

Chapter 7 The Skeleton

Matching Questions

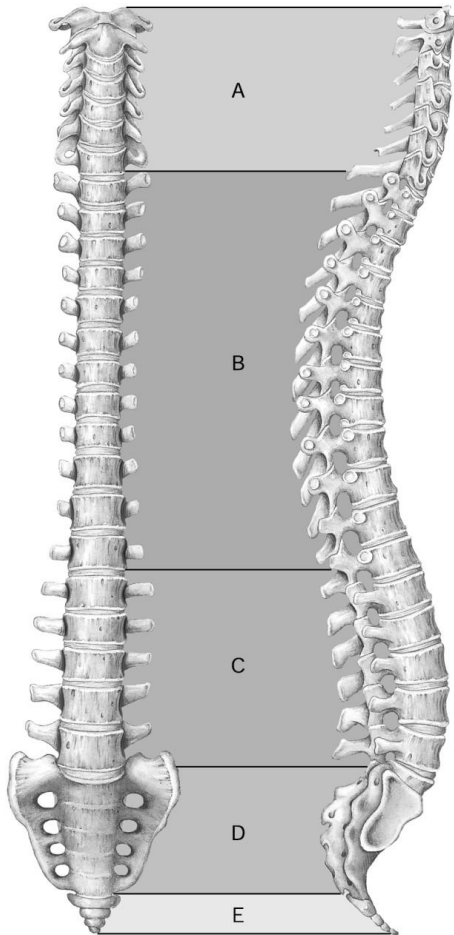


Figure 7.1

Using Figure 7.1, match the following:

- 1) Articulates with hip bones of the pelvis.

Answer: D

Diff: 1 Page Ref: 219; Fig. 7.13

- 2) Attach to ribs.

Answer: B

Diff: 1 Page Ref: 222; Fig. 7.13

- 3) Receive the most stress.

Answer: C

Diff: 1 Page Ref: 223; Fig. 7.13

- 4) Transverse foramen present.

Answer: A

Diff: 1 Page Ref: 221; Fig. 7.13

5) No canals or foramen present.

Answer: E

Diff: 1 Page Ref: 225; Fig. 7.18

6) Contains alae.

Answer: D

Diff: 2 Page Ref: 225; Fig. 7.13

7) Contains the atlas and the axis.

Answer: A

Diff: 1 Page Ref: 221; Fig.7.13

8) Contains the joint that allows you to rotate your head "no."

Answer: A

Diff: 1 Page Ref: 222; Fig. 7.13

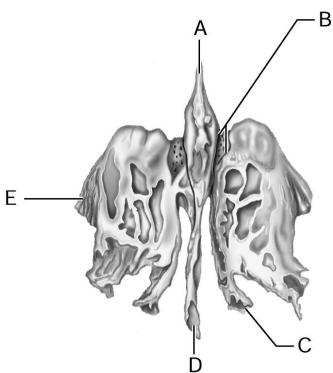


Figure 7.2

Using Figure 7.2, match the following:

9) Nasal septum.

Answer: D

Diff: 2 Page Ref: 211; Fig. 7.7

10) Turbinate bone.

Answer: C

Diff: 2 Page Ref: 211; Fig. 7.7

11) Orbital area.

Answer: E

Diff: 2 Page Ref: 211; Fig. 7.7

12) Olfactory bulb sits on this.

Answer: B

Diff: 2 Page Ref: 210; Fig. 7.7

13) Nasal concha.

Answer: C

Diff: 2 Page Ref: 211; Fig. 7.7

14) Rooster's comb.

Answer: A

Diff: 2 Page Ref: 211; Fig. 7.7

Match the following:

- 15) These very small bones are at the medial border of each eye.
Diff: 1 Page Ref: 213
- 16) Failure of these anterior bones to fuse causes a condition known as cleft palate.
Diff: 1 Page Ref: 212
- 17) This bone houses the apparatus of the inner and middle ear.
Diff: 1 Page Ref: 207
- 18) This bone is wing-shaped and extends behind the eyes and forms part of the floor of the cranial vault.
Diff: 2 Page Ref: 209
- 19) The bones that contain teeth.
Diff: 1 Page Ref: 212
- 20) This bone has a pasageway into the nasal cavity.
Diff: 1 Page Ref: 213
- 21) The sella turcica is a portion of this bone.
Diff: 1 Page Ref: 209
- 15) C 16) D 17) A 18) B 19) D 20) C 21) B

