CHAPTER SIX

Impaired Joint Mobility, Motor Function, Muscle Performance, Range of Motion, and Reflex Integrity Associated With Spinal Disorders (Pattern F)

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ANATOMY

Only pertinent basic anatomy for this pattern is detailed below. For a more in-depth understanding of the anatomy of the spine, the reader is encouraged to refer to Gray's Anatomy\(^1\) and Bogduk and Twomey's Clinical Anatomy of the Lumbar Spine.\(^2\)

The spinal column is made up of 33 vertebral segments which allow both stability and flexibility to the axial skeleton (Figure 6-1). The spinal column protects the spinal cord and spinal nerves, supports the trunk, transmits forces from the LEs and UEs, and provides attachments for connective tissue, muscles, and ribs. The spinal column is divided into cervical, thoracic, lumbar, and sacral regions. These regions curve in the sagittal plane with the cervical and lumbar regions having lordotic curves and the thoracic and sacral regions having kyphotic curves.

ANATOMY OF THE SPINE

Bony Elements

A typical vertebra is made up of a body anteriorly and an arch posteriorly, which together form the neural arch containing the spinal cord (Figure 6-2). At the junction of the vertebral body and the neural arch is the intervertebral foramen, which contains the spinal nerves, blood, and lymphatic vessels. An intervertebral disc connects each body. The vertebral body varies in size, shape, and proportions in different regions of the spine. The vertebral body gives rise to two short, thick, rounded pedicles posteriorly. The pedicles give rise to the superior and inferior articular processes that form the synovial zygapophyseal (facet) joints. The shapes of the facets of the zygapophyseal joints contribute to the available motion at the different levels of the spine. The laminae continue from the pedicles and curve posteromedially to complete the vertebral foramen and give rise to the SP. Transverse processes project laterally from the junction between the pedicle and the lamina and in the thoracic spine provide attachments for the ribs.\(^1\)

Regional Variations

The different regions of the spinal column have variations in the bony elements of the typical vertebra that specifically relate to the function of that particular region. Following is a brief synopsis of the regional variations.

Cervical Spine

There are seven cervical vertebrae. Each has a foramen in the transverse process called the foramen transversarium for passage of the vertebral artery. Other features specific to the cervical vertebrae (C3-C6) include a small, relatively broad body with raised lateral lips called uncinate processes, a short bifid SP, and the formation of an articular pillar on each