

**Components of fitness**

**Skill related:**

**Balance** - The ability to maintain the body’s centre of mass above the base of support.

**Power** - The ability to perform strength performances quickly.

**Coordination** – The ability to use 2 or more body parts together.

**Agility** - The ability to change the position of the body quickly and control the movement.

**Reaction time** - The time taken to respond to a stimulus.

**Physical related:**

**Body composition** - The percentage of body weight which is fat, muscle and bone.

**Flexibility** - The range of motion at a joint.

**Muscular strength** - The amount of force a muscle can exert against a resistance.

**Muscular endurance** - The ability to use voluntary muscles repeatedly without tiring.

**Aerobic endurance** - The ability of the heart, lungs and blood to transport oxygen for long periods of time.

**Speed** - The ability to put body parts into motion quickly.

**Principles of training:**

**Frequency** - How often to train per week.

**Intensity** - How hard to train.

**Time** - How long to train for.

**Type** - Which training method of training to use.

**Additional principles of training:**

**Specificity** - Training specific to an individual’s sport.

**Progressive Overload** - Training needs to be demanding enough for the body to adapt.

**Rest and Recovery** - Body needs time to rest and allow it to recover.

**Individual Differences/Needs** - Programme design needs to meet the individual training goals and needs.

**Variation** - Important to stop boredom.

**Adaptation** - How the body adapts to different training loads.

**Reversibility** - If training stops or the intensity of training is insufficient to cause adaptation, then training effects are reversed.

**Methods of training:**

**Agility and Speed:**

**ACCELERATION SPRINTS:**

Pace is increased gradually from standing or rolling or jogging, then striding, and then to maximum sprint. Different drills, such as resistance work and hill runs can be used. Rest intervals of jogging or walking are used between each repetition.

**HOLLOW SPRINTS:**

A series of sprints followed by “hollow” periods of either rest, jogging or walking. These are repeated approx. 5 times before a longer rest period. They are used for in sports such as football where players who need constant change of speed during a game.

**INTERVAL TRAINING:**

A work period is followed by a rest or recovery period. To develop speed, work intervals will be short and performed at high intensity. Speed is developed by increasing work intensity and the number of rest periods. Intervals will vary depending on the individual athlete goals.

**Flexibility:**

**STATIC STRETCHING:**

There are 2 types of stretching, active and passive.

Active – using your own muscles to hold the stretch position.

Passive – Use someone or an object to hold the stretch position.

**BALLISTIC STRETCHING:**

When you make fast movements (bounces) to stretch your muscles. For example, bouncing down to touch your toes.

**Component 3**

**BTEC TECH in Sport**



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**Flexibility:**

**Proprioceptive Neuromuscular Facilitation (PNF).** Use either a partner or and object to stretch the muscles further than its normal range.

**Strength:**

**Free weights** – using dumbbell’s and barbells to improve strength.

Strength training Intensity is worked out of 1RM.

Training for Strength Endurance (50-60% 1RM / 20Reps.

Training for Elastic Strength (75% 1RM / 12 reps)

Training for MAX Strength (90% / 6 Reps

**Plyometric training –** Develops explosive power and muscular strength.

In exercises, the performer uses maximal force that lengthen and shorten the muscle. For example, during a box jump, the muscle lengthens (eccentric action) when landing and shortens (concentric action) when jumping back onto the box.

**Aerobic Endurance:**

**Continuous training -** Steady pace, Moderate intensity, doing the same type of exercise, without having a rest.  EG Running, Rowing, Cycling or Swimming. Needs to last for 30mins or longer

**Fartlek Training -** Changes in exercise intensity with NO rest periods. Intensity can be changed by changing the:

~ Speed

~ Terrain (different types of ground)

~ Equipment added eg Weights

**Interval training -** Repeated periods of work followed by period of Rest or Recovery. Work Period could be from 30secs – 5mins. Rest Period could be sit down, stand still, walk or jog. For Aerobic Endurance you should decrease the rest period and work at 70% - 80% of VO2 Max.

**Circuit training -** Different Stations/Exercises are used to develop Strength, Muscular Endurance and Power. The stations/Exercises use different muscle groups to avoid fatigue. Do one exercise after another in a set order. Can vary to change the intensity:

~ Number of Stations

~ Number of Circuits

~ Time at each Station

**Muscular Endurance:**

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