Manual Therapy
and
Exercise Progression
s/p Hip Arthroscopy

Anne Marie Bierman, PT, DPT, SCS
Objectives

1. Understand the occurrence of hip injuries and the importance of prevention, progression, and performance within a comprehensive hip program
2. Execute a proficient injury screen and make appropriate recommendations for orthopedic consult, imaging, and physical therapy services
3. Discuss appropriate exercise progression for patients after hip arthroscopy
4. Demonstrate proper manual therapy skills
5. Perform a proficient RTP exam

Material presented at IPTA 2017 REVITALIZE Conference
FAI and Labral Tears

- Anatomy/Pathology
- Special Tests
- Case Studies
- Manual Therapy
- Exercise Progression
- Return to Play
CAM Impingement

- Occurs when femoral head has an abnormally large radius
- “Cam” refers to the cam effect caused by a nonspherical femoral head rotating inside the acetabulum
- May occur as a sequel of childhood disorders such as SCFE
- This will lead to abnormal contact between femoral head and acetabulum, especially with combined flx, add, IR
- Recognized to be a cause of anterosuperior labral tears and chondral lesions
- 3:1 predilection for males; problems often appear in young adulthood
X-ray of CAM Impingement
Pincer Impingement

- Refers to an abnormal acetabulum with increased over coverage that can be general (coxa profunda) or local (acetabular retroversion)
- Will cause persistent abutment of femoral head into acetabulum and could be a cause of posterior-inferior chondral lesions
- With hip flexion, the prominent rim of the acetabulum impinges the labrum against the femoral neck
- This repetitive microtrauma leads to breakdown and failure of the acetabular labrum
- Occurs just about equally in males and females
- More commonly starts to cause symptoms in middle age
X-ray of Pincer Impingement
Labral Tears

- The labrum, because of its function in distributing weight-bearing forces, is susceptible to traumatic injury from shearing forces that occur with twisting, pivoting, and falling.
- Due to its nerve innervation, an isolated labral tear can result in pain production.
- Majority of tears are located anterosuperiorly.
- Labral tears can lead to increased joint instability, leading to increased stresses between the femur and acetabulum.
- Instability can also lead to chondral lesions and degeneration.
MRA of Labral Tear
Subjective

• Age
• Sport, position, intensity
• Pain
  ▪ Onset gradual or traumatic
  ▪ Location, intensity, duration after athletic activity?
  ▪ What improves/worsens symptoms?
• Clicking? Locking? Instability?
• Other pain (thoracolumbar, opposite hip, knee/ankle)?
• Women’s Health Screen
• Other medical history
• Any imaging done yet?
Objective Examination

- A/PROM in various positions
- Strength
  - Hip x6
  - Transverse abdominis
  - Multifidus
- Flexibility
- Special Tests
  - FADIR
  - Posterior impingement sign
- Palpation and Joint Mobility
Special Tests

- Impingement tests
Discussion

• For a patient with hip pain referred for conservative treatment, WHEN WOULD YOU REFER OUT FOR IMAGING/ORTHOPEDIC CONSULT???

• Does every patient with labral tear on imaging need surgery?

• Who are good surgical candidates?
Differential Diagnosis

• Gastrointestinal
• Genitourinary
• Urologic
• Gynecologic
• Neurological
• Psychological
• Abdominal

• Musculoskeletal
  ▪ Anterior
  ▪ Lateral
  ▪ Posterior
SUBJECTIVE

- 16-year-old female soccer player
- History of “hip flexor strain” last year that resolved with conservative PT (+) FAI at that time
- Presents back to PT with insidious recurrence and worsening of (R) > (L) anterior hip pain with playing soccer that lingers x1-2 days after playing
- (+) hip clicking, LBP
- (-) women’s health screen

OBJECTIVE

- Significant limitation and pain with end-range hip flexion, IR
- Weak and painful hip flexion, weak hip abductors and rotators
- (+) FADIR’s
- (+) SIJ dysfunction and femeroacetabular hypomobility
• Initiated conservative PT treatment (script from chiro and general orthopedic)
• Referred to hip arthroscopy specialist
  ▪ X-rays showed coxa profunda (B)
  ▪ MRI showed (B) labral tears (R) > (L)
• Pain with ADLs responded to conservative treatment but trial of jogging and light sport-specific activity at 6 week mark caused flare-up
• (B) hip arthroscopy 6 weeks apart
• Iliopsoas release
• TFL release
• Adductor release
• Piriformis release
• ITB
• Joint Mobilizations (post op vs OA)
Iliopsoas Release
Adductor Release

**GOLDEN TO IMPROVE HIP EXTENSION IN GAIT**
Glut Release
Proximal Quad Release
ITB-Vastus Lateralis Interface
Mobilizations

• Grades
  • Grade 1 – small amplitude movement at the beginning of available ROM
  • Grade II – large amplitude movement within available ROM
  • Grade III – large amplitude movement that reaches end-ROM
  • Grade IV – small amplitude movement at very end-ROM
  • Grade V – high-velocity thrust of small amplitude at end of available ROM and within its anatomical range (manipulation)

• Rules
  • Appropriate patient position (relaxation)
  • Good body mechanics by PT
  • Avoid guarding
  • Mobilize below pain threshold
  • Re-evaluate immediately following mobs

• Contraindications
  • Absolute
  • Relative
Inferior Mobilization (manual vs belt)
Prone PA Mobilization
Lateral MWM with Belt
Other Mobilizations

