Fourth Edition

Essentials of Physical Medicine and Rehabilitation

Musculoskeletal Disorders, Pain, and Rehabilitation

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ELSEVIER
Scoliosis and Kyphosis

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Synonyms

Scoliosis
Curvature of the spine/back
Curved spine/back
Kyphosis
Hunchback
Humpback
Roundback
Dorsum rotundum
Dowager's hump
Postural kyphosis
Gibbus deformity

ICD-10 Codes

Scoliosis
41.1 Juvenile and adolescent idiopathic scoliosis
41.12 Adolescent scoliosis
41.2 Other idiopathic scoliosis
41.3 Thoracogenic scoliosis
41.4 Neuromuscular scoliosis
41.5 Other secondary scoliosis
41.8 Other forms of scoliosis
41.9 Scoliosis unspecified
Kyphosis
40.0 Postural kyphosis
40.1 Other secondary kyphosis
40.2 Other and unspecified kyphosis
40.29 Other kyphosis

Definitions

Scoliosis
Scoliosis is a three-dimensional deformity of the spine and the trunk; it associates a spinal pathologic curve on the frontal plane (curves of 10 degrees or more must be present to diagnose the disease), a rotation in the horizontal plane, and a disturbance of the normal curves on the sagittal plane (often in terms of flat back and hollow back). Idiopathic scoliosis (IS) is the most common form (85% to 90%) and is diagnosed when a specific etiology is not identified. The accepted classifications for idiopathic scoliosis during growth are listed in Table 153.1. Secondary scoliosis is a feature of different pathologic processes including neurologic diseases, systemic syndromes, connective tissue disorders, tumors, or trauma.

Adult spinal deformity (ASD) is defined when scoliosis is diagnosed after skeletal maturity. Scoliotic curves identified during adulthood can be developed prior to skeletal maturity, after skeletal maturity, or after surgery or trauma. Currently, three classification systems based on etiology, on the clinical impact of the deformity, and on curve types and additional modifiers have been developed for ASD: Aeby, Schwab, and SRS. The last two were combined recently into a single classification.

Kypnosis
Kypnosis is a physiologic thoracic anterior concave spinal curvature in the sagittal plane, associated with cervical and lumbar lordosis in a physiologic conformation of the spine. Physiologic values for kyphosis during growth are between 20 to 25 degrees and 40 to 45 degrees. Sagittal plane alterations affect sagittal spinal curves in terms of both quantity and distribution. Thus, hyperkyphosis (HK), which is defined as an increase of the kyphosis, can be distinguished between high thoracic, thoracic, thoracolumbar, and lumbar HK according to the level where the apex of the curve can be identified. Concerning the sagittal spinal profile, it is also important to distinguish alterations such as long kyphosis, normal kyphosis with a caudal vertebra below T12, and junctional kyphosis, flat back with distal kyphosis with caudal vertebrae below T12. An association between scoliosis and one of these sagittal deformities is possible (Fig. 153.1).

These conditions can be idiopathic or secondary to Scheuermann disease (a disease disturbing vertebral growth) or secondary to reduced trunk extensor muscle weakness or neurologic problems, congenital vertebral dysmorphic syndromes, trauma, tumors, or advanced degenerative disease of the spine.