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Trochanteric Pain Syndrome

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Lateral hip pain is common in active individuals of various ages, sports and competition levels. One of the most common causes is greater trochanteric pain syndrome, also called "*trochanteric bursitis*."

However, recent studies using medical imaging[1] show that the overlying potential space, known as a bursa, is rarely involved. These studies are also supported in tissue analysis done after surgery.[2] This article highlights trochanteric pain syndrome, the underlying causes, treatment options, rehabilitation choices, and other causes of lateral hip pain.

Trochanteric pain syndrome typically appears with lateral hip pain around the greater trochanter, which is near the hip. Symptoms increase with activity or laying on the affected side. Feeling pain when it's pressed on is a key to diagnosing it. A lack of tenderness probably means it's another condition, including some other possibilities discussed below.

Greater trochanteric pain syndrome is typically a chronic but self-limited condition behind overuse and poor running form or gait. This leads to increased stress on the tendons that stabilize the pelvis and lower extremities. This eventually leads to the development of tendinopathy in these tendons. This affects approximately 6-15% of patients in some studies.[3] Risk factors may include female gender, obesity, chronic back pain and injuries to the knee or ankle, likely secondary to changes in running mechanics.[4]

Initial treatment consists of avoiding painful activities while dealing with biomechanical issues such as poor running form. In addition, oral medications such as acetaminophen or non-steroidal anti-inflammatory drugs (NSAIDs) like ibuprofen, can be used for more severe pain. Tendinopathy is best treated through directed exercises (typically eccentric exercises), under the guidance of a physical therapist. Strengthening of the muscles in the same area have shown benefit as a rehabilitation focus in recent studies[5]. Doctors may also try a corticosteroid injection if pain is limiting rehabilitation exercises or sleep. Newer, emerging injection therapies have been reported, including the use of prolotherapy, platelet rich plasma, and other injections. But there is limited evidence with few long-term follow-ups reported, so further research is necessary.

Not all lateral hip pain is due to trochanteric pain syndrome. Four of the most common alternative problems are discussed below, including osteoarthritis, femoral-acetabular impingement (FAI), snapping hip and sacroiliitis. Other conditions not discussed in this article include traumatic injuries, referred pain from the knee or ankle, and lower-back-related pain. A detailed physical exam and possibly use of imaging such as x-rays and/or MRI may be necessary to rule out these conditions.

- **Osteoarthritis of the hip:** Trochanteric pain syndrome is more common in those 50 to 70 years old, which is also a common age for hip osteoarthritis. Hip osteoarthritis typically happens with pain in front of the hip, but it can also occur with lateral or posterior hip pain. It is diagnosed with x-rays.
- **FAI:** Younger patients may have FAI, which features pain in a C-shaped pattern wrapping around their hip from back to front. Individuals with FAI have bony changes to either the ball or socket of the hip joint on x-ray. This leads to impingement of the cartilage and labrum and can lead to early osteoarthritis.
- **Snapping hip syndrome:** Patients describe mechanical snapping to the

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front of the hip (internal) or lateral hip (external). This comes from a tight iliopsoas tendon or Iliotibial (IT) band respectively.

• **acroiliitis:** Typically happens with posterior hip pain, but it can also cause groin or lateral hip pain. The diagnosis is typically made through physical exam and imaging, if necessary.

In summary, lateral hip pain is a common condition in patients and often attributed to trochanteric bursitis, which is now known as greater trochanteric pain syndrome. This overuse condition is secondary to tendinopathy in the hip muscles and treatments center on pain control, physical therapy and activity modification.

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Exertional Leg Pain

Jeff Fleming, DO

Now that springtime is here, athletes are moving from the comforts of indoor training facilities to the great outdoors. The transition to the open air offers both a change in scenery and in workout routine. For many athletes, that means longer and more intense training, as well as new shoes for outdoor surfaces, and not adapting to a new routine often leads to injury.

Exertional leg pain is a common complaint from athletes making this seasonal transition. Exertional pain is often attributed to routine muscle soreness, but what about pain that just won't go away on its own? This article examines some common causes of exertional leg pain.

