability deformities are often present in patients with hip pain	Switzerland	retrospective cohort study	Prevalence
Truntzer et al. (2019) (2)	Can the FEAR Index Be Used to Predict Microinstability in Patients Undergoing Hip Arthroscopic Surgery?	USA	retrospective validation study	Diagnosis Prevalence
Vera et al. (2021) (29)	Hip instability in Ballet Dancers: A Narrative Review	USA	review article	Definition
Watchmaker et al. (2021) (69)	Intratester Reliability of the Prone Apprehension Relocation Test	USA	retrospective reliability study	Diagnosis
Westermann and Willey (2021) (92)	Femoral Version in Hip Arthroscopy: does it matter?	USA	expert article	Aetiology Treatment: surgical management
Wolff and Scanaliato (2022) (126)	Editorial Commentary: The Importance of Capsular Closure Following Hip Arthroscopy: Leave No Trace: An Outdoorsman's Ramblings	USA	Editorial commentary	Treatment: surgical management
Wong et al. (2022) (34)	Physical Examination of the Hip: Assessment of Femoroacetabular Impingement, Labral Pathology, and Microinstability	USA	review article	Definition Diagnosis
Wong et al. (2022) (132)	Patients With a High Femoroepiphyseal Roof With Concomitant Borderline Hip Dysplasia and Femoroacetabular Impingement Syndrome Do Not Demonstrate Inferior Outcomes Following Arthroscopic Hip Surgery	USA	retrospective cohort study	Treatment: surgical management
Woodward et Philippou (2018) (110)	Persistent or recurrent symptoms after arthroscopic surgery for femoroacetabular impingement: A review of imaging findings	New Zealand	review article	Aetiology
Woodward et al. (2020) (62)	Microinstability of the hip: a systematic review of the imaging findings	New Zealand	systematic review	Diagnosis
Wu et al. (2023) (112)	Ligamentum teres tears and increased combined anteversion are associated with hip micro-instability in patients with borderline dysplasia	China	retrospective case control study	Aetiology
Wu et al. (2020) (127)	Arthroscopic labral debridement versus labral repair for patients with femoroacetabular impingement: A meta-analysis	China	meta-analysis	Treatment: surgical management
Wyatt et al. (2017) (56)	The Femoro-Epiphyseal Acetabular Roof (FEAR) Index: A New Measurement Associated With Instability in Borderline Hip Dysplasia?	Switzerland	retrospective diagnostic accuracy study	Prevalence
Wylie et al. (2013) (124)	Capsular repair for instability following hip arthroscopy for femoroacetabular impingement: Preliminary outcomes and description of surgical technique	USA	Abstract: retrospective case series study	Treatment: surgical management
Wylie et al. (2015) (135)	Arthroscopic Capsular Repair for Symptomatic Hip Instability After Previous Hip Arthroscopic Surgery	USA	retrospective case series study	Treatment: surgical management
Zurmühle et al. (2021) (57)	The crescent sign—a predictor of hip instability in magnetic resonance arthrography	Switzerland	retrospective case control study	Diagnosis

Supplementary Table A3 Prevalence of hip microinstability

Author/year	Title	Population	Confirmation	Unit	Prevalence of hip micro-instability	Gender of micro-Instability group	Mean age of micro-Instability Group in years	Prevalence of hip micro-instability and FAI (pincer or cam)	Type of source
Economopoulos 2019 (7)	The Pull Test: A Dynamic Test to Confirm Hip Microinstability	100 patients with labral tear, undergoing hip arthroscopy	32 had hip micro-instability, 68 no micro-instability (confirmation with clinical tests)	Patients	0.32	28 female 4 male	31.8 ± 17.5		Prospective diagnostic accuracy study
Hoppe 2017 (5)	Diagnostic Accuracy of 3 Physical Examination Tests in the Assessment of Hip Microinstability	109 patients with suspicion of microinstability who underwent hip arthroscopic surgery	62 had micro-instability (intra-operative confirmation)	Patients	0.57	91.9% female	26.3		Prospective diagnostic accuracy study
Packer 2018 (3)	The Cliff Sign - A New Radiographic Sign of Hip Instability	96 patients who underwent hip arthroscopy	44 had micro-instability (intra-operative confirmation)	Patients	0.46	N/A	31.4 ± 10.9		Prospective cohort study
Ranawat 2017 (51)	Foot Progression Angle Walking Test A Dynamic Diagnostic Assessment for Femoroacetabular Impingement and Hip Instability	199 patients who had unilateral groin or hip pain	54 had hip instability (confirmation by history, physical exam, radiographs, or posttraumatic)	Patients	0.27	N/A	N/A		Prospective diagnostic accuracy study

