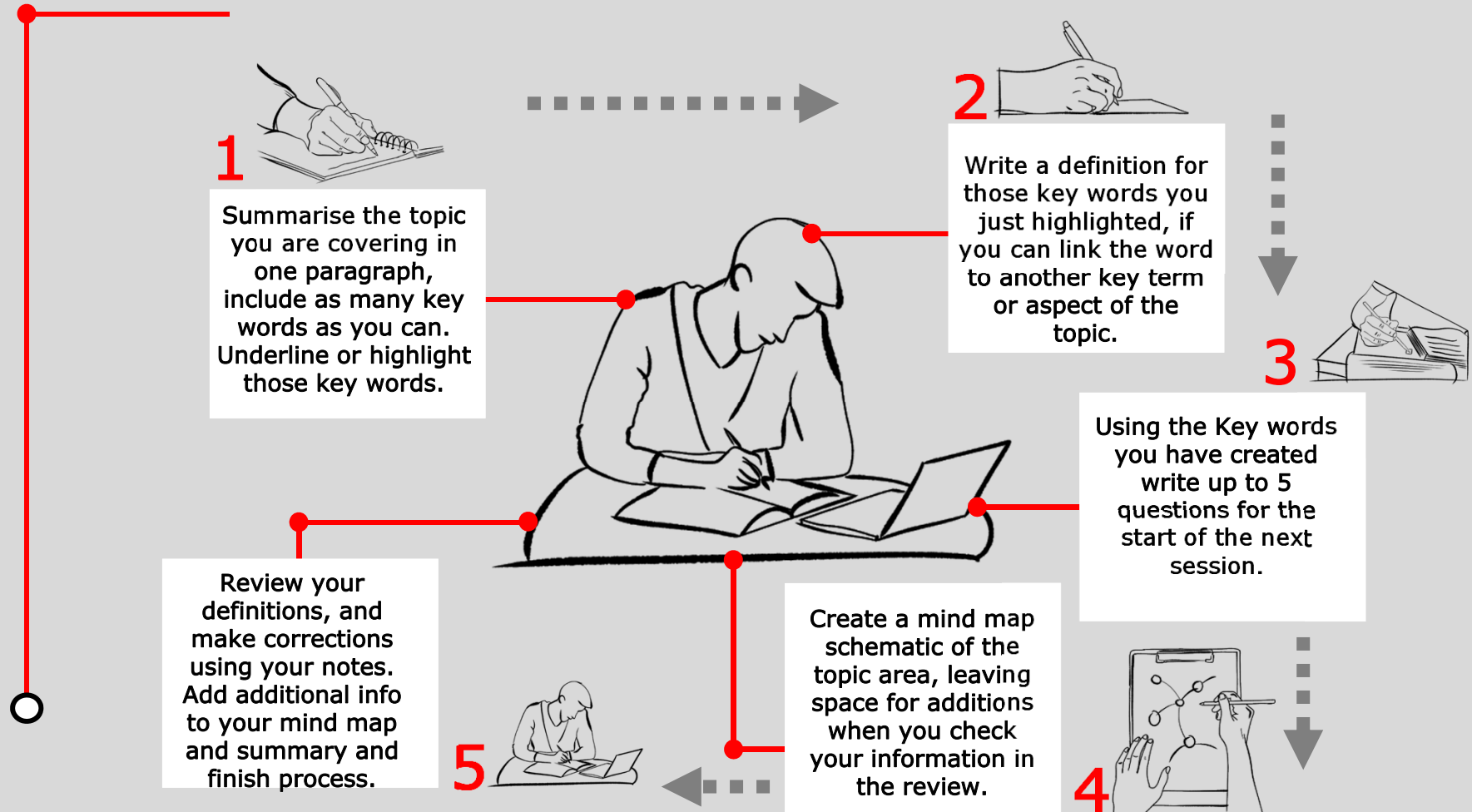


Exmouth Community College
Physical Education Department
AQA GCSE

Paper 2
Knowledge Organisers

5 quick RETRIEVAL wins when revising a key topic in Physical Education.



