

GCSE PE Full Revision Guide

Codes:

The Human Body and Movement in Physical Activity and Sport (Paper One)

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3.1.1.1 – Structure and Function of the Musculoskeletal System

- **Skeletal System**
 - Bones of the Body
 - Head and Neck = Cranium and Vertebrae
 - Shoulder = Scapula and Humerus
 - Chest = Ribs and Sternum
 - Elbow = Humerus, Radius, and Ulna
 - Hip = Pelvis and Femur
 - Knee = Femur, Tibia, and Patella
 - Ankle = Tibia, Fibula, and Talus
 - Structure of the Skeleton, Including Classification of Bones
 - Functions = Support, Movement, Structural Shape (and Point for Attachment), Protection of Vital Organs, Mineral Storage, and Blood Cell Production
 - Flat Bones = Cranium (Brain), Scapula (Posterior Upper Back), Sternum (Heart), Ribs (Lungs), Pelvis (Bladder) → **Protection of vital organs**
 - Long Bones = Humerus, Radius, Ulna, Tibia, Fibula → **Allow for gross (large) movement**
 - Short Bones = Talus → **Allow for fine (small) movement and provide stability and support**
 - Irregular Bones = Vertebrae → **Allow for movement and muscle attachment**
 - Sesamoid Bones = Patella → **Protect tendons from excessive wear and strain**
- **Muscular System**
 - Latissimus Dorsi, Deltoid, Rotator Cuffs, Pectorals, Biceps, Triceps, Abdominals, Hip Flexors, Gluteals, Hamstrings, Quadriceps, Gastrocnemius, Tibialis Anterior.
 - Tendons = **Connect muscle to bones**
 - Ligaments = **Connect bone to bone**
 - Cartilage = **Prevent friction of movement between bones**
 - Muscle Pairs (Including Agonist and Antagonist)
 - Agonist = Prime Mover → **The muscle that is contracting (shortening)**
 - Antagonist = Relaxer → **The muscle that is relaxing (lengthening)**
 - Biceps to Triceps
 - Hamstrings to Quadriceps
 - Gluteals to Hip Flexors
 - Gastrocnemius to Tibialis Anterior
 - Pectoralis Major to Latissimus Dorsi
 - Muscle Contraction
 - Isotonic **CONCENTRIC** Contraction → The muscle is shortening. **C** = **C**ontracting
 - Isotonic **ECCENTRIC** Contraction → The muscle is lengthening. **E** = **E**lasticating
 - Isometric Contraction → Tension but no movement.
- **Synovial Joints**
 - Types of Joints in the Body
 - Hinge Joints = Elbow, Knee, Ankle
 - Ball and Socket = Hip and Shoulder
 - Structure of a Synovial Joint (and what each component does)
 - Synovial Membrane
 - Synovial Fluid
 - Joint Capsule
 - Bursae
 - Cartilage
 - Ligament

- **Movement at a Joint**
 - Flexion = F → **F**lex those muscles in the mirror
 - Extension = E → **E**xtend your arm down
 - Abduction = AB → **A**bducted by aliens
 - Adduction = ADD → **A**dding the human back to earth
 - Rotation = R → **R**ound like a roundabout
 - Circumduction = C → **C**one movement
 - Plantar Flexion = P → **P**oint to the toes
 - Dorsiflexion = D → Like a **D**orsal Fin, pointing upward

 - Locations of the Movements
 - Flexion and Extension → Knee, Elbow, Hip, Shoulder
 - Abduction and Adduction → Hip and Shoulder
 - Circumduction and Rotation → Shoulder and Hip (Ankle for Circumduction)
 - Plantar Flexion and Dorsiflexion → Ankle

3.1.1.2 – Structure and Function of the Cardio-Respiratory System

- **Pathway of Air**
 - Mouth and Nose
 - Trachea
 - Bronchi
 - Bronchioles
 - Alveoli

- **Gaseous Exchange**
 - Where It Happens → **ALVEOLI**
 - Large Surface Area of the Alveoli
 - Thin Walls (One Cell Thick)
 - Diffusion
 - Capillary System
 - Movement of Gas → High concentration to low concentration
 - Oxygen combines with haemoglobin in the red blood cells to form oxyhaemoglobin.
 - Haemoglobin also carries carbon dioxide.