Match the following:

- 22) The fingers have three of these bones an the thumb has only two.
Diff: 1 Page Ref: 237
- 23) This bone articulates with the glenoid fossa.
Diff: 1 Page Ref: 231
- 24) Forearm bone that articulates with most of the carpals.
Diff: 1 Page Ref: 232
- 22) C 23) A 24) B

Match the following:

- 25) Thickest centrum with short blunt spinous processes.
Diff: 1 Page Ref: 223
- 26) Fused rudimentary tailbone.
Diff: 1 Page Ref: 225
- 27) A circle of bone that articulates superiorly with the occipital condyles.
Diff: 1 Page Ref: 221-222
- 28) These bones have articular facets for the ribs.
Diff: 1 Page Ref: 222
- 29) Allows the head to nod "yes."
Diff: 1 Page Ref: 221-222
- A) Coccyx
B) Lumbar vertebrae
C) Atlas
D) Thoracic vertebrae
- 25) B 26) A 27) C 28) D 29) C

Match the following:

- 30) Lambdoid.
Diff: 1 Page Ref: 207
- 31) Sagittal.
Diff: 1 Page Ref: 207
- 32) Squamosal.
Diff: 1 Page Ref: 207
- 33) Coronal.
Diff: 1 Page Ref: 207
- 34) Occipitomastoid.
Diff: 1 Page Ref: 207
- A) Temporal and parietal
B) Parietal and frontal
C) Occipital and temporal
D) Occipital and parietal
E) Right and left parietal
- 30) D 31) E 32) A 33) B 34) C

True/False Questions

- 1) A Colle's fracture is a break in the distal end of the radius.
Answer: TRUE
Diff: 1 Page Ref: 232
- 2) All of the bones of the skull, except the mandible, are united by sutures and are therefore *immovable*.
Answer: TRUE
Diff: 1 Page Ref: 203

- 3) The foramen magnum goes through the occipital bone.
Answer: TRUE
Diff: 1 Page Ref: 207
- 4) The mastoid sinuses are located at a position in the skull where they are usually free from infections.
Answer: FALSE
Diff: 1 Page Ref: 207
- 5) The vertebral column is held in place primarily by the anterior and posterior longitudinal ligaments.
Answer: TRUE
Diff: 1 Page Ref: 220
- 6) Ribs numbered 11 and 12 are true ribs because they have *no* anterior attachments.
Answer: FALSE
Diff: 1 Page Ref: 228
- 7) The most common site of fracture in the humerus is the anatomical neck.
Answer: FALSE
Diff: 1 Page Ref: 233
- 8) The layman's name for the scapula is the collarbone.
Answer: FALSE
Diff: 1 Page Ref: 229
- 9) A temporal bone protrusion riddled with sinuses is the styloid process.
Answer: FALSE
Diff: 1 Page Ref: 207
- 10) Costal cartilages join most ribs to the sternum.
Answer: TRUE
Diff: 1 Page Ref: 226-227
- 11) The tubercle of a rib articulates with the transverse process of a vertebra.
Answer: TRUE
Diff: 1 Page Ref: 228
- 12) In women of childbearing age, the dimensions of the true pelvis are of utmost importance.
Answer: TRUE
Diff: 1 Page Ref: 239
- 13) The term *vertebrochondral ribs* refers to ribs that attach to each other before they attach to the sternum.
Answer: TRUE
Diff: 1 Page Ref: 228
- 14) In the anatomical position, the lateral forearm bone is the radius.
Answer: TRUE
Diff: 1 Page Ref: 234
- 15) The vomer forms part of the nasal septum.
Answer: TRUE
Diff: 1 Page Ref: 213
- 16) The cranial vault of the skull is also called the calvaria.
Answer: TRUE
Diff: 1 Page Ref: 203

- 17) The lacrimal bones contain openings that allow the tear ducts to pass.
Answer: TRUE
Diff: 1 Page Ref: 213
- 18) The largest and strongest bone of the face is the maxilla.
Answer: FALSE
Diff: 2 Page Ref: 211-212
- 19) Each intervertebral disc possesses a nucleus pulposus and an annulus fibrosus.
Answer: TRUE
Diff: 1 Page Ref: 220
- 20) There are seven cervical, twelve thoracic, and five lumbar vertebrae.
Answer: TRUE
Diff: 1 Page Ref: 218-219
- 21) Lordosis affects the thoracic vertebrae.
Answer: FALSE
Diff: 1 Page Ref: 219
- 22) All vertebrae possess a body, a spine, and transverse foramina.
Answer: FALSE
Diff: 1 Page Ref: 221
- 23) The dens articulates with the axis.
Answer: FALSE
Diff: 1 Page Ref: 222
- 24) The master gland of the body (pituitary gland) is housed in a saddlelike depression in the temporal bone called the sella turcica.
Answer: FALSE
Diff: 2 Page Ref: 209
- 25) The ischium articulates with both the ilium and the pubis.
Answer: TRUE
Diff: 2 Page Ref: 237; Fig. 7.27

