BRIGHAM AND WOMEN'S HOSPITAL

# When It's Not Just the Labrum

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# Objectives

- 1. Understand the *influence of anatomical structures* on anterior groin/hip pain
- 2. Identify various *impairments* of the sacrum, ilium, lumbar spine and hip joint associated with hip/groin pain
- 3. Describe best *sequence of tx* eg. Pelvis or spine or hip first
- 4. Describe *soft tissue mobilization* techniques targeting lumboplevic-hip joints
- 5. Understand *physical therapy intervention* that promotes protecting painful anterior/lateral hip structures while strengthening posterior/lateral muscles

# Why Study this patient group?

- Patients referred with ongoing sx
  - (even after 1-4 previous PT episodes of care elsewhere)
  - Patients were not improving or returning to previous level of function/sport regardless of PT or Surgery
- No previous pelvic girdle evaluation during previous PT
- No previous tx of postural alignment influencing lumbar spine, pelvic girdle and hip
- Little to no deep soft tissue techniques and manual therapy
- Primary Focus of previous PT on anterior painful hip, stretching and strengthening
- PT/Teamed up with Surgeon who wanted better outcomes

# Further rationale to study this patient population and interventions

- **Scarce Literature regarding non-op PT** for these patients

- National Institute for Health and Care Excellence (NICE) 2011
  - Recommendations for patients with hip labral tears was **surgical** intervention
  - secondary to FAI after failing to progress with conservative, temporizing measures that include:
    - activity modification,
    - rest
    - anti-inflammatory meds
  - **No mention of PT here**
    - which is classified as a conservative measure
    - May be largely due to studies recently appearing in the literature

# Literature Review

- Prevalence of labral tears
- Non-operative conservative treatment (including PT)
- Post-operative rehabilitation
- Surgical outcomes
- Surgery vs. conservative

# Literature Review: Prevalence

- There is a prevalence of non-symptomatic hip labral tears in many persons
  - Prevalence of Abnormal Hip Findings in Asymptomatic Participants

  A Prospective, Blinded Study Register, Pennock, Ho, Strickland, Lawland, Phillipon. Prevalence of abnormal hip findings in asymptomatic patients. *Am J Sports Med*, 2012
  - 69 % volunteers had a non symptomatic labral tear on MRI
    - Forty-five volunteers with no history of hip pain, symptoms, injury, or surgery were recruited
    - Subjects over 30 years of age were 8.1 times more likely to have a labral tear
    - Subjects over 35 years of age were 13.7 more likely to have a cartilage defect
    - A strong correlation was seen between participant age and early markers of cartilage degen- eration such as cartilage defects and subchondral cysts.

# Literature Review: Prevalence

- Prevalence in patient with mechanical symptoms
  - Neumman, Menducutti et al. **Prevalence of labral tears and cartilage loss in patients with mechanical symptoms of the hip: evaluation using MR arthrography.** Osteoarthritis Cartilage. 2007 Aug;15(8):909-17
  - 100 patients with mechanical symptoms of the hip such as pain, clicking, locking and giving way
  - MR arthrography to assess for labral tear
  - Labral Tears found in 66 subjects
  - Cartilage thinning > 50% was found in 34 subjects
  - Labral tears and cartilage loss are common in patient's with mechanical symptoms of the hip

# Literature Review: Non-operative Treatment

- Controversy over effectiveness of non-op PT tx
  - Orbell, Smith. The physiotherapeutic treatment of acetabular labral tears: a systematic review. Advances in Physiotherapy. 2011
    - Greater evidence is required related to the post-operative management of patients following ALT repair.
    - Remains debate regarding the appropriateness of the physiotherapy management for the non-operative management of this patient group

# Literature Review: Non-operative PT Treatment

- Patients with labral tears can improve with PT alone
  - Case series: Non-surgical treatment labral tears

    Yazbek, Ovanessian, Martin, Fukuda. Nonsurgical treatment of acetabular labral tears: a case series. *JOSPT*, 2011
    - 4 patients, 6 month follow up
    - Multi-phase PT (3 phases): strength, ROM, mobility
    - All patients demonstrated improved strength
    - All patients improved with pain and function at 6 months

# Literature Review: Non-operative PT Treatment

- Case Series: Conservative treatement for mild FAI

  Emara, Samir, Motasem, Ghafar. Conservative treatment for mild FAI. *J Ortho Surg,* 2011

  - 37 patients, 2 year follow up
  - 27 male and 10 female athletic patients aged 23 to 47 years
  - Improved hip outcome scores, but limited ADL and no improvement in hip ROM
  - PT: intensive physio, stretching, ROM, and problematic ROM to avoid

# Literature Review: Non-operative Treatment Continued

- Experimental data limited, but suggests that PT and activity modification might be of some benefit
  - Nonoperative Treatment for Femoroacetabular Impingement: A Systematic Review of the Literature, Wall et al. PM R. 2013
    - Concluded need more extensive and rigorous investigation to determine true clinical effectiveness

# Literature Review: Post-op Rehab

- Case Report- High school football player post hip arthroscopy for labral tear. Cheatham, Kolber. Int J Sports Phys Ther. 2012
  - Patient underwent labral debridement and chondroplasty
  - 4 Phase rehabilitation program
  - The player returned to training for football 16 weeks later and at the 4 month follow-up was pain free with no signs of FAI.