Arousal:

Physical and mental state of alertness / excitement varying from deep sleep to intense excitement

Controlling Arousal Levels:

- **Deep breathing** is a physical / somatic technique which involves the performer exaggerating their breaths in and out.
- **Mental rehearsal, visualisation and imagery** are all cognitive techniques done in the performers mind to control arousal. Mental rehearsal involves the performer picturing themselves performing the skill perfectly before attempting it e.g. goal kick in rugby. Visualisation and imagery involves the performer imagining themselves in a calm, relaxing environment.
- **Positive self-talk** is a mental / cognitive technique whereby the performer talks to themselves in their head. This reassures the performer that they can do it or that they are doing well.
- All the methods help the performer control their arousal and focus their thoughts on the task ahead of them

Personality Types

INTROVERTS

Introvert characteristics = quiet, passive, reserved, shy, thoughtful and solitary.

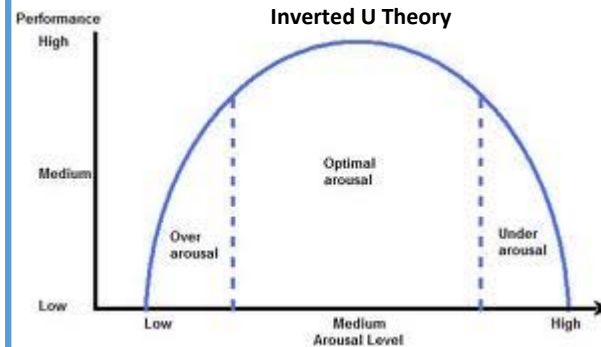
Introverts sporting preferences = individual sports, sports that require concentration / precision (fine skills), sports that require a lower level of arousal e.g. archery, pistol shooting.

EXTROVERTS

Extrovert characteristics = sociable, active, talkative, outgoing, enjoy interaction with others, enthusiastic, prone to boredom when isolated.

Extroverts sporting preferences = team sports, sports that require little concentration, fast paced sports, sports that use mainly gross skills, sports that require a higher level of arousal e.g. rugby player.

Arousal, Aggression, Motivation and Personality Types



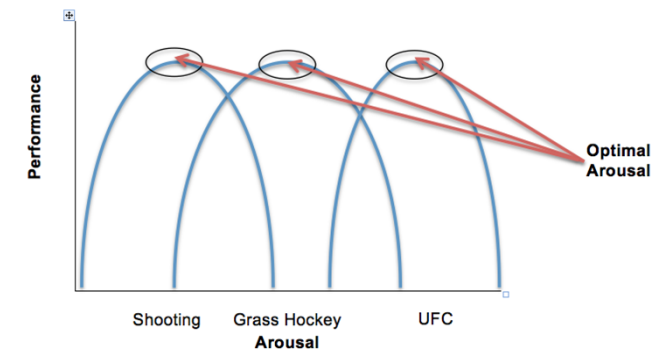
Explaining the inverted U theory and its link to performance levels:

- As arousal levels increase so does performance.
- Up to the optimal level where performance is high.
- If arousal continues to increase further, performance will decrease as the performer will become over aroused.

Varying Optimal Arousal Levels

Fine Skills that involve precise movements (linked to accuracy) require a low optimal level of arousal.

Gross skills that involve large muscle movements (linked to power and strength) require a high level of arousal.



Aggression

- **Direct Aggression** is when there is actual physical contact between performers e.g. rugby tackle
- **Indirect Aggression** does not involve physical contact. The aggressive act is taken out on a object to gain an advantage over an opponent e.g. smash in badminton, bowling a bouncer in cricket.

Motivation

Motivation is the drive to succeed or the desire to achieve something.

Intrinsic Motivation

The drive that comes from within the performer. The reward is a feeling of pride, self satisfaction or general achievement.

Extrinsic Motivation

The drive experienced by a performer when striving to achieve a reward. The external reward is provided by an outside source or person and can be divided into two categories:

- **Tangible rewards** – certificates, trophies, medals etc.
- **Intangible rewards** – praise or feedback from others, applause from the crowd.

Which is best intrinsic or extrinsic motivation?

Intrinsic motivation is seen as a more effective motivational tool due to:

- Performers becoming too reliant on extrinsic motivation. This means they only play for the reward / fame / money.
- Intrinsic motivation is more likely to lead to continued effort and participation. This basically means the performer playing for pride is more likely to keep persisting and continue participating over time.
- The overuse of extrinsic can undermine the strength of intrinsic. Basic players forget why they play the sport and if they are unsuccessful they fall out of love (lose interest) with the activity.

Skill
Skills are learned and when mastered are consistently done in a way that looks easy, uses minimum time and energy as well as the correct technique.

Skill, Target Setting, Feedback, Guidance and Information Processing

Ability
Abilities are inherited from your parents, abilities are stable traits that determine an individuals potential to learn or acquire skills.



