

Saladin 7E
Answer Key

Chapter 13, The Spinal Cord, Spinal Nerves, and Somatic Reflexes

Testing Your Comprehension

1. The injury at C1 probably caused so much spinal cord damage there as to interrupt signals to the phrenic nerves of the diaphragm, thus causing respiratory paralysis.
2. Signals for deep touch and limb position below that level ascend the ipsilateral side of the spinal cord in the gracile fasciculus and do not decussate until they get to the medulla oblongata. Therefore, an injury to the left gracile fasciculus would block the transmission of these types of signals from the left (ipsilateral) side of the body below the injury. Signals for pain and heat, however, decussate in the spinal cord near the point of entry and travel up the contralateral side of the cord in the spinothalamic tract. An injury to the left spinothalamic tract would thus block the transmission of these signals from the right (contralateral) side of the body.
3. Knife and gunshot wounds in this area often damage the sciatic nerve, which passes through this region and provides motor innervation to the hamstring, gastrocnemius, and other major muscles of hip, knee, ankle, and foot movements (see table 13.6).
4. It is virtually impossible to raise the left foot without losing contact with the wall. Keeping the hip and shoulder against the wall thwarts the crossed extension reflex and the normal tendency of the body to shift its weight over the right leg.
5. Accidental removal of a part of the median nerve denervates the thenar muscle group and the first and second lumbricals (see table 13.4). The results include inability to flex the fingers (inability to grip objects), loss of many thumb functions (abduction, flexion, and opposition), and extension of the interphalangeal joints (see table 10.12).