Component 3—Developing Fitness to Improve Other Participants Performance in Sport and Physical Activity

BTEC COMPONENT 3 P1

COMPONENT 3A

Additional Principles of Training

- Variation
- Individual Differences
- Adaptation
- Reversibility
- Specificity
- Progressive Overload
- Rest & Recovery

1 RM for strength
15 RM for muscular endurance

- **Frequency** → How often training takes place
- **Intensity** → How 'hard' training is
- **Time** → How long training lasts
- **Type** → What type of training is used to improve a specific component of fitness

HR = Measure pulse for 30 seconds and multiply it by 2
Target Zones = 60-80% of Max HR (220 - age)
Estimated HR = RPE x 10

Components of Fitness

1. Aerobic Endurance
2. Muscular Endurance
3. Muscular Strength
4. Speed
5. Flexibility
6. Body Composition
7. Power
8. Agility
9. Reaction Time
10. Balance
11. Coordination

Designed training programmes based on results

Reasons for Fitness Testing

- Goal setting aims
- Determine if training programmes are working
- Give a performer something to aim for
- Baseline data for monitoring/ improving performance

Factors Affecting Practicality:

- Cost
- Time taken to perform the test
- Time taken to set up the test
- Time taken to analyse data
- Number of participants that can take part in the test at any time.

Pre fitness test check

Pre-Test Procedures

- Complete informed consent
- Calibration of equipment
- Complete PAR-Q

COMPONENT 3B

Fitness test methods for components of physical fitness:

Aerobic endurance:
- multi-stage fitness test, also known as the bleep test (20 metre distance)
- Yo-Yo test
- Harvard step test
- 12-minute Cooper run or swim

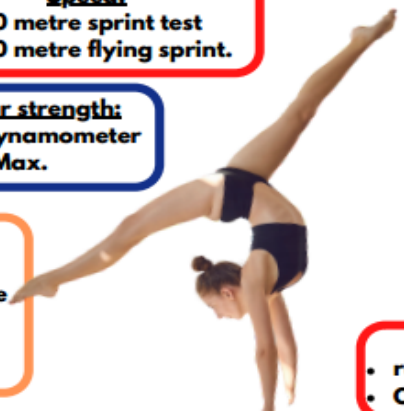
Muscular endurance:
- one-minute press-up
- one-minute sit-up
- timed plank test.

Speed:
- 30 metre sprint test
- 30 metre flying sprint.

Flexibility:
- sit and reach test
- calf muscle flexibility test
- shoulder flexibility test.

Muscular strength:
- grip dynamometer
- 1 Rep Max.

Body composition:
- Body Mass Index (BMI)
- Bioelectrical Impedance Analysis (BIA)
- waist to hip ratio



Fitness test methods for components of skill-related fitness:

Agility:
- Illinois agility run test
- T Test.

Balance:
- stork stand test
- Y balance test.

Coordination:
- Alternate-Hand Wall-Toss test
- stick flip coordination test.

Power:
- vertical jump test
- standing long/broad jump
- Margaria-Kalamen power test.

Reaction time:
- ruler drop test
- Online reaction time test (reaction test timer).

Factors Affecting Reliability:

- Calibration of equipment
- Motivation of the participant
- Conditions of the testing environment (inside versus outside conditions)
- Experience of the person administering the test
- Compliance with standardised test procedure.

Fitness tests must be:

- Reliable
- Valid
- Compared against data
- Specific

Component 3—How can we develop fitness to help improve performance in physical activity?

BTEC COMPONENT 3 P2

COMPONENT 3C

There are 5 fitness training methods used for Aerobic Endurance

- Continuous training
- Fartlek training
- Interval training
- Rest periods and work intensity
- Circuit training

There are 3 fitness training methods used for Flexibility

- Static active
- Static passive
- Proprioceptive neuromuscular facilitation (PNF) technique

There are 2 fitness training methods used for Muscular Endurance

- Free weights and fixed resistance machines
- Circuit training

There is 1 fitness training method used for Muscular Strength

- Free weights and fixed resistance machines

There are 3 fitness training methods used for Speed

- Acceleration sprints
- Interval training
- Resistance drills

Additional requirements for a fitness training method

- effectiveness
- participation
- cost
- safety
- location
- specificity

Effects of Aerobic Endurance Training:
- o adaptations to the cardiovascular and respiratory systems
- o cardiac hypertrophy
- o decreased resting heart rate
- o increased strength of respiratory muscles
- o capillarisation around alveoli.

Effects of Flexibility training:
- o adaptations to the muscular and skeletal systems
- o increased range of movement permitted at a joint
- o increased flexibility of ligament and tendons
- o increased muscle length.

Effects of Speed training:
- o adaptations to the muscular system
- o increased tolerance to lactic acid

Effects of Muscular endurance training:
- o adaptations to the muscular system
- o capillarisation around muscle tissues
- o increased muscle tone.

Effects of Muscular Strength & Power Training:
- o adaptations to the muscular and skeletal systems
- o muscle hypertrophy
- o increased tendon and ligament strength
- o increased bone density.

Aims: details of what they would like to achieve for the sport

Objectives: how they intend to meet their aims using an appropriate component of fitness & method of training

How to design a training program

STEP 1: Coach must have a chat with the athlete about their motivations, aims, objectives.

STEP 2: The coach must understand the athletes life and their demands. Such as job, time available, commitments.

STEP 3: The coach must plan the training programme specific to the individual and event

STEP 4: This must be adapted over time and progressed as the athlete gets better

Extrinsic Motivation ⇨ The inner drive, comes from the individual's thoughts and beliefs such as fun, enjoyment, satisfaction

Intrinsic Motivation ⇨ A behaviour driven from an outside source or external reward such as prize money, trophies, recognition

COMPONENT 3D

Benifits of using a training programme

- Maintain training and intensity
- Increase participation
- Increased Fitness
- Improve performance

SMART Goals:
- Specific
- Measurable
- Achievable
- Realistic
- Time-related
- Exciting
- Recorded