Types of Training:

1) **Interval =** Training that involves set periods of work followed by set periods of rest. It usually involves periods of intense exercise followed by periods of rest so that the performer can recover. The intensity of interval training can be altered to suit the individual by altering the time working and / or the time resting.

2) **High Intensity Interval Training(HIIT) =** Short bursts of extreme effort with even shorter rest periods. A 2 : 1 work ratio is often used e.g. 30 seconds work, 15 seconds rest. During HIIT training the performer will be working anaerobically so it will develop their ability to withstand the build up of lactic acid.

3) **Continuous =** Exercising for a sustained period of time without rest. It improves cardiovascular fitness. Sometimes referred to as 'steady state' training. The performer normally trains at a low to moderate intensity but for an extended period of time 20 minutes +. During continuous training the performer will be working aerobically so it will develop their ability to get oxygen into the body and create energy.

4) **Fartlek =** Also known as 'speed play', this type of training involves performers varying their speed / intensity. It can involve different speeds (walk, jog, sprint) or running at different terrains (uphill, down hill, on sand). Altering the intensity allows the performer to use both their aerobic and anaerobic energy systems.

5) **Circuit =** A series of exercises performed one after the other with a rest in between. Each circuit involves different activities called 'stations'. Stations are often set out to work all of a performers body (arms, core, legs). In circuit training performers often work for a set amount of time and then have a set rest period e.g. work 30 seconds, rest 30 seconds. Progressing these sessions is easy as the performer can increase the work time or decrease the rest time.

6) **Weight =** Involves the lifting of weights / resistance to develop muscular strength or endurance. The beauty of weight training is that it can focus on specific muscles / muscles groups so that sessions can be designed to suit an individual's needs. This type of training involves REPS (completing one lift of a weight) and SETS (the completion of a number of reps). To develop strength / power performers must lift heavy weights but for a low number of reps. To develop strength / power performers should lift above 70% of their one rep max for 4 – 8 reps. To develop muscular endurance performers must lift lighter weights but for a higher number of reps. To develop muscular endurance performers should lift below 70% of their one rep max for 12 – 15 reps.

7) **Plyometric =** Is a type of training that is used to increase power (strength x speed). It typically takes the form of bounding, hopping or jumping. The aim of plyometrics is to use your body weight and gravity to stress the muscles involved. This type of training involves the muscles working eccentrically (lengthening) when landing (often quadriceps) which helps them store elastic energy. This energy is released when the performer pushes up , working their muscles concentrically (shortening) e.g. jumping (hamstrings).

8) **Static Stretching =** Stretching to the limit and holding the stretch isometrically.

Types of Training, Principles of Training and Parts of a Training Session

Principles of Training (S.P.O.R.T):

S = Specificity

Training should be specific to the needs of an individual and demands of the sport that they take part in.

e.g. Sprinters would use interval training as it has short rest periods and they work anaerobically compared to the long distance runners who would use continuous training as they need to work aerobically for longer periods of time. This would mean each type of performer is improving a relevant aspect of fitness for their activity.

PO = Progressive Overload

Working harder than normal whilst gradually and sensibly increasing the intensity of training.

e.g. Needed for any improvement to be made e.g. drop in resting heart rate
Starting at 5KG and increasing to 6KG once 5KG becomes too easy. In this way the muscles adapt to the new work loads increasing the strength of the individual.

R = Reversibility

If an individual stops or decreases their training level, then fitness and performance are likely to drop.

T = Tedium

Tedium refers to boredom. Training should be altered and varied to prevent an individual from getting bored and demotivated.

Principles of Overload (F.I.T.T) :

Works with the principle of PROGRESSIVE OVERLOAD.

F = Frequency –	refers to how often someone trains. As fitness increases a performer can start to train more often.
I = Intensity -	refers to how hard a performer trains e.g. how fast they run, how heavy the weight is that they can lift. As fitness increases, the intensity should be suitably increased.
T = Time -	refers to how long you train for. As fitness increases, the length of time spent training may well increase.
T = Type -	refers to the type of training used e,g, HIIT. The training type must remain suitable to gain the specific fitness benefits that are required.

Training Zones:

- Aerobic Training Zone = 60 – 80% of maximum heart rate
- Anaerobic training Zone – 80 – 90% of maximum heart rate
- Maximum heart rate = 220 – age

Specific Training Techniques (High Altitude Training)

- High altitude training is carried out by elite performers.
- Involves carrying out training at a high altitude, 2000m or more above sea level.
- The idea behind this training method is that there is less oxygen in the air at high altitude. This makes training very difficult as the body finds it harder to carry oxygen to the working muscles.
- As a result, the body compensates by making more red blood cells to carry what oxygen there is in the air.
- Therefore by the end of training the body has more red blood cells. This means when the athlete returns to sea level they will have more red blood cells to carry more oxygen to the working muscles.

Benefits

- Endurance athletes can sustain exercise at a higher intensity for a longer period of time.

Issues

- It can be very difficult to complete.
- Some athletes suffer from altitude sickness – a feeling of nausea.
- The benefits are lost quite quickly once the athlete returns to sea level.