- **Blood Vessels**
 - Structure of **Arteries, Capillaries, and Veins**
 - Size and Diameter
 - Wall Thickness
 - Valves in Veins
 - Functions of Each

- **Structure of the Heart**
 - **Blue = Deoxygenated**
 - **Red = Oxygenated**
 - The Pathway of Blood through the Heart (Circulatory System)
 - **Vena Cava**
 - **Right Atrium**
 - **Valve**
 - **Right Ventricle**
 - **Pulmonary Artery → A = AWAY / Pulmonary = Lungs**
 - **Lungs to the Alveoli for gaseous exchange to take place**
 - **Pulmonary Vein → IN = INWARDS / Pulmonary = Lungs**
 - **Left Atrium**
 - **Valve**
 - **Left Ventricle**
 - **Aorta → A = AWAY**
 - **Body to the Working Muscles**

- **Cardiac Output, Stroke Volume, and Heart Rate, Including Blood Pressure**
 - Cardiac Output (Q) = Stroke Volume x Heart Rate

 - Stroke Volume (SV) = The volume of blood pumped out the heart with every beat. The average resting SV is approx. 70ml

 - Heart Rate (HR) = The number of times the heart beats in one minute. The average resting HR is approx. 70- beats per minute (BPM)

 - Blood Pressure (BP) = When the heart contracts and shunts blood into blood vessels
 - Systolic Value = Blood pressure while the heart is contracting
 - Diastolic Value = Blood pressure while the heart is relaxing

- **Mechanics of Breathing**
 - Inhaling (at rest)
 - The roles of the intercostals, rib cage, and diaphragm.
 - Exhaling (at rest)
 - The roles of the intercostals, rib cage, and diaphragm.
- **Spirometer Trace**
 - Lung Volumes
 - Tidal Volume → Amount of air breathed in with each normal breath. Average tidal volume is 0.5 litres or 500ml
 - Inspiratory Reserve Volume → Maximum amount of additional air that the lungs can take after a normal breath in (**INHALE**)
 - Expiratory Reserve Volume → Maximum amount of additional air that the lungs can force out after a normal breath out (**EXHALE**)
 - Residual Volume → Amount of air left in the lungs after a maximal out breath.
 - Labelling a Spirometer Trace
 - Correct Measurements (Litres)
 - Spirometer Lines (Breathing Rate)
 - Label each section (TV, IRV, ERV, RV)

3.1.1.3 – Aerobic and Anaerobic

- **Aerobic and Anaerobic Definitions**
 - Aerobic = With Oxygen
 - Anaerobic = Without Oxygen
- **Aerobic Respiration Equation (With Detail)**
 - Glucose + Oxygen → Energy + Carbon Dioxide + Water
- **Anaerobic Respiration Equation (With Detail)**
 - Glucose → Energy + Lactic Acid
- **Training Thresholds and Intensities**
 - Maximum Heart Rate = MHR)
 - $MHR = 220 - \text{Age}$
 - Aerobic Threshold = 60% to 80% of MHR
 - Anaerobic Threshold = 80% to 90% of MHR
 - $MHR = 220 - 16 = 204\text{bpm}$
 - Aerobic Threshold = 122bpm to 163bpm
 - $60\% = 0.6 \times 204 = 122\text{bpm}$
 - $80\% = 0.8 \times 204 = 163\text{bpm}$
 - Anaerobic Threshold = 163bpm to 184bpm
 - $80\% = 0.8 \times 204 = 163\text{bpm}$
 - $90\% = 0.9 \times 204 = 184\text{bpm}$
- **EPOC (Oxygen Debt)**
 - Seen when the anaerobic system has been used. This is because we have not used oxygen and need to restore the oxygen into our body. This is called **oxygen debt**.
 - EPOC stands are: **Excess Post-Exercise Oxygen Consumption**
 - During anaerobic exercise, we produce **lactic acid** which we need oxygen to remove. To repay the **oxygen debt**, the athlete needs to maintain an elevated breathing rate.
- **Recovery Process**
 - Cool Down → Maintain elevated breathing rate and heart rate (to promote blood flow). Stretching to remove lactic acid.
 - Manipulation of Diet → Rehydration and use of carbohydrates for energy.
 - Ice Baths and Massage → Prevention of Delayed Onset Muscle Soreness (DOMS).

3.1.1.4 – The Short and Long term Effects of Exercise

- **Immediate Effects (During Exercise)**
 - Hot and Sweaty
 - Red Skin (Blood flow raising to the skin)
 - Increase in depth and frequency of breathing
 - Increased heart rate

 - Effects on the body:
 - Cardiovascular System → Increased SV, increased HR, increased Q, increased BP
 - Respiratory System → Increased breathing rate, increased tidal volume
 - Cardio-Respiratory System → Increased oxygen uptake, increased carbon dioxide removal
 - Energy System → Increased lactate production
 - Muscular System → Increased body temperature, increased suppleness

- **Short-Term Effects (24-26 Hours After Exercise)**
 - Tiredness and Fatigue
 - Light-headedness
 - Nausea
 - Delayed Onset Muscle Soreness (DOMS)
 - DOMS → Muscle pain experienced 24-48 hours after intense exercise due to microscopic tears in the muscle fibres.

