

# GCSE PHYSICAL EDUCATION

REVISION GUIDE



# Reasons for taking part in activity

<b>Benefit</b>	<b>How achieved</b>
Weight loss / improved body shape / look good	Burning off calories through <u>increased</u> level of work
Provide a physical challenge	Might not do anything physically normally, gives a chance to do so.
Improved health	Reduced blood pressure / cholesterol / equiv

# Reasons for taking part in activity

Social mixing	Will meet others
Develop co-operation skills	Play with others / equiv.
Fun / enjoyment	Interacting with others and enjoys the sport
Improved confidence	Improved physical shape increases self image / being good at something / make friends
Relives stress / tension	Takes mind off other things & opportunity to relax

# Health, fitness and exercise performance

- **Health is:**

*“a state of complete mental, physical and social well being, and not merely an absence of disease or infirmity”*

- Can be accomplished by: immunisation, balanced diet, exercise, social interaction.

# Health, fitness and exercise performance

- **Fitness** is:

*“The ability to meet the demands of the environment”.*

- E.G. how well you can cope with the demands of running a marathon or playing a full game of netball.

# Health, fitness and exercise performance

- **Performance is:**

*“how well a task is completed”*

- **Exercise is:**

“a form of physical activity done primarily to improve ones health and physical fitness”.

# Health, fitness and exercise performance

- **Cardiovascular fitness is:**
  - “the ability to exercise the entire body for long periods of time”*
- *It is concerned with the healthy working of the heart, blood and blood vessels.*
- *Helps us to lead an active lifestyle.*
- *Why? Allows us to perform/train for longer*
- *How to improve: running etc 60-80% MHR*

# Health, fitness and exercise performance

- **Muscular strength is:**

*“The amount of force a muscle can exert against a resistance”*

- Very important in sports requiring the exertion of great force e.g. weight lifting, sprinting, shot putt.
- How to improve – weight training/resistance training.

- **Muscular endurance is:**

*“The ability to use voluntary muscles many times without getting tired”*

- *Very important in sports requiring stamina such as; long distance running, triathlons or football.*
- *How to improve – circuit training*

# Health, fitness and exercise performance

- **Flexibility** is:

*“The range of movement possible at a joint”*

- Very important in activities using stretching movements such as gymnastics. Also helps reduce risk of injury.

- How to improve – static, dynamic, PNF

- **Body composition** is:

*“The percentage of body weight which is fat, muscle and bone”*

- Important as body composition may influence how well suited you are to a particular sport.
- E.g jockey benefits from being light/rugby player from being heavy.

# Skill related fitness

- **Agility** is:  
*“the ability to change the position of the body quickly and to control the movement of the whole body”*
- Gymnastic floorwork and back somersaults are good examples of activities for which agility is a priority.
- Games players will use it to beat an opponent

# Skill related fitness

- **Balance** is:

*“the ability to retain the centre of mass (gravity) of the body above the base of support with reference to **static – stationary – or dynamic** changing conditions of movement, shape and orientation”*

- E.g handstand (static), dribbling in football (dynamic balance)

# Skill related fitness

- **Co-ordination** is:  
*“the ability to use two or more body parts together”*
- Different sports require different types of co-ordination
- e.g.racket sports require good *hand – eye* co-ordination
- *Foot – eye* co-ordination will be required when striking a ball in a football match.

# Skill related fitness

- **Power** is:

*“the ability to do strength performances quickly.”*

$$\text{Power} = \text{Strength} \times \text{Speed}$$

- Throwers need to be powerful but strength alone is not enough they need speed in their throwing action to generate power. A 100m sprinter will also require power to get out of the blocks quickly.

# Skill related fitness

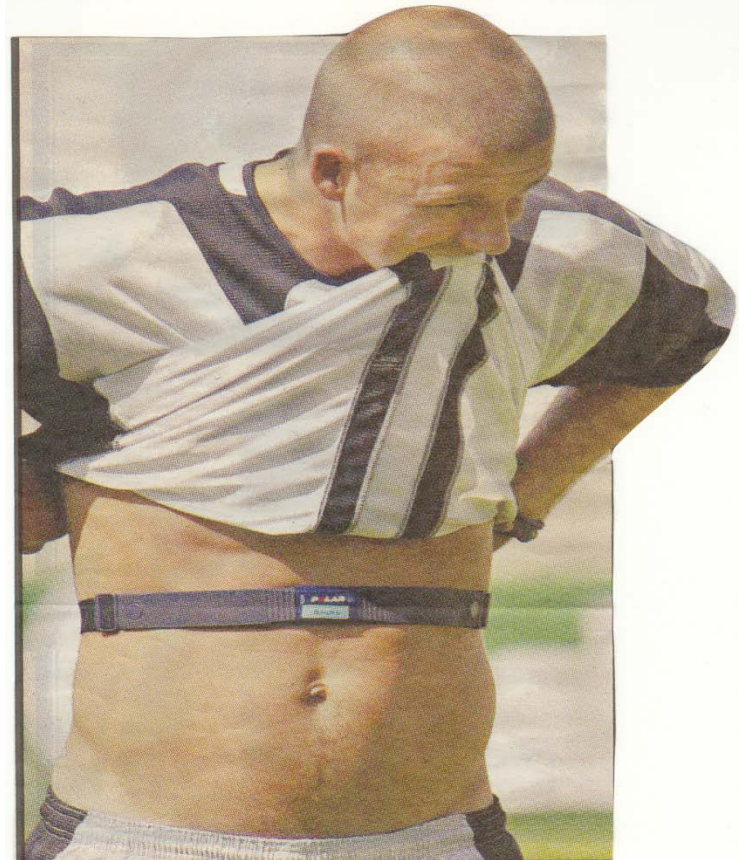
- Reaction Time is:  
*“The time between the presentation of a stimulus and the onset of a movement”*
- E.g. reacting to the starters gun in the 100m or to a shuttle which has been smashed into your half of the court.

