Femoroacetabular impingement: What is it, does it matter and what can we do to manage it?

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ACRISP
AUSTRALIAN CENTRE FOR RESEARCH INTO INJURY IN SPORT & ITS PREVENTION

INTRODUCTION

The hip is commonly injured in young and middle-aged people

Hip commonly placed into positions of impingement in activity
(eg: 12 - 14% of all football injuries)

Walden 2005, Ekstrand 2011

INTRODUCTION

In susceptible people, this can result in impingement related pain (and pathology)

What morphology is typically seen in FAI?

Normal

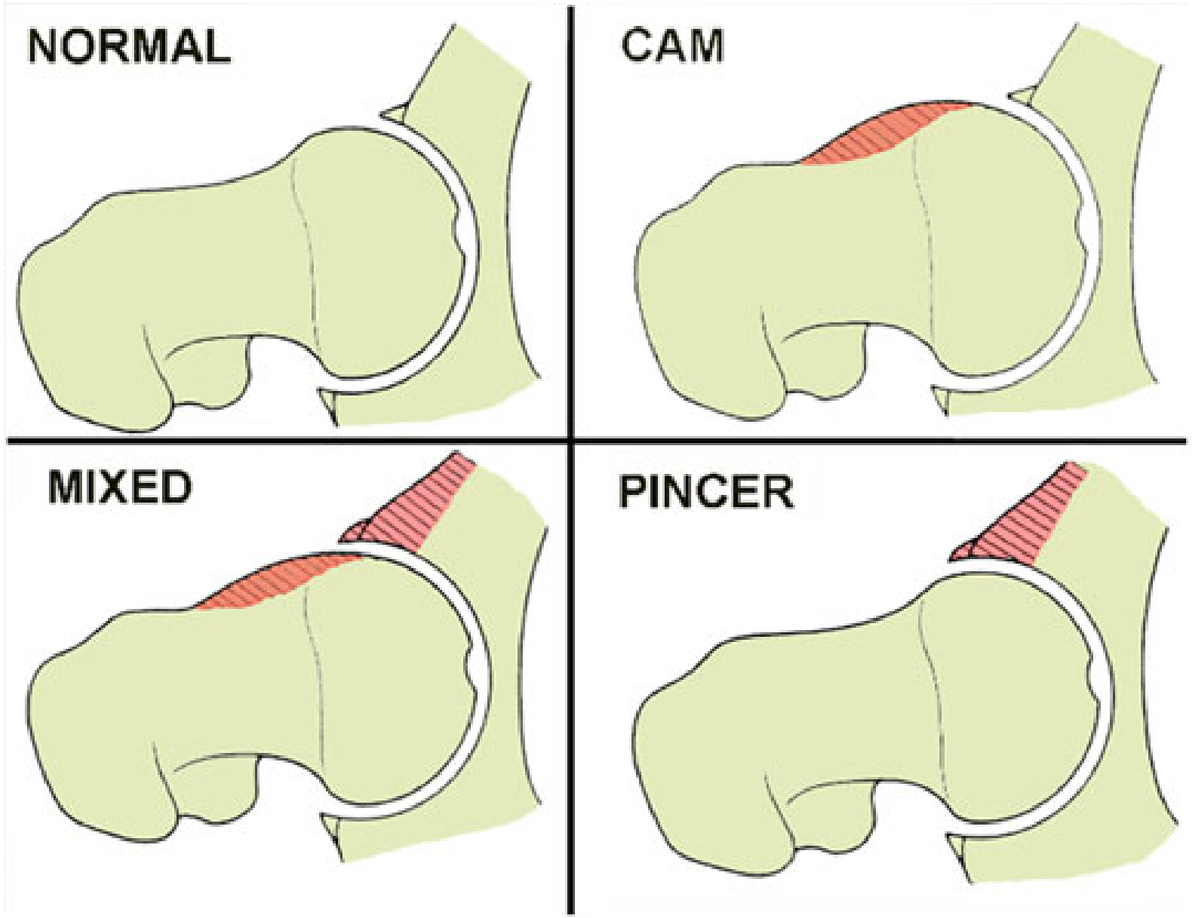
- scoop on NOF, acetabular anteversion

Cam

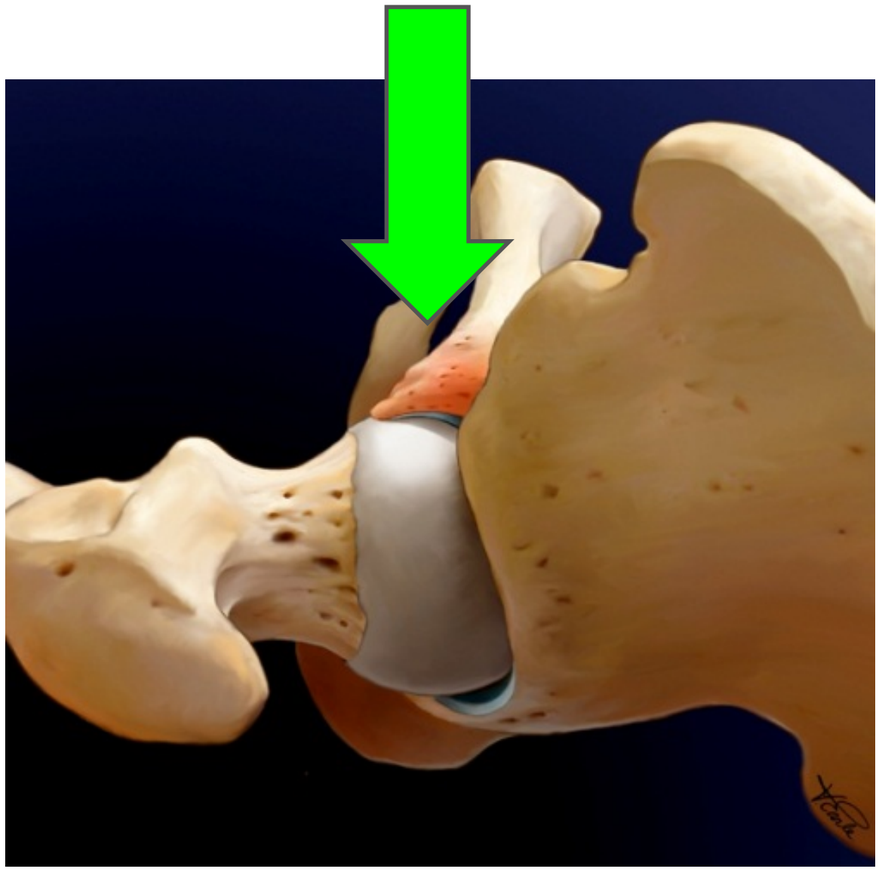
- bony growth on anterior/superior neck of femur