Classification of Skills



Goal Setting

Helps motivate performers and gives them a target to aspire to which helps them prepare both physically and mentally.

Performance Goals

- Personal standards to be achieved.
- The perform compares their performance against what they have already done or suggests what they are going to do. E.g. 100m runner hopes for a better start.
- They DO NOT compare themselves to other performers.

Outcome Goals

- Focus on end result. E.g 100m runner aims to win the race.
- They usually involve comparison with other competitors.
- The performers standards may not be seen as important, it is the final outcome that matters.

Use of Performance Goals

- Beginners are better concentrating on performance goals as they do not need to worry about comparing the result to others.
- Elite performers use performance goals to help motivate themselves to work on individual aspects of their performance.

Outcome Goals

- Beginners prefer to avoid outcome goals as failure demotivates them and winning may be unrealistic.
- Elite performers are sometimes driven by outcome goals as they always have the desire to win.

Setting Goals:

S = Specific

- Using a specific target will mean they focus on area for improvement/weakness/relevant aim (1) therefore improvement is more likely leading to motivation (1)

M = Measurable

- By setting a measurable goal they can see progress / monitor progress (1) knowing their training is working/ improving will motivate them to continue with it. (1)

A = Accepted

- The target must be accepted / agreed by the performer and the performers coach if they have one.

R = Realistic

- Ensuring target is achievable/realistic so they know they can complete it/they have access to facilities/time (1) which motivates them to continue to train/work hard (1)

T = Time Bound

- Make time bound/time based so there is a definite point when the target must be achieved (1) therefore makes them motivated to work hard to achieve within time frame/keeps training interesting/ challenging as won't get bored with same target as set new target once completed/ won't put off training (1)

Guidance

Visual

- Is when the performer can see something e.g. demonstration by coach, skill performed by another player, DVD footage.



Verbal

- Is when the performer is spoken to by another person. E.g. teacher or coach.
- It is commonly used with visual guidance



Manual

- The performer is physically moved by another person e.g. coach



Mechanical

- The use of mechanical aids to assist a performer e.g. swimming floats.



Guidance for Beginners

- Visual guidance is very important so that they can see and start to understand what the skill looks like and what they are meant to do.
- Verbal guidance needs to be used with visual guidance and verbal on its own is not enough for beginners to understand how a skill should be performed.
- Demonstrations to beginners must be clear, quick, easy to understand and backed up with verbal guidance.
- Manual / Mechanical guidance can be used by beginners to support or guide them through the correct technique.

Guidance for Elite Performers

- Visual guidance is not used as much by elite performers, however it can be used to highlight minor errors in technique via analysis software which can slow movements down.
- Verbal guidance is needed by elite performers and is often longer and more complex than that given to beginners. Visual guidance is not needed with this as elite performers should know what the skill is meant to look like.
- Manual / mechanical guidance is not usually used by elite performers unless unexpected flaws in technique start to occur.

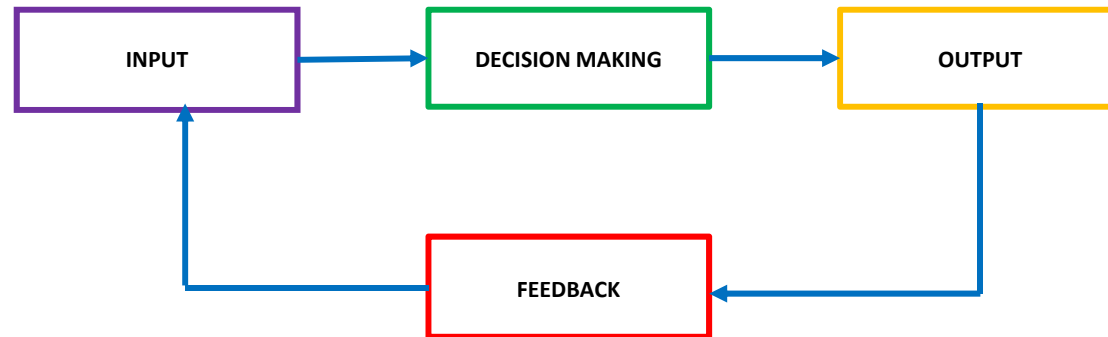
Information Processing

STAGE 1 = Input Stage

- Performer takes in information from the environment e.g. what they can see, hear or feel.
- They must choose what is the most relevant signal / cue / stimulus / piece of information e.g. the shuttle in badminton.
- They must use selective attention within the input stage. This is blocking out any irrelevant information / cues, e.g. noise / other visual stimuli.