Author/year	Title	Population	Confirmation	Unit	Prevalence of hip micro-instability	Gender of micro-Instability group	Mean age of micro-Instability Group in years	Prevalence of hip micro-instability and FAI (pincer or cam)	Type of source
			sequelae leading to subluxation or dislocation)						
Ranawat 2015 (52)	Foot Progression Angle Walking Test- An Effective Dynamic Test for the Diagnosis of Femoroacetabular Impingement and Hip Instability	80 patients with hip pain	26 had instability (confirmation by radiographs and/or magnetic resonance imaging (MRI))	Patients	0.33	N/A	N/A		Prospective diagnostic accuracy study
Schwabe 2022 (60)	External validation of the fear index in the setting of borderline acetabular dysplasia	176 hips diagnosed with borderline hip dysplasia (LCEA 20–25°) and surgical treatment	70 hips had instability (confirmation by surgical treatment with either arthroscopy (no instability) or periacetabular osteotomy (instability))	Hips	0.397	N/A	N/A		Retro-spective diagnostic accuracy and prospective reliability study
Schwabe 2020 (59)	Acetabular Dysplasia: Three-Dimensional Deformity Predictors of the Diagnosis of Symptomatic Instability treated with Periacetabular	70 consecutive hips with borderline acetabular dysplasia (LCEA 20°-25°) undergoing surgical	44 hips had instability (confirmation by symptoms of instability)	Hips	0.629	N/A	N/A		Prospective cohort study

Author/year	Title	Population	Confirmation	Unit	Prevalence of hip micro-instability	Gender of micro-Instability group	Mean age of micro-Instability Group in years	Prevalence of hip micro-instability and FAI (pincer or cam)	Type of source
	Osteotomy	treatment							
Shibata 2017 (90)	Is there a distinct pattern to the acetabular labrum and articular cartilage damage in the non-dysplastic hip with instability?	953 hips for primary arthroscopy	279 hips with instability of which 204 had pincer, cam or mixed type morphology (73%) (intraoperative confirmation of micro-instability)	Hips	0.29	N/A	N/A	0.21	Retro-spective cohort study
Tibor 2013 (91)	Two or More Impingement and/or Instability Deformities Are Often Present in Patients With Hip Pain	112 hips undergoing MR arthrography of the hip for any reason Hips were excluded if presented: with pain after impingement or dysplasia surgery (28 hips) or for evaluation of high-grade dysplasia (defined as patients with	57 of 112 hips had at least 1 radiographic instability factor 47 of 112 hips had at least 1 radiographic instability and 1 radiographic impingement factor Each radiographic parameter was categorized as normal	Hips	0.51	N/A	N/A	0.42	Retro-spective cohort study

Author/year	Title	Population	Confirmation	Unit	Prevalence of hip micro-instability	Gender of micro-Instability group	Mean age of micro-Instability Group in years	Prevalence of hip micro-instability and FAI (pincer or cam)	Type of source
		subluxation) or Legg-Calve´-Perthes disease (8 hips) or if radiographic information was incomplete (31 hips); 9 hips were excluded for combinations of exclusion criteria	or abnormal based on previous literature and, if abnormal, whether it was more characteristic of impingement or instability.						
Truntzer 2019 (2)	Can the FEAR Index Be Used to Predict Microinstability in Patients Undergoing Hip Arthroscopic Surgery?	167 nondysplastic hips (LCEA > 25°), undergoing hip arthroscopic surgery	71 hips had microinstability , of which 57 hips (80.3%) had cam, pincer or mixed morphology. (intraoperative confirmation of micro-instability)	Hips	0.43	83.1% female	29.7	0.34	Retro-spective validation study
Wyatt 2017 (56)	The Femoro-Epiphyseal Acetabular Roof (FEAR) Index: A New Measurement Associated With Instability in Borderline Hip Dysplasia?	39 surgically treated symptomatic borderline radiographically dysplastic hips	21 were unstable (confirmation by radiographs or MRA)	Hips	0.54	N/A	N/A		Retro-spective diagnostic accuracy study

LCEA lateral center-edge angle, MR magnetic resonance, MRA magnetic resonance arthrography