Answers to Study Questions

1. The nurse evaluates the musculoskeletal systems of children to be different from adults in which of the following ways?

   a. tendons and ligaments are weaker in children until puberty
   b. periosteum is not as strong in children
   c. bones of children are less porous and dense than adult bones
   d. skull bones are not rigid or fused at birth

   **Answer:** d. In the musculoskeletal systems of children, the tendons, ligaments, and periosteum are stronger than those of adults. Bones of children are more porous and less dense than bones of adults. The skull bones of children are not rigid or fused at birth to allow for ease of delivery and growth of the brain.

2. The immature bones differ from adult bones:

   a. because adult bones bend and do not break.
   b. because the bones continue to grow and have open epiphyseal growth plates.
   c. because immature bones have a weaker, less resilient periosteum.
   d. because they repair less rapidly.

   **Answer:** b. Immature bones are more likely to bend and not break, largely because the immature bones have a stronger, more resistant periosteum than adult bones.
Immature bones repair much more rapidly than adult bones, and are less likely to displace. The primary difference comparing immature bones to adult bones is the presence of open epiphyseal growth plates.

3. The nurse completes an orthopedic assessment of a 6-year-old child who has a new cast applied for a fractured radius. Which of the following clinical manifestations is a priority for the nurse to report immediately to the physician?

   a. skin around the cast is warm
   b. the child states that hand feels “asleep”
   c. edema in fingers that lessens with elevation
   d. capillary refill of three seconds in affected hand

**Answer:** b. The sensation of numbness or tingling indicates neurovascular impairment. If not reported immediately, the impairment can lead to permanent tissue or nerve damage. The skin around the cast often feels warm. Capillary refill of three seconds is acceptable. As long as edema is decreasing this is not an adverse sign.

4. Fractures in the pediatric population:

   a. are relatively rare.
   b. among preadolescents occur primarily in the lower extremities.
   c. are a frequent occurrence in about one half of all visits to any healthcare provider.
   d. include a “buckle fracture” that does not occur in the adult population.
**Answer:** d. Fractures in the pediatric population are quite common, and musculoskeletal injuries are among the most common causes for visits to the healthcare provider. Nearly 20% of all musculoskeletal injuries involve fractures. Fractures occur most frequently in the upper extremities among preadolescents, and most frequently in the lower extremities among adolescents. The immature bone will flex, bend, and “buckle” whereas a mature, adult bone will not.

5. The nurse is caring for a child with a new full-leg cast. Which of the following is an appropriate nursing intervention for this client?

   a. Avoid changing the child’s position for 24 hours after application of the cast.
   
   b. Handle the cast with the tips of the fingers.
   
   c. Avoid elevating the casted extremity until the cast is completely dry.
   
   d. Make sure that all cast edges are smooth and free of irritating projections.

**Answer:** d. The child’s position can be changed carefully using the palms of hands to allow cast to dry on all sides. The casted extremity should be elevated above the level of the heart to encourage venous return while the cast is drying. To prevent skin irritation and break-down, the cast edges should always be smooth and free of projections.

6. What do osteomyelitis, septic arthritis, and transient synovitis have in common?

   a. A limping child is a significant presenting symptom.
   
   b. The child presents with a high fever.
c. The site of pain is also located by redness of skin.

d. These three maladies always involve the hip joint.

**Answer:** a. Limping is a commonly shared symptom present in osteomyelitis, septic arthritis, and transient synovitis. Fever is more typical of patients with osteomyelitis and septic arthritis, involving infections, while transient synovitis is an inflammation. All can present with a fever around 101 degrees F (not high fever). Soft tissue involvement and redness of skin is more typical of osteomyelitis. Septic arthritis affects primarily the ankle, knee, and hip. Osteomyelitis affects the long bones, and transient synovitis affects only the hip joint.

7. What is the primary difference between septic arthritis and transient synovitis?

a. A needle aspiration of the hip will produce clear synovial fluid in both cases.

b. Septic arthritis is never in the hip joint.

c. Transient synovitis is always benign.

d. Neither transient synovitis nor septic arthritis present with systemic symptoms.

**Answer:** c. Septic arthritis is a serious infection, while transient synovitis is benign. Only a needle aspiration (“gold standard”) can confirm the diagnosis for septic arthritis and identify the infectious agent; the fluid will not be clear, but cloudy. Septic arthritis affects the hip, the ankle, and the knee joints, while transient synovitis affects only the hip joint. Both patients will present with systemic symptoms, one set caused by infection and the other by inflammation.
8. The nurse caring for a child with muscular dystrophy observes the child using the Gower maneuver while trying to:
   a. sit.
   b. walk.
   c. stand.
   d. bend over.

**Answer:** c. At about 5 or 6 years of age children with muscular dystrophy must use their hands to walk up their legs to achieve the standing position. This is called the Gower maneuver.

9. With an upright adolescent girl with scoliosis, viewed from the posterior, the spine:
   a. will be straight as an arrow.
   b. will form a hump near the base of the neck.
   c. will form an “S-like” curve.
   d. will bend at the waist with her shoulders toward you.

**Answer:** c. Scoliosis is the lateral curvature (“S” shaped) of the spine with vertebral body rotation. The normal spine will be straight or vertical. Humped back is descriptive of kyphosis. A deep bend at the waist is descriptive of lordosis.

10. The nurse should assess a child admitted with a diagnosis of slipped capital femoral epiphysis for which of the following additional health problems?
   a. emaciated appearance
b. nutritional anemia

c. developmental delays

d. obesity

**Answer:** d. The upper femoral epiphysis slips from its functional position in slipped capital femoral epiphysis. The incidence of slipped capital femoral epiphysis is greatest in African-American obese males. An emaciated appearance, anemia, and developmental delays are not usually associated with this diagnosis. Some younger children who are thin with other endocrine disorders may also present with SCFE, but these children will not be anemic, emaciated, or display developmental delays.