



Strength and Conditioning Strategies for Athletes with Hip and/or Pelvic Pain

Background

Femoroacetabular Impingement (FAI) is an increasingly recognized condition in athletic individuals that can affect hip joint function, and result in pain and impaired athletic performance. FAI has been associated with labral and cartilage injuries in the hip, and has been linked to the premature development of osteoarthritis.[1] Innovative treatment strategies have been developed to address the pain and dysfunction of symptomatic FAI, and allow athletes to return to competition.

Prevalence of FAI in Athletes

The developmental structural abnormalities associated with FAI have been reported in up to 92%[2] of asymptomatic athletes. Similarly, labral and chondral injuries have been discovered as incidental findings in up to 69%[3] of asymptomatic athletes. Despite the high rate of anatomic abnormalities in athletic individuals, surgery is not always indicated. Conservative measures such as exercise and training modification are often successful at mitigating pain and improving exercise tolerance when implemented in a thoughtful fashion.

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| Hockey[4] | 70% of participants; >90% of goalies; 61% bilateral FAI |
| Soccer[5, 6] | 70% of participants <i>Positive correlation between the development of FAI and the number of training sessions per week</i> |
| Football[7, 8] | 90%-95% of participants; bilateral FAI > 48% of athletes |
| Martial Arts[2] | 92% of participants, at least one hip |

Relationship Between FAI and Hip/Pelvic Injuries

Due to structural incongruence between the proximal femur and acetabulum, certain activities or motions may cause anatomic conflict between these segments. The articular cartilage, labrum, synovium, and peri-articular soft tissue may be compressed and injured during dynamic activities in an athlete with FAI. Weakness of hip musculature is a common finding in the presence of FAI.[9] Deep hip muscles may become inhibited due to their proximity to the affected area, limiting the body's ability to provide dynamic stability during functional tasks. As the body develops compensatory strategies to overcome weakness, secondary muscles may become overused and excessive loading is placed on the anterior hip joint.

References

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Recommended Activity Modifications

Employing training modifications and a hip specific exercise program may reduce symptomatic complaints associated with FAI and intra-articular abnormalities such as labral or chondral injuries.

- Pain-free stretching of contracted and overworked muscles is important to address functional range of motion and prevent injury.
- Muscles that stabilize your pelvis help maintain stability during functional tasks. The focus of strengthening should be placed on muscles that will counteract the increased load placed on the anterior hip joint in the presence of FAI and avoid muscular fatigue overload.

The purpose of this handout is to provide an outline of general activities, strength/conditioning modifications, and stretching strategies that may lessen acute and/or chronic complaints associated with FAI and intra-articular irregularities, and prevent recurrent symptoms.

This program should not substitute for a properly supervised rehabilitation program.

Exercises to avoid:

Front Planks
Single Leg Exercises (weight bearing)
Straight Leg Raises
Jumping/Plyometrics
Resisted/Active Hip Flexor Strengthening

Olympic Power Lifting
Open Kinetic Chain Abs (Bicycles, Flutter kicks, etc)
“Deep Movement” (including Front Squats past 90°)
Hill/Incline of any sort (including treadmill, elliptical)
Abduction Overload (lateral band walks, clamshells)

Areas to focus on:

Core strengthening
Gluteal/Hamstring Strengthening
Quad/Hip Flexor/ IT Band stretching


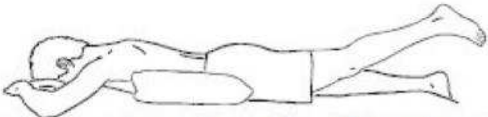

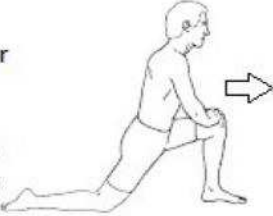

Piriformis stretching (pain free only)
Myofascial Techniques: ART, Foam rolling
Ice on a stretch when needed



Example initial exercise program

Exercises should be progressive, comfortable (*the movement should be **pain free** and work within your current physiology*), and controlled (*proper form and movement techniques are essential*). **You should discontinue the program and consult with your physician if symptomatic complaints worsen.**

- This program should be performed 4-5 days a week. Be sure to incorporate rest days each week.
- Wait 24-48 hours after performance of an exercise to increase repetitions or add further progression. (Do not progress an exercise unless you remain asymptomatic)

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| <p>Bridge</p>  <p>Start on your back with knees bent to 90 degrees, place arms at your side. Without squeezing your hamstrings try to elevate your hips off the ground by squeezing your gluteal muscles. Try to elevate your hips so they are in series with your knees and shoulders. Hold position for 5 seconds, then repeat.</p> | <p>Prone Hip Extension</p>  <p>Lay on your stomach on a firm flat surface. Lift your leg straight up, trying to keep your hips on the table. Slowly lower your leg down, and relax. Repeat, and then complete the exercise on the other side. This exercise can also be completed with your knee bent.</p> |
| <p>IT Band Stretch</p>  <p>Start in the standing position, cross left leg over right leg. Bending the left knee slightly lean to the left until a stretch is felt over the outside of the right hip. Hold for 30 seconds. Repeat, and then switch to the other side with the right leg over the left.</p> | <p>Hip Flexor Stretch</p>  <p>Kneel on the same side of your hip to be stretched, use a pillow under your knee for comfort. Keep your chest upright, lean forward so that your body is advancing forward over the planted knee until a stretch is felt in the front of hip/thigh. Hold that position for 30 seconds and then repeat. Then complete the exercise on the other side.</p> |
| <p>Side Plank</p>  <p>Start on your side, with your knees slightly bent and support your weight your knee and elbow. Push down through your shoulder, lift hips up. Brace your abdomen by tightening your stomach muscles without sucking in and tightening your buttocks while maintaining a spine in neutral position. Hold this position for 30 seconds and then repeat. Then complete the exercise on the other side.</p> | |