Pincer

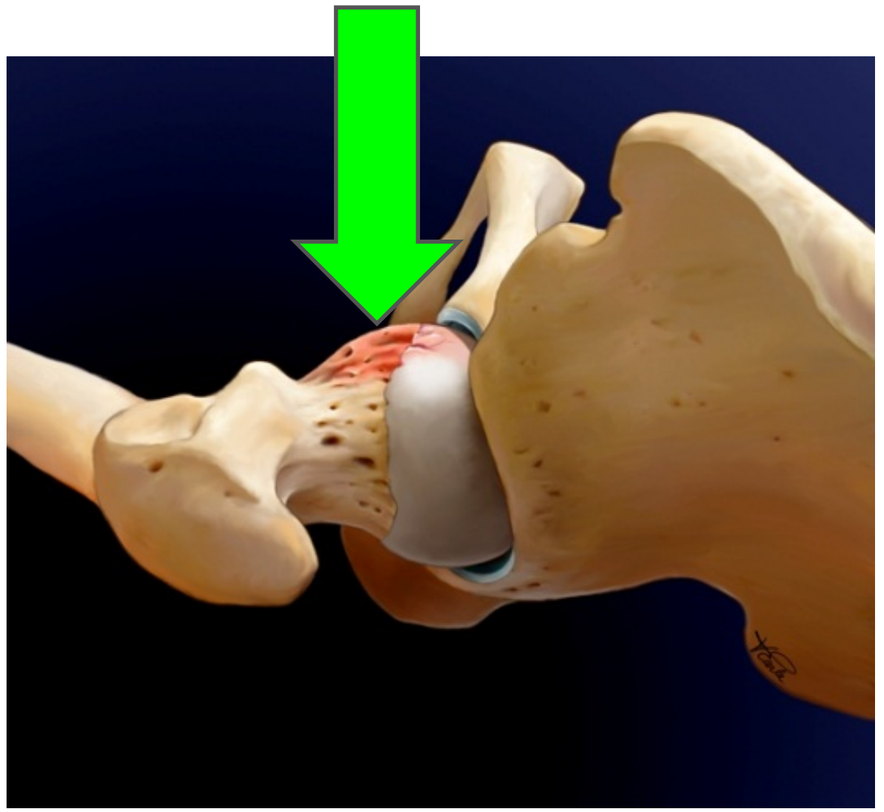
- Acetabular retroversion
- Deep socket



FAI - Pincer



FAI - Cam

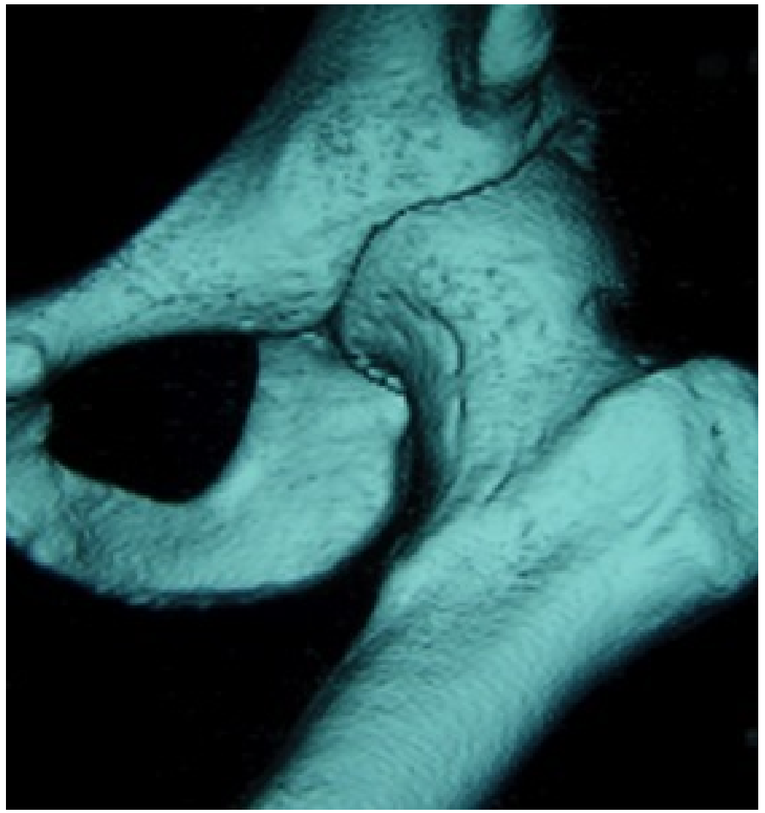


Is cam lesion a pathology?

Incidence

- ✓ 25% of population (Ganz et al 2003)
- ✓ 25-50% men, but 0-10% women
- ✓ 89% athletes, but 9% non athletic controls
- ✓ 88% bilateral deficits
- ✓ 23% of these painful
- ✓ 42% with cam also have pincer (Allen et al 2009)

Many people live with cam for a lifetime without symptoms.



Cam is **NOT** a pathology (Pollard 2010, Bardakos & Villar 2009, Byrd & Jones 2009, Croft et al 1991)

Cam creates FAI pathology when repetitive impingement (or major traumatic impingement) occurs

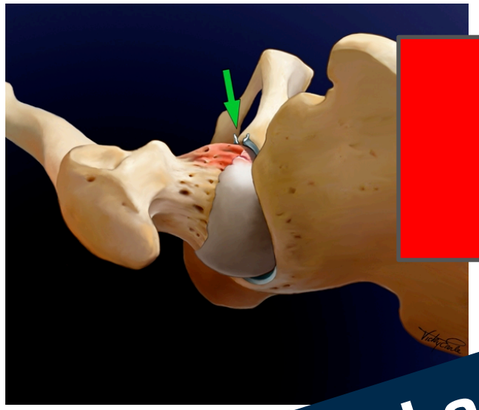
Impingement usually occurs in flexion and IR (+/- adduction)

Cam lesion not FAI

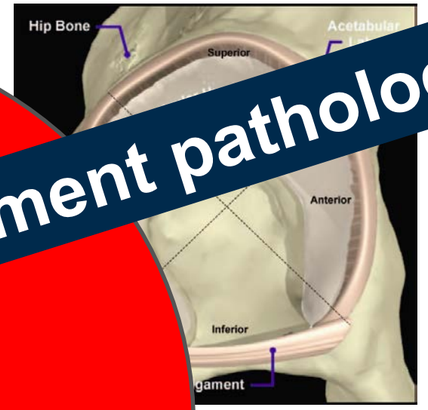
FAI refers to pain and pathology that occurs when cam lesion impinges on acetabular structures in susceptible people

Likely abnormal premature contact between femur and acetabulum leading to soft tissue pathology seen in FAI

Femoro-acetabular Impingement



Labral pathology



FAI = FAI and associated impingement pathologies

Chondropathy

95% of patients with cam also have chondral and labral pathology

Is there a standard definition of FAI?

The Warwick Agreement on femoroacetabular impingement syndrome (FAI syndrome): an international consensus statement

D R Griffin,[1,2] E J Dickenson,[1,2] J O'Donnell,[3,4] R Agricola,[5] T Awan,[6] M Beck,[7] J C Clohisy,[8] H P Dijkstra,[9] E Falvey,[10,11] M Gimpel,[12] R S Hinman,[13] P Hölmich,[9,14] A Kassarjian,[15,16] H D Martin,[17] R Martin,[18,19] R C Mather,[20] M J Philippon,[21] M P Reiman,[20] A Takla,[3,22,23,24] K Thorborg,[14] S Walker,[25] A Weir,[9,26] K L Bennell[23]

► Additional material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/bjsports-2016-096743).

For numbered affiliations see end of article.

Correspondence to
Professor DR Griffin, Clinical Sciences Research Institute, University Hospitals Coventry and Warwickshire, Coventry, CV2 2DX, UK;

The Warwick Agreement on femoroacetabular impingement syndrome has been endorsed by the following 25 clinical societies: American Medical Society for Sports Medicine (AMSSM), Association of Chartered Physiotherapists in Sports and Exercise Medicine (ACPSEM), Australasian College of Sports and Exercise Physicians (ACSEP), Austian Sports Physiotherapists, British Association of Sports and Exercise Medicine (BASEM), British Association of Sport Rehabilitators and Trainers (BASRaT), Canadian Academy of Sport and Exercise Medicine (CASEM), Danish Society of Sports Physical Therapy (DSSF), European College of Sports and Exercise Physicians (ECOSEP), European Society of Sports Traumatology, Knee Surgery and Arthroscopy (ESSKA), Finnish Sports Physiotherapist Association (SUFT), German-Austrian-Swiss Society for Orthopaedic Traumatologic Sports Medicine (GOTS), International Federation of Sports Physical Therapy (IFSPT), International Society for Hip Arthroscopy (ISHA), Groupo di Interesse Specialistico dell'A.I.F.I., Norwegian Association of Sports Medicine and Physical Activity (NIMF), Norwegian Sports Physiotherapy Association (FFI), Society of Sports Therapists (SST), South African Sports Medicine Association (SASMA), Sports Medicine

Warwick Consensus agreement

For a patient to be diagnosed with FAI Syndrome, must have

1. Positive imaging findings
2. Symptoms of hip or groin pain
3. Signs of FAI, including physical impairments and positive impingement tests.

Imaging findings for FAI

Imaging

Remember imaging is only indicative of morphology. Many people have “positive” imaging findings without symptoms.

To measure cam or pincer morphology, plain x-ray (AP pelvis and Dunn 45 view) is adequate and is the gold standard.

To measure associated pathology (eg: labral, chondral), cross-sectional imaging (eg: MRI) is the best option but not perfect

Typical presentation seen on imaging

What morphology is typically seen in FAI?

