

Spondylolysis in Adolescent Athletes

One of the most common orthopedic issues adolescent athletes face is spondylolysis, a stress fracture in one of the vertebrae in the spinal column. Some people can have spondylolysis without symptoms, while others may experience pain and other nerve-related warning signs.

Young athletes, particularly those active in gymnastics, diving, wrestling, weight lifting and football, typically put a great deal of stress on the lower back and tend to overstretch, or hyperextend, the spine. This hyperextension can cause one vertebra to slip forward in relation to the vertebra below it and force the spinal column to fall out of alignment. If the stress fracture weakens the bone to the point that it is unable to maintain its proper position, the vertebra will slip out of place, a condition referred to as spondylolisthesis.

Spondylolysis is diagnosed based on symptoms, a physical examination and x-rays of the spine. A physician will examine x-rays of a portion of the lumbar spine that connects the upper and lower joints, looking for cracks or fractures. With spondylolisthesis, an x-ray will usually show the fifth lumbar vertebra shifting forward onto part of the pelvic bone. If the vertebra is pressing on nerves, a bone scan, CT scan or MRI may be ordered to further assess the abnormality.

Unfortunately, both spondylolysis and spondylolisthesis do not typically present with any obvious symptoms, and many people do not even realize they are injured. Back spasms and hamstring tightness are common, and if pain is present, it is usually spread across the lower back. Since these conditions are common among athletes, the pain is often mistaken for a muscle strain.

Though the exact cause of spondylolysis is unknown, several risk factors have been identified. Individuals who participate in sports that require frequent or persistent hyperextension of the lower spine, such as gymnastics, are at higher risk because the repetitive trauma can weaken the vertebrae. Genetics may also play a role, as some individuals are simply born with thin vertebral bones, making them more vulnerable to the condition.

Every patient's experience is different, and treatment is based on the patient's symptoms. Options are typically conservative and are used to reduce pain and facilitate healing. During treatment, the patient should stay off his or her feet and refrain from participating in any activity that exacerbates the condition, including sports and excessive stretching. If for any reason the patient should engage in this type of activity, a Boston overlap brace should be worn to prevent unnecessary movement or bad bending. A Boston overlap brace is a fitted brace that controls the position and reduces the movement of the lower thoracic and lumbar spine.

Pain relievers and anti-inflammatory medications, coupled with physical therapy to improve flexibility and strength can help alleviate back pain and reduce other symptoms. Steroid-anesthetic injections and nerve root blocks can also be used if necessary. Physical therapy usually ranges from six to 12 months depending on the progression and severity of the injury. The main objective for rehabilitation is to target the lower back and limb muscles so that they act with the body's core to stabilize and relieve any current pain.

Most patients with spondylolysis do not require surgery. However, if back pain persists or if the spondylolisthesis shifts more and begins to interfere with daily activities,

surgery, in most cases a spinal fusion, may be necessary. A spinal fusion joins two or more vertebrae together into one solid bone which will prevent the joints and bones from moving. A surgeon will apply metal screws and rods to hold the bones securely while they fuse.

Although spondylolysis may not be entirely preventable, the condition is highly treatable and steps can be taken to reduce the risk of fractures. Keeping the back and abdominal muscles strong can help support the lower back and prevent future stress fractures. For those who currently have spondylolysis, it is important to choose activities and sports, such as swimming and biking, that do not place the lower back at risk for injury.

For more information, visit www.stamfordhospitalortho.com or contact Stamford Hospital's Orthopedic Institute at 877-747-4640.