Justifications of Training Methods

- Training should involve vital component s for the sport. (specificity)
- Training should try and **mimic** many of the specific movements required in a sport. (specificity + type)
- Performing activities that can easily be included within training session to complement other (named) training types, eg continuous training, agility etc
- If no / little equipment is required, methods (e.g. plyometrics) can easily be integrated into session.
- Using methods that can be specifically designed / altered for a specific sporting session, e.g. jumping to reach a ball in basketball, sprinting away from a defender in football.
- How many people can perform the session? If methods can be completed by large groups it would be better for games sports eg whole squads
- Is there space to perform the training method / activity? Fartlek, interval and continuous can be completed on a rugby pitch or in a sports hall as it requires no specific equipment.

Safety Principles When Training

- The training type and intensity used should match the training purpose.
- A warm-up and cool down should be completed prior to and after training.
- Over training should be avoided e.g. use of appropriate weights.
- Appropriate clothing and footwear should be worn which protect / support and allow movement.
- Taping / bracing should be used as necessary to protect and support areas of weakness.
- Hydration should be maintained with fluid intake.
- Stretches should not be overstretched or bounce.
- Technique used should be correct e.g. weight lifting technique.
- Appropriate rest should be given in between sessions to allow for recovery.
- Spotters should be used when weight training if heavy weights are being attempted.

Advantages and Disadvantages of Continuous Training

Advantages:

1) It can be done with little or no equipment e.g. simply go for a run.
2) It improves aerobic fitness
3) Running can be done virtually anywhere
4) It is simple to do – keep doing the same movement over and over.

Disadvantages:

1) It can be boring / tedious.
2) It can cause injury due to repetitive contractions.
3) It can be time consuming.
4) It does not always match the demands of the sport e.g. in basketball the players do not run at one speed continuously

Advantages and Disadvantages of Circuit Training

Advantages:

1) Exercises chosen can be simple to complex.
2) The circuit can be manipulated to train different things e.g. repeated contraction of a muscle / muscle group to train muscular endurance
3) It can be varied to suit fitness level / age etc.
4) It is easy to monitor and alter – progressive overload can be applied by altering the work / rest ratio.

Disadvantages:

1) An appropriate amount of space is required.
2) It may require specialist equipment e.g. a medicine ball, benches, agility ladders.
3) It is difficult to gauge an appropriate work / rest ratio at the start.

Advantages and Disadvantages of HIIT

Advantages:

1) It burns body fat and calories quickly.
2) It can be altered easily to suit the individual.
3) It can be completed relatively quickly.
4) It can improve the anaerobic and aerobic energy systems.

Disadvantages:

1) Extreme work can lead to injury.
2) High levels of motivation are needed to complete the work.
3) It can lead to dizziness and feelings of nausea.

Advantages and Disadvantages of Static Stretching

Advantages:

1) It increases flexibility.
2) It can be done by virtually everyone.
3) It can be done anywhere (does not need a lot of space).
4) It is relatively safe.

Disadvantages:

1) It can be time consuming to stretch the whole body.
2) It can get boring and repetitive.
3) Some muscles are easier to stretch than others.
4) Over-stretching can cause injury

Advantages and Disadvantages of Weight Training

Advantages:

1) It can be easily adapted for different fitness aims.
2) It is relevant to all sports.
3) It is relatively straightforward to carry out.
4) Strength gains can occur.

Disadvantages:

1) Heavy weights can increase blood pressure.
2) Injury can occur if weights are too heavy or lifted incorrect technique is used.
3) Calculating one rep max requires high levels of motivation.

Warming Up

A good warm-up should include:

- Pulse raiser – gradually raising heart rate in preparation for exercise.
- Stretching – stretch al relevant muscles involved in the activity.
- Skill Based Practices – Perform skills that allows the performer to familiarise themselves to the activity they are taking part in e.g. passing a football / netball.
- Mental Preparation – Starting to get focused, using techniques to control arousal e.g. mental imagery.

The benefits of a good warm-up are as follows:

1. Body temperature will increase ready for exercise.
2. Stretching will increase the range of movement possible.
3. There will be a gradual (not over demanding) increase in effort towards 'competition pace', i.e. you gradually work up to the intensity required for the game/event.
4. You will be focused and psychologically prepared.
5. Movement skills that will be used have been practised before starting the game/match/event.
6. There will be less chance of suffering injury.
7. There will be an increase in the amount of oxygen being carried to the working muscles – helping with the production of energy.

Cool Down

An effective cool down should include:

- An activity to maintain an elevated breathing and heart rate, e.g. walk, jog.
- A gradual reduction in intensity, e.g. jog to light-jog to walk.
- Stretching of all main muscles used in the activity.

The benefits of a good cool down are as follows:

1) It allows the body to start to recover after exercising.
2) It helps with the removal of lactic acid, carbon dioxide and waste products.
3) It can help to prevent the delayed onset of muscle soreness, sometimes referred to as DOMS.

The Three Training Seasons

Pre-season (Preparation)

The aim is to improve general and aerobic fitness. It should also focus on specific fitness needs of the performer so they are ready for the competition / season.

Competition season (Peak / Playing season)

The aim is to maintain fitness levels. The performer should be at peak fitness and will aim to maintain this. They will focus on specific skills that are needed in their activity.

Post-season (Transition)

The aim is to rest and recover from the season / competition. Performers should continue to do some light aerobic training so that fitness levels do not drop to far.