Normal

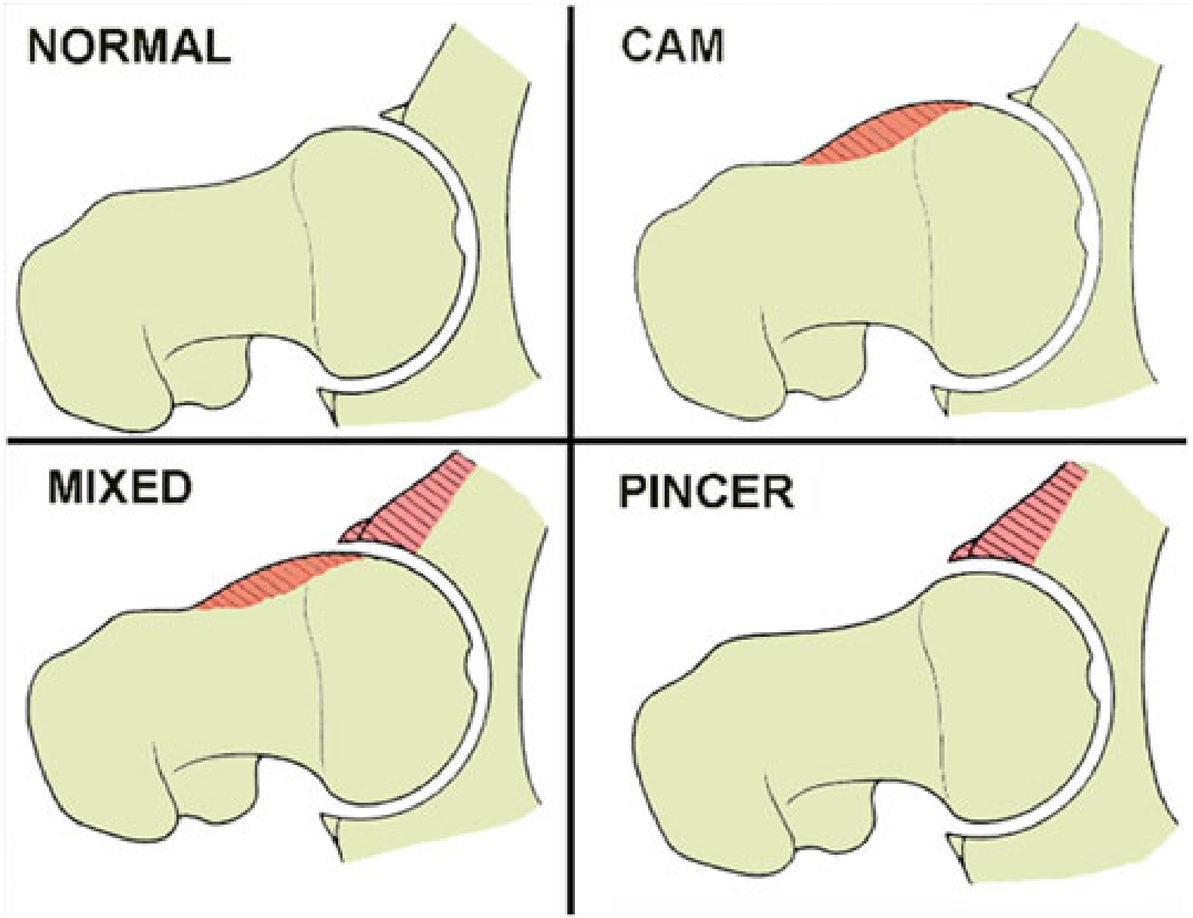
- scoop on NOF, acetabular anteversion

Cam

- bony growth on anterior/superior neck of femur

Pincer

- Acetabular retroversion
- Deep socket



Osteoarthritis and Cartilage 22 (2014) 218–225

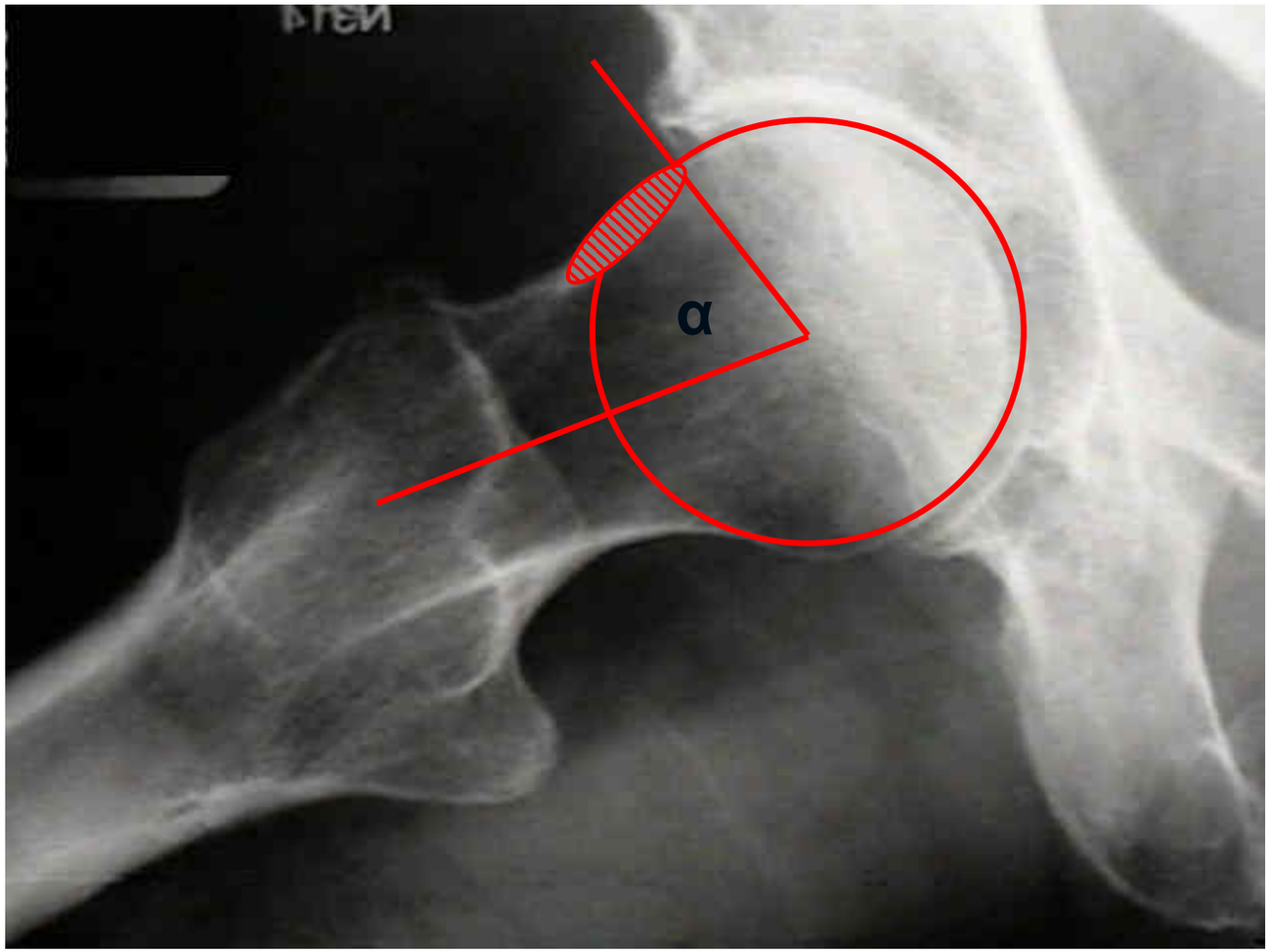
Osteoarthritis and Cartilage

OARSI OSTEOARTHRITIS RESEARCH SOCIETY INTERNATIONAL

Cam impingement: defining the presence of a cam deformity by the alpha angle
Data from the CHECK cohort and Chingford cohort

R. Agricola †*, J.H. Waarsing †, G.E. Thomas ‡, A.J. Carr ‡, M. Reijman †, S.M.A. Bierma-Zeinstra †§, S. Glyn-Jones ‡, H. Weinans †||¶, N.K. Arden ‡

How to measure cam lesion



What does the alpha angle mean?

Alpha angle > 60 = presence of cam lesion

Alpha angle >78 = pathological cam deformity (associated with end stage OA) Agricola 2014 OAC

Alpha angle >83 = OR 9.7 (4.7 to 19.8) for end stage OA within 5 years CHECK cohort Agricola 2012 ARD

For every degree increase in alpha angle, increased risk of end stage OA by 5% Chingford cohort, Nicholls 2011 AR, Thomas 2014 OAC

.....larger alpha angles = greater risk of hip OA

Signs and symptoms of FAI

What are signs and symptoms in FAI?

Patient-reported outcomes

Physical impairments

Impingement tests

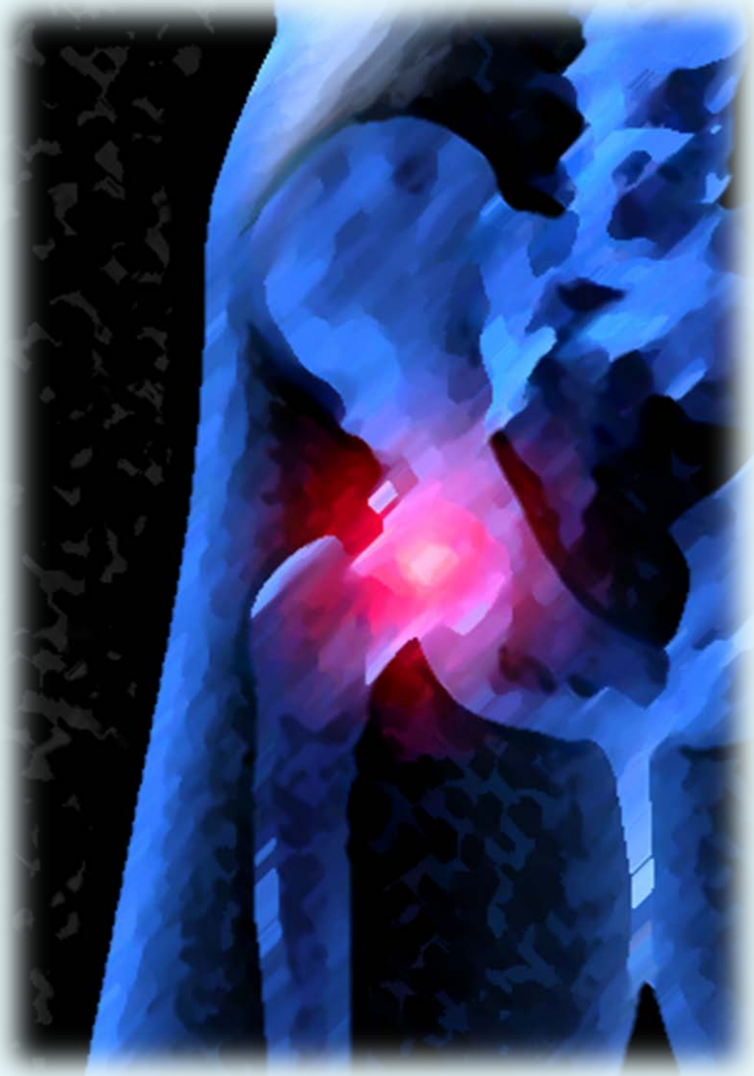
Symptoms of FAI

Where is the pain coming from?

