Rehabilitation of Labral Tears

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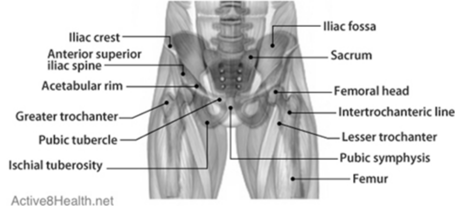
Financial Disclosure

- I have no relevant financial relationships with commercial interests to disclose.

Anatomy of the Hip & Pelvis



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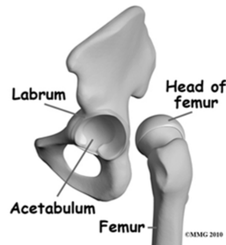
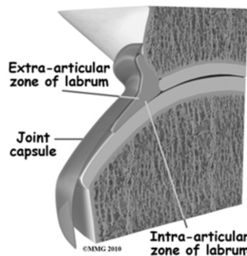
Anatomy of the Labrum

- Acetabular labrum
  - Fibrous rim of cartilage around the hip socket
  - Function
    - Provides stability to the joint
    - Management of the flow of vital joint fluids
      - Nourishment
      - Lubrication



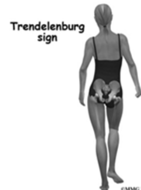
Zones of the Labrum



- Extra-articular zone has good blood supply
- Intra-articular zone has poor blood supply

Symptoms

- Onset of symptoms typically insidious
  - Hip or groin pain, often radiates
  - Intra-articular snapping hip syndrome (~ 80% of the time)
  - Clicking
  - Giving way
  - Locking/catching
  - Trendelenburg gait



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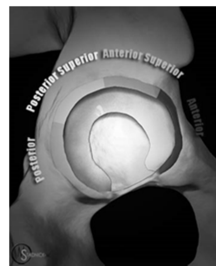
Symptoms

- ❖Onset of symptoms (cont.)
  - Stiffness
  - Limited ROM
  - Pain with increased sitting
  - Pain with twisting/cutting/explosive outbursts

Causes/Mechanism of Injury

- ❖Primary cause: femoral acetabular impingement (FAI) – anterior superior labrum is pinched
- ❖Repetitive twisting, cutting, pivoting & hip flexion



Causes/Mechanism of Injury

- ❖Capsular laxity/joint hypermobility
- ❖Hip dysplasia
- ❖Degenerative changes
- ❖Anatomical/Structural
  - Abnormal shape/structure of the acetabulum labrum
  - Femoral head muscle weakness

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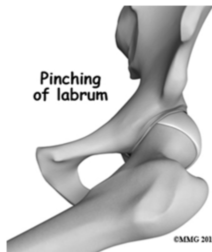
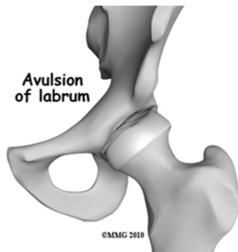
Diagnosis

❖Orthoscopic Exam
- Most reliable
- 100% accurate

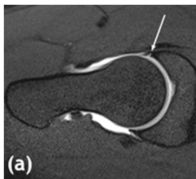
❖MRI

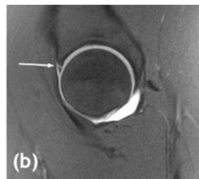
❖Magnetic Resonance Arthrography (MRA)
- Provides in-vivo image of the hip joint which is often difficult to visualize secondary to depth of articulation
- Now the "***GOLD STANDARD***"





MR Arthrogram (MRA)





Oblique axial (a) and sagittal (b) MR arthrogram of the right hip showing a detached tear of the anterior labrum (arrows).

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Conservative Therapy

- ❖Goal:
  - Relieve pain
  - Improve function
  - Correct muscle instability

Conservative Therapy

- ❖Activity modification
  - Avoid pivoting/cutting
  - Avoid prolonged weight bearing activities
- ❖Physical Therapy
  - Stretching and flexibility exercises
  - Strengthening hip muscles
  - Restore neuromuscular control
  - Improve posture
- ❖Intra-articular injection

Non-surgical Rehabilitation

- ❖Strengthening exercises
  - Standing hip flexion/extension/ABD/ADD with progressive loading (resistance bands)
  - Lunges
  - Leg press/total gym
- ❖Stabilization exercises
  - Lumbopelvic stabilization
    - Bridges, Mini-squats