- **Long-Term Effects (Months and Years of Exercise)**
 - Body shape may alter
 - Muscle and Cardiac Hypertrophy
 - Improved components of fitness (Muscular strength, muscular endurance, speed, cardiovascular endurance etc.)
 - Lower resting heart rate → Bradycardia

 - Effects on the body:
 - Cardiovascular System → Cardiac hypertrophy, decreased resting HR, capillarisation of the lungs and muscles
 - Respiratory System → Increased number of functioning alveoli
 - Energy System → Increased production of energy from the aerobic system
 - Muscular System → Muscle hypertrophy, increased strength to the tendons, increased strength to the ligaments
 - Skeletal System → Increased bone density

3.1.2.1 – Levers System

- **Structure of the Lever → F, L, E = 1, 2, 3 (Know what goes in the middle)**
 - Line = Rigid Structure (**Bone**)
 - Triangle = Fulcrum (**Joint**)
 - Square = Load (**Weight**)
 - Arrow = Effort (**Movement**)

 - The fulcrum always goes **below** the line

 - The load always goes **above** the line

 - The effort can go **above** or **below** the line **BUT...**
 - First class lever, the arrow is pointing **DOWN**
 - Second class lever have the effort pointing **UP**
 - Third class lever have the effort pointing **UP**

- **First Class Lever**
 - **Fulcrum** in the **middle, below** the line.
 - **Load above** the line on either side.
 - **Effort above** or **below** the line but pointing **down**.

 - Found in the **neck** (header in football)
 - Fulcrum → Neck joint
 - Load → Football
 - Effort → Movement of the head (downward towards the chest)

 - Found in the **elbow** (extension movements, for example, an overhead throw in netball).
 - Fulcrum → Elbow joint
 - Load → Netball
 - Effort → Movement of the hands and arms post release (downwards on release)

- **Second Class Lever**
 - **Load** in the **middle, above** the line.
 - **Fulcrum below** the line on either side.
 - **Effort above** or **below** the line but pointing **up**.

 - Found in the **ankle** (calf raises or pushing off the blocks in a 100m sprint race)
 - Load → Bodyweight
 - Fulcrum → Ankle joint
 - Effort → Movement of the body upwards

- **Third Class Lever**
 - **Effort** in the **middle, above** or **below** the line but pointing up.
 - **Fulcrum below** the line on either side.
 - **Load above** the line on either side.

 - Found in the **knee** (kicking the ball in football) → Flexion of the knee
 - Effort → Movement of the leg going backwards
 - Fulcrum → Knee joint
 - Load → Bodyweight of the foot coming back

 - Found in the **elbow** (bicep curl) → Flexion of the elbow
 - Effort → Movement of the arm going upwards towards the body
 - Fulcrum → Elbow joint
 - Load → Dumbbell in the hand

- **Mechanical Advantage**
 - The efficiency of each level system is called the mechanical advantage
 - Mechanical Advantage = Effort Arm ÷ Load Arm
 - Load Arm (LA) → Part of the lever that is measured between the fulcrum and the load
 - Effort Arm (EA) → Part of the lever that is measured between the fulcrum and the effort
 - The second class lever will always have a mechanical advantage
 - Load Arm = Short, meaning a greater amount of weight can be moved easily
 - Effort Arm = Long, meaning the movement is larger, allowing for greater weight to be moved

3.1.2.2 – Planes and Axes

- **Planes (A “pane” of glass that we do not want to break)**
 - Sagittal Plane → Vertical plane that divides the body right and left
 - Frontal Plane → Vertical plane that divides the body front and back
 - Transverse Plane → Horizontal plane that divides the body upper and lower
 - Sagittal → Right and Left (Side to Side)
 - Frontal → Front and Back
 - Transverse → Upper and Lower (Top and Bottom)
- **Axes (A metal “rod” that cannot be bend or broken)**
 - Longitudinal Axis → Vertical axis that runs through the body top to bottom
 - Transverse Axis → Horizontal axis that runs through the body left to right
 - Sagittal Axis → Horizontal axis that runs through the body front to back
 - Longitudinal → Top and Bottom (Long ways through the bottom)
 - Transverse → Left to Right (Through the Hips)
 - Sagittal → Front to Back (Through the Stomach)
- **Planes and Axes Together**
 - Sagittal Plane and Transverse Axis (Front Somersault / Forward Roll)
 - Frontal Plane and Sagittal Axis (Cartwheel)
 - Transverse Plane and Longitudinal Axis (360 Twist / Discus Throw)

3.1.3.1 – The Relationship Between Health and Fitness

- **Health, Fitness, and Exercise**
 - Health = Complete physical, mental, and social wellbeing and not only that absence of illness or infirmity
 - Fitness = The ability to meet the demands of the environment
 - Exercise = A form of physical exercise done to improve health or fitness, or both
 - All three work together as a triangle, and a person cannot be deemed “fit and healthy” with the absence of one

