

# 10

## Surface and Regional Anatomy

### Answers and Explanations

#### I. Introduction to Surface Anatomy

##### A. Multiple Choice Questions

1. (e) – Most of the bones and muscles of the body can be palpated. Several glands and superficial lymph nodes also can be palpated.
2. (c) – Both observation and palpation are important techniques in learning the positions of body structures.

##### B. True–False Questions

1. False – A knowledge of surface anatomy will always be important to a diagnostician.
2. True – The effectiveness of observation and palpation is greatly diminished in an obese person because many features are obscured by excess body fat.
3. True – The hypodermis of an adult female is approximately 8% thicker than that of an adult male.

#### II. Surface Anatomy of the Newborn

##### A. Multiple Choice Questions

1. (c) – Because it is composed of different tissue, the umbilical cord does not become more darkly pigmented as pregnancy progresses, as do the areola, linea alba, and genitalia.
2. (a) – The general health of the nails is a good indicator of blood circulation because the nails are located at the terminal portion of the fingers and toes.
3. (d) – The absence of creases in the palms of the hands of a newborn indicates mental retardation.
4. (e) – The position and condition of many visceral organs of a newborn can be determined through palpation.

##### B. True–False Questions

1. False – Fetal hair is called lanugo.
2. True – Mongolian spots are common on dark-skinned newborns.
3. False – If normal development has occurred, the testes should be positioned within the scrotum at birth.

#### III. Head

##### A. Multiple Choice Questions

1. (b) – When contracted, the facial muscles are effective in producing facial expressions because they insert into the dermis of the skin.
2. (d) – Structure and function go hand-in-hand, and accessory structures of the eye have functions that aid vision and support and protect the eye.
3. (a) – The helix is the outer rim of the ear.
4. (c) – The apex of an organ or structure refers to its tip, or pointed portion.

##### B. True–False Questions

1. False – The cranium is the portion of the skull that surrounds the brain.
2. True – Technically speaking, the scalp extends posteriorly from the eyebrows.
3. True – The earlobe is highly vascular and blood can readily be drawn from this location.
4. True – Formed by the union of the two nasal bones, the bridge of the nose is supported by the nasal septum.

#### IV. Neck

##### A. Multiple Choice Questions

1. (d) – The lymph nodes in the right and left lateral regions of the neck frequently become inflamed as a result of respiratory or oral infections.
2. (b) – The thyroid cartilage of the larynx is more prominent in males than in females. The laryngeal prominence of the thyroid cartilage is commonly referred to as the Adam's apple.
3. (d) – The supraclavicular triangle of the neck is located posteriorly, where the cervical plexus and accessory nerve are positioned.
4. (c) – Located on the anterolateral side of the neck, the anterior cervical triangle can be divided into the carotid, submandibular, submental, and omotracheal triangles.

##### B. True–False Questions

1. False – The term *nucha* refers to a bony ridge on the occipital bone.
2. False – The larynx is the most prominent structure in the neck
3. True – The internal and external carotid arteries, the internal jugular vein, and the vagus nerve are contained within the carotid triangle.
4. True – The internal jugular vein, the common carotid artery, and the vagus nerve are enclosed in the carotid sheath.

#### V. Trunk

##### A. Multiple Choice Questions

1. (c) – The female perineal region becomes especially important during pregnancy and childbirth.
2. (a) – The triangle of auscultation is bounded by the median border of the scapula and two muscles. It is an important site at which to listen with a stethoscope for lung sounds.
3. (b) – A stethoscope may be placed at the level of the second rib to detect sounds arising from two of the four heart valves.
4. (d) – Extending from the xiphoid process to the symphysis pubis, the linea alba is located between the two rectus abdominis muscles.

##### B. True–False Questions

1. False – The first and the twelfth ribs are obscured and cannot be palpated.
2. False – The right costal arch is located over the liver.
3. True – Thoracic landmarks of the rib cage and pelvic landmarks of the pelvic girdle are used in reference to the abdomen.
4. True – In most people, the appendix is located in the right inferior quadrant of the abdomen, immediately below McBurney's point.
5. True – Because of its consistent position, the umbilicus is an important surface landmark.

#### VI. Pelvis and Perineum

##### A. Completion Questions

1. inguinal
2. perineum

#### VII. Shoulder and Upper Extremity

##### A. Multiple Choice Questions

1. (c) – The acromion is a prominent bony projection under the skin that can be observed anteriorly as a feature of surface anatomy.
2. (a) – On occasion, the deltoid muscle is used for an intramuscular injection because of its thickness and position relative to the nerves serving the upper extremity.
3. (b) – The brachial plexus is a composite of nerves in the axillary area of the upper extremity.
4. (c) – The latissimus dorsi muscle borders the axilla posteriorly and the pectoralis major muscle borders the axilla anteriorly.

5. (a) – The ulnar nerve can be palpated in the groove behind the medial epicondyle of the humerus in the elbow region.
6. (d) – The median cubital vein is easily accessed for venipuncture in the cubital fossa on the anterior aspect of the elbow.
7. (b) – The thick muscular mass at the anterior base of the thumb is known as the thenar eminence.

**B. True–False Questions**

1. True – The acromion and spine of the scapula are important surface landmarks at the shoulder.
2. True – Because the axillary portion of the female breast is prone to breast cancer, it should be examined carefully each month, along with the rest of the breast.
3. False – The radial pulse is taken directly over the radial artery on the anterolateral (thumb side) surface of the forearm near the wrist.
4. True – The tendon of the extensor pollicis brevis muscle and the tendon of the extensor pollicis longus muscle form the boundary of the anatomical snuffbox.
5. False – In anatomical position, the thumbs are laterally positioned and the fingers are pointed downward as the hand faces anteriorly.