93-100% of hips with FAI had labral and/or cartilage lesions at surgery Clohisy 2013, Philippon 2009, O'Donnell 2010
Labrum contains nociceptors Dhollander 2014

40% greater likelihood of cartilage damage if cam FAI present = early hip OA Kemp 2014
Synovitic pain recognised in OA Wenham 2010, Scanzello 2012
Two thirds patients with FAI have synovitis Clohisy 2013

Abutting bone may be pain source
Subchondral bone in early knee OA contains pain molecules Ogino 2009
Maybe bony impingement in hip causes pain?



How long has it hurt?

Descriptive Epidemiology of Femoroacetabular Impingement

A North American Cohort of Patients Undergoing Surgery

John C. Clohisy,*† MD, Geneva Baca,† BA, Paul E. Beaulé,‡ MD, Young-Jo Kim,§ MD, PhD, Christopher M. Larson,|| MD, Michael B. Millis,§ MD, David A. Podeszwa,¶ MD

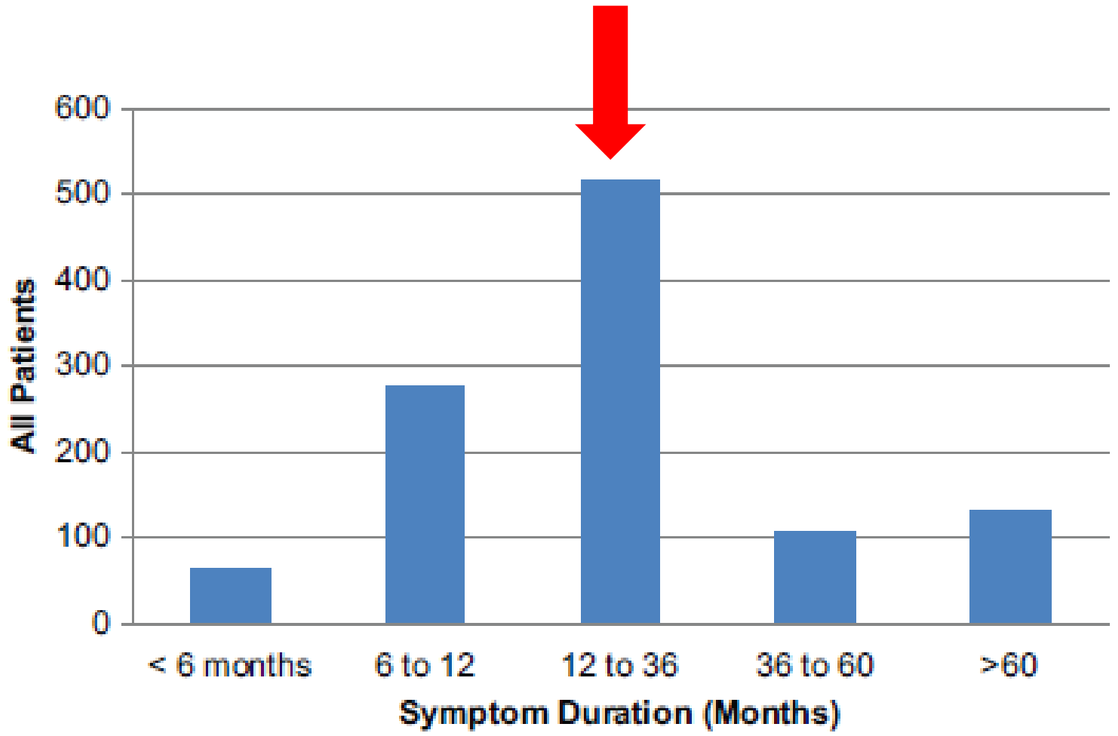


Figure 3. Duration of hip symptoms before surgical intervention.

Signs of FAI

BJSM Online First, published on June 14, 2016 as 10.1136/bjsports-2016-096152

Review

Physical impairments in symptomatic femoroacetabular impingement: a systematic review of the evidence

Matthew D Freke,[1] Joanne Kemp,[2] Ida Svege,[3] May Arna Risberg,[4] Adam Semciw,[5] Kay M Crossley[6]

▶ Additional material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/bjsports-2016-096152).

[1]Epoggera Health Centre

ABSTRACT

Background Femoroacetabular impingement (FAI) and accompanying pathologies are associated with pain and reduced quality of life. Physical impairments can be associated with worse symptoms and may be an

INTRODUCTION

Femoroacetabular impingement (FAI) is a recognised cause of hip pain in young and middle-aged adults, and is associated with an increased risk of end-stage radiographic hip osteoarthritis (OA) and

Results

22 studies included (819 people, mean age range 24-37 years, clinical and radiological FAI)

Moderate quality

12 studies non-surgical, 10 studies surgical

17 studies ROM (12 goniometer, 5 simulated)

6 studies strength (6 HHD, 2 EMG, 1 muscle volume)

6 studies functional tasks (no. of strides, squat depth, dynamic balance, pelvic ROM)

Summary of results

Hip joint ROM did not differ symptomatic FAI v control participants.

Hip muscle strength and dynamic balance on 1 leg reduced FAI v control participants.

Hip joint ROM did not change between pre-intervention and post-intervention time points.

Hip muscle strength improved significantly from pre-hip to post-hip arthroscopy in a single case series.

Do physical impairments predict outcomes in people with chondrolabral pathology?

Knee Surg Sports Traumatol Arthrosc
DOI 10.1007/s00167-015-3679-4

HIP

Is quality of life following hip arthroscopy in patients with chondrolabral pathology associated with impairments in hip strength or range of motion?

Joanne L. Kemp[1,2] · Michael Makdissi[3] · Anthony G. Schache[4] · Caroline F. Finch[1] · Michael G. Pritchard[5] · Kay M. Crossley[2]

Received: 9 February 2015 / Accepted: 15 June 2015

Results

In people with chondrolabral pathology…

Greater hip flexion range was associated with better QoL outcomes (r^2 0.249 – 0.341; $p<0.05$)

Greater hip adduction strength was associated with better QoL outcomes (r^2 0.227 – 0.317; $p<0.05$)

Is the trunk impaired?

Effect of Changes in Pelvic Tilt on Range of Motion to Impingement and Radiographic Parameters of Acetabular Morphologic Characteristics

James R. Ross,*†‡ MD, Jeffrey J. Nepple,§ MD, Marc J. Philippon,§ MD, Bryan T. Kelly,‖ MD, Christopher M. Larson,¶ MD, and Asheesh Bedi,†‖ MD
Investigation performed at University of Michigan, Ann Arbor, Michigan, USA

Chondrolabral patients had reduced performance in side bridge test compared to controls on surgical (p=0.002) and non-surgical (p=0.001) sides.
Side bridge predicted iHOT-33 (Adj r^2 = 0.285 to 0.481)

↑anterior pelvic tilt =
↑acetabular retroversion
↓IR@90 and FADIR ROM

Trunk control can alter impingement

Trunk control can alter impingement
People with impingement pathology have reduced trunk control bilaterally
Trunk control may be an important target

Accepted Manuscript

Single leg squat performance is impaired one to two years after hip arthroscopy

Paula C. Charlton, PT, Adam L. Bryant, PhD, Joanne L. Kemp, PT, PhD, Ross A. Clark, PhD, Kay M. Crossley, PT, PhD, PT, PhD Natalie J. Collins