3.1.3.2 – Component of Fitness

- **The Components of Fitness**
 - Agility → The ability to change direction quickly and under control
 - Balance → The ability to maintain the body's centre of mass above the base of support
 - Cardiovascular Endurance → The ability of the heart, lungs, and blood to transport oxygen over a long duration of time
 - Coordination → The ability to use two or more body parts together
 - Flexibility → The range of motion at a joint
 - Muscular Endurance → The ability to use voluntary muscles repeatedly without fatigue
 - Power (Explosive Strength) → The ability to perform strength performances quickly
 - Reaction Time → The time taken to respond to a stimulus
 - Strength (Maximal, Static and Dynamic) → The amount of force a muscle can exert against a resistance
 - Speed → The ability to put body part into motion quickly

- **Fitness Tests**
 - Agility → Illinois Agility Test
 - Balance → Stork Stand Test
 - Cardiovascular Endurance → Multi-Stage Fitness Test
 - Coordination → Wall Toss Test
 - Flexibility → Sit and Reach Test
 - Muscular Endurance → 60-Second Press-Up or Sit-Up Test
 - Power (Explosive Strength) → Vertical Jump Test
 - Reaction Time → Ruler Drop Test
 - Strength (Maximal, Static and Dynamic) → Hand Grip Dynamometer or One Rep Max Test
 - Speed → 30 Metre Sprint Test

- **Reasons for and Limitations of Fitness Testing**
 - Reasons For:
 - Identify strengths and weaknesses
 - Monitor improvement
 - Show a starting level of fitness
 - Shows training requirements
 - Compare data to normative data
 - Motivation and goal setting
 - Provide variety to a training programme

 - Limitations:
 - Tests are too general / not specific to the sport
 - Does not replicate movement found in sport / activity
 - Does not replicate competitive environment

 - Reliability:
 - Requires that the test should produce similar results each time
 - Specific environment for different tests that may not be the same as the competitive environment
 - Accurate timings and measurements

 - Validity:
 - Refers to the test that is being measured and what it claims to measure
 - Ensuring the test replicates the sporting demand

3.1.3.3 – Principles of Training

- **SPORT and FITT**
 - SPORT:
 - **Specificity** → Training is specific and relevant to the individual
 - **Progressive Overload** → Training FITT is increased over a period of time
 - **Reversibility** → The body can reverse or de-adapt if training stops or is reduced
 - **Tedium** → Adding variety to training to prevent boredom
 - FITT:
 - **Frequency** → Increase the number of training sessions
 - **Intensity** → Increased weight or level of power given
 - **Time** → Training for longer periods of time, or increasing the reps and sets
 - **Type** → Offer variety to the training programme
- **Types of Training**
 - Circuit Training
 - Continuous Training
 - Fartlek Training
 - Interval Training
 - Static Stretching
 - Weight Training
 - Plyometric Training

3.1.3.4 – Optimise Training and Prevent Injury

- **Training Thresholds (as identified in 3.1.1.3)**
 - MHR (220- Age)
 - Aerobic Threshold (60% to 80% of MHR) and Anaerobic Threshold (80% to 90% of MHR)
 - One Rep Max (ORM)
 - **Strength and Power (High Weight and Low Reps)** = Above 70% of ORM, three sets of 4-8 reps
 - **Muscular Endurance (Low Weight and High Reps)** = Below 70% of ORM, three sets of 12-15 reps
- **Injury Prevention**
 - Warm Up and Cool Down
 - Avoid Over Training, Including Rest and Recovery
 - Appropriate Clothing and Footwear
 - Taping and Bracing
 - Hydration
 - Stretches, but not overstretch
 - Technique and Form
- **Specific Training Techniques**
 - Training at high altitudes
 - Training above 2000 metres above sea level (less oxygen to work with)
 - No less than two weeks of training and living at the heightened altitude
- **Seasonal Aspects**
 - Pre-Season (Preparation)
 - General fitness, whilst targeting specific fitness needs
 - Competition and Peak Season (Playing)
 - Maintain fitness levels, whilst working on specific skill sets for the sport
 - Post-Season (Transition)
 - Rest and light fitness, with the aim to maintain fitness

3.1.3.5 – Effective Use of Warm Up and Cool Down

- **Warm Up**
 - Gradual pulse-raiser
 - Dynamic (moving) stretches
 - Static stretches
 - Skill based practices
 - Mental preparation

 - Benefits of a Warm Up:
 - Increased body temperature
 - Increased range of movement
 - Gradual increase to full pace
 - Psychology preparation
 - Practicing movements of skills for the competition phase

- **Cool Down**
 - Maintaining elevated breathing and heart rate (through jog to walking)
 - Gradual reduction in intensity
 - Static stretching

 - Benefits of a Cool Down:
 - Allows the body to recover
 - Removal of lactic acid, carbon dioxide, and other waste products
 - Prevention of delayed onset muscle soreness (DOMS)

3.1.4.1 – Demonstrate an Understanding of How Data is Collected

- Qualitative Data
 - Data that deals with descriptions (opinions) and words.
 - Qualitative = Literacy (words)
 - Collected through questionnaires, interviews, and observations

- Quantitative Data
 - Data that deals with numbers.
 - Quantitative = Numeracy (numbers)
 - Collected through questionnaires and surveys.