- Post-op PT Tx Considerations
  - Enseki, Martin, Draovitch, Kelly, Philippon, Schenker. The hip joint: Arthroscopic procedures and postoperative rehabilitation. *JOSPT*, 2006.
  - Authors indicate that special attention must be paid to tissue healing and individual patient characteristics

# Literature Review: Surgical Intervention

- **Hip arthroscopy has limited benefit for ages 45+**
  - Arthroscopic Acetabular Labral Debridement in Patients Forty-five Years of Age or Older Has Minimal Benefit for Pain and Function. Wilkin et al. J Bone Joint Surg. 2014
    - 41 patients >/= 45 YO (mean age 52.7) who underwent labral debridement
    - WOMAC, modified Harris hip score, SF-12 collected preoperatively/postoperatively
    - Reoperation rate 17% at 21.3 months
    - Only 32% had a good or excellent outcome as indicated by the postoperative mHHS
    - Authors conclude arthroscopic intervention in this patient population must be approached with caution as the overall clinical benefit was small.

# Literature Review: Conservative vs. Operative Intervention

- **Clinical Outcomes Analysis of Conservative and Surgical Treatment of Patients With Clinical Indications of Prearthritic, Intra-articular Hip Disorders-** Hunt et al. PM R 2012
  - 58 subjects (52 completed study) mean age 35 with pre-arthritic intra-articular hip disorders
  - All subjects completed a directed course of conservative tx
  - At 3 months patients with persistent symptoms had surgery
  - 23 subjects (44%) reported satisfaction with conservative care
  - 29 subjects (56%) chose to have surgery
  - Authors concluded data suggest trial of conservative management should be considered

# Literature Review: Conservative vs. Operative Intervention Continued

- Factors contributing to the failure of conservative treatment for acetabular labrum tears, Kaya et al. Eur Orth Traum 2013
  - Analyzed clinical and radiological factors contributing to failure of conservative treatment
  - 75 patients with + physical symptoms and radiologic evidence of labral tears enrolled
  - Surgical treatment if hip pain not completely resolved
  - 37 patients responded to conservative tx
  - 47 went to surgery (6 periarticular osteotomy, 11 partial debridement, and 28 labral refixation)
  - Multivariate analysis indicated factor contributing to response to conservative tx was tear of ligamentum teres ($p<0.01$)
  - Authors theorize that **tear of ligamentum teres** creates microinstability

# Our Current Hip Studies

- 1. Retrospective Hip Study
  - Non-Op PT Alone
  - patients over 40 with hip labral tears

- 2. Randomized Controlled Trial:
  - Surgery/PT versus PT alone
  - patients over 40 with hip labral tears

# Retrospective Non-operative Hip Labral Study

- Pilot Data
- 7 females
  - Small sample size; many subjects had incomplete data due to No Discharge LEFS; once patients felt better, they stopped coming to formal PT (Cx or NS)
  - Mean age=49 years (range 41-62)
  - Positive Labral Tear on confirmed on MRA (magnetic arthrogram)
  - Positive Clinical Presentation for Labral Tear
  - No severe OA
- Intervention: Non-operative PT Protocol

# Descriptive Results Retrospective Non-operative Hip Labral Study

- All subjects improved in:
  - pain
  - ROM
  - LEFS
  - muscle strength
  - muscle length
  - soft tissue palpation
  - pelvic symmetry

- Treatment ranged from
  - 1-2/week to once every 2 weeks
- Average Total Time in PT
  - 2.7 months (range 1.1-5.5)
- Treatment was prescribed protocols
- No subject had surgery
  - (at 5-13 month follow up)

# Descriptive Results Retrospective Non-operative Hip Labral Study(cont)

## VAS (Pain)

- Mean Scores Pre Tx:
  - VAS 8.8 (range 6-10/10)
- Mean Scores Post Tx:
  - VAS 0.85 (range 0-3/10)
- Mean ***Change*** in VAS
  - **VAS 8/10** (range 5-10)

## Lower Extremity Functional Scale(LEFS)

- Mean Scores Pre-Tx
  - LEFS 52.8 (range 45-59/80)
- Mean Scores Post Tx
  - LEFS 73.7 (range 59-80/80)
- Mean ***Change*** in LEFS
  - **LEFS16.4** (range 0-30/80)
    - > 9 is meaningful change
    - 5/7 subjects had were clinically meaningful results

# Clinical Relevance of Retrospective Non-operative Hip Study

- Promising results in small sample
- Promising results for innovative treatment for non-operative physical therapy for patients with confirmed hip labral tears
- Identifies further need for future studies
- Precursor to current RCT

# Current Hip RCT Study Team

| Study Team | Role |
| --- | --- |
| Scott Martin, MD | PI, Surgeon |
| Kyle Alpaugh, MD | Co-Investigator, RA |
| **Clare Safran-Norton PT, PhD, OCS** | **Co-Investigator, Primary PT** |
| **Dawn Rogers, DPT** | **Study PT** |
| Marty Boehm, PT | Study PT |
| Jillian Vai, PT | Study PT |
| Kirsten Small, MD | Radiologist |
| Harvard, PhD, School of Public Health | Statistician |