Multiple-Choice Questions

- 1) A structure found on the femur is the _____.
- A) anterior crest
 - B) malleolus
 - C) linea aspera
 - D) apex
- Answer: C
Diff: 1 Page Ref: 241

2) Which forms the major portion of the coxal bone?

- A) ischium
- B) pubis
- C) ilium
- D) pelvic

Answer: C

Diff: 1 Page Ref: 237

3) The inferiormost part of the sternum is the _____.

- A) xiphoid process
- B) body
- C) manubrium
- D) ala

Answer: A

Diff: 1 Page Ref: 226-227

4) The membranous areas between the cranial bones of the fetal skull are called _____.

- A) areolas
- B) foramina
- C) sutures
- D) fontanel

Answer: D

Diff: 1 Page Ref: 247

5) The axial skeleton contains _____.

- A) the skull, vertebral column, and pelvis
- B) arms, legs, hands, and feet
- C) the skull, vertebral column, and rib cage
- D) shoulder and pelvic girdles

Answer: C

Diff: 1 Page Ref: 203

6) The ethmoid bone is composed of all of the following *except* the _____.

- A) superior nasal concha
- B) crista galli
- C) cribriform plate
- D) inferior nasal concha

Answer: D

Diff: 1 Page Ref: 210-211

7) Only the _____ vertebra does *not* have a body.

- A) last lumbar
- B) axis
- C) atlas
- D) last cervical

Answer: C

Diff: 1 Page Ref: 221

8) The suture that connects the two parietal bones together is the _____.

- A) coronal
- B) sagittal
- C) lambdoid
- D) squamosal

Answer: B

Diff: 1 Page Ref: 207

9) The pituitary gland is housed in the _____.

- A) vomer bone
- B) sinuses of the ethmoid
- C) sella turcica of the sphenoid
- D) foramen lacerum

Answer: C

Diff: 1 Page Ref: 209

10) The hyoid bone is unique because _____.

- A) it is the only bone of the body that does not articulate with any other bone
- B) it is shaped like a plow
- C) it is covered with mucosa
- D) it has no specific function

Answer: A

Diff: 1 Page Ref: 218

11) Along with support, the broad anterior ligament of the vertebral column also acts to _____.

- A) hold the discs in place
- B) prevent hyperextension of the spine
- C) hold the spine erect
- D) protect the spinal cord

Answer: B

Diff: 1 Page Ref: 220

12) The major function of the intervertebral discs is to _____.

- A) absorb shock
- B) string the vertebrae together
- C) prevent injuries
- D) prevent hyperextension

Answer: A

Diff: 1 Page Ref: 220

13) All of the following facial bones are paired *except* one. Which of the following is the *unpaired* facial bone?

- A) palatine
- B) lacrimal
- C) vomer
- D) maxillae

Answer: C

Diff: 1 Page Ref: 212

14) Paranasal sinuses are found in which of these facial bones?

- A) zygomatic
- B) nasal conchae
- C) vomer
- D) maxillae

Answer: D

Diff: 1 Page Ref: 214, 218

15) Which of the following is an abnormal lateral curvature of the vertebral column often seen in the thoracic region?

- A) kyphosis
- B) scoliosis
- C) lordosis
- D) swayback

Answer: B

Diff: 1 Page Ref: 219

16) Which of the following phrases best describes the function of the vertebral curves?

- A) to provide resilience and flexibility
- B) to accommodate muscle attachment
- C) to absorb shock and trauma
- D) to accommodate the weight of the pelvic girdle

Answer: A

Diff: 1 Page Ref: 219

17) The body or centrum of the thoracic vertebrae are _____.

- A) triangular
- B) oval
- C) heart shaped
- D) round

Answer: C

Diff: 1 Page Ref: 222

18) Which part of the vertebral column receives the most stress by bearing most of the weight of the body?