3.1.4.2 – Present Data

- How to Present Data
 - Bar Charts
 - Line Charts
 - Label the X and Y axes

3.1.4.3 – Analyse and Evaluate Data

- Interpretation of Data
 - Tables
 - Bar Charts
 - Line Charts
 - Pie Charts

3.2.1.1 – Classification of Skills

- **Continuums of Skills**
 - Any form of movement skills can be classified on a continuum.
 - A continuum is a range of sliding scale between two extreme points.

 - Skills can be classified according to how much they are affected by the sporting environment.
 - Examples are:
 - Other People (Opponents)
 - Terrain and Surface
 - Weather
 - Situation (Venue and Crowd)

- **Open and Closed Skills**
 - Open Skills → **Impacted by the environment**. For example, a pass in football when under pressure.
 - Closed Skills → **Not impacted by the environment**. For example, a gymnast performing a floor routine.

- **Self-Paced and Externally Paced Skills**
 - Self-Paced Skills → **Controlled by the performer**. For example, throwing a javelin.
 - Externally Paced Skill → **Controlled by the environment**. For example, a goalkeeper reacting to a shot on goal.

- **Basic and Complex Skills**
 - Basic Skills → **Simple skills, formed the foundation of more complex skills**. For example, running.
 - Complex Skills → **Difficult skills to complete**. For example, a cricket batter judging when to hit the ball.

- **Gross and Fine Skills**
 - Gross Skills → **Involve large muscle movement**. For example, a rugby tackle.
 - Fine Skills → **Involve precise movement using small muscle groups**. For example, throwing a dart.

3.2.1.2 – Use of Goal Setting and SMART Targets

- **Types of Goals**
 - Performance Goals → **Personal performance goal to achieve**.
 - Outcome Goals → **Winning and/or result goal to achieve**.

- **SMART Targets**
 - Specific → **States exactly what will need to be done**
 - Measurable → **Clear what success will look like**
 - Accepted → **Decided on by all participants in the process**
 - Realistic → **Know it is practical, and the steps to achieve it**
 - Time Bound → **State when it will be achieved**

3.2.1.3 – Basic Information Processing Model

- **Basic Information Processing Model**
 - Input → **Information from the display (senses), selective attention**
 - Decision Making → **Selection of appropriate response from memory (long and short term)**
 - Output → **Information sent to muscles to carry out the response**
 - Feedback → **Intrinsic (self) or Extrinsic (external)**

3.2.1.4 – Guidance and Feedback on Performance

- **Types of Guidance**
 - Visual (Seeing)
 - Demonstration
 - Image
 - Video
 - Observation
 - Verbal (Hearing)
 - Coaching Points
 - Coaches Feedback
 - Peer Feedback
 - Questioning
 - Manual (Physical)
 - Use of coach (hands on for sports such as gymnastics)
 - Mechanical (Use of Objects and Aids)
 - Use of external objects such as a harness (trampolining) and a bowling machine (cricket)
- **Types of Feedback**
 - Intrinsic Feedback
 - Personal feedback, within yourself
 - Extrinsic Feedback
 - Provided by an external source such as coaches and teammates
 - Knowledge of Results
 - Focuses on the end of the performance
 - For example, a performer's score, time, or position
 - Knowledge of Performance
 - Focuses on how well the athlete performed, and not the end result

3.2.1.5 – Mental Preparation for Performance

- **Arousal – The Inverted ‘U’ Theory**
 - Arousal → The level of activation and alertness experienced by a performer
 - Inverted U Theory → Suggests that sporting performance improves as the arousal levels increase, until a performer reaches “optimal arousal”. Anything beyond this can worsen performance
 - Low Arousal → **Under arousal and/or boredom**
 - Optimal Arousal → **Peak performance**
 - High Arousal → **Panic and/or aggression**
- **Visualisation and Mental Rehearsal**
 - Imagery → Mental technique in which the performer visualises themselves being successful
 - Creating an image through the five senses
 - Sight
 - Hearing
 - Touch
 - Smell
 - Taste
 - Mental Rehearsal → Performer pictures themselves executing a skill, or practices in their head a specific skill or routine
 - Reduces anxiety
 - Builds confidence
 - Overcome problems and find solutions
 - Improves concentration
 - Improves results
- **Preparation Techniques**
 - Breathing Control
 - Slowing down the breathing
 - Reduces anxiety
 - Steadies arousal levels
 - Self-Talk
 - Uses the voices in our heads.
 - Positive → “I can run faster”
 - Negative → “I’m not good at running”
- **Direct and Indirect Aggression**
 - Direct Aggression
 - Using physical contact to directly or deliberately hurt an opponent
 - Indirect Aggression
 - No physical harm caused, only mental health
 - Use of intimidation to make the opposition feel less confident

