KS4 Physical Education

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Methods of Training


These icons indicate that teacher's notes or useful web addresses are available in the Notes Page.

This icon indicates that the slide contains activities created in Flash. These activities are not editable.

For more detailed instructions, see the *Getting Started* presentation.

Learning objectives

What we will learn in this presentation:

The advantages and disadvantages of:

- continuous training
- interval training
- Fartlek training
- circuit training
- cross-training
- weight training.

Methods of training

Click each button to see an illustration and explanation of that training method.

Continuous	Interval	Fartlek
Cross	Circuit	Weight

Continuous training

Continuous training is the simplest form of training. As the name suggests, it involves training with no rest periods or recovery intervals.

This type of training is a good way to improve your **aerobic** energy system.

Swimming, running and cycling are common examples of continuous training activities.

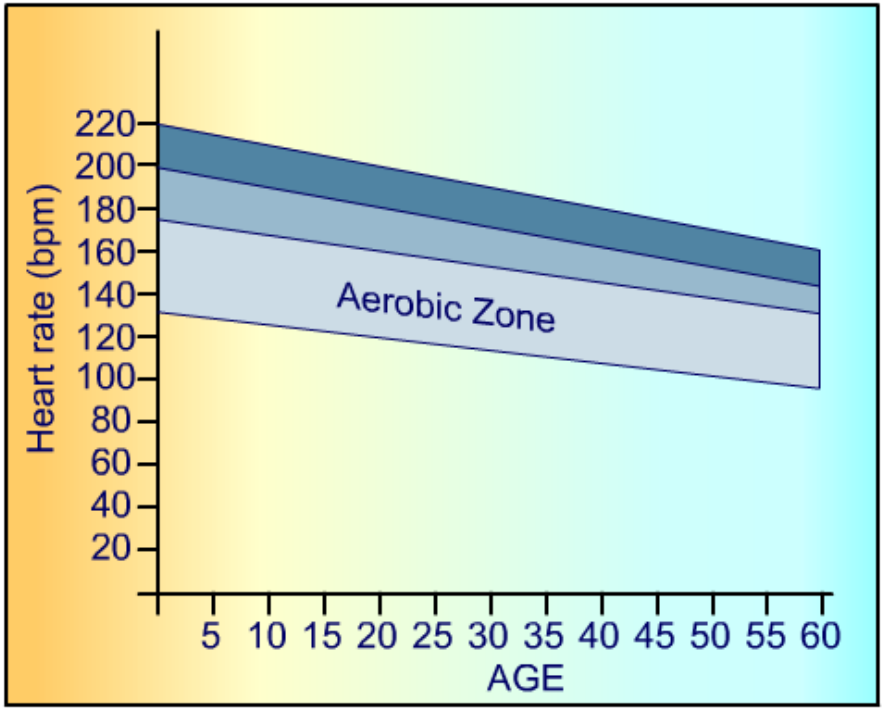
You need to work for a minimum of **20 minutes** to achieve some kind of benefit.

Continuous training

The fitter you become, the longer you will be able to work for.

As fitness improves, you will also be able to sustain a higher level of intensity.

You should start training at about **60%** of your **maximum heart rate (MHR)** increasing to around **75%–80%** as your level of fitness improves.



*You need to stay within the **aerobic zone** during continuous training.*

Continuous training

Continuous training depletes your carbohydrate stores. As the body needs an energy supply to keep working, it is forced into using **fat** supplies. This means that continuous training is a good way to burn fat and lose weight.

Continuous training doesn't just mean running. **Aerobics** is a popular form of continuous training. It is usually performed to music and requires the performer to coordinate whole body movements.

Disadvantages

The main drawback of continuous training is that it does **not** improve speed or agility. This means it is not ideal for games players who need to be able to change pace.

Continuous training can also be extremely boring!

Interval training

Interval training involves following a fixed pattern of periods of strenuous exercise alternated with periods of rest or light activity.

It can be used to gradually improve pace or train for sports like football and hockey where bursts of speed are required.

Example

Row for 1 minute at 30 strokes per minute, then 2 minutes at 18 strokes per minute.

One set = 5 repetitions of the above pattern.

Complete 3 sets as shown above with 5 minute rests between each set.

Interval training

Interval training should be **planned** carefully. The duration and intensity of the exercise and the length of the rest periods must be calculated to suit the performer's level of fitness.

The following can be adjusted to suit the individual performer:

- the **type** of activity done by the performer
- the **length** of the training session
- the **number of bursts** done in each period of exercise
- the **rest period** between bursts of strenuous exercise
- the **intensity** put into each burst of exercise
- the **duration** of each burst of exercise.

Interval training involves a mixture of aerobic and anaerobic exercise.

Fartlek training

Fartlek training was developed in Sweden.

It usually involves **running**, though you could apply the same principles to other activities like cycling and swimming.

