

LOW BACK PAIN IN THE ADOLESCENT ATHLETE

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Injuries are common in adolescent athletes. Some injuries, such as low back pain, frequently go unrecognized. Adults may think the athlete has "growing pains," especially during a growth spurt. However, athletes who repeatedly overarch or hyperextend their backs through motions such as soccer throw ins, offensive lineman blocking, cheerleading stunts, or gymnastic activities are at risk of an overuse injury to the lower spine. The constant demands of some sports place a great deal of stress on the lumbar vertebrae or lower back and can result in a stress fracture. Orthopaedic surgeons will X-ray these athletes and often find the most common cause of the low back pain is a stress fracture of the lumbar vertebrae.

The spine is made up of 33 cylindrical shaped bones called vertebrae which create natural curves designed to stack on top of each other and support the body's weight. The lumbar spine has five vertebrae which curve slightly forward and are larger because they support most of the body's weight. Small joints between the vertebrae, called facet joints, allow the vertebrae to line up properly and allow the athlete to bend forward, extend, bend backward and bend side to side. In addition to these ranges of motion, the lumbar spine is capable of rotating or twisting.

Each vertebra consists of a hollow, round body that sits on top of the next vertebra to form a canal which

protects our spinal cord. Additionally, each vertebra has three bony projections that serve as points of attachment for ligaments and tendons. When a sporting action requires the athlete to repetitively hyperextend his or her back, a stress fracture can occur.

The athlete may not have any symptoms in the beginning of the injury or may complain of mild low back soreness as the injury progresses. The most common symptom is low back pain in the spine area and generally occurs during the adolescent growth spurt, thus the relationship between "growing pains" and low back pain. If the stress fracture is undiagnosed and becomes more aggravating, the athlete may continue to complain of soreness and stiffness of the lower back. A stress fracture in this area can progress to a complete fracture called Spondylolysis (spon-dee-low-lye-sis.)

"The typical presentation of a Spondylolysis is a young athlete who complains of low back pain that is aggravated by prolonged standing and extending or bending of the spine backward. The pain is relieved by flexing or bending forward," says Buck Cavalier, M.D., a board-certified orthopaedic surgeon who specializes in the spine with Summit Sports Medicine & Orthopaedic Surgery, a strategic affiliate of Southeast Georgia Health System.

If the injury goes undiagnosed and the athlete continues to play, the fracture can widen due to the weakness of the pars interarticularis, or pars, the part of vertebra located between the inferior and superior articular processes of the facet joint. This widening causes the fifth lumbar vertebrae to slip forward out of place. This condition is called Spondylolisthesis (spon-dee-low-lis-thee-sis.) The athlete may now complain of low back pain, muscle spasms, and low back stiffness. Changes in his or her walking pattern and posture are noticed. Numbness and tingling are other symptoms associated with Spondylolisthesis because the fifth lumbar vertebra has slipped forward enough to put pressure on the nerves.

An orthopaedic surgeon will X-ray the injured area to either confirm or rule out a fracture. One simple technique an orthopaedic surgeon may use is to trace the outline of the vertebrae to check for proper alignment, which will have the appearance of a small Scottish dog. If the dog does not line up correctly, the physician may suspect a fracture to the pars. More diagnostic testing may have to be done such as CAT scan, MRI, or bone scan to determine the severity of the injury and the appropriate treatment protocol for the injured athlete.

"Athletes with injuries to the pars usually respond well to conservative treatment," Dr. Cavalier says. "Treatment of Spondylolysis typically includes a period of rest and anti-inflammatory medication, followed by physical therapy with an emphasis on

abdominal strengthening and hamstring stretching. A lumbar brace is occasionally used in severe cases."

Each injury is different and each has its own time table for healing depending on the severity of injury. In the early stages of healing, it is easy to keep the athlete resting and non-active due to the pain. However, as the pain subsides and the athlete is starting to feel better, he or she will become more active and test his or her limitations. "Criteria for the return to sports includes the return of pain free spinal range of motion and resolution of hamstring spasm." Dr. Cavalier says. Athletes, parents, and coaches should follow their physician's and certified athletic trainer's return to play advice following an injury to the pars so the athlete can return to the field of play as quickly but safely as possible without the risk of re-injury.

Meet Dr. Buck Cavalier

Buck Cavalier, M.D., received his medical degree in 1999 from Medical College of Pennsylvania-Hahnemann University School of Medicine (now Drexel University).

During his clinical clerkship there he was the recipient of the Excellence in Orthopaedic Surgery award.

Following medical school, Dr. Cavalier stayed at Drexel for his internship and orthopaedic residency training. During residency, Dr. Cavalier was active in the orthopaedic care of the NFL's Philadelphia Eagles, the NHL's Philadelphia Flyers as well as Division I college athletes.

Following residency, Dr. Cavalier completed a fellowship in spinal surgery at the internationally known Leatherman Spine Center in Louisville, KY where he trained with some of the nation's leading spine surgeons. There he gained experience in treating all aspects of spinal pathology including degenerative conditions, spinal deformity, trauma, tumor and infection involving the cervical, thoracic and lumbar spine.

Dr. Cavalier is a member of the American Academy of Orthopaedic Surgeons and the North American Spine Society. He is board-certified by the American Board of Orthopaedic Surgery.

Summit Sports Medicine & Orthopaedic Surgery is a strategic affiliate of Southeast Georgia Health System, and has three convenient locations. For more information, call 912-262-9961 in Brunswick, 912-466-5570 on St. Simons Island, or 912-576-6355 in St. Marys, or visit www.summitsportsmedicine.com.



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