Anatomy & A&P 06 Skeletal System Essay

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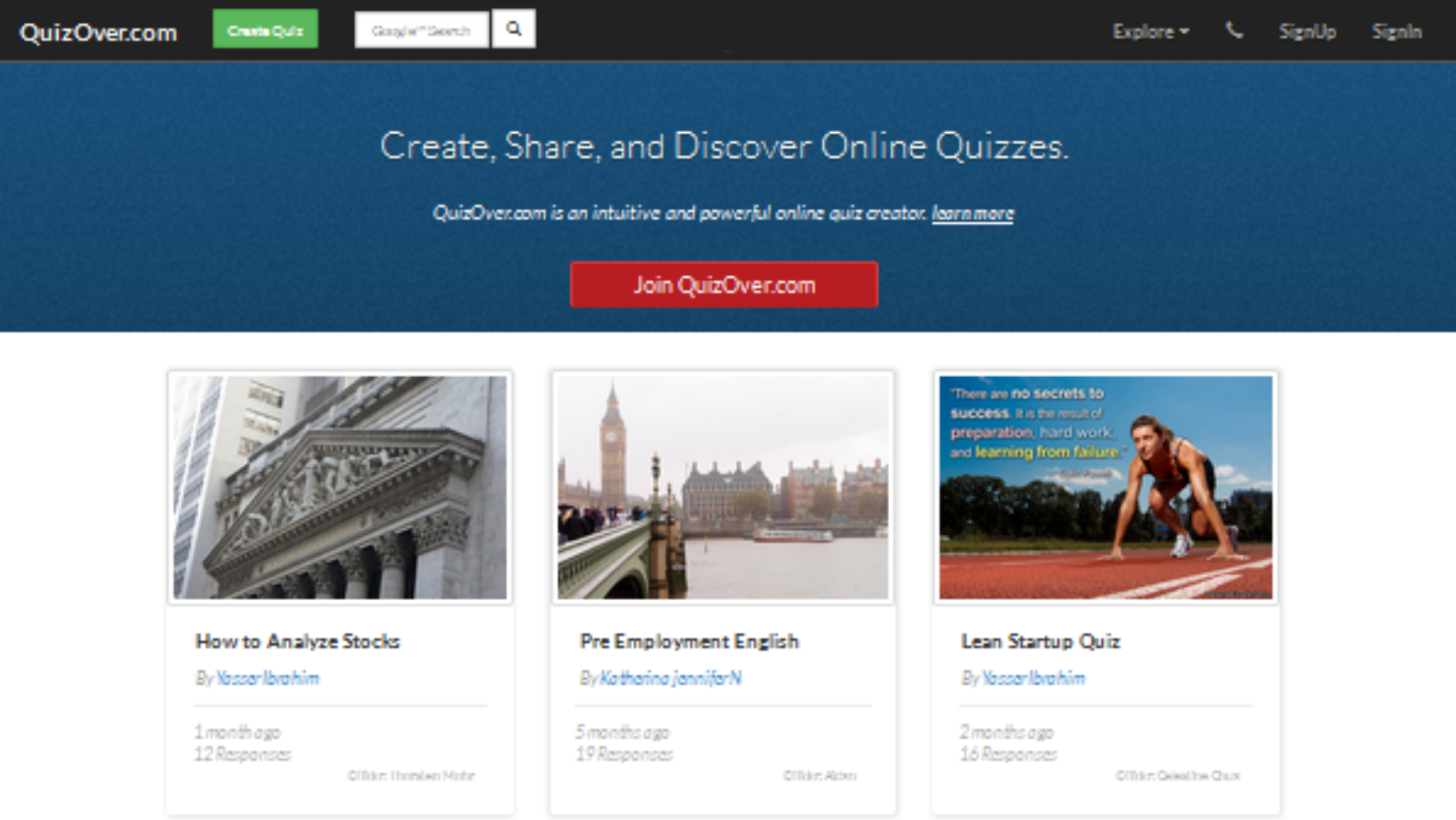
Published 2014



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4. Chapter: A&P 06 Skeletal System Essay

1. A&P 06 Skeletal System Essay Questions

4.1.1. The skeletal system is composed of bone and cartilage and has many ...

Author: OpenStax College

The skeletal system is composed of bone and cartilage and has many functions. Choose three of these functions and discuss what features of the skeletal system allow it to accomplish these functions.

- It supports the body. The rigid, yet flexible skeleton acts as a framework to support the other organs of the body.
  It facilitates movement. The movable joints allow the skeleton to change shape and positions; that is, move.
  It protects internal organs. Parts of the skeleton enclose or partly enclose various organs of the body including our brain, ears, heart, and lungs.
  Any trauma to these organs has to be mediated through the skeletal system. It produces blood cells.
  The central cavity of long bones is filled with marrow. The red marrow is responsible for forming red and white blood cells.
  It stores and releases minerals and fat. The mineral component of bone, in addition to providing hardness to bone, provides a mineral reservoir that can be tapped as needed.
  Additionally, the yellow marrow, which is found in the central cavity of long bones along with red marrow, serves as a storage site for fat.

Check the answer of this question online at QuizOver.com:
Question: The skeletal system is composed of bone OpenStax College Anatomy

4.1.2. What are the structural and functional differences between a tarsal...

Author: OpenStax College

What are the structural and functional differences between a tarsal and a metatarsal?

- Structurally, a tarsal is a short bone, meaning its length, width, and thickness are about equal, while a metatarsal is a long bone whose length is greater than its width.
  Functionally, the tarsal provides limited motion, while the metatarsal acts as a lever.

