Estimates of the prevalence of running injuries range from 37% to 56%, with the majority of injuries affecting the lower extremity. The recurrence of running injuries has been reported to be as high as 70%, with about 20% to 70% of all running-related injuries leading to a medical consultation. Risk factors for running-related injuries have not been conclusively established, but recent research suggests that novice runners may possess elevated injury risk with a high body mass index (BMI), history of prior injury, lack of prior running experience, or lack of prior participation in a sport that involves axial loading of the spine and lower extremities.

The most common injuries associated with running include patellofemoral pain syndrome, iliotibial band friction syndrome, Achilles tendinosis, medial tibial stress syndrome, and plantar fasciitis. Such injuries tend to have clear clinical presentations, which support the accurate diagnosis of a given condition; however, accurate diagnosis of the cause of acute or chronic hip pain in runners can be challenging. Up to 60% of patients who ultimately undergo hip arthroscopy are initially misdiagnosed.

A search of the literature identified two case reports that described rehabilitation following arthroscopic hip surgery, one case report of nonoperative rehabilitation for hip arthrosis and one case series describing the nonoperative rehabilitation of patients with a hip labrum tears. No published reports were found pertaining to female recreational runners with acute or chronic hip pain.

The purpose of this case report is to describe the rehabilitation program for a 25-year-old female recreational runner who had a 4-year history of left hip pain using the principles of regional-interdependence (RI). The term RI refers to a broader examination approach that has the goal of identifying unrelated impairments in remote bodily regions that may contribute to the primary source of pain. This approach can be applied to both the examination and rehabilitation of patients.

Case Report

A 25-year-old female recreational runner (i.e., 10 to 20 miles per week) who had a combined endomorphic-mesomorphic body structure (Mass: 58.96 kg; Height: 165.1 cm; BMI: 21.6) presented with recurrent hip pain. She reported a history of ankle arthroscopic surgery for excision of a nonunion distal fibular fracture of the left fibula. Postsurgery physical therapy was deemed successful, which allowed return to pain-free physical

Key Points

Recent research suggests that novice runners have elevated risk for injury, particularly those who have previously been injured and who have a high BMI.

The regional interdependence approach may help the clinician identify impairments in remote body regions that contribute to the primary source of pain.
activity that included running and resistance exercises. Nine months later, the patient suffered a recurrence of left hip pain with no known precipitating event. She sought evaluation by an orthopedic surgeon for symptoms of anterior hip pain, occasional clicking and popping, and pain with internal rotation of the hip joint. Radiographs and an MR arthrogram were negative for any soft-tissue or bony abnormalities. The patient was diagnosed as having a hip flexor strain, and she continued her regular exercise program. For the next 3 years, the patient continued to have intermittent left hip pain, which was exacerbated by a fall from a mountain bike. The patient was evaluated by her primary care physician for complaints of anterior hip pain after the traumatic event. The physician diagnosed the patient as having sustained an acute aggravation of chronic left hip pain and referred her to physical therapy.

At the initial visit, the patient completed the Lower Extremity Functional Scale (LEFS) to document her functional abilities. The minimal detectable change and minimal clinically important difference for the LEFS is 9 points. The patient LEFS score was 76% (61/80 possible points). She reported the greatest difficulty with usual hobbies, recreational or sporting activities, squatting, and sitting greater than 1 hour. The patient reported a pain level of 3/10 during athletic activity (e.g., yoga), squatting, prolonged sitting (> 1 hour), and rotational hip motions. Her pain was decreased to 2/10 pain with medication. The patient reported the location of pain to be in the anterior hip area. She demonstrated the “C-sign” (Figure 1) by cupping her hands in a c-shape above the greater trochanter, which has been reported as a common pattern of hip pain.

A general postural screen in a standing position revealed an anteriorly tilted pelvis and a mild degree of right trunk shift. Observation of gait revealed decreased left hip motion (i.e., decreased step length) and a lateral weight shift during the stance phase on the left foot. The patient’s hip, knee, and ankle ROM were tested both actively and passively. Bilateral measurements were within normal limits and symmetrical, with the exception of the left hip. Passive ROM measurements of the left hip were 90° flexion, 25° internal rotation (painful), 30° external rotation, 25° abduction, 10° adduction, and 0° extension.

Manual muscle testing identified strength deficits in both the left hip and ankle compared to the right side (Table 1). Ober’s test (i.e., iliobibial band tightness), 90/90 hamstring test (i.e., hamstring tightness), Thomas test (i.e., hip flexor tightness), and Ely’s test (i.e., rectus femoris tightness) were all interpreted as positive for the left extremity. The Ober’s test and 90/90 hamstring test were interpreted as positive for the right extremity.

Tenderness elicited by palpation of the left hip musculature was assessed on a 0-4 scale (Table 2).