

Physical Education – BTEC Sports

Aerobic Endurance

The ability of the cardiorespiratory system to work efficiently, supplying nutrients to the working muscles.

This is needed for long distance events.

What is the cardiorespiratory system?

- ✓Uptakes oxygen from air breathed in
- ✓Transports oxygen around body to working muscles
- ✓Removes waste products such as carbon dioxide

AEROBIC- in the presence of oxygen
(long distance events)
ANAEROBIC- without oxygen
(short distance or power events)

Coordination

The ability to use body parts together accurately.

This is needed in most sports.

HAND-EYE coordination

FOOT-EYE coordination

HAND-HAND coordination



Balance

The ability to maintain the centre of mass over a base of support.

STATIC BALANCE- maintaining a balance whilst stationary. Eg- handstand

DYNAMIC BALANCE- maintaining a balance whilst in motion. Eg- cartwheel



Muscular Endurance

The ability of muscles to work repeatedly against a light to moderate load without getting tired.



Muscular Strength

The maximum force that can be generated by a muscle or group of muscles. Weights will be heavy and therefore repetitions are low.

Unit 1 @LWarnerPE
Learning Aim A-
Components of Fitness

Components of physical fitness	Components of skill related fitness
Aerobic endurance	Agility
Muscular endurance	Balance
Flexibility	Coordination
Speed	Power
Muscular strength	Reaction time
Body composition	

Skill-Related Fitness

Speed

Accelerative speed: This is the speed generated in order for a performer to be at their top speed. Eg- long jump run up

Pure speed: This is needed for events that are won by achieving the quickest time. Eg- 100m sprint

Speed endurance: This is an athlete's ability to sustain speed over a long period of time with short recovery periods. Eg- a footballer

$$\text{SPEED (m/s)} = \frac{\text{DISTANCE TRAVELLED}}{\text{TIME TAKEN}}$$



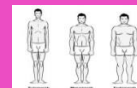
Flexibility

The ability to move a joint fluidly through a complete range of movement.

Some sports require all round flexibility whereas some sports require flexibility at specific joints.

Body Composition

This is the combination of muscle, fat and bone.



Ectomorph- Tall and Thin

Endomorph- Short and Dumpy

Mesomorph- Muscular

Power

The ability to use strength at speed. Therefore the faster or stronger a motion, the more powerful it will be.



$$\text{POWER} = \text{STRENGTH} \times \text{SPEED}$$



Agility

The ability to change direction quickly.

Eg- rugby players

Reaction time

The time taken for a performer to respond to a stimulus. Eg- sprinter



Personal Goals

S – Specific
M – Measurable
A – Achievable
R – Realistic
T – Time-related
E – Exciting
R - Recorded

Lifestyle and Physical
Activity History
**Medical History
Questionnaires**

Unit 3: Applying the Principles of Personal Training

*Learning Aim A -
Design a personal
fitness training
programme*

Maximum HR = $220 - \text{age}$
(years)
Training zones to CV health
and fitness 60-85%
Borg Rating of Perceived
Exertion (RPE)

Aims and
Objectives of
what you want to
achieve in your
selected activity.

Goals
Short-term
Medium-term
Long-term

Personal information	Aiding your training programme design
Selection	Appropriate training method, activity for improvement, maintaining the selected component of fitness
Safe Design	Appropriate method, selection of appropriate combination of activities - meeting personal training needs, goals , aims and objectives
Basic principles of training	F – Frequency I – Intensity T – time T – Type This will include application of the Principles of training
WARM UP	Warm up (light, continuous PA to prepare the body from a state of rest to a state of exercise!)
COOL DOWN	Cool down (light, continuous PA to return the body to a state of rest – reducing the HR, removal of Lactic Acid and prevent blood pooling)
Creative Design	Prevent and avoid barriers to training occurring, programme enjoyable, must include – interesting, different exercise activities to maintain motivation and commitment and to prevent BOREDOM!
Intensity	Target zones and training thresholds