Shin Splints, or Medial Tibial Stress Syndrome (MTSS), are typically caused by repetitive stress and ramping up impact exercise too fast. Symptoms include pain around the inner part of the shin. This pain can sometimes get better with activity, but it usually pops up again after the workout and gets worse by the next morning. Shin splints are a relatively benign injury and can usually be managed with rest, activity modification, and symptomatic relief. Athletes should rest until they are pain-free with daily activities. This can take anywhere from two to six weeks depending on the injury.

Stress fracture, or Tibial Bone Stress Injury (TBSI), is another common source of exertional leg pain and can be considered more severe. Stress fractures can also be explained by a combination of excess stress on the tibia, which is the second largest bone next to the femur, and compromised bone density. Unlike shin splints, athletes tend to have more pain that consistently gets worse with activity. Treatment consists of rest and activity modification, but requires longer rest periods of six to nine weeks. More severe cases may need longer recovery periods from six to 12 weeks. This depends on the severity of the injury and the individual's bone health and nutrition. Management can involve crutches, casting or even surgery in severe cases.

A rare cause of exertional leg pain is **Chronic Exertional Compartment Syndrome (CECS)**. This injury typically happens in long distance and endurance runners. Experts think that overuse leads to increased pressure within the muscle compartments of the lower legs. CECS pain is caused by exercise and often completely resolves with rest. Diagnosis is made by measuring pressure following exercise. It can often be managed conservatively, but surgery is sometimes needed in severe cases.

Each of these injuries is likely related to a combination of over-training, inadequate recovery, imbalances between energy needs and food intake, as well as improper running form. The best treatment for any injury is prevention. When transitioning to high levels of speed, distance, or intensity, be sure to do so safely. Gradually increase the duration, volume, and intensity of workouts.

General guidelines to follow:

- Increase your distance by no more than 10-15% per week.
- Shoes should be comfortable, "feel right", and typically changed every 300-500 miles.
- Balance your nutrition intake with your energy needs. If you have high volumes of training, you may want to seek advice of a sports nutritionist.
- Try not to run through severe fatigue, as it can be a major contributing factor to poor running technique.

When dealing with exertional leg pain, a trial of rest and activity modification is almost always a good first step. However, it's important to be aware that leg pain can be caused by dozens of other injuries and diseases. Many of these are more serious than the injuries described above. Seek expert medical advice if symptoms do not improve within a few days or suddenly get worse. An early diagnosis can ensure that an athletes is assigned an appropriate treatment plan to prevent further injury.

Spondylolysis

Daisy Scarlett-MacCallum, MD

Spondylolysis is an overuse injury that causes a stress fracture to the area of the spine called the pars interarticularis. It is a relatively common cause of low back pain among adolescent athletes involved in sports that involve frequent back extension [1,2]. Most injuries occur in the lower back [2].

Spondylolisthesis occurs when both sides of the spine are involved, causing the vertebrae to slip forward on one another. This article looks at how to manage both of these conditions. It's worth noting that there is limited evidence on the best non-surgical treatment of these issues, and even experts have differences in opinion.

Treatment of spondylolysis and stable spondylolisthesis consists of resting from sport, avoidance of activities that might cause them and pain control with ice, heat and over-the-counter pain medications. Anyone suspected of having spondylolysis based on history and physical examination are observed for two to four weeks and instructed to stop all activities that might cause it [3-5]. If symptoms get better after this time, athletes can gradually return to sport. If symptoms persist or the pain happens again, they should be re-examined and medical imaging should be considered.

X-rays are typically a good option for this, but MRI imaging is used in youth athletes or if the doctor suspects spondylolysis. Once it's confirmed, a period of 90 days of rest with monthly follow-ups are recommended [6-7]. Patients are to avoid all activities that may aggravate pain, especially ones that require back extension. Athletes can benefit from working with physical therapists and athletic trainers, as they can give important guidance in determining the right rehabilitation [9-10]. As exercises become easier, athletes can slowly ramp up exercise difficulty [9-10].

