

Non-Operative Femoral Acetabular Impingement and/or Labral Tear Protocol

Please refer to written prescription for any special instructions for each case

The following protocol utilizes a criterion-based approach to determine readiness to advance physical activity. It is important for gradual advancement of physical activities to adequately prepare the body for sport demands and decrease risk for further injury. This protocol helps safely guide the individual back to his or her desired activity level.

If the patient is unable to make progress for any 4-week period during rehab, due to pain as the limiting factor, then contact the referring physician for guidance. The next step may include an intra-articular injection.

Initial Phase:

Goals:

- Minimize pain with the following:
 - Repetitive transitions from supine-to-sit and sit-to-stand for at least 10 minutes
 - Ambulate on variable terrain (flat, uneven, and incline) for ≥ 20 minutes
 - Sit for ≥ 60 minutes
- Achieve neutral lumbopelvic alignment and improve postural awareness
- Improve hip range of motion/lower extremity flexibility
 - Normal hamstring length: Popliteal angle ≤ 20 degrees
 - Normal rectus femoris and iliopsoas length: Negative Thomas Test (hip extended to neutral and knee flexed to 90 degrees)
 - Normal iliotibial band length: Negative Ober's test
 - Normal Piriformis length: Hip passively flexed to 90 degrees and externally rotated to ≥ 50 degrees
- Increase hip strength
- Improve core stability
 - Minimally patient should achieve level 3 of Sahrman Core Stability Test
 - In supine with bilateral hips flexed to 90 degree position, slowly lower 1 leg until heel is 12 cm above the ground. Extend leg until knee is fully extended. Return to starting position. Repeat with opposite leg. Patient must maintain neutral spine position throughout the entire test to pass.

Interventions:

- Stretching/Mobility exercises
 - Include joint and soft tissue mobilization as needed
 - Avoid painful deep hip flexion and internal rotation
- Posture re-training
 - Neutral lumbopelvic alignment re-training, avoiding anterior pelvic tilt
 - Maintain proper postural alignment during functional exercises
- Core stabilization exercises
 - Avoid excessive hip flexor activation during core exercises
- Strengthening
 - **Minimize excessive load on hip flexors to avoid anterior hip irritation**
 - Hip abductors, adductors, extensors and rotators
 - Functional strengthening
 - Focus on decreasing knee valgus and pelvic drop
 - Transition to single leg closed chain strengthening as tolerated

- Avoid deep squats > 90 degrees of hip flexion
 - Add weight/resistance as tolerated
- Weight Machines (e.g. leg press, hip abductor/adductor machines, knee extension, hamstring curls)
- Non-impact aerobic conditioning (stationary bike with seat elevated, swimming, elliptical, stair master, etc.)
- Balance/Proprioception exercises (stable/unstable surfaces, static/dynamic, dual task, etc.)

CRITERIA TO INITIATE IMPACT LOADING (Running/Jumping):

- Minimal to no pain in the involved hip
- Quadriceps and hamstring strength $\geq 70\%$ limb symmetry compared to uninvolved side
 - Avoid manual muscle testing to test hamstrings and quadriceps strength
 - Isokinetic testing if available
 - Other acceptable options:
 - Isometric testing using handheld dynamometer
 - Isotonic strength testing: using single leg press, knee extension machine or hamstring curl machine to determine number of reps for a given weight on each side, then divide involved side by uninvolved side to determine estimated strength deficit
- Bilateral hip strength $\geq 75\%$ limb symmetry using handheld dynamometry for isometric strength or MMT of 5/5 (if more objective testing is unavailable)
- Single leg squat or lateral step-down without evidence of Trendelenburg, dynamic knee valgus or lateral trunk lean
- Y balance test (**anterior reach only**): ≤ 4 cm difference as compared to uninvolved

Intermediate Phase:

Goals:

- Regain/Improve lower extremity and core strength
- Initiate impact activities gradually if above criteria are met
 - Double leg \rightarrow single leg plyometrics
 - Straight ahead running on level surface first (e.g. track, treadmill, artificial turf), before advancing to uneven terrain (e.g. trail, pavement or grass field)
 - Goal is to be able to run for 1 mile without exacerbation of symptoms

Interventions:

- Continue to progress strength, endurance, and balance/proprioception exercises
 - Increase weight/resistance, adjust sets and reps, advance to functional exercises based on sport demands of the patient
- Continue to progress core stability (static/dynamic)
 - Ensure neutral lumbopelvic alignment during functional exercises (e.g. single leg squats, lunges, single leg RDLs, resisted cable chops, etc.)
- Return to running progression
- Bilateral \rightarrow Unilateral plyometrics with proper form and neuromuscular control (progress from unidirectional to multidirectional)

CRITERIA TO INITIATE SPORT SPECIFIC TRAINING:

- Minimal to no pain in the involved hip
- Quadriceps and hamstring strength $\geq 90\%$ limb symmetry compared to uninvolved side (using same strength assessments as above)
- Bilateral hip strength $\geq 90\%$ limb symmetry using handheld dynamometer for isometric strength or MMT of 5/5 (if more objective testing is unavailable)
- Symmetric Y-balance Test
 - ≤ 4 cm difference in anterior direction and ≤ 6 cm difference in posteromedial/posterolateral directions
 - $\geq 90\%$ on composite score
- Functional Hop Test battery: $\geq 90\%$ limb symmetry, pain free and good neuromuscular control
 - Single hop for distance
 - Triple hop for distance
 - Crossover triple hop for distance
 - Timed 6-meter hop
 - Unilateral vertical jump for height (if equipment is available)
- Drop vertical jump using Landing Error Scoring System (LESS): < 2 errors

Advanced Phase:

Goals:

- Initiate sport specific agility training
 - Goal is to be able to tolerate sport specific activities (run, cut, pivot and jump) ≥ 30 minutes
- Achieve sport specific conditioning requirements
- Demonstrate sport specific movements with proper control and without pain
- Implement Lower Extremity Injury Prevention Program
- Gradual return to unrestricted sport/physical activity following a return to sport progression

Intervention Recommendations:

- Agility exercises (ladder drills, sprinting, cutting/pivoting, jumping, leaping, etc.)
- Advanced exercises that address specific muscle strength, power, and endurance demands of sport
- High intensity aerobic/anaerobic sport specific exercise

Sports Medicine and Performance Center at the Children's Hospital of Philadelphia

Specialty Care Center in King of Prussia
550 South Goddard Blvd
King of Prussia, PA 19046
215-590-6919

Specialty Care Center in Chalfont
500 W Butler Pike
Chalfont, PA 18914
215-590-6930

Buerger Center for Advance Pediatric Care
3500 Civic Center Boulevard
Philadelphia, PA 19104
215-590-5819

Specialty Care at Virtua
200 Bowman Dr. Suite D-260
Voorhees, NJ 08043
215-590-6919