



Learn Sheet for BTEC Sport Component 3 LAC

The effects of long-term fitness training on the body systems

How training methods affect the different body systems, which can lead to adaptations to improve specific components of fitness.

Aerobic Endurance Training:

- Adaptations to the cardiovascular and respiratory systems
 - Cardiac hypertrophy
 - Decreased resting heart rate
- Increased strength of respiratory muscles
 - Capillarisation around alveoli.

Flexibility Training:

- Adaptations to the muscular and skeletal systems
- Increased range of movement permitted at a joint
- Increased flexibility of ligament and tendons
 - Increased muscle length.

Muscular Endurance Training:

- Adaptations to the muscular system
- Capillarisation around muscle tissues increased muscle tone.

Muscular Strength And Power Training:

- Adaptations to the muscular and skeletal systems
 - Muscle hypertrophy
- Increased tendon and ligament strength
 - Increased bone density.

Speed Training:

- Adaptations to the muscular system
- Increased tolerance to lactic acid.

Requirements for Each of the Following Fitness Training Methods

To ensure a fitness training plan is carried out safely and effectively it must include the following.

- **Warm-Up:** prior to taking part in the fitness training method – pulse raiser, mobility and stretch; reduce the risk of injury, prepare the body for exercise.
- **Cool Down:** after taking part in the fitness training method – gradually lower pulse and breathing rate to resting levels; remove lactic acid; stretch to help return muscles to pre-exercise length.
- **Fitness Training Method:** linked to the associated component of fitness.
- **Application of the basic (FITT) and additional principles of training:** to each fitness training method.
- **Application of appropriate training intensities:** to fitness training methods.
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Additional requirements for each of the fitness training methods

Advantages and disadvantages

- To include number of people that can take part
- Cost of equipment
- Ease of set up, access to venue/location of training
- Risk of injury to the performer if performed incorrectly, effectiveness of training for given sports performer
- Specificity to component of fitness
- Replicating demands of the sport

TRAINING TO IMPROVE PHYSICAL COMPONENTS OF FITNESS

FLEXIBILITY

Static Active	The performer applies internal force to stretch and lengthen the muscle
Static Passive	Requires the help of another person or an object, e.g. a wall to apply external force causing the muscle to stretch
Proprioceptive Neuromuscular Facilitation (PNF) Technique	The technique involves the use of a partner or immovable object, isometric muscle contractions to inhibit the stretch reflex.

MUSCULAR ENDURANCE

Free weights	High repetitions and low loads
Fixed resistance machines	High repetitions and low loads
Circuit training	Using body resistance exercises or weights with low loads and high repetitions.

MUSCULAR STRENGTH

Free Weights	High loads and low repetitions
Fixed Resistance Machines	High loads and low repetitions

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AEROBIC ENDURANCE

Continuous Training	Steady pace and moderate intensity for a minimum period of 30 minutes
Fartlek Training	The intensity of training is varied by running at different speeds and/or over different terrain
Interval Training	Work period followed by a rest or recovery period o for aerobic endurance decrease the number/length of rest periods and decrease work intensity (compared to speed training)
Circuit Training	Use of a number of stations/exercises completed in succession with minimal rest periods in between to develop aerobic endurance.

SPEED

Acceleration Sprints	Pace is gradually increased from a standing or rolling start to jogging, then to striding, and then to a maximal sprint
Interval Training	Work period followed by a rest or recovery period. For speed short, high intensity work periods, increasing the number of rest periods and increasing work intensity (compared to aerobic endurance training)
Resistance Drills	Hill runs, parachutes, sleds, bungee ropes, resistance bands

TRAINING TO IMPROVE SKILL-RELATED COMPONENTS OF FITNESS

AGILITY	Speed Agility and Quickness training (SAQ	Drills used to develop physical ability and motor skills.
COORDINATION	Use of specific training exercises using two or more body parts together.	
POWER	Lunging, bounding, incline press-ups, barrier hopping and jumping.	
REACTION TIME	Use of specific training exercises to practise quick responses to an external stimulus.	
BALANCE	Use of specific training exercises that require balancing on a reduced size base of support.	

Type of Provision	Explanation	Advantages	Disadvantages
Public Sectors	include local authorities and school provision	Accessible as it is not exclusive. Low-cost and more affordable. A range of different activities offered.	Equipment is dated/more likely to be damaged. Staff are not as skilled/knowledgeable. Busier spaces.
Private Sector	provided by organisations who aim to make a profit	Modern/state-of-the-art equipment. Specialist coaches Specialist facilities (childcare) Gender safe spaces.	More expensive. Limited activities as they specialise.
Voluntary Sector	activities provided by volunteers who have a common interest in the	Low-cost and more affordable. Locally situated. Access to specific sports. Fosters community spirit	Oversubscribed (too many participants). Volunteers may not be qualified or trained Lack of funding may lead to substandard equipment or facilities.