

# Anatomy & Physiology A&P 09 Joints Essay Quiz

Author: OpenStax College

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## 4. Chapter: A&P 09 Joints Essay Quiz

### 1. A&P 09 Joints Essay Quiz Questions

4.1.1. Go to this website (<http://openstaxcollege.org//childhand>) to view...

Author: OpenStax College

Go to this website (<http://openstaxcollege.org//childhand>) to view a radiograph (X-ray image) of a child's hand and wrist.

The growing bones of child have an epiphyseal plate that forms a synchondrosis between the shaft and end of a long bone.

Being less dense than bone, the area of epiphyseal cartilage is seen on this radiograph as the dark epiphyseal gaps located near the ends of the long bones, including the radius, ulna, metacarpal, and phalanx bones.

Which of the bones in this image do not show an epiphyseal plate (epiphyseal gap)?

- Although they are still growing, the carpal bones of the wrist area do not show an epiphyseal plate. Instead of elongating, these bones grow in diameter by adding new bone to their surfaces.

Check the answer of this question online at QuizOver.com:

Question: [Go to this website http://openstaxcollege](http://openstaxcollege.org//childhand) [OpenStax College Anatomy](http://www.quizover.com)

#### 4.1.2. Watch this video (<http://openstaxcollege.org/l/synjoints>) to see an...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/synjoints>) to see an animation of synovial joints in action.

Synovial joints are places where bones articulate with each other inside of a joint cavity.

The different types of synovial joints are the ball-and-socket joint (shoulder joint), hinge joint (knee), pivot joint (atlantoaxial joint, between C1 and C2 vertebrae of the neck), condyloid joint (radiocarpal joint of the wrist), saddle joint (first carpometacarpal joint, between the trapezium carpal bone and the first metacarpal bone, at the base of the thumb), and plane joint (facet joints of vertebral column, between superior and inferior articular processes).

Which type of synovial joint allows for the widest ranges of motion?

- Ball-and-socket joint.

Check the answer of this question online at [QuizOver.com](http://QuizOver.com):

Question: [Watch this video http://openstaxcollege](http://openstaxcollege.org/l/synjoints) OpenStax College Anatomy

#### 4.1.3. Visit this website (<http://openstaxcollege.org/l/gout>) to read about...

Author: OpenStax College

Visit this website (<http://openstaxcollege.org/l/gout>) to read about a patient who arrives at the hospital with joint pain and weakness in his legs.

What caused this patient's weakness?

- Gout is due to the accumulation of uric acid crystals in the body. Usually these accumulate within joints, causing joint pain. This patient also had crystals that accumulated in the space next to his spinal cord, thus compressing the spinal cord and causing muscle weakness.

Check the answer of this question online at QuizOver.com:

Question: [Visit this website http://openstaxcollege.org/l/gout](http://openstaxcollege.org/l/gout) OpenStax College Anatomy



4.1.4. Watch this animation (<http://openstaxcollege.org/l/hipreplace>) to o...

Author: OpenStax College

Watch this animation (<http://openstaxcollege.org/l/hipreplace>) to observe hip replacement surgery (total hip arthroplasty), which can be used to alleviate the pain and loss of joint mobility associated with osteoarthritis of the hip joint.

What is the most common cause of hip disability?

- The most common cause of hip disability is osteoarthritis, a chronic disease in which the articular cartilage of the joint wears away, resulting in severe hip pain and stiffness.

Check the answer of this question online at QuizOver.com:

Question: [Watch this animation http://openstaxcollege.org/l/hipreplace](http://openstaxcollege.org/l/hipreplace) OpenStax College Anatomy

4.1.5. Watch this video (<http://openstaxcollege.org//rheuarthritis>) to le...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org//rheuarthritis>) to learn about the symptoms and treatments for rheumatoid arthritis.

Which system of the body malfunctions in rheumatoid arthritis and what does this cause?

- The immune system malfunctions and attacks healthy cells in the lining of your joints. This causes inflammation and pain in the joints and surrounding tissues.

Check the answer of this question online at QuizOver.com:

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4.1.6. Watch this video (<http://openstaxcollege.org/l/anatomical>) to learn...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/anatomical>) to learn about anatomical motions.

What motions involve increasing or decreasing the angle of the foot at the ankle?

- Dorsiflexion of the foot at the ankle decreases the angle of the ankle joint, while plantar flexion increases the angle of the ankle joint.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org/l/anatomical](http://openstaxcollege.org/l/anatomical) OpenStax College Anatomy

#### 4.1.7. Watch this video (<http://openstaxcollege.org/l/TMJ>) to learn about ...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/TMJ>) to learn about TMJ.