- A) the sacrum
- B) the cervical region
- C) the lumbar region
- D) the sacral promontory

Answer: C

Diff: 1 Page Ref: 223

19) Which of the following statements is true regarding the location of the center of gravity of the body?

- A) It is 1 cm posterior to the sacral promontory.
- B) It is 2 cm anterior to the sacral foramina.
- C) It is 1 cm lateral to the sacroiliac joints of the pelvis.
- D) It is 1 cm superior to the median sacral crest.

Answer: A

Diff: 1 Page Ref: 225

20) Thoracic vertebrae T2 through T8 differ from the others in that _____.

- A) they have no transverse processes
- B) they have superior and inferior demifacets
- C) they have transverse foramina
- D) they have no intervertebral discs

Answer: B

Diff: 1 Page Ref: 222

21) The major function of the axial skeleton is to _____.

- A) give the body resilience
- B) provide an attachment point for muscles that allow movement
- C) provide central support for the body and protect internal organs
- D) provide a space for the heart and lungs

Answer: C

Diff: 1 Page Ref: 203

22) The antebrachium is composed of which of the following two bones?

- A) the radius and the ulna
- B) the humerus and the clavicle
- C) the scapula and the clavicle
- D) the humerus and the radius

Answer: A

Diff: 1 Page Ref: 232

23) The "true wrist" or carpus consists of _____.

- A) a group of eight short bones united by ligaments
- B) the phalanges
- C) the styloid processes of the radius and ulna
- D) the metacarpals

Answer: A

Diff: 1 Page Ref: 233

24) The short bone that attaches to the third metacarpal is the _____.

- A) trapezoid
- B) hamate
- C) capitate
- D) triquetral

Answer: C

Diff: 1 Page Ref: 235, 237

25) The bone in direct contact with the first metatarsal (big toe) is the _____.

- A) medial cuneiform
- B) lateral cuneiform
- C) cuboid
- D) calcaneus

Answer: A

Diff: 1 Page Ref: 244

26) The skull bone that the foramen magnum passes through is the _____.

- A) atlas
- B) axis
- C) occipital
- D) parietal

Answer: C

Diff: 2 Page Ref: 207

27) Choose the statement that is most correct about orbits.

- A) The orbits are formed of both facial and cranial bones.
- B) The orbits contain only facial bones.
- C) The orbits contain only cranial bones.
- D) The orbits are made entirely of cartilage.

Answer: A

Diff: 2 Page Ref: 213

28) Which of the following is true about paranasal sinuses?

- A) Paranasal sinuses open into the oral cavity.
- B) Paranasal sinuses enhance the resonance of the voice and lighten the skull.
- C) Paranasal sinuses contain passages acting as one-way valves.
- D) Paranasal sinuses are found in maxillary, ethmoid, and lacrimal bones.

Answer: B

Diff: 2 Page Ref: 214, 218

29) The middle nasal concha is part of which bone?

- A) maxilla
- B) zygomatic
- C) nasal
- D) ethmoid

Answer: D

Diff: 2 Page Ref: 211

30) The superior orbital fissure is formed in the sphenoid bone, whereas the inferior orbital fissure is formed between the _____ and _____.

- A) sphenoid/maxilla
- B) sphenoid/zygomatic
- C) sphenoid/ethmoid
- D) sphenoid/lacrimal

Answer: A

Diff: 2 Page Ref: 209-210, 213

31) Which of the following is the abnormal curve often seen in pregnant women as they attempt to preserve their center of gravity toward the end of the pregnancy?

- A) kyphosis
- B) spina bifida
- C) scoliosis
- D) lordosis

Answer: D

Diff: 2 Page Ref: 219

- 32) Thoracic vertebrae 11 and 12 are different from the others in which of the following characteristics?
- A) The orientation of the articular processes is different from all the other thoracic vertebrae.
 - B) The transverse processes do not have facets that articulate with the tubercles of the ribs.
 - C) There are two foramina on vertebrae 11 and 12.
 - D) The spinous processes are directed parallel with the centrum.