# Current RCT Surgery versus Non-operative PT(cont)

- To date,
  - Started in January 2014, 4 patients enrolled
    - 3 non-op, 1 operative
  - 3 Study PTs trained at 2 sites
  - Weekly Team Meetings
  - All patients improving in both arms

# Anatomy and Hip Pain

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# Lower Quadrant Anatomy

- Regional interdependence of 3 systems
- Normal hip function relies on complex interaction of:
  - Lumbar spine
    - Hip movement during gait results in lumbar rotation
  - SI
    - Patients w/ SI dysfunction had asymmetrical limitations in hip joint ROM Cibulka 1998
  - Hip
    - flexion of hip results in posterior rotation, adduction, and external rotation of innominate Smidt

# Lumbar Spine Anatomy

- 5 lumbar vertebrae
- Intervertebral discs
- Facet joints
- Ligaments-
  - interspinous,
  - supraspinous,
  - Anterior longitudinal
  - Posterior longitudinal
- Nerve roots
- Muscles
  - Stabilizers-multifidi
  - Global-erector spinae
  - Abdominals
  - QL

  - http://www.neurooperations.com/index.php?page=facilities_detail&category_id=149&subcategory_id=190&article_id=270

# Sacroiliac Joint Anatomy

- SI joint- articulation between ilium and sacrum
- Ligaments-
  - Sacrotuberous
  - Iliolumbar
  - Interosseous sacroiliac
- Movement very small, induced by movement of other joints

# Hip Anatomy

- Brief review
- Bony anatomy:
  - 4 bones comprise the joint:
    - Acetabulum
      - Ilium
      - Ischium
      - Pubis
    - Femur
      - Femoral head

# Hip Anatomy Continued

- Hip ligaments
  - Iliofemoral “Y” ligament
  - Pubofemoral ligament
  - Ischiofemoral ligament
  - Teres ligament

# Hip Anatomy Continued

- Muscles
  - Gluteus maximus
  - Gluteus medius
  - Psoas
  - Iliacus

# Hip Musculature Cont.

- Deep muscles of the hip
  - Rotator cuff of the hip (Retchford)
    - Piriformis
    - Superior gemellus
    - Obturator internus
    - Inferior gemellus

# Palpation of Lower Quarter Anterior Muscles

- Iliacus: patient hooklying or seated, curl palpating fingers medially around anterior iliac crest

# Palpation of Lower Quarter Anterior Muscles

- Psoas: patient hooklying, palpate abdomen below umbilicus just lateral to rectus abdominis

# Palpation of Lower Quarter Anterior Muscles

- Tensor Fasciae Latae:

patient  sidelying, palpating hand just distal and slightly lateral to ASIS, patient actively moves into flexion and medial rotation, continue to palpate distally and slightly posteriorly along muscle belly until insertion on ITB

# Palpation of Lower Quarter Anterior Muscles

- Proximal Rectus Femoris:

Patient in supine position (can passively flex the thigh) and palpate for tendon at AIIS, follow muscle belly

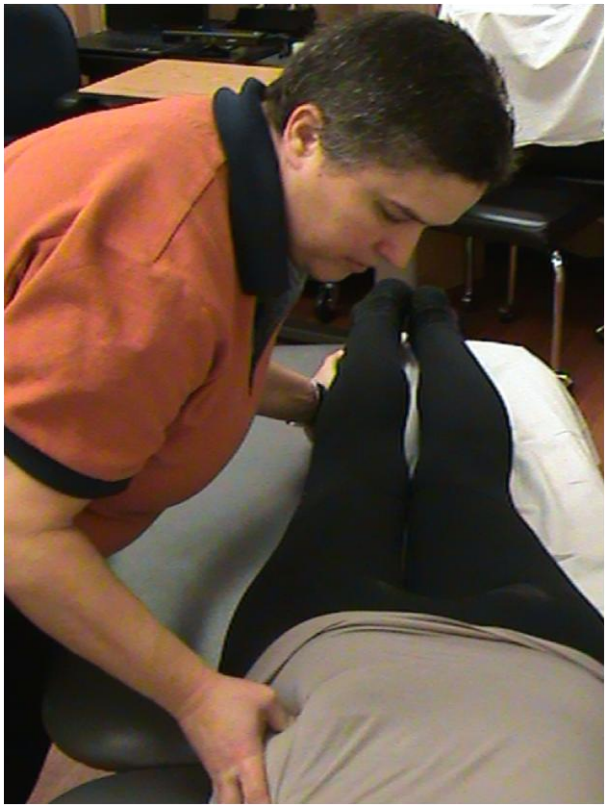
# Palpation of Lower Quarter Posterior Muscles

- Piriformis: patient prone, knee flexed to 90, palpating fingers just lateral to sacrum halfway between PSIS and apex of sacrum, feel for contraction as patient exernally rotates

# Palpation of Lower Quarter Posterior Muscles

- Gluteus medius:

Patient prone, place palpating hand between iliac crest and greater trochanter



# Palpation of Lower Quarter Posterior Muscles

- Gluteus maximus: patient prone palpating hand from lateral sacrum to attachment on ITB (actively extend and lat rotate thigh)

# Palpation of Lower Quarter Posterior Muscles

- Quadratus lumborum:

Patient prone, palpate just inferior border of 12th rib and follow to iliac crest

http://www.youtube.com/watch?v=PwKm9KpE5Wc

# Hip Articular Surfaces

- Femoral head 2/3 hyaline cartilage (center lacks cartilage)
- Acetabulum
- Labrum
  - Outer margin of acetabulum
  - Serves to enlarge the articular surfaces
  - Attachment for joint capsule
  - Assist in maintaining fluid pressurization
  - Provide proprioceptive sensory info re: hip position and movement

# Sensorimotor System of Hip

- Anterior coxafemoral joint:
  - Innervated by sensory branches from femoral and obturator nerves
- Posterior coxafemoral joint:
  - Innervated by branches from sacral plexus

# Anterior Hip Pain

- Potential sources of pain:
  - Soft tissue
  - Intra-articular
  - Referred pain from lumbar region
    - Disc, facet, nerve root
  - Iliopectineal bursa
  - Impingment
    - CAM
    - Pincer
    - Mixed

# Hip Impingment

- CAM
- Pincer
- Mixed

# Lateral Hip pain

- Potential sources of pain:
  - Gluteus medius/minimus tendinopathy/tear
  - Trochanteric bursitis
  - Labral Tear or joint pathology
    - -C sign
  - Iliotibial band syndrome

# Differential Diagnosis

- Influence of Lumbar Spine, Sacrum, Ilium and Hip Joint:
- 4 joints and associated tissue structures
  - ROM
  - Joint Mobility: PIVM/PAVM
  - Muscle Length
  - Muscle Performance
  - Posture:
    - Overall Alignment
    - Pelvic Girdle Asymmetries
    - Leg Length Discrepancies
    - Biomechanical Foot Alignment

# Differential Diagnosis

- Lumbar spine pathology
  - Disc, facet, nerve root
- SI joint/pelvic girdle dysfunction
- Intra-articular hip pathology
  - Labrum
  - Cartilage/bone- early OA, FAI (cam/pincer lesions), stress fracture
- Soft tissue sources of pain
  - Trigger points
  - Tendonitis

# Differential Diagnosis (Cont)

- Hernia
- Athletic pubalgia
- Also consider:
  - Gynecologic referred pain
  - Pelvic floor dysfunction
  - Visceral pain sources
  - Neoplasm, abscess, septic arthritis

# Evaluation: Lumbar Spine

- Muscle Performance
- Range of Motion
- Special Tests:
  - Slump test, SLR, prone instability test
- Joint Mobility: PAIVMS/PIVMS
- Posture
- Sensory Integrity
- Reflex Integrity
- Gait, Locomotion, and Balance

# Evaluation: Pelvic Girdle

- Palpation:
  - Alignment of sacrum: torsion/sidebent
  - Innominate rotation
  - Tenderness to palpation
- Joint Mobility: SI joint
- Special Tests:
  - Gaenslen's, FABER / Patrick's test Thigh thrust / femoral shear test ASIS distraction (supine) Sacral compression (sidelying)
- Muscle Performance:
  - Strength of rectus abdominis, IO/EO, TrA

# Evaluation: Hip

- Muscle Performance:
  - manual muscle testing of hip musculature
- Range of Motion
  - Coxafemoral joint
  - Muscle length assessment: ITB, HS, hip flexor, QL, adductors group, piriformis
- Joint Mobility of hip:
  - long axis distraction, posterior glide, anterior glide, lateral distraction
- Special tests
  - Scour test, log rolling, FABER, FADIR, Trendelenberg, Anterior/posterior labral test
- Soft tissue assessment:
  - palpation of iliopsoas, iliacus, quadriceps, adductor group, glutes, piriformis, gemelli
- Posture:
  - Leg length assessment, landmarks, biomechanical foot alignment
- Gait, locomotion, and balance
  - gait, stairs, sit to stand, unilateral step up, quality of movement and movement patterns

# Common Examination Findings

- Impaired joint mobility- lumbar spine, SI joint, hip
- Impaired muscle performance- abdominals, gluteals, paraspinals, multifidi and deep hip stabilizers
- Impaired neuromuscular control
- Impaired muscle length-hamstring, quads, ITB, QL, piriformis
- Soft tissue restrictions- hip, lumbar spine
- Impaired posture

# PT Intervention to RCT Protocols

- Basis of this approach lead to Retrospective Study and RCT Study
  - Non-operative PT versus Surgery/PT
- Model of Trial is modeled after MeTeOR Trial(*NEJM*, 2013) non-op PT versus surgery but unique with this patient population and surgical repair

# Our PT Protocols

- Non-Op and Surgical PT Protocols
  - Phase I-Acute
  - Phase II-Subcute
  - Phase III-Advanced

  - Each Phase:
    - Goals
    - Precautions/Guidelines
    - Treatment Strategies
    - Criteria for Advancement

# Our PT Protocols(cont)

- Clinical Judgment always prevails
- Can progress through phases quickly or slowly
- Can overlap phases
- Weeks are suggested and typical not definitive
- Protocols are intended to be guidelines
- Exercises are a sampling within phases and not exhaustive
- Criteria for progression
  - 2 out of 3 for Phase I to Phase II
  - 4 out of 5 criteria for Phase II to Phase III

