

Spondylosis, Spondylolysis and Spondylolisthesis: Part 1

One of the most common clinical questions I have been asked by attorneys and adjusters during my nearly 3 decades in practice is the significance and relationship of Spondylosis, Spondylolysis and Spondylolisthesis. Because these three conditions are often related there remains some confusion regarding their significance as it relates to trauma. This and the next several newsletters will try to clear up some of the confusion about the "Spondylo" conditions. This first newsletter will focus on Spondylolisthesis and Spondylolysis

Before reviewing spondylolisthesis it is important to have a general definition of each of the three conditions.



Spondylosis is a term referring to degenerative changes of the spine. When the degenerative changes extend to the spine's facet joints the proper term would be **Spondyloarthrosis**

Spondylolysis refers to a defect in a specific part of the facet joint called the pars interarticularis or just "Pars". This defect can cause potential instability in the vertebra.

Spondylolisthesis is an anterior slipping or displacement of one vertebra on another.



The term spondylolisthesis was coined in 1854 from the Greek "spondylo" meaning vertebra and "listhesis" meaning slip. Spondylolisthesis has been classified into five major types:

1. **Dysplastic**, in which congenital bony anomalies of the spine allow the slipping, or listhesis, to occur;
2. **Isthmic**, the most common form of spondylolisthesis, in which a lack of normal bony continuity in each pars interarticularis or isthmus, permits the displacement. The isthmic form of Spondylolisthesis is properly termed **Spondylolytic Spondylolisthesis**;
3. **Degenerative**, in which the slipping vertebra remains a single bone but has become unstable because of degenerative joint disease of its facet, or zygapophyseal, joints (spondyloarthrosis). This is often identified as a non-spondylolytic spondylolisthesis;
4. **Traumatic**, in which there is a fracture through the pars or other part of the vertebra. This is usually caused by severe violence and results in the anterior displacement. The acute injury may be further

identified by radionuclide bone scan, comparison to prior radiographs or CT scan;

5. **Pathologic**, in which the slipping is a sequel of deforming or destructive bone disease affecting the articular facets.

Causes and Risk Factors: Spondylolysis occurs in approximately 5 percent of the population in the U.S. and most commonly is caused by a stress fracture of the pars interarticularis, but may also result from an acute fracture. The L-5 level is by far the most common site, but defects may occur at L-4 and, much more rarely, at L-3 or above. Less than half of the patients with spondylolysis will develop spondylolisthesis, usually on L-5 on S-1. All the Spondylos can occur in the cervical spine as well.

Diagnosis: A routine lateral (side) radiograph taken while standing confirms a diagnosis of a spondylolisthesis. The x-ray will show the translation (slip) of one vertebra over the adjacent level, usually the one below. To determine if the segments are stable or unstable, the doctor may chose to perform stress radiographs

The significance of Spondylolisthesis in the post-traumatic patient requires a thorough examination and review of past medical history to establish causation. Many patients with symptomatically inactive spondylolisthesis or spondylolysis develop symptoms which represent an acute progression of an existing slippage, new slippage from a previously stable spondylolysis or aggravation of a previously silent secondary ossification center without slippage.

In the absence of a documented history of neck or lower back pain, the presence of Spondylolisthesis, Spondylosis or Spondylolysis should be considered previously inactive. The newly activated symptoms may or may not be related to the previously inactive condition. Therefore, any impairment or disability resulting post traumatically would reasonably be considered a sequella of the trauma and therefore be causally related. The Spondylo can be considered a predisposing or confounding factor resulting in a less favorable prognosis.