Your notes

GCSE PE: revision notes

Joints and movement

Contents

1. Synovial joints
2. Types of joint
3. Movements at joints
4. Examples in sport
5. Key terms
6. Quick questions
7. What to do next

Synovial joints

- A joint is where two or more bones meet. Most joints used in sport are **synovial joints**, which allow a lot of movement.
- The joint capsule surrounds the joint and holds it together.
- The synovial membrane lines the capsule and releases **synovial fluid**, which lubricates the joint and reduces friction.
- **Cartilage** covers the ends of the bones, stopping them rubbing together and absorbing shock.
- Bursae are small fluid-filled sacs that reduce friction where tendons rub over bones.
- **Ligaments** join bone to bone and keep the joint stable.

Types of joint

- Ball and socket joints (shoulder and hip) allow movement in every direction, including rotation.
- Hinge joints (elbow, knee and ankle) allow **flexion** and **extension**, like a door.
- Pivot joints (the neck, between the atlas and axis vertebrae) allow rotation.
- Condyloid joints (the wrist) allow **flexion**, **extension**, **abduction** and adduction but not full rotation.

Movements at joints

- **Flexion**: the angle at a joint gets smaller, such as bending the knee.
- **Extension**: the angle at a joint gets bigger, such as straightening the arm.
- **Abduction**: movement away from the midline of the body, such as raising the arm sideways.
- **Adduction**: movement towards the midline, such as bringing the arm back down.
- Rotation: a bone turns about its own axis, such as the shoulder in a tennis serve.

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- Circumduction: a circular movement at a ball and socket joint, such as bowling in cricket.
- Plantar **flexion**: pointing the toes (the angle at the ankle increases). Dorsiflexion: pulling the toes up towards the shin.

Examples in sport

- Kicking a football: the knee extends at the moment of contact.
- A chest pass: the elbows extend to push the ball away.
- Jumping for a header: plantar **flexion** at the ankles helps push off.

Key terms

Synovial joint	A freely movable joint with a capsule and synovial fluid.
Synovial fluid	Liquid that lubricates a joint and reduces friction.
Cartilage	Smooth tissue on the ends of bones that absorbs shock.
Ligament	Tough tissue that joins bone to bone.
Bursa	A fluid-filled sac that reduces friction at a joint.
Flexion	A movement that decreases the angle at a joint.
Extension	A movement that increases the angle at a joint.
Abduction	Movement away from the midline of the body.
Adduction	Movement towards the midline of the body.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. What joins bone to bone?
2. What is the job of synovial fluid?
3. What type of joint is the knee?
4. What type of joint is the shoulder?
5. What type of joint is the wrist?
6. What type of joint lets you turn your head from side to side?
7. Which movement decreases the angle at a joint?
8. Which movement is pointing the toes?

Answers

1. Ligaments
2. To lubricate the joint and reduce friction
3. Hinge joint
4. Ball and socket joint
5. Condyloid joint
6. Pivot joint
7. Flexion

Your notes

8. Plantar flexion

What to do next

Practise 12 questions on this topic

Try 5 exam questions, with mark schemes

Read the lesson, one step at a time

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