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Question: What are the structural and functional OpenStax College Anatomy Quest

4.1.3. What are the structural and functional differences between the femu...

Author: OpenStax College

What are the structural and functional differences between the femur and the patella?

- Structurally, the femur is a long bone, meaning its length is greater than its width, while the patella, a sesamoid bone, is small and round.
  Functionally, the femur acts as a lever, while the patella protects the patellar tendon from compressive forces.

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Question: What are the structural and functional OpenStax College Anatomy Quest

4.1.4. If the articular cartilage at the end of one of your long bones wer...

Author: OpenStax College

If the articular cartilage at the end of one of your long bones were to degenerate, what symptoms do you think you would experience? Why?

- If the articular cartilage at the end of one of your long bones were to deteriorate, which is actually what happens in osteoarthritis,
  you would experience joint pain at the end of that bone and limitation of motion at that joint because there would be no cartilage to reduce friction between adjacent bones and there would be no cartilage to act as a shock absorber.

4.1.5. In what ways is the structural makeup of compact and spongy bone we...

Author: OpenStax College

In what ways is the structural makeup of compact and spongy bone well suited to their respective functions?

- The densely packed concentric rings of matrix in compact bone are ideal for resisting compressive forces, which is the function of compact bone.
  The open spaces of the trabeculated network of spongy bone allow spongy bone to support shifts in weight distribution, which is the function of spongy bone.

4.1.6. In what ways do intramembranous and endochondral ossification differ?

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In what ways do intramembranous and endochondral ossification differ?

- In intramembranous ossification, bone develops directly from sheets of mesenchymal connective tissue, but in endochondral ossification, bone develops by replacing hyaline cartilage.
  Intramembranous ossification is complete by the end of the adolescent growth spurt, while endochondral ossification lasts into young adulthood.
  The flat bones of the face, most of the cranial bones, and a good deal of the clavicles (collarbones) are formed via intramembranous ossification, while bones at the base of the skull and the long bones form via endochondral ossification.

4.1.7. Considering how a long bone develops, what are the similarities and...

Author: OpenStax College

Considering how a long bone develops, what are the similarities and differences between a primary and a secondary ossification center?

- A single primary ossification center is present, during endochondral ossification, deep in the periosteal collar.
  Like the primary ossification center, secondary ossification centers are present during endochondral ossification, but they form later, and there are two of them, one in each epiphysis.

Check the answer of this question online at QuizOver.com:
Question: Considering how a long bone develops what OpenStax College Anatomy

4.1.8. What is the difference between closed reduction and open reduction?...

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What is the difference between closed reduction and open reduction?

In what type of fracture would closed reduction most likely occur? In what type of fracture would open reduction most likely occur?

- In closed reduction, the broken ends of a fractured bone can be reset without surgery.
  Open reduction requires surgery to return the broken ends of the bone to their correct anatomical position.
  A partial fracture would likely require closed reduction. A compound fracture would require open reduction.

Check the answer of this question online at QuizOver.com:
Question: What is the difference between closed OpenStax College Anatomy Quest

4.1.9. In terms of origin and composition, what are the differences betwee...

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In terms of origin and composition, what are the differences between an internal callus and an external callus?

- The internal callus is produced by cells in the endosteum and is composed of a fibrocartilaginous matrix. The external callus is produced by cells in the periosteum and consists of hyaline cartilage and bone.

Check the answer of this question online at QuizOver.com:
Question: In terms of origin and composition what OpenStax College Anatomy

4.1.10. If you were a dietician who had a young female patient with a famil...

Author: OpenStax College

If you were a dietician who had a young female patient with a family history of osteoporosis, what foods would you suggest she include in her diet? Why?

- Since maximum bone mass is achieved by age 30, I would want this patient to have adequate calcium and vitamin D in her diet.
  To do this, I would recommend ingesting milk and other dairy foods, green leafy vegetables, and intact canned sardines so she receives sufficient calcium.
  Intact salmon would be a good source for calcium and vitamin D. Other fatty fish would also be a good vitamin D source.

4.1.11. During the early years of space exploration our astronauts, who had...

Author: OpenStax College

During the early years of space exploration our astronauts, who had been floating in space, would return to earth showing significant bone loss dependent on how long

they were in space. Discuss how this might happen and what could be done to alleviate this condition.

- Astronauts floating in space were not exerting significant pressure on their bones; they were "weightless." Without the force of gravity exerting pressure on the bones, bone mass was lost.
  To alleviate this condition, astronauts now do resistive exercise designed to apply forces to the bones and thus help keep them healthy.

Check the answer of this question online at QuizOver.com:
Question: During the early years of space exploration OpenStax College Anatomy

4.1.12. An individual with very low levels of vitamin D presents themselves...

Author: OpenStax College

An individual with very low levels of vitamin D presents themselves to you complaining of seemingly fragile bones.

Explain how these might be connected.

- Vitamin D is required for calcium absorption by the gut.
  Low vitamin D could lead to insufficient levels of calcium in the blood so the calcium is being released from the bones.
  The reduction of calcium from the bones can make them weak and subject to fracture.

4.1.13. Describe the effects caused when the parathyroid gland fails to res...

Author: OpenStax College

Describe the effects caused when the parathyroid gland fails to respond to calcium bound to its receptors.

- Under "normal" conditions, receptors in the parathyroid glands bind blood calcium.
  When the receptors are full, the parathyroid gland stops secreting PTH.
  In the condition described, the parathyroid glands are not responding to the signal that there is sufficient calcium in the blood and they keep releasing PTH, which causes the bone to release more calcium into the blood.
  Ultimately, the bones become fragile and hypercalcemia can result.