# Skill related fitness

- Speed is:  
*“the differential rate an individual is able to perform a movement or cover a distance in a short period of time”*
- Speed is an essential ingredient in most sports
- E.g. leg speed for a 100m sprinter or speed of limbs and thought for a boxer.

# Diet, Health and Hygiene

- 7 requirements of a healthy diet
- Carbohydrates
- Proteins
- Fats
- Vitamins
- Minerals
- Water
- Fibre



# Diet, Health and Hygiene

- **Carbohydrates**
- Maintain our bodies energy stores
- Two types of carbohydrates = starch + sugars
- Bread, pasta, rice and potatoes are good sources of starches.
- It is carbohydrates which provide use with most of our energy when taking part in sport
- Endurance athletes will need to consume large amounts of carbohydrates in order to keep their energy levels high

# Diet, Health and Hygiene

- **Protein**
- Protein is essential for the growth of muscle and the repair of damaged tissue
- Foods rich in protein include, poultry, fish, milk, cheese, eggs, lentils and beans.
- Weight lifters, sprinters and other sportsmen and women requiring large muscle mass will need high protein diets

# Diet, Health and Hygiene

- **Fats**
- Fat is important because it provides energy and helps other things work such as fat soluble vitamins.
- Energy provided from fats should be considerably less than from carbohydrates
- Foods rich in fats include, butter, cream, oils etc.

# Diet, Health and Hygiene

- **Vitamins**
- We only require vitamins in small quantities
- Important for: good vision, good skin, red blood cell formation, healing, healthy bones + teeth.
- Sources of vitamins include:
  - Vitamin A – milk, cheese, carrots
  - Vitamin B – whole grains and nuts
  - Vitamin C – Found in fruits

# Diet, Health and Hygiene

- **Minerals**
- Are used by our bodies for a variety of functions.
- **Calcium:** formation and maintenance of bone and teeth (milk, cheese and cereals)
- **Iron:** Important for blood's ability to carry oxygen (iron is found in a range of foods most easily absorbed is in meat)

# Diet, Health and Hygiene

- **Water**
- Transports, nutrients, waste, hormones
- It is the main component of many cells
- Helps regulate body temperature
- Boxers and marathon runners need liquid during their exertion in order to offset dehydration

# Diet, Health and Hygiene

- **Fibre**
- It is vital in the functioning of the digestive system
- Good sources of fibre include, wholegrain breads and cereals, oats, fruits and vegetables

# Diet, Health and Hygiene

- **Overweight** - having weight in excess of normal. Not harmful unless accompanied by overfatness
- **Overfat** – having too much body composition as fat
- **Obese** –describes people who are very overfat

# Diet, Health and Hygiene

- A person's diet will often be affected by the sport for which they are training.
- I.e. a marathon runner or decathlete will have to consume large amounts of carbohydrates in order to maintain energy levels
- A weight lifter or heavy-weight boxer will need a diet containing large amounts of protein to maintain and build muscle mass.
- Whilst a Jockey may need to monitor his diet closely to avoid putting on weight.

# Diet, Health and Hygiene

- Under eating will result in a loss of body weight and may have a negative effect on performance as the athlete may have low energy levels, or lack of muscle mass
- Overeating will increase body weight and may make you less agile, flexible and reduced endurance

# Diet, Health and Hygiene

- **Somatotypes (body build/physique)**
- Measurements taken from height, weight, bone size, muscle girth and fat
- **Endomorph**
- **Mesomorph**
- **Ectomorph**
- Certain body types are particularly suited to different sports!

# Diet, Health and Hygiene

- **Endomorph**
- Characteristics: Fatness, round body shape, large build.
- Effect on sport: often not suited to endurance events, most commonly found in events requiring large body mass and strength, such as sumo.



# Diet, Health and Hygiene

- **Mesomorph**
- Characteristics: muscular, broad shoulders, triangular body shape
- Effect on sport: Most sportsmen are mesomorphs as most sports require strength and power. Strongmen and sprinters are good examples.