# Non-operative PT Protocol

- Phase I
  - Acute
  - 0-2 weeks
  - **Goals**:
    - Provide an understanding of etiology of sx
    - Activity Modification
    - Normalize Gait
    - Restore Joint Play/ROM
    - Initial strengthening
    - Minimize Pain
    - Restore Pelvic Alignment

# Non-operative PT Protocol

Criteria to Progress to Phase II (>=2 out of 3)

- Control of Pain
- Symmetrical Pelvic Alignment
- Normal Gait with or without device

# Non-operative PT Protocol (cont)

- Phase II
  - Subacute
  - 2-12 weeks
  - **Goals:**
    - Painfree Normal Gait without device
    - Painfree ADL
    - Ascend/Descend Stairs with good pelvic and trunk control
    - ROM within functional limits
    - Progressive HEP

# Non-operative PT Protocol (cont)

- Criteria for Progression
  - ROM-functional
  - Ascend/Descend Stairs with good postural and pelvic stability
  - Good postural and pelvic control with single leg stance
  - Normal painfree gait without device
  - No active hip flexion until pain subsides

# Non-operative PT Protocol (cont)

- Phase III
  - Advanced
  - 12-24 weeks
  - Painfree HEP
  - Normal/Optimal ROM
  - 5/5 LE MMT/4/5 Trunk strength
  - Good dynamic balance
  - Painfree ADL
  - Painfree Hip Flexion

# Innovative PT Approach

- Principles:
  - Protect Anterior Painful Structures
  - Strengthen Posterior and Lateral Structures
  - Balance Muscle Length and Muscle Strength
  - Align Pelvic Girdle
  - Restore ROM
  - Restore Core and Extremity Strength
  - Restore Function and Recreation

# Protect Anterior Painful Structures

- Patient Report
  - Painful SLR, Painful Hip Flexion/IR
  - Painful Driving, Transfers, Sleeping, Activity/Sport
- Typical Anatomical Structures
  - that have become painful
  - (Lewis and Sarhmann, J Biomech, 2007)
- Examples of Protecting Structures
  - Listen to your pain
  - Strengthen posterior structures
  - Deep STM to relax and lengthen anterior structures
  - Level Pelvis

# Pain Control Modalities

- Ice/Cold Pack/Heat
- E-Stim
  - Interferential Current
- Kinesiotaping
- Self Soft Tissue Mobilization

# Kinesiotaping

- Lumbar Paraspinals
- SIJ
- Piriformis
- Hamstring
- Gluteus Medius
- TFL
- ITB
- Groin
- Iliacus
- Adductors
- Rectus Femoris

# Strengthen Posterior and Lateral Structures

- Progressive Strengthening Pain-free
- High Reps, Low Resistance
- Incorporate Core Stabilizers
- Open Chain, Closed Chain, Con/Ecc/Resistance

# Balance Muscle Length and Muscle Strength

- Sarhmann Exercises
- Stretch Trunk, Hip, Knee and Lower Leg painfree
- Strengthen Trunk, Hip, Knee and Lower Leg painfree
- Core Strengthening with Extremity Strength painfree

# Align Pelvic Girdle

- Joint Mob Sacrum/Ilium
- MET Sacrum/Ilium

- Secondary Joints affecting Pelvis such as lumbar spine and hip

- Core TrA Training
- Core Stabilization, all planes
- SIJ belt (not often)

- Body Mechanic Education/Activity Modification

# Restore ROM, Core and Extremity Strength, Function, and Recreation

- Key is ***Painfree***
- Anterior structures protected first
- Core TrA introduced early
- Level pelvis early
- Restore ROM, Core and Extremity Strength and Function and Recreation ***Painfree***

# Soft Tissue Techniques

- Deep Soft Tissue Palpation
- Deep Soft Tissue Techniques
- Superficial MFR Techniques
- Self STM
- Self Stretching
- Taping, Kinesiotape
- Strengthening

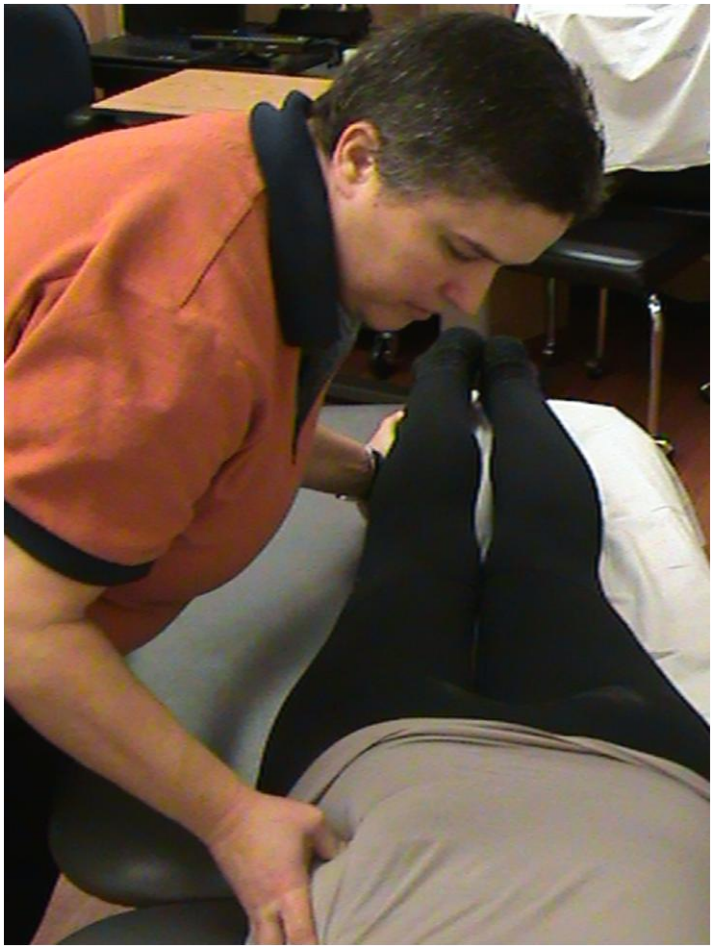
# Soft Tissue Techniques (cont.)
# Psoas