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Non-surgical Rehabilitation

❖Balance/Proprioception
- Single leg stand
- Balance board

Surgical Intervention

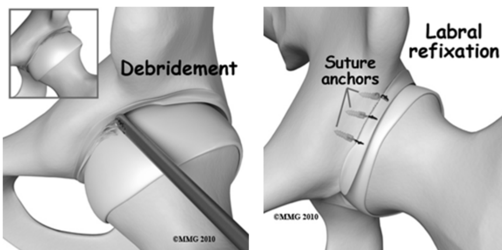
❖Signs or Symptoms > 4 weeks

❖MRI or MRA

❖Acetabular labral lesion – debridement or repair

❖Dr. Wolff repair video
- http://www.andrewwolffmd.com/understanding-non-arthritic-hip-pain-andrew-b-wolff.html

Surgical Intervention



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Surgical Rehabilitation

- Primary goals following surgery:
  - Minimize pain and inflammation
  - Protect surgically repaired tissue
  - Initiate early motion

Surgical Rehabilitation

- Stretching/Flexibility
  - Piriformis, psoas, quadriceps, hamstrings
- Strengthen hip ABDuctors, ADDuctors, & extensors
  - Begin with isometrics with lower extremity in neutral
  - Progress to include isotonics and core strength
- Gait training
- Balance/Proprioception exercises

Surgical Rehabilitation

- Proaxis Therapy
  - Labral debridement and labral repair
  - See patient checklist in Garrison, et al. reference

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Dr. Muller's Protocol

Phase	**I**
Time frame	Post-OP days 1 – 14
Goals	• Protect healing tissue • Normalize gait pattern
Precautions	• Crutches, 25% WB • Minimize scarring/swelling • Caution with stairs/prolonged ambulation

Exercises	• Pain control/Cryotherapy
	• Scar mob/STM/Stretching – piriformis/HS
	• Progress PROM
	    • Week 1 – flexion 0 to 100°, Week 2 – flexion 120°
	    • ABD, ADD as tolerated
	    • Avoid forced hip external rotation,
	    • Avoid hip rotation with hip flexed >90°
	• Standing internal rotation, prone rotations, circumduction
	• Prone extensions & hamstring curls after week 2
	• Isometrics – gluts, quads, HS, abdominals, ABD, ADD (avoid flexors
	• Stationary bike – low resistance after week 1; 20 minutes BID as tolerated

Dr. Muller's Protocol

Phase	**II**
Time frame	Post-OP day14 to week 4
Goals	Progress hip ROM
Precautions	Avoid hip flexor tendonitis and trochanteric bursitis

Exercises	• Continue therapeutic exercises
	• Progress PROM as tolerated
	• Progress strengthening and isotonics
	    • Isotonics all hip muscle groups except hip flexor
	    • Sidelying clams, bridging, sidelying leg raise
	• Modalities prn – E-stim, US
	• Begin pool therapy when portal sites well healed
	• CV – stationary bike low resistance – advance time, add elliptical

Dr. Muller's Protocol

Phase	**III**
Time frame	Weeks 4 – 10
Goals	• Progress hip strengthening • Early restoration of balance/ proprioception
Precautions	Avoid hip flexor tendonitis and trochanteric bursitis

Exercises	• Continue therapeutic exercise
	• Full PROM – hip flexor & ITB stretching
	• Progress strengthening
	    • Add hip flexor isotonics, begin short-lever hip flex
	    • Add leg press, begin bilateral, then unilateral
	    • Side stepping with theraband
	    • Core strengthening – frontal and side planks
	• Begin proprioception – bilateral, then unilateral, advance as tolerated
	• Advance elliptical
	• Add stair stepper

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Dr. Muller's Protocol

Phase	IV
Time frame	Weeks 10 – 14
Goals	Increase functional activity
Precautions	Do not start Phase IV until full ROM, good core/hip strength and acceptable balance
Exercises	• Continue therapeutic exercise • Progressive core & bilateral LE strengthening • Outdoor bike and jog, then light running • Improve endurance

Dr. Mueller's Protocol

Phase	V	VI
Time frame	Weeks 14 – 18	Beyond week 18 – Return to sport
Exercises	• Lunges, single leg squats, plyometrics • Agility drills – lateral, diagonal • Begin functional exercises • Progress running program – sprinting, cutting	• Advance functional exercises • Sport specific agility drills • Training

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