

PULMONARY DISEASES AND DISORDERS

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Diseases of the respiratory tract are now the third leading cause of death in the United States and are ranked eighth in primary hospital admission diagnoses.^{1,2} The most common preventable cause of lung disease remains cigarette smoking; however, environmental and genetic factors can also play a role.³ The goals of this chapter are to review essential anatomy and physiology of the pulmonary system and to define common pulmonary disorders and the medical and surgical management. Physical therapy examination and interventions, a case study, and chapter review questions are also included.

ANATOMY AND PHYSIOLOGY

A simple way to consider the pulmonary system is to split the system into the musculoskeletal pump and the gas-exchanging organ.

The Musculoskeletal Pump

The thoracic rib cage, cervical and thoracic spine, and upper pelvic area comprise the bony components of the musculoskeletal pump (Figure 7-1). These bony structures provide the origin and insertion of the respiratory muscles and protect and support the lung tissue.⁴⁻⁶ Bony or muscular injury, such as a rib or clavicular fracture or a surgical incision, can influence efficiency of the musculoskeletal pump. A tibial fracture can be immobilized internally or covered with a cast, but a rib fracture or a surgical incision in the thorax is not fixated. As the rib cage is in constant motion, patients will complain of difficulty taking deep breaths and soreness with coughing, sneezing, or laughing. The inability to breathe deeply following surgery or trauma increases the risk for atelectasis and pneumonia. A balance of pain medication, early mobilization, and frequent position change can help to optimize ventilation and prevent pulmonary complications.