# Soft Tissue Techniques(cont)
# Psoas

# Soft Tissue Techniques(cont)
# Iliacus

# Soft Tissue Techniques(cont)
# TFL

# Soft Tissue Techniques(cont)
# Gluteus Medius



# Soft Tissue Techniques(cont) Piriformis

# Restore ROM/Joint Play

- Lumbar Spine
  - Joint Mob/Manip (as long as painfree on hip)
- Sacrum
  - Joint Mob/MET
- Hip
  - Joint Mob/Mulligan MWMs
- Ilium
  - Joint Mob/MET/Manip (painfree)

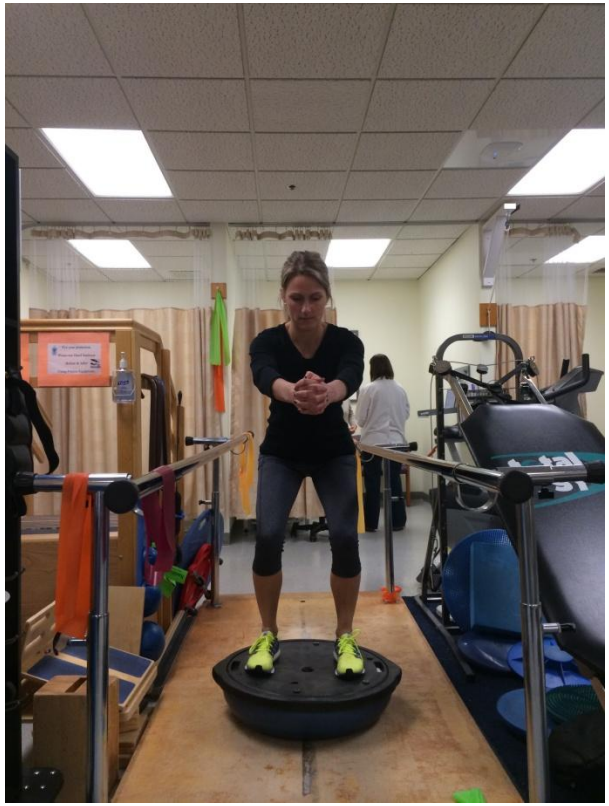
# Restore Ms Strength

- TrA early on
- Core Stabilization
  - Painfree, (modified planke, center/lateral)
  - Plyoballs in UE with Stabilzation ther ex
  - Balls/Bozu/Stable surface to unstable surface
- Posterior/Lateral Hip Muscle Strengthening painfree
- Open Chain/Closed Chain
  - Painfree
  - Posterior lateral LE ms first, anterior hip last
- Balance/Proprioception/Return to Sport/Fxn

# Examples of Stab Ther Ex

- TrA
- Progress from Supine/Sitting/Standing/Fxn
- Progress to other abdominal ther ex