PII: S1934-1482(15)00913-2

DOI: 10.1016/j.pmrj.2015.07.004

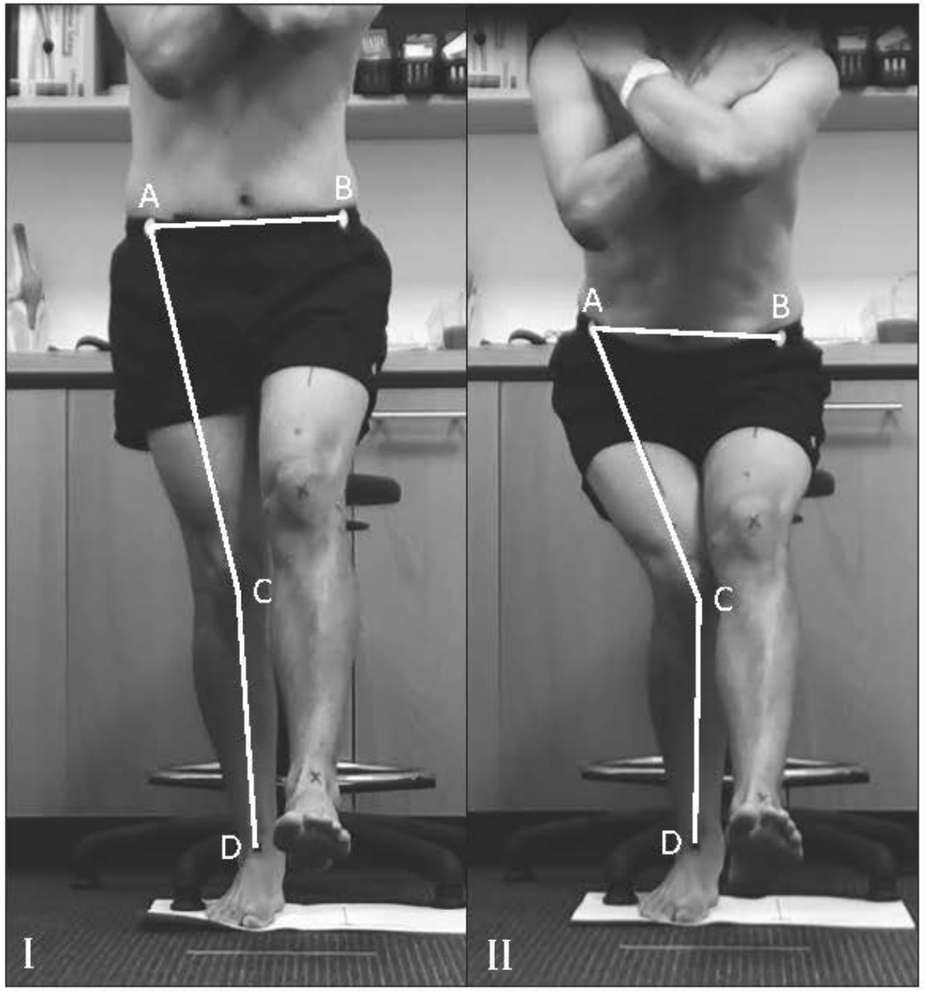
Reference: PMRJ 1544

To appear in: *PM&R*

Hip arthroscopy group vs controls (peak squat depth)

Greater hip adduction (mean difference 2.7°, 95% CI 0.7° to 4.8°)
Greater knee valgus (4.0°, 95% CI 1.0° to 7.1°)
Greater pelvic obliquity during single leg stance (1.2°, 95% CI 0.1° to 2.3°).

Deficits in single leg squat performance exist
May increase hip joint impingement and perpetuate symptoms.



[RESEARCH REPORT]

JOANNE L. KEMP, PT, PhD[1,2] • MAY ARNA RISBERG, PT, PhD[3] • ANTHONY G. SCHACHE, PT, PhD[4]
MICHAEL MAKDISSI, MD, PhD[5] • MICHAEL G. PRITCHARD, MD, PhD[6] • KAY M. CROSSLEY, PT PhD[2]

Patients With Chondrolabral Pathology Have Bilateral Functional Impairments 12 to 24 Months After Unilateral Hip Arthroscopy: A Cross-sectional Study

Hip arthroscopy is commonly performed in patients with hip pain attributable to intra-articular conditions, such

is limited evidence to underpin the development of rehabilitation

RESULTS SUMMARY

Patients with hip chondrolabral pathology have bilateral impairments on functional performance tests 12-24 months after unilateral hip arthroscopy compared to controls.

In patients with chondrolabral pathology, greater strength in hip abduction and adduction were associated with better functional performance.

Better performance in the side bridge and hop tests were associated with better PROs

Overall evidence for signs of FAI (physical impairments)

Patients with FAI are impaired pre-op or no-op and remain impaired post-op compared to controls

Impairments include

1. reduced hip muscle strength (sex specific),
2. reduced functional task performance,
3. increased impingement in SL squat,
4. reduced trunk function,
5. reduced dynamic balance,
6. alterations in gait,
7. ??ROM (poor ROM = poor outcomes).

Special tests

Review

Diagnostic accuracy of clinical tests of the hip: a systematic review with meta-analysis

Michael P Reiman,[1] Adam P Goode,[1] Eric J Hegedus,[2] Chad E Cook,[3] Alexis A Wright[2]

Review

Diagnostic accuracy of clinical tests for the diagnosis of hip femoroacetabular impingement/labral tear: a systematic review with meta-analysis

M P Reiman,[1,2] A P Goode,[1] C E Cook,[1] P Hölmich,[3,4] K Thorborg[3,5]

▸ Additional material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/bisports-2014-094302).

ABSTRACT

Background Surgery for hip femoroacetabular impingement/acetabular labral tear (FAI/ALT) is exponentially increasing despite lacking investigation of

shown in the USA.[8] Given that differential diagnosis for the patient presenting with hip or groin pain is still suggested to be a diagnostic challenge,[9] focus on proper diagnosis would seem warranted. A sig-

FADIR (Flexion, Adduction, IR)

Sensitivity ranges 94 to 99
Specificity ranges 5 to 25

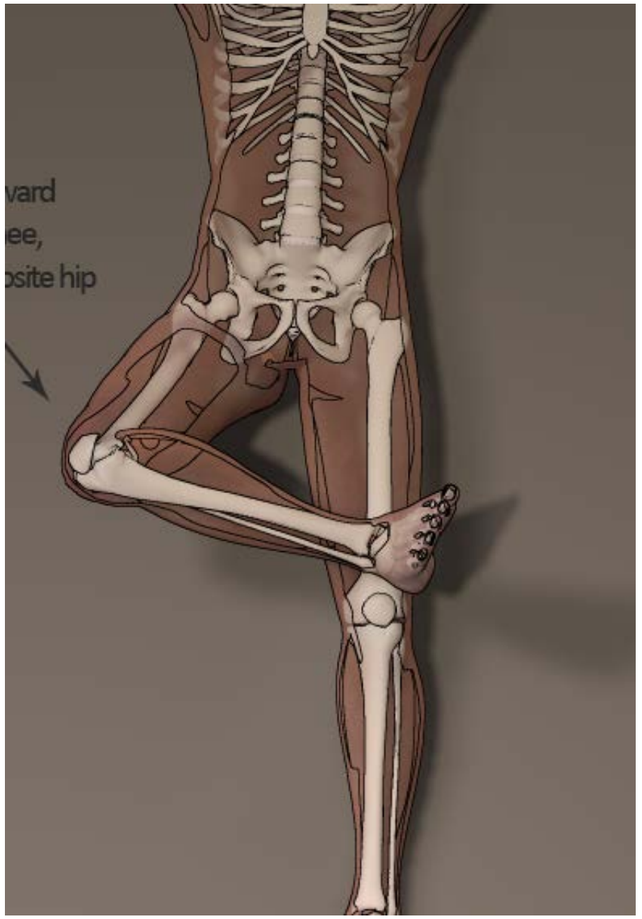
FADIR is a good test to rule people out as not having FAI (low risk of false negatives)
BUT
FADIR is not a good test to rule people in as having FAI (high risk of false positives)

FABER (Flexion, Abduction, ER)

X

Sensitivity ranges 42 to 60
Specificity ranges 18 to 75

FABER is a poor to fair test to rule people out as not having FAI (high risk of false negatives)
AND
FABER is a poor to fair test to rule people in as having FAI (high risk of false positives)



Flexion IR overpressure

Sensitivity ranges 70 to 98
Specificity ranges 8 to 43

Flex/IR OP is an good to excellent test to rule people out as not having FAI (low risk of false negatives)

BUT

Flex/IR OP is a poor to fair test to rule people in as having FAI (high risk of false positives)

Summary: What is FAI?