- **Introvert and Extrovert**
 - Introverts
 - Usually shy, quiet, and thoughtful
 - Do not need high levels of arousal
 - Can become easily over-aroused
 - Usually play individual sports (archery/golf) because they are self-motivated. Badminton singles players can be included in this
 - They play sports that require higher concentration levels and precision, leading to lower arousal levels
 - Extroverts
 - Usually sociable, enthusiastic, and talkative
 - Can become bored easily
 - Need a higher level of arousal to motivate them to prevent boredom
 - Usually play team sports that are fast paced (football/basketball), need low concentration and use gross skills
 - Usually leaders within a team because of their social skills and confidence
- **Intrinsic and Extrinsic Motivation**
 - Intrinsic Motivation
 - Comes from within the performer
 - Used for self-satisfaction, pride, or personal achievement
 - Extrinsic Motivation
 - Comes from an external source.
 - The performer is seeking reward from a competition, coach, peer, or family member.

3.2.2.1 – Engagement Patterns of Different Social Groups in Physical Activity and Sport

- **Social Groups in Society**
 - Age
 - Younger people are more exposed to sport (school sport)
 - Drop off rate → 16 years old (end of school sport provision)
 - Older people experience physiological changes (weight, decreased flexibility)
 - People gain responsibilities as they get older
 - Gender
 - Girls and Women:
 - Do not see relevance of PE and sport in their lives
 - Dislike taking part with boys or men
 - More motivated by having fun and making friends rather than competition
 - Feel judged and embarrassed
 - Less spare time due to childcare
 - Lack of role models
 - Lower media coverage of women's sports
 - Race, Religion, and Culture
 - Over half of people in black of minority ethnic (BME) communities do not take part in sport
 - 5% of coaches are BME
 - 7% of sports professionals are BME
 - Rules around religion and wear
 - Disability
 - Physical Barriers
 - Logistical Reasons
 - Psychological Reasons
 - Adaptability for sports and facilities
 - Paralympic Games
 - Family, Friends, and Peers
 - Passing judgement of choices
 - Peer pressure
 - Family factor → Sport that 'run' in the family
 - Expectations
- **Barriers to Participation**
 - Attitudes
 - Role Models
 - Accessibility
 - Media Coverage
 - Sexism and Stereotyping
 - Culture, Religion and Religious Festivals
 - Family Commitments
 - Available Leisure Time
 - Familiarity
 - Education
 - Socio-Economic Factors (Disposable Income)
 - Adaptability and Inclusiveness

3.2.2.2 – Commercialisation of Physical Activity and Sport

- **Commercialisation and The Golden Triangle**
 - Making a profit from sport using Sport, Media, and Sponsors
 - Sport benefits...
 - Increased participation levels
 - Improved performances
 - Attract support from others
 - Media benefits...
 - High profile stories
 - Attract listeners, viewers, and readers
 - Pay for Viewing platforms
 - Sponsors benefits...
 - Funding growth for companies
 - Coverage of products and services
 - Golden Triangle:
 - Relationship between the three avenues
 - All benefit from each other for financial gain
- **Types of Sponsorship and Media**
 - Types of Sponsorship
 - Financial
 - Clothing, Equipment and Footwear
 - Facilities
 - This also includes → Individual, team and clubs, whole sports, and events sponsorship
 - Types of Media
 - Television
 - Radio
 - Press (Newspapers)
 - Internet
 - Social Media
 - Films
- **Positives and Negatives of Sponsorship and The Media**
 - Performer
 - Sport
 - Official
 - Audience and Spectator
 - Sponsor and Company
- **Use of technology in Sport (Examples Including Positives and Negatives)**
 - Officials
 - Communication (Microphones)
 - Decision Making (Hawkeye (Cricket), VAR (Football))
 - Scoring
 - Timekeeping
 - Record-Keeping
 - Spectators
 - Camera Coverage
 - Statistical Information
 - Interactive Software

3.2.2.3 – Ethical and Socio-Cultural Issues in Physical Activity and Sport

- **Conduct of Performers**
 - Etiquette → The unwritten rules or customs of a sport
 - Sportsmanship → Playing within the rules and understanding sports etiquette
 - Gamesmanship → Without breaking the rules, players may bend the rules and use methods to gain an advantage
 - Contract to Compete → An unwritten agreement among participants to play fairly, adhere to rules, and display good sportsmanship

