

Adult spinal deformity clinical features

Location, time, and duration of [pain](#) (leg vs. axial back) are important factors in the evaluation of a patient with [ASD](#). These patients may also have symptoms of [spinal stenosis](#) (central or radicular), which may require concomitant decompression. The patient's ability to perform activities of daily living and medical comorbidities (e.g. cardiac, osteoporosis, etc.) need to be taken into consideration for treatment planning.

Some patients present with obvious spinal deformity (scoliosis, forward flexion at the waist, walking with knees bent).

As with [neurogenic claudication](#), patients tend to be more symptomatic when up on their feet. A significant amount of pain may be generated by attempting to correct for spinal [imbalance](#) by using paraspinal muscles as well as retroverting the pelvis (rotating it backward at the hips) and not fully extending the knees. All this extra muscle activity is fatiguing and begins to produce muscle pain in the back and thighs. Patients with ASD tend to be better in the morning when they are rested. Unlike lumbar spinal stenosis in the absence of scoliosis, symptoms may not be relieved by flexion at the waist. There may be some relief when supporting the trunk with the arms.

Evidence has revealed [sagittal imbalance](#) to be a key driver of pain and disability in [adult spinal deformity](#) and has led to a significant shift toward a more evidence-based management paradigm ¹⁾.

Patients with degenerative scoliosis frequently present with [foraminal stenosis](#) and radiculopathy, the origin of which is not well understood.

ASD is characterized by malalignment in the sagittal and/or coronal plane and, in adults, presents with pain and disability.

Unlike teenagers with spinal deformity who rarely complain of pain, adult patients with deformity present with a variety of symptoms. Low back pain and stiffness are the two most common symptoms. In addition, numbness and cramping in the legs and shooting leg pain due to pinched nerves can occur. These symptoms are due to degeneration of the discs and joints leading to narrowing of the openings for the spinal sac and nerves (spinal stenosis). Loss of sagittal balance causes the patients to compensate by bending their hips and knees to try and maintain an upright posture. This puts greater strain on the muscles of the lower back and legs causing the patients to fatigue early. There is a gradual loss of function and a decrease in the activities of daily living.

It is usually accompanied by straightening of the spine from the side (loss of lumbar lordosis). Pain, stiffness, numbness and shooting pain down the legs are seen in symptomatic patients.

Coronal [deformity](#) is usually less symptomatic than a sagittal deformity because there is less expenditure of energy and hence less effort to maintain upright posture. However, nerve root compression at the fractional curve or at the concave side of the main curve can give rise to debilitating [radiculopathy](#).

¹⁾

Ailon T, Smith JS, Shaffrey CI, Lenke LG, Brodke D, Harrop JS, Fehlings M, Ames CP. Degenerative Spinal Deformity. Neurosurgery. 2015 Oct;77 Suppl 4:S75-91. doi: 10.1227/NEU.0000000000000938. Review. PubMed PMID: 26378361.

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