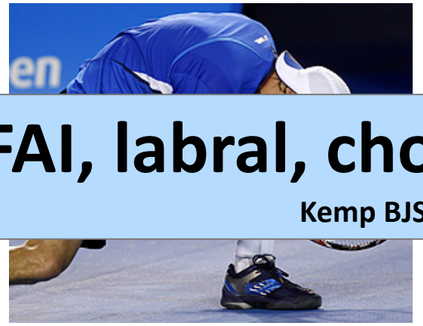
Cannot diagnose FAI from one sign, symptom or imaging result. Must be diagnosed on presence of all these factors

Does FAI matter?


camFAI
5-20 years
Agricola 2013, 2013, Nicholls 2011
Hip OA

cam – develops 13-15 years

Agricola AJSM 2014, Siebenrock 2011, Pollard 2010



FAI, labral, chondral (35 y.o)

Kemp BJSM 2013

camFAI

Pain, poor PROs, physical impairments

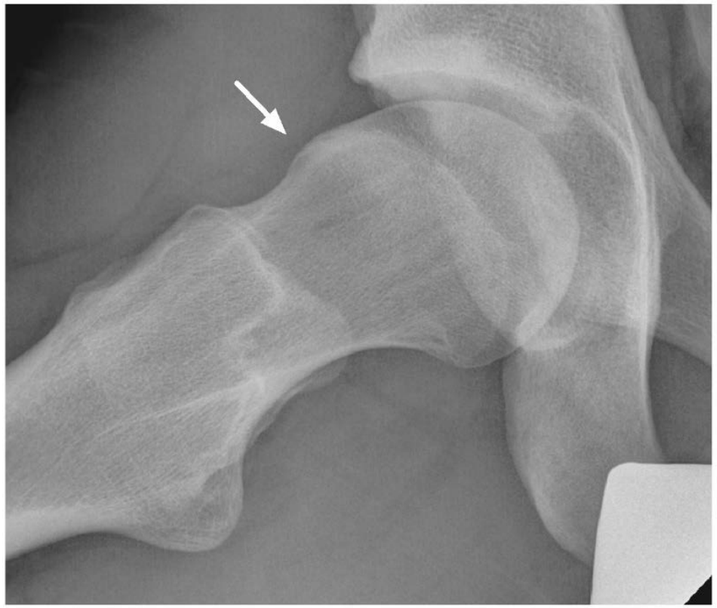
Painful FAI +/- labral (25 y.o)

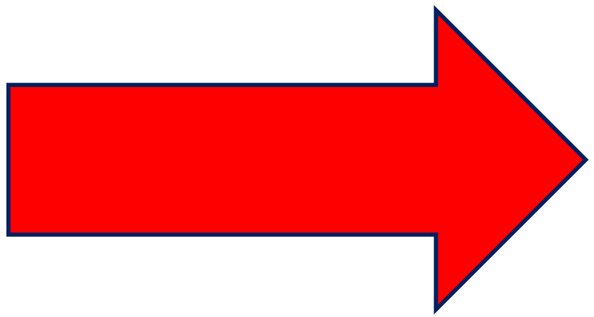
Kemp BJSM 2012

Clinical hip OA (40+ y.o)

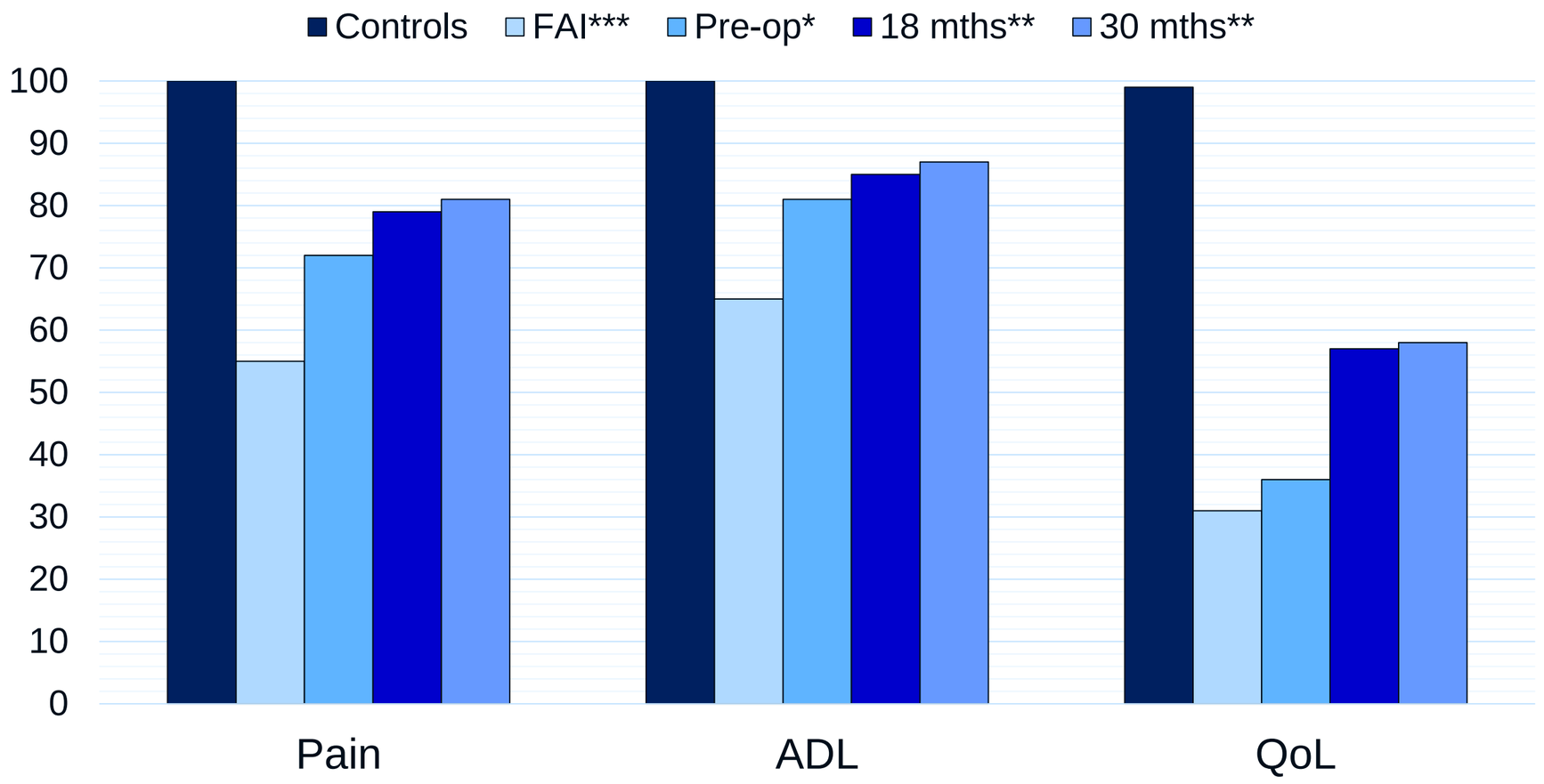
McCarthy 2011, Tuominen 2009

Previous studies have shown that larger cam lesions (alpha angle >83) are associated with 10-fold increased risk of hip osteoarthritis (OA) and progression to hip arthroplasty within 5 years Agricola 2013





Patient-reported outcomes FAI



*Hinman et al, BJSM, 2014
n=30

**Kemp et al, BJSM, 2014
n=72

***Clohisy AJSM, 2014
n=1076

Does FAI matter?

Yes!!

While most people with cam morphology do not develop FAI, for those that do, the impact is enormous

Quality of life scores similar to people with end stage hip OA.

Young and middle aged people with large family and work commitments

Unable to exercise = big consequences for general health

Increased risk of end stage hip OA and THA

What can we do to manage FAI?

What is the evidence for surgery?

Surgical RCTs of hip arthroscopy (registered)

Trial	Country	Sample Size	Interventions	Planned Reporting
UK FASHIoN	UK (Warwick)	344	Arthroscopic surgery vs physiotherapy	2017
Aus FASHIoN	Australia	120	Arthroscopic surgery vs physiotherapy	2018
FAIT	UK (Oxford)	120	Arthroscopic surgery vs physiotherapy	2017
FIRST	Canada and Finland	220	Arthroscopic surgery vs arthroscopic washout	2017
HIPARTI	Norway, Sweden Belgium, Canada and Australia	140	Arthroscopic surgery vs diagnostic arthroscopy	2020
US Army WA	USA	60	Arthroscopic surgery vs physiotherapy	unknown

Review

EDITOR'S CHOICE

Hip arthroscopy for intra-articular pathology: a systematic review of outcomes with and without femoral osteoplasty

Joanne L Kemp,[1,2] Natalie J Collins,[1,2] Michael Makdissi,[1,3] Anthony G Schache,[2] Zuzana Machotka,[4] Kay Crossley[1,2,5]

Determine outcomes for hip arthroscopy for patients with and without osteoplasty for FAI.

Conclusions:

Large positive within-subject effect sizes for improved pain and function for up to 10 years (no femoral osteoplasty) and 3 years (femoral osteoplasty)

Outcomes for hip OA appear worse but unclear

Adverse events were minimal (7% of participants) in 12 studies); transient neuropraxia (83%).

Methodological quality poor and thus limits confidence in results

Clin Orthop Relat Res
DOI 10.1007/s11999-014-3943-9

Clinical Orthopaedics and Related Research®
A Publication of The Association of Bone and Joint Surgeons®

SURVEY

Hip Arthroscopy in the Setting of Hip Osteoarthritis: Systematic Review of Outcomes and Progression to Hip Arthroplasty

Joanne L. Kemp PT, PhD, David MacDonald PT, PhD,
Natalie J. Collins PT, PhD, Anna L. Hatton PT, PhD,
Kay M. Crossley PT, PhD

1. Determine outcomes for hip arthroscopy for hip OA,
2. Compare outcomes between no OA and OA, and
3. Examine progression to THA in hip arthroscopy for hip OA

Conclusions:

Patients with more severe hip OA had worse outcomes of pain and function than those with less severe OA or no hip OA.