Answer: B

Diff: 2 Page Ref: 222

- 33) A bone that contains diaphysis and epiphysis areas, a curvature for strength, and is proportionally more compact than spongy bone is the _____.
- A) parietal bone
 - B) talus
 - C) humerus
 - D) cervical vertebra

Answer: C

Diff: 3 Page Ref: 230

- 34) The superior nasal concha is a part of which bone?
- A) vomer
 - B) ethmoid
 - C) sphenoid
 - D) maxilla

Answer: B

Diff: 2 Page Ref: 211

- 35) The articulation that most closely resembles a hinge in the body involves which bones?
- A) humerus-ulna
 - B) humerus-radius
 - C) femur-tibia
 - D) femur-fibula

Answer: A

Diff: 2 Page Ref: 232

- 36) The pelvic girdle does *not* include the _____.
- A) sacrum
 - B) ilium
 - C) ischium
 - D) pubis

Answer: A

Diff: 1 Page Ref: 237

- 37) The following is *not* a structure found on the ischium.
- A) superior ramus
 - B) inferior ramus
 - C) lesser sciatic notch
 - D) superior body

Answer: A

Diff: 2 Page Ref: 237, 239

38) Which of the following bones is *not* weight bearing?

- A) femur
- B) tibia
- C) fibula
- D) tarsus

Answer: C

Diff: 2 Page Ref: 244

39) The tibia is in contact with which tarsus?

- A) calcaneus
- B) cuboid
- C) navicular
- D) talus

Answer: D

Diff: 1 Page Ref: 242-244

Short Answer Questions

1) The heel bone is called the _____.

Answer: calcaneus

Diff: 1 Page Ref: 244

2) The lateral condyle of the femur articulates with the lateral condyle of the _____.

Answer: tibia

Diff: 1 Page Ref: 241

3) The medial condyle of the femur articulates with the medial condyle of the _____.

Answer: tibia

Diff: 1 Page Ref: 241

4) The largest foramen in the body is the _____ foramen.

Answer: obturator

Diff: 1 Page Ref: 239

5) The smallest short bone in the hand is the _____.

Answer: pisiform

Diff: 1 Page Ref: 235

6) The styloid process of the _____ points to the thumb.

Answer: radius

Diff: 1 Page Ref: 232

7) The large fossa on the anterior aspect of the scapula is the _____.

Answer: subscapular fossa

Diff: 1 Page Ref: 229

8) Only the _____ vertebrae have transverse foramina.

Answer: cervical

Diff: 1 Page Ref: 221

9) The _____ is the primary bone in the septum of the nose.

Answer: vomer

Diff: 1 Page Ref: 213

10) Your cheek is composed of the _____ bone.

Answer: zygomatic

Diff: 1 Page Ref: 213

11) Why is the area just distal to the tubercles of the humerus called the surgical neck?

Answer: This area is called the surgical neck because it is the most frequently fractured part of the humerus.

Diff: 2 Page Ref: 232

12) What are the fontanelles and what advantages do they confer on the fetus? The mother?

Answer: The fontanelles are regions of unossified, fibrous membrane in the skull allowing the cranium to enlarge and ease in the delivery of the child.

Diff: 2 Page Ref: 246

13) Describe the composition of the intervertebral discs.

Answer: Intervertebral discs are composed of an inner semifluid nucleus pulposus, which gives the discs elasticity and compressibility, and a covering of fibrocartilage, the annulus fibrosus, which limits expansion and holds successive vertebrae together.

Diff: 3 Page Ref: 220

14) Describe the differences between the bones of the lower and upper limb and briefly state why these differences exist.

Answer: The lower limbs carry the weight of the body and are subjected to exceptional forces. These bones are thicker and stronger. The upper limb bones are adapted for flexibility and mobility and are therefore smaller and lighter.

Diff: 3 Page Ref: 231, 239

15) How are the pectoral and pelvic girdles structurally different? How is this difference reflected in their functions?

Answer: The pectoral girdle moves freely across the thorax and allows the upper limb a high degree of mobility, while the pelvic girdle is secured to the axial skeleton to provide strength and support.

Diff: 3 Page Ref: 229, 237

16) How do the first two cervical vertebrae differ from other cervical vertebrae? What are their functions?

Answer: The atlas or C₁ vertebra has no body. It articulates with the skull with large curved articular surfaces to allow the skull to rock in a "yes" motion. The axis or C₂ vertebra has a dens that allows the axis to pivot, giving the head the "no" motion. The vertebral foramen of the atlas is enlarged so that when the head is pivoted in the "no" motion, the spinal cord can move.

Diff: 3 Page Ref: 221

17) Describe how the arches of the foot are maintained.

Answer: There are three arches: the medial and lateral longitudinal arches, and the transverse arch. Together they form a half-cone that distributes the weight of the body. They are maintained by the shape of the foot bones, strong ligaments, and by the pull of some tendons.