The timeframe for return to play after the rest period can change, but studies suggest that two to four months is the average, with less time off required for those who participate in low-risk sports [9]. The goals of rehab during this time is addressing risk factors and increasing core strength and low-intensity aerobic activity without pain. If that works, the patient may slowly transition to performing sport-specific drills that are low risk (8-9). The athlete should be able to run, jump and normally extend their back without pain, in order to begin the progress to normal sport activities. The level of activity can then increase weekly with more intense sport-specific play [8-9].

As the intensity of activities increases, doctors will follow-up with the patient about every two weeks to check for returning symptoms. This continues until the athlete returns to full participation without pain [9]. The main reasons why treatment is unsuccessful or prolonged is not following activity restrictions [1-3, 11]. So it's important that athletes and doctors have a straightforward conversation about the risks, and doctors should make sure that athletes, parents and coaches are all winning to cut back on risky activities.

Despite the popularity of the Boston Back Brace, several studies have found good outcomes without bracing [7]. Patients may have difficulty following the recommended 23-hours a day in the brace. In addition, time spent wearing a brace may lead to weakening of muscles in the back and torso [7]. The decision to brace should be made on an individual basis. Many doctors now recommend using a soft brace with activity to provide feedback on back position and limit extension, while not overly restricting motion [4-8].

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Knee Osteochondritis Dissecans

By Rathna Nuti, MD

When a crack forms in the articular cartilage in your joints and underlying bone, that is a condition called osteochondritis dissecans (OCD) lesions.

This injury typically happens to youth athletes between the ages of 10 to 15 years old, though it can happen in adults, as well. Despite a lot of research, the cause of OCD lesions is unclear, but genetics, trauma and blood supply to the injured area are likely factors. The knee is the most common joint affected in the body. Younger individuals prior to their growth plates closing have the best prognosis. This article summarizes the symptoms, diagnostic work-up and treatment of OCD lesions.

Symptoms:

The most common complaint is knee pain that occurs with activity. In addition, OCD lesions can involve separation of the articular cartilage from the underlying bone, causing loose fragments within the joint. These can cause a sensation of locking or catching in the knee joint. Other symptoms may include stiffness, popping, clicking and/or buckling. Swelling typically occurs, which causes decreased range of motion.

Diagnosis/Imaging:

Medical imaging is highly recommended to figure out the diagnosis if an OCD lesion is suspected because early treatment can drastically improve the results. X-rays will likely be performed and can show the OCD lesion and loose fragment, if they're present. However, x-rays can appear completely normal even if you have the condition. Being able to see it on an x-ray depends on the size of the lesion, its location and the amount of knee bending used while getting the images.

The next step is to get an MRI study to look at the lesion for stability or to help locate it in patients where x-rays were otherwise normal. MRIs provide more detailed information that will help with treatment.

Treatment:

Treatment of OCD lesions depends on the how bad the injury is and where it's located. If left untreated, it can lead to early arthritis in the knee.

Non-surgical treatment consists of modifying activities and restricting placing weight on the knee with crutches to protect the injury and allow healing. Ice, anti-inflammatory medications and bracing for pain can also be used. Limiting weight placed on the knee should last at least 4-6 weeks and be closely monitored. Severe cases that are slow to heal can take six months to recover. Non-surgical treatment is considered in children who have stable lesions and open growth plates. The same goes for adults who have no symptoms. Surgery can typically be avoided if non-operative treatment is a viable option, but if the lesion is unstable, surgery should be considered.

Follow-up:

- Non-surgical: X-rays are repeated every three months to determine if the lesion is healed. Once healing is confirmed, the athlete can gradually return to activities under the guidance of a physical therapist and/or athletic trainer.
- Surgical: Post-operative management typically consists of utilizing analgesics (usually a mix of opioids and NSAIDs) to control pain, inflammation and swelling as well as immobilization for 4-6 weeks, depending on the procedure. After the period of immobilization, they should go through physical for therapy 6-8 weeks to regain range of motion, stretching, progressive strengthening and functional or sport-specific training.

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