

Components of fitness

Agility - the ability to change direction at speed

Speed - the maximum rate at which an individual is able to perform a movement or cover a distance in a period of time.
Distance divided by time.

Power - also known as explosive strength or anaerobic power. It is speed and strength combined (speed x strength = power)

Balance - maintaining the centre of mass over a base of support

Cardiovascular endurance - the ability of the heart and lungs to supply oxygen to the working muscles

Co-ordination - the ability to use different (two or more) parts of the body together smoothly and efficiently

Flexibility - the range of movement possible at a joint

Muscular endurance - ability of a muscle or muscle group to undergo repeated contractions avoiding fatigue

Reaction time - the time taken to initiate a response to a stimulus

Strength - the ability to overcome a resistance

Physical Training

Fitness Testing

Reasons for carrying out fitness tests:

T - Training programme

E - Evaluate strengths and weaknesses

S - Set goals

T - Tedium - provides variety and avoids tedium in training

- **Standing Broad Jump Test (Power)**
- **Illinois Agility Test (Agility)**
- **The Stork Balance Test (Balance)**
- **The Multi-Stage Fitness Test (Cardiovascular fitness)**
- **The Wall Toss Test (Co-ordination)**
- **The Sit & Reach Test (Flexibility)**
- **Abdominal Curl Conditioning Test/Sit-Up Bleep Test (Muscular Endurance)**
- **Vertical Jump Test (Power)**
- **Ruler Drop Test (Reaction Time)**
- **One Rep Max Test (Strength)**
- **Handgrip Dynamometer Test (Strength)**

Limitations of fitness testing:

- Not sport specific
- Don't replicate movements of activities
- Don't replicate competitive conditions
- Have questionable reliability
- Must be carried out with correct procedure otherwise scores won't be accurate

TYPES OF TRAINING

Weight training - involves the use of free weights, resistance machines or any object which can be safely lifted. Allows performers to target specific muscles/muscle groups to suit their individual needs.

Advantage:

- Can be easily adapted for different fitness aims

Disadvantage:

- Heavy weights can increase blood pressure

Interval training - periods of high-intensity effort with periods of low-intensity effort.

Advantage:

- Can mix aerobic and anaerobic exercise which replicates team games

Disadvantage:

- Can become boring

Circuit training - a series of exercises performed one after the other with a rest in between

Advantage:

- Can train different types of fitness

Disadvantage:

- An appropriate amount of space is needed

PRINCIPLES OF TRAINING

Remember SPORT

S - Specificity: training needs to be specific to the needs of an individual and the demands of the sport they take part in

PO - Progressive Overload: gradually increase the amount of exercise and keep overloading the body. Use F.I.T. (Frequency, Intensity, Time) to overload the body

R - Reversibility: when an individual stops or decreases their training, their fitness and performance levels are likely to drop

T - Tedium: refers to boredom. Training should be altered and varied to prevent an individual from suffering from this

Principles of overload:

Frequency - how often you train

Intensity - how hard you train

Time - how long to train for

Type - the type of training you do

The 3 Training Seasons

Pre-season: aim is to improve general and aerobic fitness through aerobic training

Competition Season: aim is to maintain fitness levels. Performer should be at peak fitness and work on specific skills used in their sport

Post-season: aim is to rest and recover from the season. Use light aerobic training so fitness levels don't drop too much

TRAINING INTENSITY

Maximum Heart Rate (Max HR) = $220 - \text{age}$

Aerobic (with oxygen) training zone - 60-80% of Max HR

Anaerobic (without oxygen) training zone - 80-90% of Max HR

TYPES OF TRAINING

Continuous training - exercising for a sustained period of time without rest. Sometimes referred to as steady state exercise.

Advantage:

- Can be done with little or no equipment

Disadvantage:

- Can be boring/tedious

Fartlek training - also known as 'speed play' and normally involves running. Speed and intensity is varied.

Advantage:

- Can be varied to maintain interest levels

Disadvantage:

- Can be time consuming

Plyometric training - jumping, bounding or hopping that is designed to improve power.

Advantage:

- Training is specific to movements in a game

Disadvantage:

- Can cause injury due to stress placed on joints and muscles

Static Stretching - stretching to the limit and holding the stretch isometrically.

Advantage:

- Increases flexibility

Disadvantage:

- Can be time-consuming

Specific training technique (high altitude training) - training at high altitude (above sea level)

Advantage - benefits endurance athletes

Disadvantage - benefits are temporary & lost quickly