- **Prohibited Substances, Including Blood Doping**
 - Stimulants → Improves alertness and increased reaction time
 - Narcotic Analgesics → Painkillers like morphine, used to mask injuries and to tolerate pain
 - Anabolic Agents (Steroids) → Increased strength and recovery rate
 - Peptide Hormones → Already in the body (Growth Hormones and Erythropoietin, EPO), makes more red blood cells in the body
 - Diuretics → Hides other drugs (such as steroids) and helps the body to produce urine/water to help lose weight
 - Beta Blockers → Slows the heart rate down, reduces muscle tension, all to assist with effects of adrenaline
 - Blood Doping → Retransfer of blood cells to produce more red blood cells for greater oxygen consumption and use

High Case Examples of Doping:

- Lance Armstrong used **blood doping**, **Peptide Hormones (EPO)**, and **Diuretics** during the Tour de France. He was banned for life from sport and stripped of all his results from 1998 onwards including all Tour de France (7) titles and one Olympic medal.

- Diego Maradona used **stimulants** to increase his alertness and to reduce fatigue as well as **Ephedrine** which is a form of steroid used to reduce hypotension in the body.

- Russia's Olympic Team were found to have high levels of doping from the years of 2011 through to 2015. There were over 643 positive samples, with 139 being Athletics and 117 being Weightlifting. Russia was banned from the 2016 Rio Olympics and the 2020 (2021) Tokyo Olympics.

- **Spectator Behaviour**
 - Positives
 - Creation of Atmosphere
 - Home-Field Advantage
 - Negatives
 - Negative Effect on Performance as a Result of Increased Pressure
 - Crowd Trouble
 - Safety Costs and Concerns
 - Negative Effect on Participation Numbers Amongst Younger Performers

- **Hooliganism**
 - Types of Hooligan Supporters:
 - Groups of people who enjoy violence and fights – they attend sporting events with the sole purpose of acting in an abusive manner
 - Groups of people who do not intend on getting involved with the violent behaviour but get involved because they support their fellow fans

- Reasons for Hooliganism:
 - Alcohol and Drugs
 - Political Views
 - Controversial Decision
 - Violence by the Performers
 - Rivalries
 - Hype
 - Gang Culture
 - Display of Masculinity
- Strategies to Combat:
 - Early Kick-Offs
 - All-Seater Stadia
 - Segregation of Fans
 - Improved Security
 - Alcohol Restrictions
 - Travel Restrictions / Banning Orders
 - Education / Promotional Activity / Campaigns / High Profile Endorsements

3.2.3.1 – Physical, Emotional and Social Health, Fitness and Wellbeing

- **Physical Health and Wellbeing**
 - Linked to fitness, this includes:
 - Being physically active
 - Good levels of balance, coordination, and agility in everyday tasks
 - Good levels of strength, stamina, and suppleness for daily life
 - Having fewer illnesses, diseases, and injuries
- **Mental Health and Wellbeing**
 - Linked to personal wellbeing, this includes:
 - Having self-esteem and self-respect
 - Recognise and express feelings (correctly and safely)
 - Manage emotions to suit the situation
- **Social Health and Wellbeing**
 - Linked to overall wellbeing, this includes:
 - Interacting with a range of people
 - Self of belonging
 - Recognise the effects of actions on others
 - Aware of rights and responsibilities
- **Positive Lifestyle Choices**
 - Taking part in regular exercise
 - Balanced diet
 - Sufficient sleep
 - Balanced work/school and life situation
 - Relaxation and leisure time
 - Avoid or minimise harm to the body (smoking, alcohol, and drug use)
- **Negative Lifestyle Choices**
 - Not being physically active
 - Being too sedentary (sitting or lying down for long periods of time)
 - Unhealthy diet
 - Not enough sleep, or erratic sleep patterns
 - Harm to the body (smoking, drinking alcohol, and drug use)
 - Ignoring signs and symptoms of illness or emotional harm

3.2.3.2 – The Consequences of a Sedentary Lifestyle

- **Physical Activity Levels in the UK**
 - Children and Young People → At least 60 minutes per day, moderate to vigorous intensity
 - Adults → At least 150 minutes per week (5 sessions of 30 minutes), moderate to vigorous intensity
 - Moderate Intensity = Breathing harder, feeling warmer, heart rate is elevated and beating more rapidly. A person should be able to hold a conversation at this rate
 - Vigorous Intensity = Breathing much harder, feeling hotter, heart rate is more rapid. A person would struggle to hold a conversation at this rate

- **Sedentary Lifestyle**
 - ***A sedentary lifestyle is one with no or irregular physical activity and an excessive amount of daily sitting***
 - Behaviours include sitting at a desk (school or work), watching TV, playing computer games, being on social media (home), and driving a car, sitting on a train, bus, or aeroplane (travelling)