# Stabilization Continued



# Stabilization with Ultrasound

TrA with Real Time Ultrasound
with and without function

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# Examples of Stab Ther Ex

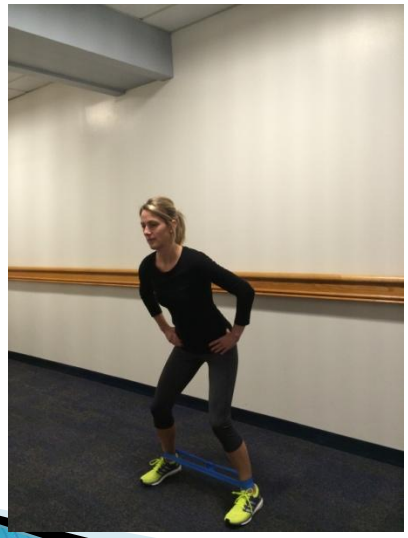
- Multifidus/Quadratus Lumborum

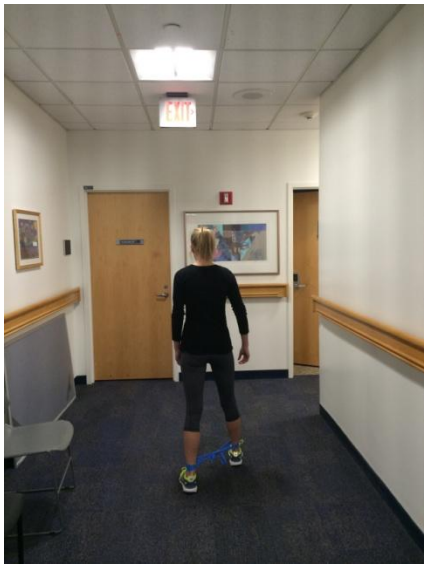
# Examples of Hip Ther Ex

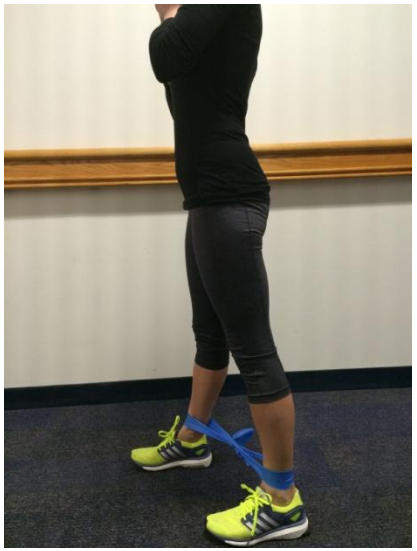
- Painfree
- Bridging Progression
- Sarhman Stab with LE

# Examples of Hip Ther Ex

- Glut Max quadriped/prone painfree
- Glut Med sidelying in neutral
  - Philippon MJ et al, AJSM, 2011
- Glut Med standing to sidelying to resisted
  - Boren, JOSPT 2011, Glut Max & Med

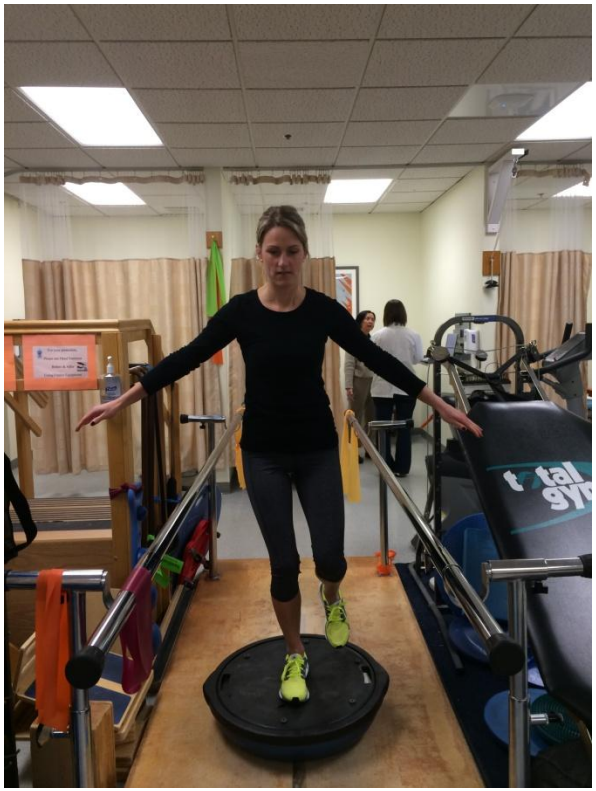






# Examples of Closed Chain Ther Ex

- Bosu
- Theraband
- Weight Training



# Examples of Aerobic Conditioning

- **Painfree**
- Treadmill
  - start backwards
  - balance backward/forward
  - Add incline, add sideways
- Elliptical
  - start backwards
  - balance backward/forward

# Examples of Return to Sport/Fxn

- Skiing
- Soccer
- Walking/Running
- Jumping, Cutting

# Physical Therapy

- Protocols are similar in each arm
- Patients enrolled in PT treatment both arms
- Monthly PT Re-Assessments
  - Baseline Eval-impairments, Fxn, LEFS
  - Monthly Re-Eval w above
  - Dischargere-Eval w above

# PT Post-Operative Protocol

- Phase I
  - Acute
- Phase II
  - Subacute
    - Phase IIa,2-6 weeks
    - Phase IIb, 6-12 weeks
- Phase III
  - Advanced
    - Phase IIIa, 12-16 weeks
    - Phase IIIb, 16-24 weeks

# PT Considerations for Post-op Surgical Approach

- Bilateral **Hip Joint Distraction**,
  - surgical side slightly more than non-surgical side

# PT Considerations for Post-op Surgical Approach (cont)

- Mostly an anterior approach
- Mostly **anterior anchors** with repair
- Need to protect bony anchors per surgeon

# PT Considerations for Post-op Surgical Approach (cont)

- Most surgery preserves the joint capsule

# PT Considerations for Post-op Surgical Approach (cont)

- **Gluteus medius** is punctured with scope but not peeled nor cut nor re-attached

# Post-op PT Protocol Phase I-Acute

- 0-2 weeks
- We chose **no formal PT**
- **WBAT** w **crutches**
- **Functional ROM**, self limiting w pain
- No extreme combined ROM
  - eg (flex/IR, flex/ER)
- Limit beyond 90 degrees of flexion
- Pain management
- Activity modification