STAGE 2 = Decision Making Stage

- This is where the performer selects an appropriate response (movement / skill) from memory, perhaps one they have used in this situation before.
- The short term memory (STM) is the 'working memory'. Information from the environment is held here for a short time (approx. 30 sec). If your attention is directed to something else, the information is lost.
- The long term memory (LTM) holds information that has been rehearsed and stored. From LTM the performer must select an appropriate response i.e. have you dealt with this before / have you seen this a similar type of shot before.



STAGE 4 = Feedback Stage

- Information is received via themselves (intrinsic) and / or others (extrinsic) with regards the success (or not) of the action.
- If the feedback is positive and the action was successful the information is stored in long term memory so that it can be used again if a similar situation arises.
- If the action was not successful the performer will think about what they did wrong and try and correct it for the next time that situation occurs.

STAGE 3 = Output Stage

- The decision chosen is sent to the appropriate muscles to carry out the response.
- EXAM TIP** – marks are often given for naming the appropriate muscles used during the action being discussed e.g. bicep / hamstrings etc.

Feedback

Intrinsic – feedback from within e.g. kinaesthetic feel (how a shot / skill feels like to the performer themselves). Elite performers use this type of feedback as they have developed the ability to 'feel' if a skill is being performed right or not.

Extrinsic – feedback from an external source e.g. from a coach or teacher. Beginners often struggle to understand the success of their movement (intrinsic) so they rely heavily on feedback from others (extrinsic).

Positive – is used to inform a performer what was correct about their movement / performance. Positive feedback is essential to motivate athletes / performers.

Negative – is used to inform the performer what is incorrect about their movement / performance. Negative feedback must include information that helps the performer develop and improve (what they need to do to get better).

Knowledge of results (KR) – Feedback about the outcome (factual e.g. you won etc). Basically it informs the performer on how successful they have been in achieving what they set out to do.

Knowledge of performance (KP) – Feedback about the quality of performance e.g. technique. It provides the performer feedback about how well they did irrespective of the result. It deals with the quality of performance and not the end result.

BEGINNERS tend to need positive feedback, knowledge of results and extrinsic feedback.

ELITE performers tend to accept negative feedback, knowledge of performance and can provide themselves with informed intrinsic feedback.

Give one advantage of giving Chris Mohr verbal guidance.

Where does extrinsic feedback come from?

Who is more likely to play handball? Extrovert or introvert.



Give one reason why feedback involving knowledge of performance is effective for Chris Mohr.

What is meant by Chris Mohr's arousal levels?

Describe the 'output' stage of the information processing model.

Socio-cultural influences and Commercialisation

Barrier to participation: An obstacle that prevents a group within society from participating in sport or physical activity and therefore reduces overall levels of participation.

Engagement Patterns: Trends / tendencies in involvement

Social Groups: People who interact with one another, share similar characteristics, and have a sense of unity / togetherness.

Stereotype: Widely held but fixed and oversimplified idea of a particular type of person e.g. females.

Discrimination: The unjust or prejudicial treatment of different groups of people, especially on the grounds of race, age or gender.

FIVE SOCIAL GROUPS YOU NEED TO KNOW

1) Gender – main focus of women's participation.

There are a number of barriers that affect participation rates for women:

Stereotypical Views:

- Women lack the strength or endurance to play the same sports as men.
- Women who play sport are not feminine.
- Playing sport prevents a women's ability of giving birth.
- Women who play sport develop muscles and become more 'man like'. This leads to female performers having their sexuality questioned.
- A women's role is as a carer and manager of the home.



Due to these stereotypical other barriers have been created which put some women off playing sport. They are:

Male Dominated Culture in Sport:

Women have less media coverage, receive less money and have less role models to look up to.

Support from Peers and Family:

Women get less support from their peers and family. Young girls often need to choose between playing sport or being part of a friendship group, and are put under pressure by their peers to be more like them.

Body Image:

The media portrays women as feminine and objects of desire. Women who choose to play sport do not follow these views and as a result their sexuality is often questioned.

Facilities / Funding:

Facilities for women have developed more slowly than those for men. There are less clubs / sports for women to get involved with. Funding for women's sport is also much less than their male counterparts, however this is gradually improving.

5) Family / Friends / Role models

Family

Positive:

- Parents will encourage their children to take part in certain sports / activities
- Children rely on their parents to get them to the sport / activity.
- Parents / brothers or sisters may play a sport which you may watch resulting in you getting involved in.

