

BTEC TECH AWARD IN SPORT:

The PE Classroom The Importance of Fitness for Sports Performance



Components of Physical Fitness

Flexibility
The range of movement possible at a joint

Muscular Endurance
The ability of a muscle or muscle group to undergo repeated contractions avoiding fatigue

Muscular Strength
The ability to overcome a resistance

Body Composition
The percentage of body weight that is muscle, fat or bone

Aerobic Endurance
Ability of heart and lungs to supply oxygen to the working muscles

Speed
The rate at which an athlete can perform a movement or cover a distance

Components of Physical Fitness

Coordination
The ability to use two or more body parts together at the same time

Agility
The ability to move and change direction quickly whilst maintaining control

Balance
Maintenance of the centre of mass over the base of support

- Static and Dynamic

Power
The ability to undertake strength performances quickly

= Strength x Speed

Reaction Time
The time taken to initiate a response to a stimulus

- Principles of Training:**
1. Progressive Overload
 2. Specificity
 3. Individual Differences
 4. Adaptation
 5. Reversibility
 6. Variation
 7. Rest & Recovery



The **FITT** Principle is used to identify the basic principles of training

- Frequency** → How often training takes place
- Intensity** → How 'hard' training is
- Time** → How long training lasts
- Type** → What type of training is used

Training Thresholds are based on **Heart Rate** and are set to make sure that people train at an effective but safe level.

- Warm up and cool down zone → 50-60% of Max HR
- Aerobic Training Threshold → 70-80% of Max HR
- Anaerobic Training Threshold → 80-100% of Max HR

Maximum Heart Rate = 220 - Age

% of Max HR can be used to achieve progressive overload

Rating of Perceived Exertion Borg RPE Scale		
6		How you feel when lying in bed or sitting in a chair relaxed. Little or no effort.
7	Very, very light	
8		
9	Very light	
10	Fairly light	Target range: how you should feel with exercise or activity
11		
12	Somewhat hard	
13		
14		How you felt with the hardest work you have ever done
15	Hard	
16		
17	Very hard	
18		Dont work this hard!
19	Very, extremely hard	
20	Maximum exertion	

The Borg Rating of Perceived Exertion Scale

Perceived exertion is how hard you feel like your body is working.

RPE can be used to estimate heart rate (HR), using the equation:

RPE x 10 = HR



Weight Training - Calculating Repetition Maximums

- 1 Rep Max. (RM) = the heaviest amount you can lift in one repetition.
- Should train at 80% intensity
- 15 Rep Max. (RM) = the heaviest amount you can lift and repeat 15 times.
- Should train below 70% intensity

1 RM is for strength
15 RM is for muscular endurance

Measuring Exercise Intensity

- Manually taking pulse rate**
- Smart Watches**
- Heart Rate Monitors**
Pulse Points
Count the number of heart beats for 30 seconds and multiply by 2.
Radial pulse - wrist
Carotid pulse - neck
- Apps**