

KS4 GCSE Physical Education



Exam Details:

Exam Board: AQA

Exam consists of two papers:

Paper 1: Physical Training, Anatomy and Physiology, and Movement analysis

(1hr 15mins)

Paper 2: Sports Psychology, Socio-cultural issues, Health, Fitness and well-being

(1hr 15mins)

Subject – GCSE Physical Education

Paper 1 – Physical Training

Topic	Content	☹	☺	☺
Health and Fitness	Definitions of 'Health' and 'Fitness' Relationship between health and fitness			
Components of fitness	Definitions (agility, balance, cardiovascular endurance (aerobic power) coordination, flexibility, muscular endurance, power/explosive strength (anaerobic power), reaction time, speed, strength (maximal, static, dynamic and explosive)			
Tests to measure components of fitness.	Sit and Reach/MSFT/Sit-up bleed test/Handgrip Dynamometer/One Rep Max/Standing Stork/Illinois/Vertical Jump/Broad Jump/Wall Toss Test/Ruler Drop/30m sprint			
Test Protocols (procedures)	See tests above – can you write out the instructions for each test? (you will need to know the facilities/equipment needed for each test and the measurements.			
Reasons for fitness testing	Increase confidence/motivation/bench mark/shows strengths & weaknesses etc.			
Limitations of fitness testing	Test are often not sport specific. They do not replicate movements of activities. They do not replicate competitive conditions required in sports etc.			
Reliability and validity	Reliability = Are you testing what you want to test? Validity = Have you repeated the test 3x?			
Methods of monitoring fitness – (How to test)	Heart rate/Calorie counting/Health questionnaires/screening/Blood Pressure/Heart Rate/diaries.			
Principles of Training (SPORT)	(SPORT) – Specific, Progressive overload (FITT), Reversibility, Tedium. You will need to understand all of the above and explain how the principles of training can be applied to improve fitness using a sporting example.			
Types of Training	Define and explain each type of training. You will also need to understand which type of training improves each component of fitness and the advantages and disadvantages of each. Continuous/fartlek/weight/circuit/interval/plyometric/Static stretching (mobility)			
High Altitude training	Explain how high altitude training is carried out. Benefits and limitations of altitude training.			
Calculating training zones	Definition of training thresholds. Calculate maximum heart rate. MHR = 220-age Calculate aerobic training zone = 60-80% of MHR Calculate anaerobic training zone = 80-90% of MHR			
Prevention of injuries	Complete a warm up. Over training to be avoid (too heavy weights). Appropriate footwear and clothing. Hydration. Correct technique etc.			
Structure of a training session	Warm up/fitness/skills/game/cool down			
Seasonal aspects	Training Cycle (Pre-season/competition (peak) season/post season)			
How do performers warm up?	Include: increasing intensity to raise heart rate, active/passive/dynamic stretching, proprioceptive neuromuscular facilitation (PNF) stretching and ensuring game specificity			
How do performers cool down?	Reducing heart rate and intensity, active recovery, ice baths, massage and stretching.			
Benefits of a warm up/cool down?	Reduce injury/mental and physical preparation/remove lactic acid/increase HR/prevent muscle soreness/increase body temperature/DOMS			

Paper 1 - Anatomy & Physiology

Function of the skeleton	Protection/support/movement/blood production/mineral storage/structural shape and points for attachments.			
Structure of the skeleton	Allows for movement, provides shape, the types of different bones allow for different types of movement, flat bones protect vital organs, different joints allow for different movement, the skeleton provides a point of attachment for muscles.			
Types of Bones	You need to be able to identify where these bones are on your body. Cranium, Vertebrae, Scapula, Humerus, Ribs, Sternum, Radius, Ulna, Pelvis, Femur, Tibia, Fibula, Talus, Patella (sits in front of knee).			
Types of synovial (freely moveable) joints	Synovial Joints = ball and socket (hip/shoulder)/hinge (knee/ankle/elbow)/pivot (neck)			
Structure of a synovial joint	Synovial membrane, synovial fluid, joint capsule, bursae, cartilage, ligament.			
Function of tendon, cartilage and ligaments	Definition of Tendon/cartilage/ligaments			
Names of Muscles	Biceps, triceps, deltoid, pectorals, latissimus dorsi, gluteals, quadriceps, hamstrings, gastrocnemius, rotator cuffs, abdominals, hamstring group, quadriceps group, tibialis anterior.			
Movement at a joint	Extension/flexion/adduction/abduction/rotation/circumduction/plantarflexion/dorsiflexion. You must be able to give sporting examples of each of these movements and understand what movements happens at each joint.			
Muscle Contractions	Isotonic contractions (change length) – eccentric (lengthens), concentric (shortens)– isometric contractions (stays the same) Antagonistic muscle action – agonists (prime movers), antagonists.			