Negative:

- Some parents may not provide support or encouragement due to safety concerns over participation or lack of interest in sport or may have had a negative experience of the sport (earlier in life).
- Some parents may pressure young people to concentrate on academic work rather than practical physical activity.
- Some parents cannot supply financial support / in the form of equipment or kit / coaching / transport.

Friends

Positives:

- People are more likely to play sports / for teams that their friends play for.
- Peers / friends often encourage other children to take part in their sport as they understand / appreciate the benefits that can be gained from the activities.

Negatives:

- Peers might not be interested in the activity. As they are not interested / they may encourage friends not to train / take part in sport.
- Verbally pressure friends by saying they are better going out with them or that they will not be their friend.

Role Models

What is a role model? A person looked up to by others as an example to be copied.

Positive:

- Encourage people to play sports so by increasing numbers participating.
- Their good behaviour can positively effect the behaviour of children who look up to them.

Negative:

- Poor behaviour can be seen by children as the correct way to behave
- Can lead to people copying behaviour e.g. taking drugs, swearing at officials.



4) Age

- All school children participate in sport but when they leave school participation often drop. This is referred to as 'post-school drop out'
- Older people often take part in less sport due to family and work commitments as well economic issues which they might have.
- Also as people get older their fitness levels often decline, resulting in participation levels dropping.
- **Post-school drop out:** The reduction in participation levels in young adults after they leave full time education



2) Ethnicity

ETHNIC GROUP

A group of people who share common origins – be they racial, religious or cultural



Barriers Affecting Participation

- Live in poorer areas in the country – less facilities / lack of money for equipment
- Sporting prejudices / stereotypes that already exist e.g. African-Caribbeans are seen to have less swimming ability.
- Family commitments resulting in less time to participate in sport.
- In many sports there are a lack of role models for black / ethnic people to look up to and aspire to.
- Discrimination – Many people don't take part in sports as they are afraid of being racially abused.

Examples of how ethical issues effects a person's participation?

- Muslim women have to keep their bodies covered up preventing them from doing sports e.g. gymnastics / swimming.
- During Ramadan people are not allowed to eat food during daylight hours. This means that during the day they may have little energy when taking part in sports. Also they must eat at night instead of train.
- Muslim / Islamic men are expected to pray at there local mosque every day. This reduces the amount of time they can spend playing sport.

3) Disability

A physical or mental condition that limits a person's movements, senses or activities.

Three main categories of disability:

-Mobility impairments -Sensory impairments -Mental impairments



Having a disability can limit the type of physical activity that you can take part in. Many sports centres nowadays have facilities for disabled people which has led to a increase in opportunities to take part.

What prevents disabled people from taking part in sport?

- Lack of facilities in the local area.
- Lack of clubs / teams.
- Lack of media coverage (apart from when the Paralympics is on)
- Knowledge of activities available in local area e.g. advertising.

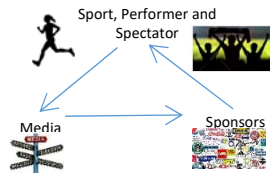
Adapted Sports: Competitive sports for individuals with disabilities. While they often parallel. Existing sports played by able-bodied athletes, there may be some modifications in the equipment and rules to meet the needs of the participants.

Integration: Involving the full participation of all people in community life, but usually referring to disabled people

Benefits of Integration

- Reduced possibilities of discrimination
- Less stereotyping
- Fewer barriers

The Golden Triangle: The financial relationship between sport, sponsorship and the media.



Media

- Radio, newspapers, magazines, books, internet; major impact through television.
- Sports watched or read about by people e.g. home on TV, in the newspaper.

Sponsorship –

- a form of advertising to increase sales of a product.
- Teams / facilities / performers / events are sponsored by companies so people will see their name / product (increase publicity)

Sport/team/performer

- Shown through media.
- More money to spend on players / equipment / facilities, resulting in performances increasing in standard.

Spectators

- Buy merchandise / sponsors equipment or product and media products.