Opening of the mouth requires the combination of two motions at the temporomandibular joint, an anterior gliding motion of the articular disc and mandible and the downward hinging of the mandible.

What is the initial movement of the mandible during opening and how much mouth opening does this produce?

- The first motion is rotation (hinging) of the mandible, but this only produces about 20 mm (0.78 in) of mouth opening.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org/l/TMJ](http://openstaxcollege.org/l/TMJ) OpenStax College Anatomy

#### 4.1.8. Watch this video (<http://openstaxcollege.org/l/shoulderjoint1>) for ...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/shoulderjoint1>) for a tutorial on the anatomy of the shoulder joint.

What movements are available at the shoulder joint?

- The shoulder joint is a ball-and-socket joint that allows for flexion-extension, abduction-adduction, medial rotation, lateral rotation, and circumduction of the humerus.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org/l/shoulderjoint1](http://openstaxcollege.org/l/shoulderjoint1) OpenStax College Anatomy

#### 4.1.9. Watch this video (<http://openstaxcollege.org/l/shoulderjoint2>) to l...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/shoulderjoint2>) to learn about the anatomy of the shoulder joint, including bones, joints, muscles, nerves, and blood vessels.

What is the shape of the glenoid labrum in crosssection, and what is the importance of this shape?

- The glenoid labrum is wedge-shaped in cross-section. This is important because it creates an elevated rim around the glenoid cavity, which creates a deeper socket for the head of the humerus to fit into.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege](http://openstaxcollege.org/l/shoulderjoint2) OpenStax College Anatomy



4.1.10. Watch this animation (<http://openstaxcollege.org/l/elbowjoint1>) to ...

Author: OpenStax College

Watch this animation (<http://openstaxcollege.org/l/elbowjoint1>) to learn more about the anatomy of the elbow joint.

What structures provide the main stability for the elbow?

- The structures that stabilize the elbow include the coronoid process, the radial (lateral) collateral ligament, and the anterior portion of the ulnar (medial) collateral ligament.

Check the answer of this question online at QuizOver.com:

Question: [Watch this animation http://openstaxcollege.org/l/elbowjoint1](http://openstaxcollege.org/l/elbowjoint1) OpenStax College Anatomy

4.1.11. Watch this video (<http://openstaxcollege.org/l/elbowjoint2>) to lear...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/elbowjoint2>) to learn more about the anatomy of the elbow joint, including bones, joints, muscles, nerves, and blood vessels.

What are the functions of the articular cartilage?

- The articular cartilage functions to absorb shock and to provide an extremely smooth surface that makes movement between bones easy, without damaging the bones.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege](http://openstaxcollege.org/l/elbowjoint2) OpenStax College Anatomy

4.1.12. Watch this video (<http://openstaxcollege.org//hipjoint1>) for a tut...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org//hipjoint1>) for a tutorial on the anatomy of the hip joint.

What is a possible consequence following a fracture of the femoral neck within the capsule of the hip joint?

- An intracapsular fracture of the neck of the femur can result in disruption of the arterial blood supply to the head of the femur, which may lead to avascular necrosis of the femoral head.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org//hipjoint1](http://openstaxcollege.org//hipjoint1) OpenStax College Anatomy

#### 4.1.13. Watch this video (<http://openstaxcollege.org/l/hipjoint2>) to learn ...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/hipjoint2>) to learn more about the anatomy of the hip joint, including bones, joints, muscles, nerves, and blood vessels.

Where is the articular cartilage thickest within the hip joint?

- The articular cartilage is thickest in the upper and back part of the acetabulum, the socket portion of the hip joint. These regions receive most of the force from the head of the femur during walking and running.

Check the answer of this question online at QuizOver.com:

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4.1.14. Watch this video (<http://openstaxcollege.org//flexext>) to learn mo...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org//flexext>) to learn more about the flexion and extension of the knee, as the femur both rolls and glides on the tibia to maintain stable contact between the bones in all knee positions.

The patella glides along a groove on the anterior side of the distal femur.

The collateral ligaments on the sides of the knee become tight in the fully extended position to help stabilize the knee.

The posterior cruciate ligament supports the knee when flexed and the anterior cruciate ligament becomes tight when the knee comes into full extension to resist hyperextension.

What are the ligaments that support the knee joint?

- There are five ligaments associated with the knee joint.  
The tibial collateral ligament is located on the medial side of the knee and the fibular collateral ligament is located on the lateral side.  
The anterior and posterior cruciate ligaments are located inside the knee joint.