Cardio-respiratory System Pathway of air	Pathway of air = mouth/nose – trachea – bronchi – bronchioles – lungs – alveoli			
Gaseous exchange	Gas exchanged at the alveoli – features that assist in gaseous exchange: large surface area of alveoli, moist thin walls (one cell thick), lots of capillaries, large blood supply, movement of gas from high concentration to low concentration.			
Characteristics of blood vessels	Capillaries/Veins/Arteries You must know the structure and function.			
Structure of Cardiovascular System (Heart)	Structure of the cardio system to include labelling of the heart: atriums (right & left), ventricles (right & left), pulmonary and systemic circulatory systems.			
The cardiac cycle and pathway of blood	Cardiac cycle = Deoxygenated blood into the right atrium – then into the right ventricle – the pulmonary artery then transports deoxygenated blood to the lungs – gas exchange occurs (blood is oxygenated) – pulmonary vein transports oxygenated blood back to the left atrium – then into the left atrium – before oxygenated blood is ejected and transported to the body via the aorta. Remember: Valves prevent backflow. Diastole = Filling of the chambers in the heart. Systole = Ejection of blood out of the heart. Cardiac output = stroke volume x heart rate.			
Definitions of Cardiac Output, Heart Rate, Stroke Volume,				
Mechanics of breathing	Inhaling and Exhaling. You must understand what happens to your intercostal muscles, rib cage, diaphragm when you inhale and exhale.			
Interpretation of a spirometer trace	You need to identify the following volumes on a spirometer trace and understand how these change from rest to exercise: tidal volume/expiratory reserve volume/inspiratory reserve volume/residual volume.			
Structure of the respiratory system	To include trachea, bronchus, bronchioles, alveoli, diaphragm.			
Short-term (immediate) effects of exercise	Increased heart rates, tidal volume, temperature, production of waste products.			
Anaerobic and Aerobic exercise EPOC	Definition and equations of aerobic (with oxygen) and anaerobic (without oxygen). Sporting examples of aerobic and anaerobic exercise. Definition of the term EPOC (oxygen debt)			
The recovery process (cool down/diet/ice baths)	Cool down – reduce HR and breathing rate/stretch/removal of lactic acid. Diet – rehydrate and replace carbohydrates. Ice baths – to prevent DOMS			
Immediate effects of exercise	Increase heart rate/sweating/red face/increase in breathing – explain why.			
Short term effects of exercise	Tiredness/fatigue/light headness/ nausea/ aching – delay onset of muscle soreness (DOMS)/cramp.			
Long-term effects of exercise	To include bone density, increased elasticity of muscles, hypertrophy, improved energy systems, increased stroke volume, decreased resting heart rate, blood pressure, decreased breathing frequency, increased vital capacity.			

Paper 1 – Movement Analysis

Planes	Sagittal, frontal, transverse. Types of movement that happen at each plan and sporting examples.			
Axes	Longitudinal, transverse, sagittal Types of movement that happen at each plan and sporting examples.			
Levers	identification of 1 st , 2 nd , 3 rd class levers. Basic drawings of fulcrum/load/effort of each lever system and sporting examples. The mechanical advantages of different classes of levers			

Paper 2 – Sports Psychology

Skill and Ability	Definitions of 'Skill' and 'ability'			
Classification of skills (skill continuums)	Basic definitions of the following skills, including sporting examples. Basic / Complex Open / Closed Self Paced / Externally paced Gross / Fine			
Definition of types of goals	Performance goals = personal performance/no social comparison Outcome goals = winning/final result			
Goal Setting	Why do we set goals? Focusing attention, improving effort, concentration and helping develop strategies for success.			
Goal Setting	How do we set goals? (SMART – Specific, measurable, accepted, realistic, time bound).			
Information Processing	Input-decision making-output-feedback You must be able to draw the model, define each stage and give a sporting example of each.			
Guidance	Visual/Verbal/Manual/Mechanical Define each type of guidance and give sporting examples of how it can be used.			