Factors influencing outcomes: Age; JSN on x-ray.

Effect of chondral pathology unclear and conflicting.

Progression to THA occurred within 2 years in people with severe hip OA

Quality of the included studies was moderate at best.

Effects of modifiable factors on people with hip pain and co-existing hip OA are unknown.

BJSM Online First, published on March 21, 2014 as 10.1136/bjsports-2013-093312

Hip chondropathy at arthroscopy: prevalence and relationship to labral pathology, femoroacetabular impingement and patient-reported outcomes

Joanne L Kemp,[1] Michael Makdissi,[2] Anthony G Schache,[2] Michael G Pritchard,[3] Thomas C B Pollard,[4] Kay M Crossley[1]

[1]School of Health and Rehabilitation Sciences, University of Queensland, Brisbane, Queensland, Australia
[2]The University of Melbourne, Melbourne, Victoria, Australia
[3]Wellington Orthopaedics,

ABSTRACT

Background This study aimed to describe chondropathy prevalence in adults who had undergone hip arthroscopy for hip pain. The relationships between chondropathy severity and (1) participant characteristics; and (2) patient-reported outcomes (PROs) at initial assessment (~18 months postsurgery) and over a further

and Australia aged between 45 and 59 years have OA.[9] Therefore, a greater understanding of the impact of early-onset hip OA on pain, function and quality of life in younger people is warranted.

In recent years, hip arthroscopy has become commonplace,[10 11] and aims to reduce pain and improve physical function associated with early hip OA,

What is the impact of chondral pathology on outcomes?

Results: Summary

Chondropathy (early hip OA) is prevalent in young to middle aged people with hip pain

Prevalence increases with age

Severe chondropathy is associated with worse outcomes 12-24 months post-op

Majority of outcomes do not improve over time

40% greater likelihood of chondropathy if FAI or labral pathology present

Overall evidence for surgical intervention

- Within-subject patient reported outcomes do improve post-op compared to pre-op
- While outcomes improve, these patients remain impaired compared to healthy controls
- Patient outcomes do not improve beyond 12 months
- Older age, JSN, severe chondropathy all = worse outcomes
- Chondropathy is prevalent and increases with age
- FAI, labral pathology and chondropathy do co-exist
- No RCT evidence yet…..

Non-surgical treatment of FAI

Current evidence for non-surgical treatment of FAI

Journal of Science and Medicine in Sport 19 (2016) 716–721

Contents lists available at ScienceDirect

Journal of Science and Medicine in Sport

journal homepage: www.elsevier.com

Original research

Non-operative management [illegible] tabular impingement: A prospective, rande[illegible]ed clinical trial pilot study

Alexis A. Wri[illegible]s[a], Jeffrey B. Taylor[a], Steven L. Dischiavi[a], Allston [illegible]

[illegible]apy, High Point University, High Point, NC 27268, USA
[illegible]paedic Surgery, Wake Forest School of Medicine, Winston-Salem, NC 27157, USA

Primary outcome: pain and function

Results

N=15, 2 groups

No difference between groups for change score for HOS (pain and function)

(trend favoured control)

No difference between groups for physical measures (trend favoured MTEX for strength and hop)

Underpowered to find difference between groups

Care when interpreting these findings

Although called a pilot, primary outcome was pain and function

Unable to draw conclusion about effectiveness of PT from this study

Kemp *et al. Trials* (2015) 16:26
DOI 10.1186/s13063-014-0543-7

TRIALS

STUDY PROTOCOL Open Access

A phase II trial for the efficacy of physiotherapy intervention for early-onset hip osteoarthritis: study protocol for a randomised controlled trial

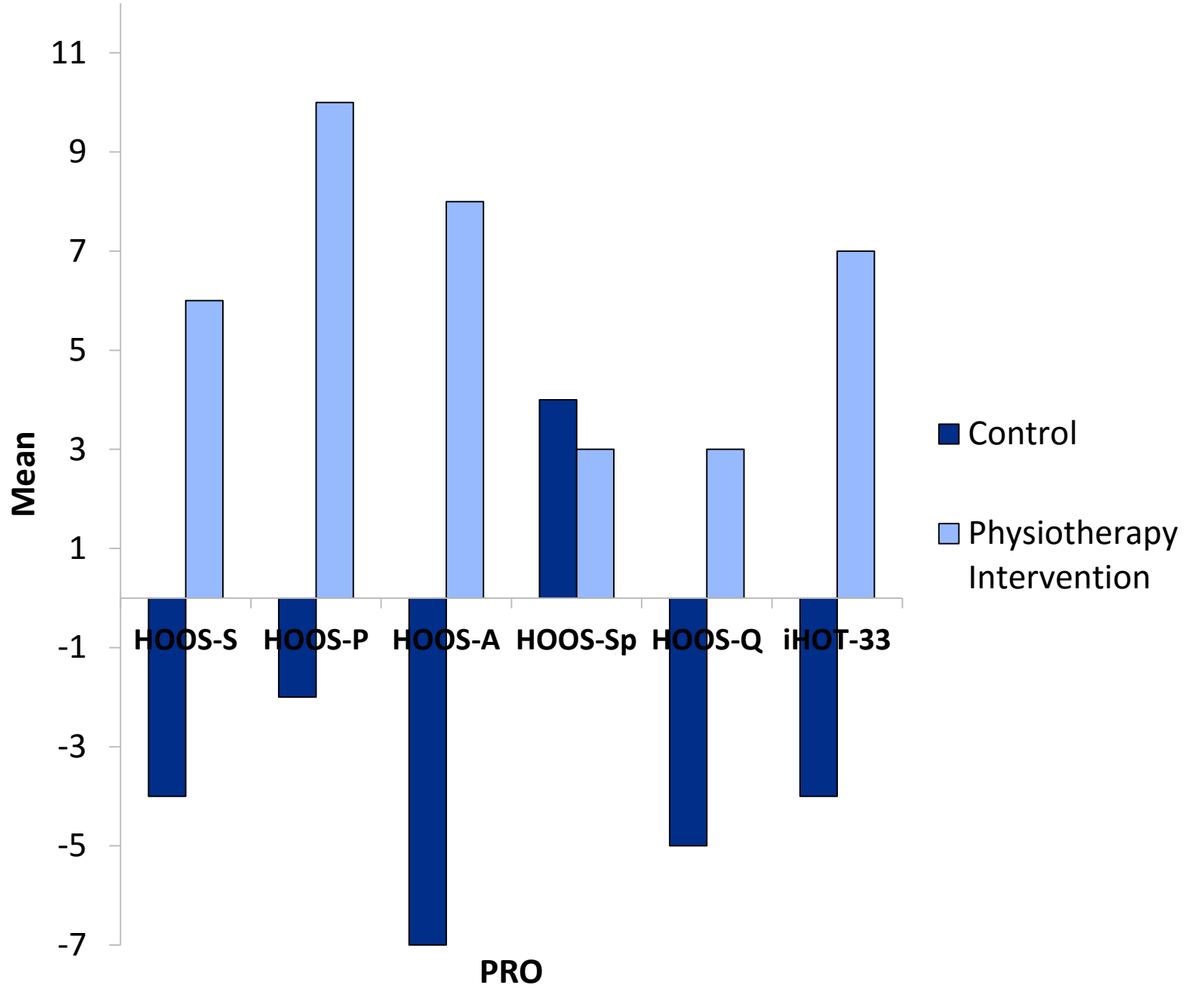
Joanne L Kemp[1,2*], Kate Moore[2], Marlene Fransen[3], Trevor G Russell[4] and Kay M Crossley[4]

Primary outcome: feasibility of full scale trial;
Secondary outcome: pain and function

Results: Secondary outcome

All PROs improved in physiotherapy intervention group and difference in change score always favoured physiotherapy over control group

No changes were statistically significant (small numbers included in this pilot study)



Preliminary evidence that semi-standardised physiotherapy treatment regime improves pain and function post arthroscopy??