Commercialisation: To manage or exploit (an organisation / activity) in a way designed to make a profit / introducing new products to the market to make a profit (through Sponsorship and media coverage)

Technology

Five Ways Technology is used

- **Making Decisions:** Officials will use decision making technology to prevent wrong decisions, eg Hawkeye in tennis
- **Enhance Performance:** Performance can allow for enhanced performance through heart rate monitors, monitoring diet / calorie counter
- **Analysing Performance:** Analysis of performance can allow photos / videos / biomechanics
- **Rehabilitation:** Rehabilitation through ice baths, hypoxic tents
- **Safety Reasons:** Safety implications relating to cycle helmets, goal keeper protection in hockey

Impact of Technology on Spectators

- Creates excitement for the audience whilst they wait on decisions so it is a positive
- Audience can join in / interactive element by cheering / clapping / creates atmosphere
- Can frustrate spectators who do not like waiting or feel the entertainment has been interrupted
- Prevents unruly behaviour / hooliganism as the decision has been made by technology / less controversial
- Makes the event last longer / more value for money ☐ Less likely to criticise officials
- Performers recover quicker so spectators get to see their favourites more often
- Spectators can get involved in the analysis of their favourite performers, eg statistics / performance analysis
- Technology enhanced performers can perform to a higher standard which audiences will enjoy

Impact of Technology on Performers

- Greater care and support through the use of technology / prolonged career
- Quicker recovery rate means less time on the treatment table / more time performing
- Better understanding about their performance
- Over reliance on technology to understand performance / recovery is a negative
- Less frustrated with the official as the decision has been reviewed / proved / fairer outcome for the performers
- Reliance on technology to keep up with other competitors can cost money
- Easier to analyse competitors

Impact of Technology on Officials

- Help make the correct decisions and ensure fairness.
- Take the pressure off having to make a decision and can ease the tension of players and spectators.
- Takes away a part of the referees job and can undermine decisions made.

Impact of technology on the Sport

- Introduction of technology into the sport itself can make it more interesting and attract a larger audience and in turn bigger sponsorship deals.



How Commercialisation affects the Performer

Positive ✓

- Allows athletes to earn income as a full time job.
- Performers gain maximum exposure to promote their personal brand.
- Can lead to additional roles post playing career within the sport.
- Relieves financial worries
- Can afford / get higher quality equipment so performance will improve
- Facilities, for example could be provided free of charge so can train more effectively / often

Negative ✗

- Increased amount of pressure
- Encourages deviant behaviour due to the pressure of success. This could result in performers cheating to win.
- Generally, favours male over female and able bodied over disabled.
- Sponsorship might be short term.
- Performers may have to advertise a product that they do not like.
- The performer has additional commitments that might detract from training / sponsors may make demands / loss of control;
- May have to use equipment from the sponsor that might not be the best;
- Any negative publicity may result in a loss of sponsorship e.g. Tiger Woods



How Commercialisation affects the Officials

Positive

- Due to large media involvement and investment in some sports, officials have been able to become professional.

Negatives

- Increased scrutiny on decisions made, which can result in them getting criticism leading to increased pressure and potentially being dropped / losing their job.

How Commercialisation affects the Sport

Positive ✓

- Raises the profile of the sport due to increased exposure. This will result in more people wanting to participate.
- Change in formats to make them more exciting.
- Provides an increased level of funding / income to improve resources, coaching, equipment and facilities.
- Gives the sport financial security for a period of time.
- Attracts the best players in the world to that sport.
- Improvement in coaching opportunities ;
- Standards of play / performance improves ;
- Create more role models.

Negative ✗

- Commercialisation tends to support the popular sports leaving the 'lesser' sports to lose out.
- If sports are not in the media they do not attract sponsors resulting in less people taking part in the sport
- The influence of TV has caused an increase in adverts and TV timings and lost some of sports traditions.
- Media influences when games are played.
- Lower attendances at events as it is seen on TV.
- Negative publicity on a sport e.g. cycling and drugs, means they will struggle for sponsors. This will also lead to less people wanting to play the sport.

How Commercialisation affects the Spectators

Positive ✓

- Offers a wider choice of sports available to watch; More opportunities to watch different sports
- Better facilities / stadiums to watch the sports.
- Viewing experience has been enhanced due to investment into technology and audience participation e.g. large TV screens at games
- More exciting games due to more money being placed into a sport.
- Due to new rules, more exciting games e.g. 20 / 20 cricket.
- More information given allowing in spectators being more knowledgeable.
- More role models for them to see.

Negative ✗

- Encourages spectating not participating.
- Can become very expensive for fans/spectators. E.g. ticket prices, pay for view events, merchandise.
- Matches can be played at times / places inconvenient for some people.
- Can affect viewing experience due to increased TV breaks and time outs.
- Media coverage can promote events leading to problems accommodating all of those who wish to attend e.g. difficult to get tickets for FA Cup Final or Wimbledon finals.
- Media coverage can decrease the number of people attending because they can watch it in comfort at home/ e.g. large number of live football matches on TV on Sunday and Mondays or more televised rugby union.