# Post-op PT Protocol
# Phase IIa-Subacute

- 2-6 weeks
- **Goals of Phase**
  - Minimize pain, protect sutures
  - Begin to Restore **ROM**
  - Restore **pelvic symmetry**
  - Begin to Restore **gait**
    - Step to gait pattern
    - WBAT with crutches
    - No trendelenburg
    - No hip extension
  - Begin **Core Stabilization**
  - Begin to restore **ms strength**
  - **All painfree**

# Post-op PT Protocol
# Phase IIb-Subacute

- 6-12 weeks
- **Goals of Phase**
  - Normal Joint Play
  - Normal ROM
  - Normal Pelvic Alignment
  - Normal Tissue Resting Length and Palpation
  - Restore Muscle Length

# Post-op PT Protocol
# Phase IIb-Subacute (cont)

- Restore Muscle Strength,
  4/5 MMT LE

  Restore Core Strength,
  3-4/5 MMT Abdominals

  Restore Painfree ADL/Function

  Begin Backward Closed Chain Training Painfree

  Begin Light Resistance Training Painfree

# Post-op PT Protocol
# Phase IIIa-Advanced

- 12-16 weeks
- **Goals of Phase**
  - Strengthening and Return to Pre-Sport Function/Activities
  - Forward and Backward Training
  - 5/5 LE ms strength
  - 4/5 core ms strength
  - Closed chain and open chain strengthening
  - Balance, Single Leg Activities
  - Basic Plyometrics

# Post-op PT Protocol
# Phase IIIb-Advanced

- 16-24 weeks
- **Goals of Phase**
  - Advanced Activities/Return to Sport
  - I/safe HEP at home and at gym
  - Plyometrics as indicated
  - Closed and Open Chain Resistance Ther ex
  - Continue with Backward and Forward Training
  - Sport Specificity of Training

# Questions and Answers

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# Thank you!

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References


Cheatham, S. W., & Kolber, M. J. (2012). Rehabilitation after hip arthroscopy and labral repair in a high school football athlete. *International journal of sports physical therapy*, *7*(2), 173.

Cibulka, M. T., Sinacore, D. R., Cromer, G. S., & Delitto, A. (1998). Unilateral hip rotation range of motion asymmetry in patients with sacroiliac joint regional pain. *Spine*, *23*(9), 1009-1015.

Cibulka, M. T., & Koldehoff, R. (1999). Clinical usefulness of a cluster of sacroiliac joint tests in patients with and without low back pain. *Journal of Orthopaedic & Sports Physical Therapy*, *29*(2), 83-92.

Orthopedic Physical Examination Tests: An Evidence-Based Approach, Chad E. Cook, Eric J. Hegedus Pearson Education, Limited, 2011

Emara, K., Samir, W., Motasem, E. H., & Ghafar, K. A. (2011). Conservative treatment for mild femoroacetabular impingement. *J Orthop Surg (Hong Kong)*, *19*(1), 41-45.

Enseki, K. R., Martin, R. L., Draovitch, P., Kelly, B. T., Philippon, M. J., & Schenker, M. L. (2006). The hip joint: arthroscopic procedures and postoperative rehabilitation. *Journal of Orthopaedic & Sports Physical Therapy*, *36*(7), 516-525.

Hunt, D., Prather, H., Harris Hayes, M., & Clohisy, J. C. (2012). Clinical outcomes analysis of conservative and surgical treatment of patients with clinical indications of prearthritic, intra-articular hip disorders. *PM&R*, *4*(7), 479-487.

Kaya, M., Kano, M., Sugi, A., Sakakibara, Y., & Yamashita, T. (2013). Factors contributing to the failure of conservative treatment for acetabular labrum tears. *European Orthopaedics and Traumatology*, 1-5.

Neumann G, Mendicuti AD, Zou KH, et al.
Prevalence of labral tears and cartilage loss in patients with mechanical symptoms of the hip:
Evaluation using MR arthrography. Osteoarthritis Cartilage. 2007;15:909-917

Orbell, S., & Smith, T. O. (2011). The physiotherapeutic treatment of acetabular labral tears. A systematic review. *Advances in Physiotherapy*, *13*(4), 153-161.

Register, B., Pennock, A. T., Ho, C. P., Strickland, C. D., Lawand, A., & Philippon, M. J. (2012). Prevalence of Abnormal Hip Findings in Asymptomatic Participants A Prospective, Blinded Study. *The American journal of sports medicine*, *40*(12), 2720-2724.

Retchford, T. H., Crossley, K. M., Grimaldi, A., Kemp, J. L., & Cowan, S. M. (2013). Can local muscles augment stability in the hip? A narrative literature review. *J Musculoskelet Neuronal Interact*, *13*(1), 1-1

Sizer, Philip et al. The Hip: Current Concepts in Orthopedic Physical Therapy. 3rd Edition. APTA Independent Study Course. 2013.

Wilkin, G., March, G., & Beaulé, P. E. (2014). Arthroscopic Acetabular Labral Debridement in Patients Forty-five Years of Age or Older Has Minimal Benefit for Pain and Function. *The Journal of Bone & Joint Surgery*, *96*(2), 113-118.

Yazbek, P. M., Ovanessian, V., Martin, R. L., & Fukuda, T. Y. (2011). Nonsurgical treatment of acetabular labrum tears: a case series. *journal of orthopaedic & sports physical therapy*, *41*(5), 346-353.