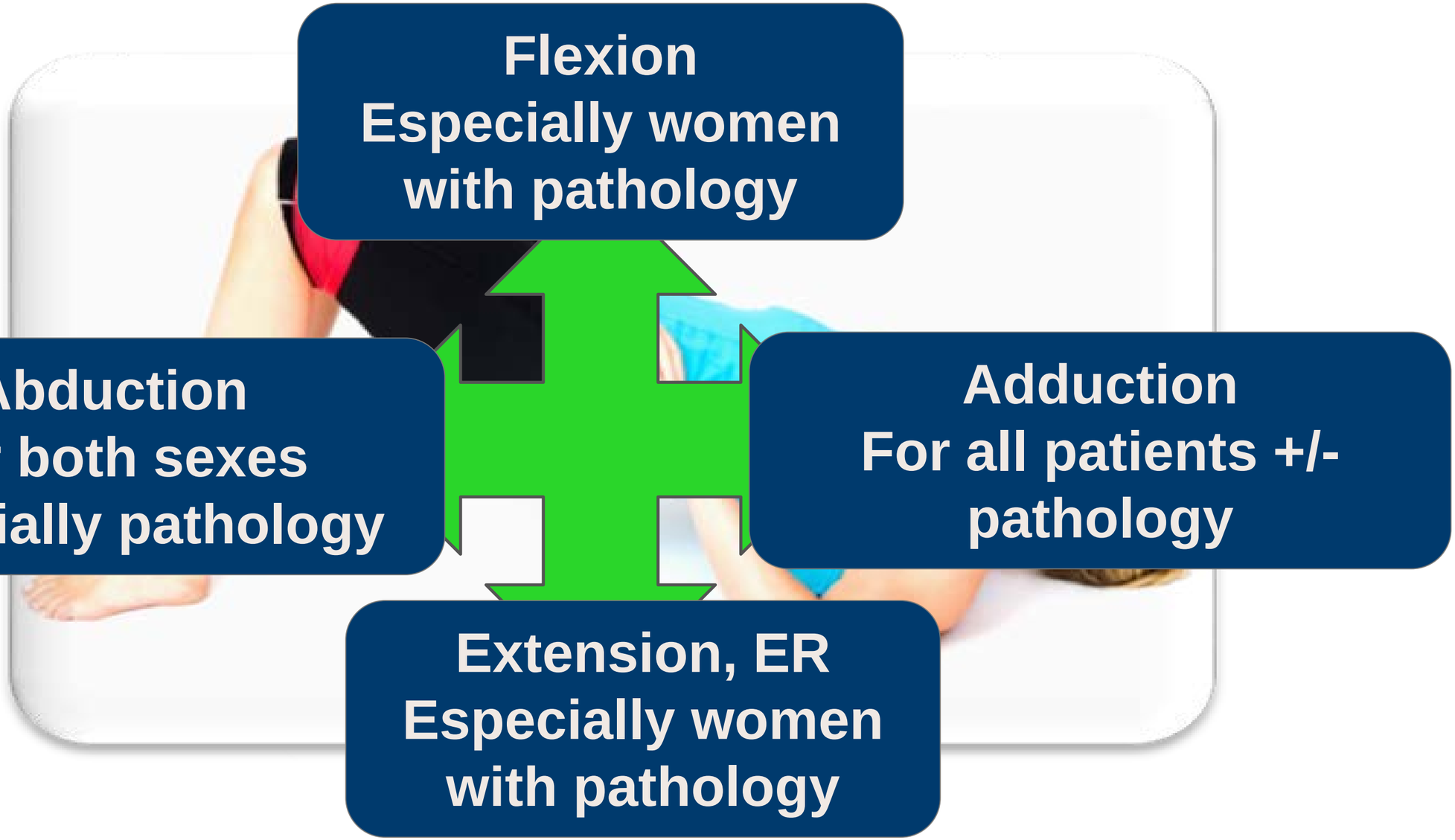
Treatment for FAI:
An impairment based model

What should a physiotherapy program for FAI include?

Goal of treatment = optimise hip joint loads

Hip strength
Trunk strength
Functional and balance retraining
Sports specific retraining
ROM optimization
Education

Hip strength

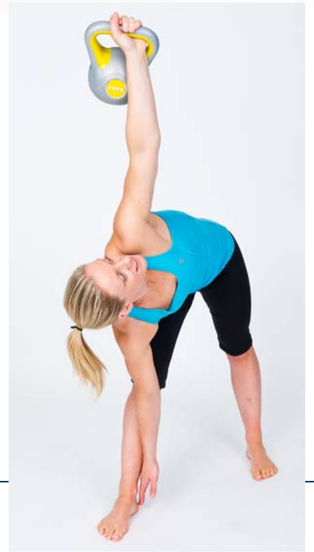

Flexion
Especially women with pathology
Abduction
For both sexes especially pathology
Adduction
For all patients +/- pathology
Extension, ER
Especially women with pathology

Strength training considerations

- Consider strength, power and endurance capacity of muscles
- Use strength and conditioning principles
- Non periodised training (varied between sessions)
- Strength – heavy resistance, low reps, several sets
- Endurance – low resistance, high reps, one set to fatigue, replicate functional positions
- Avoid impingement - Pain free positions

Trunk strength

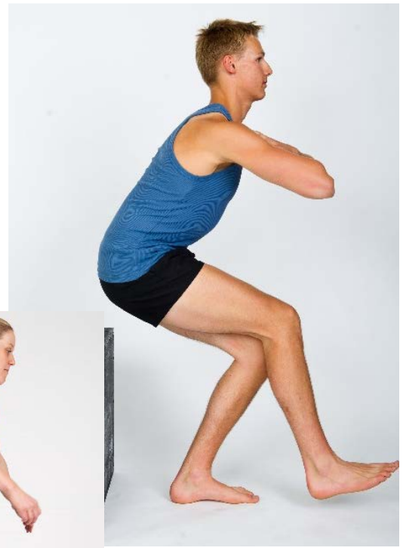
Progressive strength – trunk

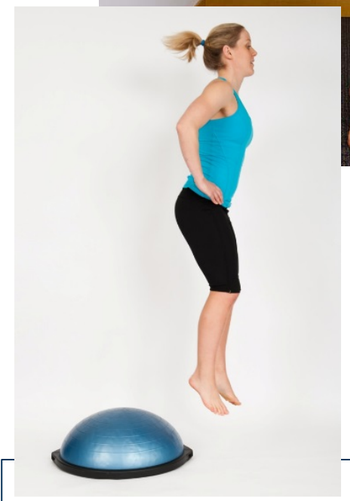
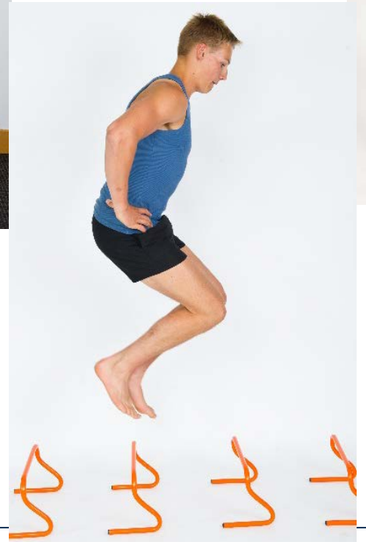
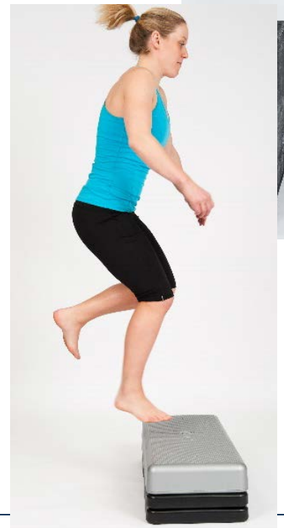


Retrain both sides
Watch overactivity in hip flexors
(care with crunches and sit ups)
Focus on endurance

Function and balance




Retrain both sides
Specific to sports
Focus on strength and endurance
Restore full load requirements

Optimise ROM

Optimise ROM (especially flexion)

Soft tissue techniques

Manual therapy techniques

Muscle activation

Techniques for lumbar spine and pelvis

Take care as flexion limitation may be protective

Education

Education: Position of impingement

Activity and position modification for 90% (ADL) to allow full activity for 10% (sport)

Education: Pathology and prognosis

For post surgical and non surgical patients…..

Assume FAI patients have early hip OA and treat accordingly

Lose weight if needed

General CV training vital: find a “sport” that they enjoy and is ***safe for them to do*** (cycling, running, swimming, walking……)

They will have flare ups of symptoms

Must be prepared for maintenance program that includes strength, balance, neuromotor control

They will improve but will not be the same as a healthy age-matched control

Education: Treatment options

Physiotherapy treatment does not have good efficacy.

As non-surgical treatment providers, we need to provide patients and surgeons with a high quality, efficacious treatment alternative to surgery – this is generally lacking

Take home message: non surgical treatment

Physiotherapy treatment does not yet have Level 1 RCT evidence

Physiotherapy treatment may follow an impairment-based model

Impairments to address include

1. Hip muscle strength
2. Trunk muscle strength
3. Function, balance
4. Cardiovascular training
5. ROM optimisation
6. Education

Final take home message

What is FAI?

FAI is clinical diagnosis = presence of symptoms, signs and morphology in people with hip and groin pain

Does it matter?

Yes! For affected people, impact on QOL & PA enormous, with increased risk of end stage hip OA and THA

How can we treat it?

Surgical and non-surgical options. Neither have level 1 evidence yet to support effectiveness. Surgery no longer funded.

Best practice physiotherapy treatment should target known impairments to optimise joint loads and improve outcomes

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