 - Risks include:
 - Becoming overweight or obese
 - Developing depression
 - Lethargy and no energy
 - Poor sleep patterns
 - Developing coronary heart disease (CHD)
 - High blood pressure (known as hypertension)
 - Increased risk of osteoporosis
 - Loss of muscle tone and development of poor posture

- **Obesity**
 - ***A medical condition characterised by having too much body fat***

 - Risks include:
 - Loss of fitness (cardiovascular endurance, flexibility, agility, and speed)
 - Causes physical ill-health → Cancer, heart disease, diabetes, high cholesterol
 - Causes mental ill-health → Depression, loss of confidence
 - Causes social ill-health → Inability to socialise, inability to leave home

- **Somatotypes**
 - Ectomorph
 - Thin and lean (usually tall)
 - Narrow shoulders, hips, and chest
 - Very little fat and muscle
 - Sporting examples → High jumper and Marathon runner

 - Endomorph
 - Pear-shaped body
 - High-fat content / tendency to store fat
 - Fat middle, thighs, and arms
 - Sporting examples → Shot putter and Rugby prop forward

 - Mesomorph
 - Low levels of fat, more muscle mass
 - Solid build
 - Wide shoulders, narrow hips
 - Sporting examples → Sprinter and Boxer

3.2.3.2 – Energy Use, Diet, Nutrition, and Hydration

- **Energy Use**
 - Energy is measured by calories (kcal), and energy is then used by the terms of **consumed** and **expended**
 - Men → 2,500 kcal per day
 - Female → 2,000 kcal per day
 - Factors include:
 - Age → Adults need to consume more than children
 - Gender → Men consume more than women (general thought)
 - Height → Taller people need to consume more
 - Energy Expenditure → More active people need to consume more
 - Weight Gain = More Energy Consumed / Less Energy Expended
 - Weight Loss = Less Energy Consumed / More Energy Expended
- **Nutrition (Balanced Diet)**
 - The body needs nutrients to stay healthy and function.
 - A balanced diet consists of:
 - Protein which should be 15% to 20% of intake
 - Carbohydrates which should be 55% to 60% of intake
 - Fats which should be 25% to 30% of intake
 - Minerals
 - Vitamins
 - Water and other fluid
- **Role of Protein, Carbohydrates, Fat, and Minerals/Vitamins**
 - Protein → Used for tissue growth.
 - Meat, fish, dairy, nuts, seeds, protein supplements
 - Carbohydrates → Used for energy which is divided into **simple** (sugars) and **complex** (starches) This is the main fuel of the body
 - **Simple** → Sugar, energy gels
 - **Complex** → Bread, potatoes, pasta, rice
 - Fats → Used for energy – Omega 3 and 6, saturated, and trans fats
 - **Omega 3 and 6** → Found in Avocados, oily fish, nuts
 - **Saturated** → Fatty meats, full-fat dairy
 - **Trans Fats** → Snack foods
 - Minerals → Used for bodily processes such as bone growth and blood cell production - Calcium, iron, zinc, and potassium
 - **Calcium** → Milk, canned fish, broccoli
 - **Iron** → Brown rice, red meat, watercress
 - **Zinc** → Shellfish, cheese
 - **Potassium** → Banana and other fruit, white meat, pulses
 - Vitamins → Used for bodily processes such as metabolic rate, immune system, and nervous system
 - **Vitamin A** → Dairy, oily fish, yellow fruit
 - **Vitamin B** → Vegetables, wholegrains
 - **Vitamin C** → Citrus fruit, broccoli, sprouts
 - **Vitamin D** → Oily fish, eggs

- **Water Balance (Hydration)**
 - The body needs fluid to be fully hydrated to be healthy
 - Failing to replace lost fluid leads to dehydration
 - Women need approx. 1.6 litres of water a day (8 glasses)
 - Men need approx. 2 litres of water a day (10 glasses)
 - A lack of hydration can lead to the thickening of blood
 - This is called **viscosity**
- **Fibre in the Diet**
 - Fibre is also important, but can only be found from plant-based foods
 - **Soluble** → Reduces cholesterol, found in oats, barley, fruit, and root vegetables
 - **Insoluble** → Keeps the bowel healthy, found in wholemeal (cereals and bread) and nuts
- **Specialist Diets**
 - **Carbohydrate Loading Diets** are used to provide an athlete with a lot of energy
 - Complex carbohydrates (starches) are stored as glycogen, then converted to glucose
 - Glucose is used through energy produced (respiration)
 - Used mostly by endurance athletes, and planned towards a big event
 - **High-Protein Diets** are used
 - Protein is used to build tissue, including muscle
 - Athletes, such as weightlifters, use this diet to repair or prevent torn muscles
 - Protein is hard to digest, and athlete do not need more protein than the average person