# Diet, Health and Hygiene

- **Ectomorph**
- Characteristics: Thin, lean, low body fat levels
- Effect on sport: often found competing in endurance events such as the marathon and sports requiring a light body such as jockey



# Diet, Health and Hygiene

- **Smoking** – Damages heart and lungs and raises blood pressure, increased risk of cancer, heart disease
- Reduces bodies ability to carry oxygen so performers suffer from fatigue and loss of breath more easily.
- **Alcohol** – Can cause damage to the liver and brain cells and increase likelihood of dehydration
- It may affect performance by impairing judgments, slowing reaction times and causing dehydration, it is commonly used as a sedative in sports such as archery to improve performance.

# Principles of training (Sport)

- **Specificity** is:

*“doing specific types of activity or exercise to build specific body parts”*

- E.g The training you do must be specific to the area you are trying to improve or the sport you play

# Principles of training (sPort)

- **Progression is:**

*“starting slowly and gradually increasing the amount of exercise done”*

- E.g. training more often or training at a higher level

# Principles of training (spOrt)

- **Overload :**

*“Fitness can only be improved through training more than you normally do”*

# Principles of training (spoRt)

- **Reversibility:**

*“any adaptation that takes place as a consequence of training will be reversed when you stop training”*

- If you stop training or train less effectively you will begin to lose fitness

# Principles of training (sporT)

- Tedium or boredom

# FITT Principle

- **F – Frequency**

- How many times per week you need to train in order to improve fitness.
- 3 times per week is normally recommended
- However, If you are training for a marathon or playing professional sport you will need to increase the frequency

# FITT Principle

- **I - Intensity**
- How hard you train
- The intensity you train at must be sufficient to increase fitness.
- E.g cardio vascular fitness requires you to train at an intensity that will take your pulse into the target range

# FITT Principle

- **T – Time**
- How long each session must be in order to be of any benefit and to achieve improvement
- It is recommended that in terms of cardio vascular fitness 20 minutes should be spend working in the target range.
- Elite performers will obviously train for much longer periods

# FITT Principle

- **T – Type**
- What sort of training you will do
- For most people this could be a wide variety of activities to take them into the training zone e.g. swimming , cycling, jogging
- Elite performers will do activities specific to their sports or events.

# Methods of Training

- **Interval training**
- Periods of work followed by periods of rest
- E.g. run for 60 secs rest for 30 secs
- Used in many different sports (particularly team games)
- Advantages to sport: replicates activity, takes place over short bursts, includes a rest period for recovery, includes repetitions of high quality

# Methods of Training

- **Continuous training**
- Continuous training without rest periods
- Particularly useful for improving cardiovascular fitness
- Commonly used by distance athletes
- Advantages to sport: cheap, work individually or in a group, improves aerobic fitness, can be adapted to suit the individual.

# Methods of Training

- **Fartlek Training**
- ‘Speedplay’ a combination of fast and slow running.
- You may sprint for 200m then jog 200m then walk 200m and repeat
- Advantages include: can be done on a variety of terrain, can be flexible, useful for sports requiring changes of speed e.g. 1500m

# Methods of Training

- **Cross training**
- Is a mixture of activities adapted to suit an individuals needs.
- E.g. one day swimming, one day cycling, one day running.
- Might not be suitable for elite athletes but is a good way of maintaining general fitness.
- Advantages include: varied certain muscle groups can be rested, training can be adapted to weather conditions

# Methods of Training

- **Circuit training**
- Involves a number of exercises set out at a 'station' so you avoid working the same muscle groups consecutively.
- Improves muscular endurance, cardio vascular fitness and circulo-respiratory fitness.
- Advantages: offers good all round fitness, cheap, people of all levels can work at their own pace, both aerobic and anaerobic, varied, works a number of different areas.

# Methods of Training

- **Weight Training**

- Weight Training is a form of training that uses progressive resistance, either in the form of actual weight lifted or in terms of the number of times the weight is lifted.
- Weight training is used for:
  - Increase muscular strength
  - Increase muscular endurance
  - Increase speed
  - Develop muscle bulk or size
  - Rehabilitate after illness or injury

# Methods of Training

- **Personal Exercise Program (PEP)**
- A personal exercise program is a training plan designed to improve a persons health, fitness and performance and is made to suit their individual needs
- PEP must use principle of training e.g. overload, progression specificity and the FITT principle

# Methods of Training

- **Individual needs**
- It is important the training program is planned around the individual
- One person may like swimming but another may not be able to swim
- So activities must be suitable
- A midfielder in football will require a different training program to a defender or a goal keeper because their needs are different

# Methods of Training

- **Training sessions** include:
- A warm up – to prepare the body and mind - Pulse raiser, stretching and activity related work e.g. sprints/shooting
- Main activity – practice skills, work on fitness etc
- Cool down – Bring HR back to normal by gentle jogs and stretches

# Methods of Training

- **Immediate effects of exercise**
- Increased HR
- Increased breathing
- Increased body temperature
- Sweating
- Muscle fatigue / tiredness