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Hip Arthroscopy - FAI/Labral Repair Protocol

The hip is a ball and socket joint comprised of the femur and the acetabulum. The hip allows for multiple motions including flexion/extension, abduction/adduction and internal/external rotation but because it is surrounded by an extensive ligamentous and muscular complex, it is a very stable joint. The hip must endure significant forces with weight bearing: 2-6 times body weight with walking and 6-8 times body weight with running and jumping.

The acetabulum is encircled by a rim of cartilage called the labrum. The labrum is extremely important and it functions to:

- Improve the stability of the joint by acting as a suction seal to keep the ball in the socket
- Enhance lubrication of the joint
- Provide sensory feedback regarding position and movement of the joint
- Maintain hydrostatic pressure within the joint to protect the articular cartilage

Damage to the labrum, therefore, can cause significant damage and disruption of the joint. The labrum is most commonly damaged due to degeneration and/or repetitive trauma. Planting and kicking a soccer ball is an example of a twisting movement that loads the hip repetitively and can lead to labral degeneration/injury over time. Degeneration can lead to either a pinching or impingement injury of the labrum or an actual tear in the labrum. A pinching injury is referred to as femoroacetabular impingement (FAI) and can occur if there is a defect in the femoral head in which there is a lack of roundness – this is referred to as CAM impingement. FAI can also be the result of over-coverage of the acetabulum; this is referred to as a pincer impingement. In both cases, impingement occurs as the hip is moved into the motions of flexion, internal rotation and adduction. A labral tear can occur with repetitive impingement as well as damage to the articular cartilage.

Symptoms of a labral tear and/or FAI include groin or anterior hip pain, pain with prolonged sitting, rising from a sitting position, stairs and activities that require twisting or turning. Complaints of clicking, catching, or popping are indicative of a labral tear as well as sharp stabbing pain.

X-ray and Magnetic Resonance Arthrogram (MRA) as well as subjective complaints and clinical exam are all useful to determine if a labral tear is present. Specific clinical tests consist of moving the hip joint into a position of impingement and assessing the presence of pain. These tests can be

performed by your physician and/or physical therapist. If injury is suspected, X-ray is useful to view bone abnormalities such as CAM or pincer impingement. Because X-ray cannot identify soft tissue, MRA is used if a tear/FAI is suspected to assess soft tissue structures of the hip joint such as the articular cartilage, ligaments, muscle, and labrum.

Once a labral tear has been identified on MRA, arthroscopy to repair the tear is in order. During surgery, the leg will first be placed in traction where your hip is pulled away from the socket so that Dr Crook can access the joint and insert instruments as necessary to address the injury. Portal holes approximately the size of a buttonhole are made to allow the arthroscope (camera) to be inserted as well as any instruments needed. Dr Crook will then address the injury as needed including smoothing or repairing torn cartilage, removing bone spurs caused by FAI, and/or removing any inflamed synovial tissue.

Following surgery, you will be instructed on precautions as well as when to begin physical therapy. Therapy is usually initiated within the first 3 weeks of surgery. It is important to adhere to the following guidelines during rehabilitation:

- AROM and PROM should be pain free
- Weight bearing is as tolerated but should be PAIN-FREE; use assistive device for as long as patient needs until can ambulate with a N gait I
- Hip hinge brace allowing 0-90° hip flexion will be worn for 4 weeks
- Boot strap is to be worn at night for 10 days
- NO active hip flexion for 1st 6 weeks post-op (except what is needed to perform ADLs)
- ROM restrictions are expected especially of internal/external hip rotation and hip extension – do not push through pain to regain ROM, allow range to come through functional activity
- If microfracture was performed, patient will be foot flat WB x 8 weeks then begin with gait training and progress to weight bearing activities

PHASE I: PROTECTION/MUSCLE ACTIVATION
Post-op Day 1-4 WEEKS

PATIENT INSTRUCTIONS/RESTRICTIONS

- Postoperative hip-hinge brace allowing 0-90° hip flexion worn for 4 weeks (can be removed to perform exercises)
- Boot strap to be used at night for first 10 days
- Do not sit >2 hours
- Do not extend hip beyond what you would when walking
- Do not twist or pivot on involved LE
- Do not perform crunches, sit-ups or straight leg raises
- Do not walk on a treadmill
- Do not lift or carry more than 10 lbs
- Do not use a recumbent bike or allow your knee to flex past 90°

ROM PRECAUTIONS

- Passive hip flexion only 0-90° 4 weeks
- Limit Hip abduction to 45° for 2 weeks
- Limit Hip ER to neutral for 3 weeks
- Limit Hip Extension to neutral for 3 weeks
- WBAT pain-free; patient usually uses axillary crutches for a few weeks until can ambulate with a pain free normal gait I
- Hip IR and adduction: pain free motion only

ROM/FLEXIBILITY

- Prone lying 10-30 minutes to avoid hip flexion contracture
- Opposite knee to chest to stretch involved hip flexor
- Upright bike – no foot strap and no resistance. Up to 20minutes pain free
- Passive range of motion performed by PT or family member
    - Hip circumduction at 45° hip flexion in supine 5 minutes
    - IR log rolls to/from neutral (no ER) 3 min
- Cat/camel quadruped

GAIT

- WBAT – patient usually is not able to tolerate much weight immediately post-operatively due to pain
- Patient is to use assistive device until N gait is achieved

STRENGTH

- 1-2 weeks
    - Quad, hamstring, gluteal, and TA isometrics
    - Prone terminal knee extension with half foam roller under distal tibia
    - SL hip abduction hold in neutral
    - Isometric glut contraction in SL with hip in neutral and knee flexed 90° (push foot into therapist and hold)