Diff: 3 Page Ref: 244-245

18) Which are the four major sutural bones and between which bones are they found?

Answer: 1. Coronal - parietal and frontal
2. Sagittal - between the parietal bones
3. Squamous - parietal and temporal
4. Lambdoidal - parietal and occipital

Diff: 1 Page Ref: 207

19) Which canal and three foramen are found going through the sphenoid bone?

- Answer: 1. Optical canal
2. Foramen rotundum
3. Foramen ovale
4. Foramen spinosum

Diff: 1 Page Ref: 209

20) If the hyoid bone is not attached to another bone why is it so important?

Answer: The hyoid acts as an attachment point for muscles in the throat region to connect the muscles in the lower jaw region. It allows for the muscles to make a right angle at the junction of the lower jaw and throat. The hyoid serves as a movable base for the tongue and its horns are attachment points for neck muscles that raise and lower the larynx during speech and swallowing.

Diff: 2 Page Ref: 218

21) What is the purpose of the articular processes of the vertebrae?

Answer: These processes (superior and inferior) allow the vertebral column to flex forward some, but lock the vertebrae if the column is flexed back. In a four-legged animal, such as a horse, these processes allow the back to remain in place while you ride it.

Diff: 2 Page Ref: 221

Essay Questions

1) After having a severe cold accompanied by nasal congestion, Jamila complained that she had a frontal headache and that the right side of her face ached. What specific bony structures probably became infected by the bacteria or viruses causing the cold?

Answer: The paranasal sinuses specifically the frontal sinus located in the frontal bone and the right maxillary sinus located in the right maxilla.

Diff: 3 Page Ref: 214, 218

2) A skeleton was found in a wooded area. It was brought to a forensic medicine laboratory for identification. The first thing the coroner did was determine the age, sex, and possible size of the person. What was examined in order to get this information?

Answer: By examining the shape of the pelvic inlet, the depth of the iliac fossa, the characteristics of the ilium, and the angle inferior to the pubic symphysis, one could determine the sex. Also significant for determining the sex of the skeleton are the position of the acetabulum, the shape of the obturator foramen, and the general design of the ischium. To determine the age of the individual, bone density and markings are important. The markings where muscles were attached will reveal information about the mass and the general shape of the person.

Diff: 3 Page Ref: 203-248

3) Jason is a 14-year-old who recently had his nose pierced. He tells his mother that the area is very tender and warm to the touch. The area is also red. The mother calls the pediatrician's office and the nurse recommends that the mother bring Jason in for evaluation. The nurse explains to the mother that a local infection can spread and cause serious harm. Where do you think the infection could spread and why?

Answer: Infection of nasal piercings can spread to the brain and cause serious complications. Infections in the brain may occur because of the direct extension from the ear, tooth, mastoid, or sinus infection.

Diff: 3 Page Ref: 207

- 4) Sharon is a 32-year-old horse trainer. While training a young horse, she was thrown off of the horse and suffered a mild head injury. The nurse inquires about the use of a helmet. Sharon replies, "This is the first time I have ever had a head injury from a horse. I don't think I need a helmet." Based on your understanding of the skull, how should the nurse respond to the client?

Answer: The skull is the body's most complex bony structure. It is formed by cranial and facial bones. The cranial bones, or cranium, enclose and protect the fragile brain. A helmet would add extra protection in sports where there is an increased risk for head injury.

Diff: 1 Page Ref: 203

- 5) You are a school nurse in a middle school. You are responsible for screening the children for scoliosis. What is involved in this screening?

Answer: Scoliosis literally means "twisted disease" and is an abnormal lateral curvature that occurs most often in the thoracic region. It is quite common during late childhood. The nurse would need to observe the child standing erect, disrobed from the waist up. An older girl may leave her bra on. The child is observed from behind and the nurse would note any asymmetry of the shoulders and hips. With the child bending forward so that the back is parallel to the floor, the nurse may observe from the side, noting asymmetry or prominence of the rib cage.

Diff: 1 Page Ref: 219

- 6) When administering cardiopulmonary resuscitation, the nurse should locate the tip of the xiphoid by placing two fingers on the xiphoid process and then placing the heel of the other hand just above this site on the lower half of the sternum. What complications do you think could occur if the nurse places his or her hand on the xiphoid process?

Answer: The lungs could be punctured by the xiphoid process.

Diff: 3 Page Ref: 226-227