Check the answer of this question online at QuizOver.com:  
Question: [Watch this video http://openstaxcollege.org//flexext](http://openstaxcollege.org//flexext) OpenStax College Anatomy

4.1.15. Watch this video (<http://openstaxcollege.org//kneejoint1>) to learn...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org//kneejoint1>) to learn more about the anatomy of the knee joint, including bones, joints, muscles, nerves, and blood vessels.

Which ligament of the knee keeps the tibia from sliding too far forward in relation to the femur and which ligament keeps the tibia from sliding too far backward?

- The anterior cruciate ligament prevents the tibia from sliding too far forward in relation to the femur and the posterior cruciate ligament keeps the tibia from sliding too far backward.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org//kneejoint1](http://openstaxcollege.org//kneejoint1) OpenStax College Anatomy



4.1.16. Watch this video (<http://openstaxcollege.org//kneeinjury>) to learn...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org//kneeinjury>) to learn more about different knee injuries and diagnostic testing of the knee.

What are the most causes of anterior cruciate ligament injury?

- The anterior cruciate ligament (ACL) is most commonly injured when traumatic force is applied to the knee during a twisting motion or when side standing or landing from a jump.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege](http://openstaxcollege.org//kneeinjury) OpenStax College Anatomy

4.1.17. Watch this video (<http://openstaxcollege.org/l/anklejoint1>) for a t...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/anklejoint1>) for a tutorial on the anatomy of the ankle joint.

What are the three ligaments found on the lateral side of the ankle joint?

- The ligaments of the lateral ankle are the anterior and posterior talofibular ligaments and the calcaneofibular ligament.  
These ligaments support the ankle joint and resist excess inversion of the foot.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege](http://openstaxcollege.org/l/anklejoint1) OpenStax College Anatomy

4.1.18. Watch this video (<http://openstaxcollege.org/l/anklejoint2>) to lear...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/anklejoint2>) to learn more about the anatomy of the ankle joint, including bones, joints, muscles, nerves, and blood vessels.

The ankle joint resembles what type of joint used in woodworking?

- Because of the square shape of the ankle joint, it has been compared to a mortise-and-tenon type of joint.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org/l/anklejoint2](http://openstaxcollege.org/l/anklejoint2) OpenStax College Anatomy

#### 4.1.19. Watch this video (<http://openstaxcollege.org/l/anklejoint3>) to lear...

Author: OpenStax College

Watch this video (<http://openstaxcollege.org/l/anklejoint3>) to learn about the ligaments of the ankle joint, ankle sprains, and treatment.

During an inversion ankle sprain injury, all three ligaments that resist excessive inversion of the foot may be injured.

What is the sequence in which these three ligaments are injured?

- An inversion ankle sprain may injure all three ligaments located on the lateral side of the ankle. The sequence of injury would be the anterior talofibular ligament first, followed by the calcaneofibular ligament second, and finally, the posterior talofibular ligament third.

Check the answer of this question online at QuizOver.com:

Question: [Watch this video http://openstaxcollege.org/l/anklejoint3](http://openstaxcollege.org/l/anklejoint3) OpenStax College Anatomy

#### 4.1.20. Define how joints are classified based on function. Describe and gi...

Author: OpenStax College

Define how joints are classified based on function. Describe and give an example for each functional type of joint.

- Functional classification of joints is based on the degree of mobility exhibited by the joint.  
A synarthrosis is an immobile or nearly immobile joint. An example is the manubriosternal joint or the joints between the skull bones surrounding the brain.  
An amphiarthrosis is a slightly moveable joint, such as the pubic symphysis or an intervertebral cartilaginous joint.  
A diarthrosis is a freely moveable joint. These are subdivided into three categories. A uniaxial diarthrosis allows movement within a single anatomical plane or axis of motion.  
The elbow joint is an example. A biaxial diarthrosis, such as the metacarpophalangeal joint, allows for movement along two planes or axes.  
The hip and shoulder joints are examples of a multiaxial diarthrosis. These allow movements along three planes or axes.

Check the answer of this question online at [QuizOver.com](http://www.quizover.com):

Question: [Define how joints are classified based on OpenStax College Anatomy](#)

#### 4.1.21. Explain the reasons for why joints differ in their degree of mobility.

Author: OpenStax College

Explain the reasons for why joints differ in their degree of mobility.