- Anterior to Posterior Femoral Glide
- Lateral to Medial/Inferior Femoral Glide
- Medial to Lateral Femoral Glide
- Sidelying PA
INDIVIDUAL PHYSICIAN PROTOCOL DIFFERENCES TO BE ASSESSED LATER

Phase 1: Protection Phase
- 20# FFWBing with brace
- Limited ROM to protect capsular repair
- Avoid irritation/tendinitis
- Prevent/minimize LBP/SIJ pain by correcting compensations

Phase 2: Non-compensatory Gait / Exercise Progression

Phase 3: Functional Strengthening

Phase 4: Sport-Specific
May vary by MD

General Protocol

- Limited to 90 degrees flexion x2-3 weeks (may go higher in CPM and in quadruped rocking)
- Limited to 0 degrees extension x3 weeks
- Limited to 30 degrees ER in supine at 90 degrees flexion x3 weeks; limited to 20 degrees ER in prone x3 weeks
- Limited to 20 degrees IR in supine at 90 degrees flexion x3 weeks; unlimited in prone
- Limited to 25 degrees abduction x2 weeks
WBing Precautions

• 20# FFWBing x3 weeks (non-microfracture)
• 20# FFWBing x6-8 weeks (microfracture or glut med repair)
• WEAN off bilateral crutches until painfree non-compensatory gait pattern
• Recommend avoiding single-crutch gait
Lab Breakout

- Exercise Progressions (see handout)
Return to Play and FMS/Y Balance

THE STEADMAN CLINIC
STEADMAN PHILIPPON
RESEARCH INSTITUTE

FMS
Functional Movement Systems

Y BALANCE TEST

IPTA
ILLINOIS PHYSICAL THERAPY ASSOCIATION
RTP s/p Hip Arthroscopy

  - Criteria for RTP
  - Categorized Sports
Criteria for RTP

- Able to reproduce all motions involved in the sport without pain (85%)
- Able to perform lateral agility drills without pain (70%)
- Able to run without pain (70%)
- Able to jump without pain (59%)
- Able to perform single leg squat without pain (56%)
Categories of Sports

- High Risk: Martial arts, football, basketball, wrestling
- Medium Risk: Volleyball, distance running, baseball, tennis, sprinting
- Low Risk: golf
Current perceptions and practices of 44 premier league soccer teams from around world regarding non-contact injuries:

- 3 most important perceived risk factors were previous injury, fatigue, and muscle imbalance.
- 3 most utilized screening tests to detect injury were FMS, questionnaires, and isokinetic muscle testing.
- Preventative exercises deemed most important to prevent non-contact injuries were eccentric exercises (particularly hamstring) and balance/proprioception.

Aim of article to systematically review the literature for aforementioned “Top 3” risk factors, screening tests, and preventative exercises and provide graded recommendation for their use and consideration in practice.
Systematic Review

• Searches Pubmed [MEDLINE], SportDiscus, PEDRO, and Cochrane databases

• Level of Evidence Assigned
  ▪ Level 1++ - highest level of evidence
  ▪ Level 4 – lowest level of evidence

• Graded Recommendation for use in practical setting
  ▪ A: strong
  ▪ B: moderate
  ▪ C: weak
  ▪ D: insufficient evidence to assign specific recommendation
PRISMA flow chart

792 records identified through database → 13 additional citations retrieved through other sources

511 records after duplicates removed → 446 records excluded

65 full articles screened for inclusion (51 excluded) → 14 total articles included for methodological quality scoring
# Summary

## Risk Factor

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Level of Evidence</th>
<th>Graded Recommendation</th>
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<tbody>
<tr>
<td>Previous Injury</td>
<td>2++</td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td>4</td>
<td></td>
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<tr>
<td>Muscle Imbalance</td>
<td>Inconclusive</td>
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## Screening Test

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<th>Screening Test</th>
<th>Level of Evidence</th>
<th>Graded Recommendation</th>
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<tbody>
<tr>
<td>FMS</td>
<td></td>
<td>D</td>
</tr>
<tr>
<td>Questionnaire (psych eval)</td>
<td></td>
<td>D</td>
</tr>
<tr>
<td>Isokinetic muscle testing</td>
<td>2++</td>
<td>D</td>
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## Preventative Exercise

<table>
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<th>Preventative Exercise</th>
<th>Level of Evidence</th>
<th>Graded Recommendation</th>
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<tbody>
<tr>
<td>Hamstring Eccentric</td>
<td>1+ to 2+</td>
<td>C</td>
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<tr>
<td>Other Eccentric</td>
<td>1++</td>
<td>D</td>
</tr>
<tr>
<td>Balance/Proprioception</td>
<td>1+</td>
<td>D</td>
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Conclusion

• Huge gap between perceptions/practices and actual evidence
• Most of perceptions and practices are NOT supported by scientifically validated recommendations from research
• Further investigation required to validate or refute
RTP s/p hip arthroscopy

• MINIMAL EVIDENCE YET s/p arthroscopy BUT emphasis on importance of sport-specific phase

• Vail Hip Sports Test Requirements
  ▪ Single Knee Bends x3 minutes
    • 1 pt for each 30s performed correctly
  ▪ Lateral Agility: 100s
    • 1 pt for each 20s performed correctly
  ▪ Diagonal Agility: 100s
    • 1 pt for each 20s performed correctly
  ▪ Forward Lunges: 2 min
    • 1 pt for each 30s performed without provocation of symptoms
  ▪ SCORE 17/20 Passing
References

THANK YOU!