Health and Fitness



Definitions:

Health:
State of complete mental, physical and social wellbeing and not merely the absence of disease

Well-being:
A mix of physical, social and mental factors that gives a sense of being comfortable, healthy and happy.

Fitness:
Ability to meet the demands of the environment

Sedentary Lifestyle:
A person's choice to engage in little or no physical activity

Obesity:
A term used to describe people with a large fat content, caused by an imbalance of calories consumed to energy expenditure. BMI of over 30.

Effects of obesity on Fitness:


- Limits a persons cardio-vascular endurance / stamina therefore making it difficult for them to take part in physical activities for a long period of time.
- Limits a persons flexibility making it difficult for performers to use a full range of movement at a joint when performing a skill e.g. lunging forward for the shuttle in badminton.
- Limits a persons agility making it difficult for them to change direction quickly.
- Limits a persons speed / power making it hard to react quickly enough or produce any forceful movement.

Consequences of choosing a sedentary lifestyle are:

- Weight Gain / become obese
- Suffering from heart disease
- Suffering from diabetes
- Suffering from poor sleep / insomnia
- Suffering from poor self-esteem / confidence
- Feeling tired and lethargic
- Having a lack of friends

Improvements in fitness will:

- Improve your ability to cope with the demands of your daily environment
- Reduce the chances of you suffering injuries
- Make it easier for you to complete physical work
- Make you feel more content / happy

Physical Health and well-being 


- Relates to the bodies systems and how well they are working.

Exercising positively affects physical health and well-being as it can:

- Improve your heart function
- Improve the efficiency of cardiorespiratory and musculoskeletal systems
- Reduce the risk of illness e.g. diabetes
- Help to prevent obesity
- Enable you to carry out everyday tasks without getting tired

Effects of obesity on Physical Health:

- Contributes to cancer
- Causes heart disease / heart attacks
- Causes high blood pressure
- Can cause diabetes
- Causes cholesterol levels to rise

Mental Health and well-being 


- Relates to a persons emotions and state of mind.

Exercise positively affects mental health and well-being as it can:

- Reduce stress / tension levels.
- Release feel-good hormones in the body such as serotonin.
- Enable a person to control their emotions and work productively.

Effects of obesity on Mental Health:

- Can lead to depression
- Cause a loss of confidence
- Make an individual feel like they cannot contribute to society

Social Health and well-being 

- Relates to basic human needs being met (food, shelter) as well as being able to socially interact with others in society.


Exercise positively affects social health and well-being as it can:

- Provide opportunities to socialise and make friends
- Encourages co-operation and team work

Effects of obesity on social Health:

- Inability to socialise
- Make people feel uncomfortable in social situations.

Somatotypes




Endomorph

Endomorph:

- High content of fat
- Fat round middle, thighs and upper arms

Activities that suit endomorphs:

- Sumo-wrestling – large size is difficult to force out of the ring and can be used to create short powerful actions.
- Shot Putter – Extra bulk allows for a more powerful release of shot.



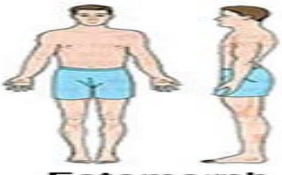
Mesomorph

Mesomorph:

- Broad shoulders and thin waist (narrow hips)
- Large amount of muscle
- Strong arms and thighs
- Little body fat

Activities that suit mesomorphs:

- Sprinting – large arms and legs to help produce more power resulting in them running quicker.
- Weightlifter – Large muscles helps provide the force required to lift heavier weights
- Rugby player – Muscle helps generate force required when making contact with opponents.



Ectomorph

Ectomorph:

- Very thin, lean and usually tall
- Narrow shoulders, hips and chest
- Not much fat / muscle
- Long arms and legs

Activities that suit ectomorphs:

- High Jump / Pole Vault – lighter so less weight to lift in the air over the bar.
- Marathon runner / Long distance runners – Lighter so less weight to carry + longer stride length so can cover larger distance with each stride.

Diet

Calories:

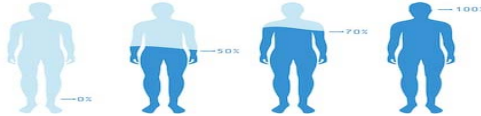
Energy is measured in calories. These calories are obtained from the food and drink we consume.