**VIII. Buttock and Lower Extremity**

**A. Multiple Choice Questions**

1. (b) – Passing deep to the gluteal muscles, the sciatic nerve is vulnerable structure to injury when the buttock is used as an injection site.
2. (a) – The gluteal muscles are located in the gluteal (posterior hip) region.
3. (c) – Because of the passage of femoral vessels and the femoral nerve through the femoral ring, this site is prone to hernias.
4. (a) – Because they work against gravity and transport large volumes of blood, the great and small saphenous veins frequently become excessively enlarged in a condition called varicose veins.
5. (b) – The ball of the foot is located on the plantar surface, just proximal to the hallux (great toe).

**B. True–False Questions**

1. False – The buttock is a preferred site for intramuscular injections primarily because the muscles are thick in this area, and the sciatic nerve is safely positioned away from where the needle is generally inserted.
2. True – At the femoral triangle, the femoral artery is directly under the skin where it can be compressed against a bony portion of the os coxae.
3. True – The cubital fossa is located at the junction of the brachium and antebrachium in the upper extremity, and the popliteal fossa is located at the junction of the thigh and leg in the lower extremity.
4. True – This is an important pressure point in elderly people in assessing the relative amount of blood flowing to the most distal structures of the body.
5. False – The sciatic nerve is positioned posteriorly beneath the gluteal muscles.

**IX. Clinical Considerations**

**A. Multiple Choice Questions**

1. (d) – Any opening into the body is a potential site for pathogen entry.
2. (c) – A newborn with anencephaly will usually survive for only hours or a few days.
3. (a) – A cervical rib may be of clinical concern if it exerts pressure on the subclavian vein or a trunk of the brachial plexus, in which case the rib would be surgically removed.
4. (c) – A patent foramen ovale is a persistent hole through the interatrial septum of the heart.
5. (c) – A patent urachus is a clinical condition of the urinary system in which the urinary bladder retains a connection through the umbilicus via the urachus.
6. (d) – In a fecal fistula, a portion of the bowel contents is eliminated through the umbilicus.

7. (b) – Because the testes normally descend into the scrotum prenatally, they should be in this position at the time of birth. Failure of one or both of them to descend is of immediate clinical concern.
8. (b) – Between the fourth and seventh week of embryonic development, the limbs undergo immense change and are therefore most susceptible to teratogenic drugs and other factors that may cause birth defects of the appendages.
9. (a) – Inherited as a dominant trait, polydactyly is the most common limb deformity.
10. (a) – The clavicle is the most frequently broken bone in the human body because most people attempt to cushion a fall by extending the arm. In so doing, the clavicle takes the brunt of the blow.
11. (a) – The median nerve serves the flexor muscles of the hand and the adductor muscles of the thumb.
12. (d) – A fine stress fracture is thought to account for shinsplints.
13. (a) – Talipes is a congenital malformation in which the sole of the foot is twisted medially.
14. (d) – Only the most serious sprains may require surgery and/or casting.

**B. Matching Questions**

*Set 1:*

- |        |        |
|--------|--------|
| 1. (b) | 4. (c) |
| 2. (a) | 5. (e) |
| 3. (d) |        |

*Set 2:*

- |        |         |
|--------|---------|
| 1. (b) | 6. (g)  |
| 2. (c) | 7. (d)  |
| 3. (e) | 8. (h)  |
| 4. (a) | 9. (i)  |
| 5. (f) | 10. (j) |

*Set 3:*

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|--------|--------|
| 1. (b) | 5. (f) |
| 2. (c) | 6. (g) |
| 3. (a) | 7. (d) |
| 4. (e) |        |

*Set 4:*

- |        |        |
|--------|--------|
| 1. (a) | 6. (d) |
| 2. (i) | 7. (b) |
| 3. (h) | 8. (c) |
| 4. (g) | 9. (e) |
| 5. (f) |        |

*Set 5:*

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|--------|--------|
| 1. (d) | 4. (c) |
| 2. (b) | 5. (e) |
| 3. (a) | 6. (f) |

**C. Completion Questions**

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|----------------------|---------------------------|
| 1. teratogenic       | 9. angina pectoris        |
| 2. anencephaly       | 10. Meckel's diverticulum |
| 3. sphenoid          | 11. megacolon             |
| 4. nasal/mandible    | 12. 28                    |
| 5. hemivertebrae     | 13. peritonitis           |
| 6. murmur            | 14. Erb's point           |
| 7. cardiac tamponade | 15. epicondylitis         |
| 8. carcinoma         |                           |

**X. Chapter Review**

**A. Completion Questions**

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|--------------------------|---------------------------|
| 1. observation/palpation | 9. median furrow          |
| 2. vernix caseosa/lanugo | 10. McBurney's            |
| 3. fontanel              | 11. axilla                |
| 4. scalp                 | 12. brachial              |
| 5. philtrum              | 13. quadriceps/hamstrings |
| 6. carotid               | 14. saphenous             |
| 7. sternocleidomastoid   | 15. popliteal fossa       |
| 8. perineum              |                           |

**B. Matching Questions**

*Set 1:*

- |        |         |
|--------|---------|
| 1. (d) | 6. (g)  |
| 2. (i) | 7. (f)  |
| 3. (h) | 8. (e)  |
| 4. (a) | 9. (c)  |
| 5. (j) | 10. (b) |

*Set 2:*

- |        |        |
|--------|--------|
| 1. (c) | 4. (a) |
| 2. (f) | 5. (e) |
| 3. (b) | 6. (d) |