Feedback	Intrinsic & extrinsic, why do we give performers feedback? Knowledge of results/ Knowledge of performance Positive/negative feedback.			
Arousal	Definition of arousal			
Inverted 'U' Theory (arousal)	You must be able to draw and label (including axis) the Inverted U theory graph and explain the graph. Under aroused – optimal arousal – over aroused.			
How can you control arousal levels? Stress management techniques:	Deep breathing/Imagery/ visualisation/mental rehearsal/positive self talk– how can this help improve performance?			
Motivation	Intrinsic (from within) & Extrinsic (money/prizes/praise/achievements)			
Types of Aggression	Indirect aggression / Direct aggression Sporting examples of each			
Personality Types	Introvert or extrovert personality. You will need to know the characteristics of each personality types and the type of sport they will play.			
Motivation	Definition of each type of motivation and sporting examples: Intrinsic Motivation and Extrinsic Motivation			
Paper 2 – Health, fitness and well-being				
Reasons why people participate in physical activity. (Physical/social/mental)	<u>Physical reasons</u> – improves heart function, reduces the risk of some illness, avoid obesity etc. <u>Social reasons</u> - make friends, socialize, cooperation, teamwork. <u>Mental reasons</u> – reduces stress/tension, release of feel good hormone (serotonin), able to control emotions. <u>Fitness reasons</u> – improves fitness, reduces chance of injury.			
Consequences of a Sedentary Lifestyle	The risks of not exercising to include: stress, hypertension, obesity, atherosclerosis, poor self- esteem, poor body image and self-confidence, heart disease.			
Obesity	Definition of obesity. How does it affect performance in physical activity and sport			
Somatotypes	Endomorph/Mesomorph/Ectomorph What sports suit each somatotype?			
Energy	Energy is measured in calories (Kcal) and is obtained from the food we eat. Males require 2500kcal per day/ females require 2,000 kcals per day. Calorie intake will depend on age, gender, height, energy expenditure.			
Nutrition	The role of carbohydrates, fats, proteins and vitamins/minerals. Reasons for having a balanced diet. What does a balanced diet consist of?			
Reasons for maintaining water balance - Hydration	Definition of hydration. Understanding that water balance (hydration) prevents dehydration. Benefits of being hydrated.			
Paper 2 – Socio-cultural issues				
Engagement patters of different social groups	Gender/race/religion/culture/age/family/friends/peers and disability			
Factors that affect participation	Attitudes, role models. Accessibility, media coverage, stereotyping, culture, family commitments, available leisure time, education, socio-cultural income, adaptability, facilities, teachers/coaches, school experiences.			
Commercialisation	Definition of commercialisation Golden triangle – relationship between: Media > Sport > Sponsorship			
Positive and negative impacts of sponsorship and the media	The positive and the negative impacts of commercialised activity (sponsorship and media) on the following: performer, sport, officials, spectators and sponsors			
Technology in sport	Explain the 6 types of technological developments in sport (officials, facilities/clothing, ICT, safety, equipment, performance analysis). To include VAR/TMO/Hawkeye. What are the positive and negative impacts of technology for the following: performer, sport, officials, spectators, sponsors.			
Conduct of performers	Definitions of the following: etiquette, sportsmanship, gamesmanship, contact to compete.			
Drugs in Sport	Identify the different substances used in sport and outline the positive effects and negative side effects. (drugs = stimulants/narcotic analgesics/ anabolic agents/peptide hormones/diuretics) Which type of performers use different types of drugs? Advantages and disadvantages of taking performance enhancing drugs.			
Blood doping	How does blood doping occur? What are the side effects/side effects of it?			
Beta Blockers	What do they do? What are the side effects of them?			
Hooliganism	Why does hooliganism occur? (rivalries, hype, fuelled by alcohol/drugs, gang culture, frustrations (officials decision), display of masculinity) What are the strategies to combat hooliganism? (early kick-offs, all seated stadiums, segregation of fans, improves security, alcohol restrictions, travels bans, education of fans)			