Male = 2500 kcal/day Female = 2000 kcal/day

Maintaining Weight: Calories Taken in = Calories Used

Weight Gain: Calories taken in is > calories used

Weight Loss: Calories taken in is < calories used



What is a balanced diet?

Eating the right amount of calories to deal with the energy that will be needed. It is also eating different food types to provide the body with the right nutrients, vitamins and minerals to remain healthy.

Ideal average intake of main nutrients –

Carbohydrates = 55 – 60%, Fat = 25 – 30%, Protein = 15 – 20%

Why should we strive to have a balanced diet?

- Unused energy is stored as fat which could lead to obesity.
- The human body needs nutrients for energy, growth and hydration.

Factors that effect calorie intake:

Age – younger people need more calories to help them grow. After 25 the calorie needs of individuals starts to fall.

Gender – Men need more calories than women.

Height – The taller an individual the more calories they require.

Energy Expenditure – The more exercise an individual does the more calories they need.

Basal Metabolic Rate – This is how fast energy is being used and varies from individual to individual.

Vitamins:

Organic substances that are required for many essential processes in the body.

Examples:

- **Vitamin A** is found in dairy products and helps our skin function properly and helps us to grow.
- **Vitamin B** is found in whole grain products, nuts, eggs and fish. It helps the general functioning of the body.
- **Vitamin C** is found in citrus fruit, broccoli and liver. It aids the immune system, skin elasticity and the functioning of blood vessels.
- **Vitamin D** is found in oily fish, eggs and butter and is used to help bones.

Both vitamins and minerals are needed for maintaining the efficient working of the body systems.

Water:

Water is vital to maintain hydration levels (water balance) as it assists in how the body functions.

Key terms

- **Hydration** – having enough water (water balance) to enable normal functioning of the body.
- **Dehydration** – excessive loss of body water interrupting the function of the body.
- **Rehydration** – consuming water to restore hydration.

Hydration helps our reactions, lubrication of joints, blood flow and also plays a big part in maintaining correct body temperature.

The amount of water we need to drink depends on:

- The environment you are in – the hotter the environment the more water is required to keep you hydrated.
- The temperature in which you are in – due to you sweating more you require more water to keep you hydrated.
- The amount of exercise / activity you are doing – exercise means you need to replace the water lost in sweat.

Negative effects of dehydration:

- The blood thickens (increased viscosity), which slows blood flow down.
- The heart rate increases which means that the heart has to work harder.
- The body temperature is likely to increase, meaning that the body may overheat.
- Reaction time increases (it gets slower) which has a negative effect on decision making.
- An individual may suffer muscle fatigue and muscle cramps.

Carbohydrates:

Bodies main energy source especially during exercise.

Simple Carbohydrates – stored as glucose and is broken down quickly for fast energy release (found in sugar food e.g. sweets).

Complex Carbohydrates – stored as starches in the body and are broken down more slowly but produce large amounts of energy (found in bread, pasta and potatoes).

Protein:

Food source which is used for growth and repair of body tissues.

Athletes would require power / strength / speed need protein to help their muscle development (growth) and repair of muscle tissue after training sessions (micro tears).

Protein can also be used as an energy source at the end of prolonged activities when all other energy sources have been used up.



Minerals:

Inorganic substances that assist the body with many of its functions (help the body function properly).

Examples:

- **Calcium** found in milk, cheese and other dairy products. This is needed for teeth and bone growth as well as helping with nerve and muscle functions.
- **Iron** is found in liver. It helps the immune system, helps red blood cell production and assists haemoglobin carry more oxygen.

Fats:

Food source that provides energy at low intensities.

Fat can provide more energy than carbohydrates BUT only when the performer is working at a low intensity.

Often used for energy when walking or jogging and is also used when a runner has used up all their carbohydrate stores (starches).

Unsaturated fats cause cholesterol which leads to the narrowing of arteries and can cause heart attacks.

Give an reason why Georgie Twigg needs minerals.

Why is fibre an important part of Georgie Twigg's diet?

What is carbohydrate loading?

What percentage of Georgie Twigg's diet should be made up of carbohydrates?



What somatotype is Georgie Twigg? Explain your answer.

How many calories does Georgie Twigg need on a average day?

What is meant by 'neutral energy balance'?

What weight classification is someone with a BMI of 35?

Name a sport an endomorph is suit to compete in.