    - Isometric hip IR/ER prone in neutral
    - Hip abd/add in supine with knee extended; toes toward ceiling to maintain neutral
- Week 3
    - Standing hip abduction with IR (do not perform standing on involved LE)
    - Prone hip extension – hips over edge of table with feet on ground, extend hip to neutral with 90° knee flexion; progress to knee extension
    - Bridges (only B not SL)
    - FABRE heel slides limited range – slide heel of involved LE up shin of uninvolved allowing hip to external rotate. Do not allow knee to flex past 90°
    - Standing weight shifts
    - SL abduction

MODALITIES
- Biofeedback/NMES as needed to stimulate quad/HS/glut
- Ice post exercise/activity 10-15 min

GOALS PHASE I
- Protect healing tissue
- Decrease pain and inflammation
- Improve pain-free ROM maintaining precautions
- Activate stabilizing musculature
- VAS < 3
- Ability to stand comfortably with equal weight distribution on Les
- Ability to perform 10 abduction leg raises

PHASE II: NORMALIZE GAIT/ADLs
4-10 WEEKS

PATIENT INSTRUCTIONS/RESTRICTIONS
- Active/passive ROM should be pain-free
- No walking on Treadmill
- No quick movements
- No cutting/jumping

ROM
- Continue exercises in phase 1 as needed
- Progress upright bike to add resistance
- Quadruped rock toward heels
- Standing ITB stretch

GAIT
- Progress to FWB as pain allows
- Patient is to use assistive device until N gait is achieved

- Cone walk forward progress to lateral

STRENGTH
- Clams: active progress to theraband around distal thigh
- SL hip abduction against wall to maintain neutral
- Side plank holds (start with knees flexed progress to knee extension)
- Bridges B progress to single limb
- Total gym/shuttle
- Bridges on swiss ball
- Mini squats – standing or at wall – progress to 90°
- Calf raises
- Step ups
- Step downs
- RDL (dead lifts)

BALANCE/PROPRIOCEPTION
- Single leg balance: stable progress to unstable surface
- Wobble board
- Plyotoss

MANUAL
- Long axis distraction, gentle
- A/P mobilization to hip
- STM piriformis
- Scar mobilization
- Passive IR/ER in prone

MODALITIES
- Ice 10-15 min following treatment and at end of day
- Biofeedback /NMES to VMO
- Ultrasound to portals if needed

GOALS PHASE II
- Hip Outcome ADL score > 60
- VAS < 3
- Reciprocal pattern with stairs
- Squat to chair with equal weight distribution

PHASE III: BUILD STRENGTH
10-16 WEEKS

AEROBIC
- Cycle
- Elliptical

- AlterG (max of 75% BW)
    - Alternate walk/jog at 3:1 ratio up to 20 minutes

STRENGTH
- Continue above exercises – increase intensity and decrease reps to improve strength
- Leg press: B progress to SL
- Side step with TB
- Monster walk with TB
- Sports cord
- SL RDL
- Lunges
- Reverse lunges
- Smith press squats
- Squats with dumbbells
- Kettle bell stability ex
- TRX core and LE strengthening

BALANCE/PROPRIOCEPTION
- Progress previous exercises
- BOSU SL squats
- Y balance
- Biodex balance SD

DYNAMIC WARMUP: prior to jogging, 10-20 yards of each of following:
- Walking straight leg kicks
- Walking arabesque
- Walking quad stretch
- Walking butt kicks
- Hip opening
- Hip closing
- Walking lunge with twist
- Side to side lunge
- Shuffles
- Light jog/backpedal

GOALS PHASE III
- Hold side plank 60 sec
- ≤6 cm difference in anterior reach on Y balance test
- Ability to perform 10 Single leg squats with good stability and mechanics

PHASE IV: FUNCTIONAL ACTIVITIES
16-20 WEEKS

AEROBIC

- Initiate jogging progression on TM or soft surface such as track; no running on asphalt
    - Week 1: 4 min walk, 1 min jog up to 20 minutes 3x/week
    - Week 2: 3 min walk, 2 min jog up to 20 minutes 3x/week
    - Week 3: 2 min walk, 3 min jog up to 20 minutes 3x/week
    - Week 4: 1 min walk, 4 min jog up to 20 minutes 3x/week
- Continue bike – single and double limb
- Swimming
- Golf (if released by MD)

STRENGTH

- Continue previous increasing intensity as able to build strength
- Progress sled push/pull speed/intensity

BALANCE/PROPRIOCEPTION

- Continue previous adding perturbation or removing vision to increase difficulty level
- Y balance: goal is <4cm difference involved vs uninvolved in anterior direction

FUNCTIONAL TRAINING

- Slide board
- Ladder drills
- Initiate sub-max agility drills: side shuffles, jog forward/backward in W/Z/Fig 8, cariocas
- Initiate Part 1 of FIFA11+ http://www.f-marc.com/downloads/posters_generic/english.pdf

GOALS PHASE IV

- Jog/walk for 20 minutes pain free
- <4cm difference on anterior reach in Y balance test
- 80% on single leg squat test side to side with proper mechanics and good stability
- Confidence with agility drills and no compensations

PHASE V: RETURN TO SPORT
20+ WEEKS

- Advance speed of agility drills until max speed is obtained
- Initiate Sportsmetrics jump program
- Initiate sport specific drills
- Complete FIFA 11+ Part 2 and 3
- Initiate unpredictable movement patterns with athlete (moving to voice commands, sudden barriers, etc)

- Communicate with MD/coach/athletic trainer to facilitate return to sport