

Spondylolysis is a condition in which there is a defect in a portion of the spine called the *pars interarticularis* (a small segment of bone joining the facet joints in the back of the spine). With the condition of *spondylolisthesis*, the *pars interarticularis* defect can be on one side of the spine only (unilateral) or both sides (bilateral). The most common level it is found is at L5-S1, although spondylolisthesis can occur at L4-5 and rarely at a higher level.

Spondylolysis is the most common cause of isthmic spondylolisthesis, in which one vertebral body is slipped forward over another. Isthmic spondylolisthesis is the most common cause of back pain in adolescents; however, most adolescents with spondylolisthesis do not actually experience any symptoms or pain. Cases of either neurological deficits or paralysis are exceedingly rare, and for the most part it is not a dangerous condition. The most common symptom is back and/or leg pain that limits a patient's activity level.

Spondylolysis only refers to the separation of the *pars interarticularis* (a small bony arch in the back of the spine between the facet joints), whereas spondylolisthesis refers to anterior slippage of one vertebra over another (in the front of the spine). Therefore, although the terms are sometimes used interchangeably, this is incorrect and the two are technically not interchangeable.

Activity Restrictions

In the past, patients have often been advised to limit their activities (especially participation in sports and active exercise) to avoid causing advancement of the spondylolysis. However, new information developed from modern imaging tests and recent research indicates that reduced activity and/or rest to protect the spondylolysis from slipping may not always be necessary. Rest is only necessary if the patient becomes symptomatic. Rest can help eliminate the pain, and when the pain resolves the patient can resume his or her normal activities.

Often adolescents are pulled from their sports participation because of fears that their spondylolysis will lead to spondylolisthesis (slippage of the affected vertebra) and that the slippage will become so severe as to cause permanent damage or paralysis. Adults with spondylolysis are also often counseled to avoid rigorous exercise and/or physically demanding jobs. However, in published medical literature, there are no instances of a patient in a work, industrial, or sports-related environment that has experienced trauma causing spondylolisthesis to slip further and produce neurological deficit or paralysis.

Even though activity restriction is not always necessary, careful management of spondylolysis is always advisable. Acute (active) spondylolysis requires more intensive management, while symptoms from spondylolysis that has moved into a chronic (inactive) phase can be managed conservatively.

Profile of Spondylolysis

Spondylolysis develops most commonly in adolescents, most typically in 10- to 15-year olds. The majority of adolescents with spondylolysis do not have symptoms, or their symptoms are mild and are often overlooked. If the spondylolysis is not correctly identified and managed, there is a chance that the affected area may heal incorrectly,



resulting in the possibility of continued stress that can lead to the slippage of spondylolisthesis and recurrent low back pain.

Spondylolysis is seen more often in athletes than in people who do not actively participate in sports, although studies differ as to just how much more. Approximately 3% to 7% of the general population is thought to have spondylolysis. It is suspected that spondylolysis occurs most frequently in young athletes who are involved in sports that require repeated hyperextension of the lower back.

Older adults can also develop spondylolysis because of degeneration in the disc and the facet joints (degenerative spondylolisthesis), which can allow slippage even without a fracture. While it is not known exactly what causes this condition, it is theorized that it probably involves overloading the back part of the facet joints, which can eventually lead to stress fractures.

Treatments for Active Spondylolysis

The recommended treatment program for active spondylolysis is usually a combination of the following:

- Bracing to immobilize the spine for a short period (e.g. four months) to allow the pars defect to heal
- Pain medications and/or anti-inflammatory medication, as needed
- Stretching, beginning with gentle hamstring stretching and progressing with additional stretches over time
- Exercise that is controlled and builds gradually over time.

On rare occasions, spondylolysis that is not healing or may have neurological components can require surgery to provide internal fixation and stability to the area. Usually, two procedures are performed as part of the same surgery:

- A decompressive laminectomy, which reduces irritation and inflammation in the area (but increases spinal instability)
- A spinal fusion to provide stabilization of the affected area.

Treatments for Inactive Spondylolysis

For inactive spondylolysis, bracing is usually not necessary. In many cases, however, the spondylolysis will be discovered long after the pars defect has already healed. This condition is often referred to as chronic inactive spondylolysis and may produce symptoms of chronic or recurring lower back pain or discomfort.

Medical literature indicates that once the lesion has healed and becomes inactive, the likelihood of significant progression is minimal, and only rarely does the slippage require surgical intervention.



For discomfort or pain associated with chronic inactive spondylolysis, there are several treatment options available, including pain medications, chiropractic or osteopathic manipulation, physical therapy and exercise.

For patients seeking chiropractic or osteopathic manipulation for this condition, it is important to note that there is no evidence in the medical literature that manipulation can reduce slippage or cause an active site to heal. But there are some case studies to show that manipulation will often provide temporary pain relief for the patient. This is because appropriate manipulation treatment can relieve many of the side effects of spondylolysis, such as lower back pain caused by stresses on various spinal structures, including the facet joints.

In general, most people with chronic inactive spondylolysis can find sufficient pain relief through a combination of conservative treatments, such as manual therapy, exercise, and lifestyle changes.

However, it is important to note that any therapeutic approach must take into account that spondylolysis means that there is a potentially unstable area of the spine, so caution and the skill of the treating spine specialist are very important considerations.

Read more about spondylolysis at spine-health.com