- The functional needs of joints vary and thus joints differ in their degree of mobility.  
A synarthrosis, which is an immobile joint, serves to strongly connect bones thus protecting internal organs such as the heart or brain.  
A slightly moveable amphiarthrosis provides for small movements, which in the vertebral column can add together to yield a much larger overall movement.  
The freedom of movement provided by a diarthrosis can allow for large movements, such as is seen with most joints of the limbs.

Check the answer of this question online at QuizOver.com:

Question: [Explain the reasons for why joints differ OpenStax College Anatomy](#)



#### 4.1.22. Distinguish between a narrow and wide fibrous joint and give an exa...

Author: OpenStax College

Distinguish between a narrow and wide fibrous joint and give an example of each.

- Narrow fibrous joints are found at a suture, gomphosis, or syndesmosis.  
A suture is the fibrous joint that joins the bones of the skull to each other (except the mandible).  
A gomphosis is the fibrous joint that anchors each tooth to its bony socket within the upper or lower jaw. The tooth is connected to the bony jaw by periodontal ligaments. A narrow syndesmosis is found at the distal tibiofibular joint where the bones are united by fibrous connective tissue and ligaments.  
A syndesmosis can also form a wide fibrous joint where the shafts of two parallel bones are connected by a broad interosseous membrane.  
The radius and ulna bones of the forearm and the tibia and fibula bones of the leg are united by interosseous membranes.

Check the answer of this question online at QuizOver.com:

Question: [Distinguish between a narrow and wide OpenStax College Anatomy Quest](#)

#### 4.1.23. The periodontal ligaments are made of collagen fibers and are respo...

Author: OpenStax College

The periodontal ligaments are made of collagen fibers and are responsible for connecting the roots of the teeth to the jaws.

Describe how scurvy, a disease that inhibits collagen production, can affect the teeth.

- The teeth are anchored into their sockets within the bony jaws by the periodontal ligaments. This is a gomphosis type of fibrous joint. In scurvy, collagen production is inhibited and the periodontal ligaments become weak. This will cause the teeth to become loose or even to fall out.

Check the answer of this question online at QuizOver.com:

Question: [The periodontal ligaments are made of OpenStax College Anatomy Quest](#)

#### 4.1.24. Describe the two types of cartilaginous joints and give examples of...

Author: OpenStax College

Describe the two types of cartilaginous joints and give examples of each.

- Cartilaginous joints are where the adjacent bones are joined by cartilage.  
At a synchondrosis, the bones are united by hyaline cartilage.  
The epiphyseal plate of growing long bones and the first sternocostal joint that unites the first rib to the sternum are examples of synchondroses.  
At a symphysis, the bones are joined by fibrocartilage, which is strong and flexible.  
Symphysis joints include the intervertebral symphysis between adjacent vertebrae and the pubic symphysis that joins the pubic portions of the right and left hip bones.

Check the answer of this question online at QuizOver.com:

Question: [Describe the two types of cartilaginous OpenStax College Anatomy](#)

#### 4.1.25. Both functional and structural classifications can be used to descr...

Author: OpenStax College

Both functional and structural classifications can be used to describe an individual joint.

Define the first sternocostal joint and the pubic symphysis using both functional and structural characteristics.

- The first sternocostal joint is a synchondrosis type of cartilaginous joint in which hyaline cartilage unites the first rib to the manubrium of the sternum. This forms an immobile (synarthrosis) type of joint. The pubic symphysis is a slightly mobile (amphiarthrosis) cartilaginous joint, where the pubic portions of the right and left hip bones are united by fibrocartilage, thus forming a symphysis.

Check the answer of this question online at QuizOver.com:

Question: [Both functional and structural classifications OpenStax College Anatomy](#)

#### 4.1.26. Describe the characteristic structures found at all synovial joints.

Author: OpenStax College

Describe the characteristic structures found at all synovial joints.

- All synovial joints have a joint cavity filled with synovial fluid that is the site at which the bones of the joint articulate with each other.  
The articulating surfaces of the bones are covered by articular cartilage, a thin layer of hyaline cartilage. The walls of the joint cavity are formed by the connective tissue of the articular capsule. The synovial membrane lines the interior surface of the joint cavity and secretes the synovial fluid. Synovial joints are directly supported by ligaments, which span between the bones of the joint. These may be located outside of the articular capsule (extrinsic ligaments), incorporated or fused to the wall of the articular capsule (intrinsic ligaments), or found inside of the articular capsule (intracapsular ligaments).  
Ligaments hold the bones together and also serve to resist or prevent excessive or abnormal movements of the joint.

