Evaluation and Management of Hip and Pelvis Injuries

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KEYWORDS

• Hamstring tendinopathy • Chronic groin pain • Greater trochanteric pain syndrome
• Piriformis syndrome • Iliopsoas tendinopathy • Femoroacetabular impingement
• Hip labral tear • Hip osteoarthritis

KEY POINTS

- Running-related injuries of the hip and pelvis can be particularly challenging to treat, often involving a prolonged period of recovery.
- Treatment decision-making is enhanced by corroboration of the history, symptoms, physical examination, and diagnostic imaging (when warranted), and decisions based on isolated tests or imaging are not recommended.
- Painful or aggravating activities such as running should be temporarily avoided or modified to reduce the mechanical load to the injured tissues.
- Treatment for hip-related tendinopathies should include an initial period to reduce tendon irritability, followed by a progressive loading program.
- Symptoms resulting from hip articular injuries, such as femoroacetabular impingement, labral tear, and osteoarthritis, can respond well to conservative management, including modification of running form to minimized loading to the hip joint.

INTRODUCTION

Injuries to the hip or pelvis comprise approximately 11% of running-related injuries[1,2] and can be among the most challenging to successfully treat, often involving a prolonged period of recovery. Unique risk factors that may predispose an individual to

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hip or pelvis injury during running have not been clearly identified, although some evidence suggests women are at a greater risk.[3,4] The biomechanics of the hip and pelvis during running,[5,6] including the muscular demands,[7,8] have been characterized and provide useful insights into appropriate rehabilitation strategies to maximize recovery and return to full running. The purpose of this article is to review the more common running-related injuries to the hip and pelvis, with consideration of the cause, clinical presentation, and management.

INJURIES

Despite each injury having unique presentation and examination characteristics, certain aspects of the management strategy are common to all. For example, it is imperative that the irritability of the condition be controlled during the initial treatment stages using a variety of options including ice, non-steroidal anti-inflammatory drugs (NSAIDs), and activity modification. Running may need to be stopped temporarily or modified to reduce mechanical load to the injured area, such as decreased volume or intensity, avoiding hills, or using a higher step rate.[8–10] Body weight–supported running or deep water running may also be substituted.[11] Once symptoms are controlled and injured tissues are able to tolerate the demands of running, a progressive return is required to reacclimate to the mechanical loads of running. Retraining of running gait may be warranted to correct any pathomechanics in addition to a progressive return-to-running program to reduce the risk of reinjury. Also common to the management of all running-related hip and pelvis injuries is consideration of lumbopelvic dysfunction that can refer symptoms to, and affect function of, the primary area of injury. Lumbopelvic dysfunction, including myofascial trigger points (**Fig. 1**), joint and neurodynamic dysfunction, often occurs concurrently with hip and pelvis conditions and can affect the patient's presentation and rehabilitation. Hip mobility deficits are commonly observed in running-related hip and pelvis injuries and are amenable to mobilization procedures (**Fig. 2**).

Proximal Hamstring Tendinopathy

Proximal hamstring tendinopathy is a challenging injury owing to the prolonged course of treatment typically required to successfully return to full level of performance. Distinct from a hamstring strain injury, this condition often involves a progressive onset of symptoms localized near the ischial tuberosity, possibly involving the ischial bursa. Histologic evaluation frequently indicates a chronic tendinopathy with fibrosis, and occasional hyaline degeneration at the insertion site. In severe cases, MRI examination will reveal an associated stress reaction with marrow edema in the ischial tuberosity.[12]

Presentation

- Deep buttock pain is present near the ischial tuberosity and is aggravated when accelerating or running uphill, or with direct pressure on the injured area, including prolonged sitting. Pain is provoked near end-range hip flexion and with resisted hip extension in a hip flexed position.
- Pain provocation tests include the bent-knee stretch test,[13] modified bent-knee stretch test,[14] and Puranen-Orava test (**Table 1**).[15] All have been found to be reliable and valid, with the modified bent-knee stretch test having the highest values.[16]
- For cases that fail conservative management or are slow to progress, MRI may reveal a partial tendon tear.