Check the answer of this question online at [QuizOver.com](http://www.quizover.com):

Question: [Describe the characteristic structures OpenStax College Anatomy Quest](#)

#### 4.1.27. Describe the structures that provide direct and indirect support fo...

Author: OpenStax College

Describe the structures that provide direct and indirect support for a synovial joint.

- Direct support for a synovial joint is provided by ligaments that strongly unite the bones of the joint and serve to resist excessive or abnormal movements.  
Some joints, such as the sternoclavicular joint, have an articular disc that is attached to both bones, where it provides direct support by holding the bones together.  
Indirect joint support is provided by the muscles and their tendons that act across a joint.  
Muscles will increase their contractile force to help support the joint by resisting forces acting on it.

Check the answer of this question online at [QuizOver.com](http://www.quizover.com):

Question: [Describe the structures that provide direct OpenStax College Anatomy](#)

#### 4.1.28. Briefly define the types of joint movements available at a ball-and...

Author: OpenStax College

Briefly define the types of joint movements available at a ball-and-socket joint.

- Ball-and-socket joints are multiaxial joints that allow for flexion and extension, abduction and adduction, circumduction, and medial and lateral rotation.

Check the answer of this question online at [QuizOver.com](http://QuizOver.com):

Question: [Briefly define the types of joint movements OpenStax College Anatomy](#)

#### 4.1.29. Discuss the joints involved and movements required for you to cross...

Author: OpenStax College

Discuss the joints involved and movements required for you to cross your arms together in front of your chest.

- To cross your arms, you need to use both your shoulder and elbow joints. At the shoulder, the arm would need to flex and medially rotate. At the elbow, the forearm would need to be flexed.

Check the answer of this question online at QuizOver.com:

Question: [Discuss the joints involved and movements OpenStax College Anatomy](#)



#### 4.1.30. Discuss the structures that contribute to support of the shoulder j...

Author: OpenStax College

Discuss the structures that contribute to support of the shoulder joint.

- The shoulder joint allows for a large range of motion.  
The primary support for the shoulder joint is provided by the four rotator cuff muscles. These muscles serve as "dynamic ligaments" and thus can modulate their strengths of contraction as needed to hold the head of the humerus in position at the glenoid fossa. Additional but weaker support comes from the coracohumeral ligament, an intrinsic ligament that supports the superior aspect of the shoulder joint, and the glenohumeral ligaments, which are intrinsic ligaments that support the anterior side of the joint.

Check the answer of this question online at QuizOver.com:

Question: [Discuss the structures that contribute to OpenStax College Anatomy](#)

#### 4.1.31. Describe the sequence of injuries that may occur if the extended, w...

Author: OpenStax College

Describe the sequence of injuries that may occur if the extended, weight-bearing knee receives a very strong blow to the lateral side of the knee.

- A strong blow to the lateral side of the extended knee will cause the medial side of the knee joint to open, resulting in a sequence of three injuries.  
First will be damage to the tibial collateral ligament. Since the medial meniscus is attached to the tibial collateral ligament, the meniscus is also injured. The third structure injured would be the anterior cruciate ligament.

Check the answer of this question online at [QuizOver.com](http://www.quizover.com):

Question: [Describe the sequence of injuries that OpenStax College Anatomy Quest](#)

#### 4.1.32. Describe how synovial joints develop within the embryonic limb.

Author: OpenStax College

Describe how synovial joints develop within the embryonic limb.

- Mesenchyme gives rise to cartilage models of the future limb bones.  
An area called the joint interzone located between adjacent cartilage models will become a synovial joint.  
The cells at the center of the interzone die, thus producing the joint cavity.  
Additional mesenchyme cells at the periphery of the interzone become the articular capsule.

Check the answer of this question online at QuizOver.com:

Question: [Describe how synovial joints develop within OpenStax College Anatomy](#)

#### 4.1.33. Differentiate between endochondral and intramembranous ossification.

Author: OpenStax College

Differentiate between endochondral and intramembranous ossification.

- Intramembranous ossification is the process by which mesenchymal cells differentiate directly into bone producing cells.  
This process produces the bones that form the top and sides of the skull.  
The remaining skull bones and the bones of the limbs are formed by endochondral ossification.  
In this, mesenchymal cells differentiate into hyaline cartilage cells that produce a cartilage model of the future bone.  
The cartilage is then gradually replaced by bone tissue over a period of many years, during which the cartilage of the epiphyseal plate can continue to grow to allow for enlargement or lengthening of the bone.

Check the answer of this question online at QuizOver.com:

Question: [Differentiate between endochondral and OpenStax College Anatomy Quest](#)