Fartlek is derived from the Swedish term meaning **'speed play'**.

Essentially, this training involves many changes of speed. Intensity can also be varied, e.g., by running uphill or downhill.

Like interval training, fartlek training is good for performers in activities requiring changes of pace and sudden bursts.

Fartlek training

Advantages

- Fartlek training can be used to improve both the **aerobic** and **anaerobic** systems by mixing moderate activity with bursts of speed.
- It can be **varied** to suit the fitness level of each individual performer and the available time they have to train.
- This type of training can be used to **avoid boredom** in sports like running and cycling which can be monotonous.

Disadvantages

As the performer decides on the intensity of work, it can be hard for coaches to tell if performers are working as hard as they should be.

Fartlek training – an example

An example of a Fartlek training session:

10 minute jog to warm up.

Sprint hard for 30 seconds.

Jog for 2 minutes.

Run (about 75% of max) for 50 seconds.

Jog for 2 minutes.

Repeat 6 times, reducing the periods of jogging by 10 seconds each time.

10 minute warm down jog.

Continuous, interval and Fartlek

Training plan 1

Read each training plan and decide which method of training is being used.
Press **start** to begin.

start

Cool down

Continuous | Interval | Fartlek

Circuit training

Circuit training is a good way to organize training.

In a circuit, you undertake a sequence of exercises. Each exercise is performed at a **station** (or **workstation**).

There are usually between 8 and 15 of these stations in a circuit. Performers spend a set amount of time at each station in turn, e.g., 1 or 2 minutes at each.

Alternatively, you can do a set number of repetitions or exercises for each activity.

Disadvantages

Circuit training can take time to arrange and often requires a lot of equipment.

Circuit training

Advantages

When designing a circuit you can organize the stations to suit a particular activity or fitness goal.

- You can target specific **muscle groups**.
- You can include **weight** training activities to increase strength.
- You can increase the length of each activity to train the **aerobic** system.
- You can include **skill-based** activities.

To develop general fitness, you may wish to use a range of different types of activities. You can alternate muscle groups between each station to delay muscle fatigue.

Circuit training

Here is an example of a circuit designed for footballers.

Circuit training

Create circuits that are appropriate for each of the training goals.

Click **start** to begin.

start

Cross-training

Cross-training uses a combination of activities to break up the potential boredom of using a single type of training.

As cross-training is a mixture of various types of training, it can be adapted to suit an individual's needs and preferences. For example, an individual could spend one day running, one day swimming and one day playing tennis.

This type of training is a good way to maintain a high level of **general fitness**, while resting muscles used in a main activity.

Elite athletes, however, may find that it is not **specific** enough to prepare them for their chosen activity.

Elite cyclists do almost all their training on bikes.

Weight training

Weight training is an effective way of improving a performer's **strength**.

Weight training is usually **anaerobic**. However, aerobic weight training can be achieved by using very light weights over a long training time.

Weight training is useful in several different ways:

- It can improve **muscular strength**.
- It can improve **muscular endurance**.
- It can improve **speed**.
- It can aid **rehabilitation** after an injury.

Disadvantages

Weight training often requires a lot of equipment.

Weight training

When planning a weights programme to improve strength, you must first decide what type of strength you need:

Static strength – the strength to hold a position or support weight.

Exercise with a **heavy weight** and **low reps** or by pushing/ pulling against a **static object**.

Dynamic strength – the strength to move weight.

Use a **heavy to medium** weight and do **a lot of repetitions**.

Explosive strength – the force that can be exerted in one quick movement.

Use **medium** weights, and move them **quickly**.

Weight training – reps and sets

Weight training programmes are usually planned using **repetitions** (reps) and **sets**.

A 'repetition' is a single movement or exercise.

A 'set' is a given number of repetitions (usually 8–12).

In a weights session, performers usually perform 2–3 sets of about 10–15 reps for each weight training exercise.

How many repetitions are there altogether in 3 sets of 12 reps?

Weight training – repetition maximums

How much weight a performer should be lifting can be calculated using their **1 RM** or **5 RM**.

RM stands for **repetition maximum**.

A performer's 1 RM = the heaviest weight they are able to lift once.

A performer's 5 RM = the heaviest weight they can lift five times.

The 1 RM or 5 RM needs to be calculated for each different weight training exercise.

Performers must take care when testing repetition maximums, as the weights involved are at the limit of their abilities.

Weight training – example

Below are some examples of the types of weight training appropriate for improving different forms of strength.

	Sets	Reps	Weight (% of 1 RM)
Static Strength	3	5	90
Dynamic Strength	3	20–30	40–60
Explosive Strength	3	10–15 at speed	60–80

What weight, reps and sets would you suggest for a shot-putter doing leg presses, if their 1 RM is 120 kg?

Methods of training

Q1. Which method(s) of training can improve muscular strength?

Continuous	Interval	Fartlek
Circuits	Cross	Weight

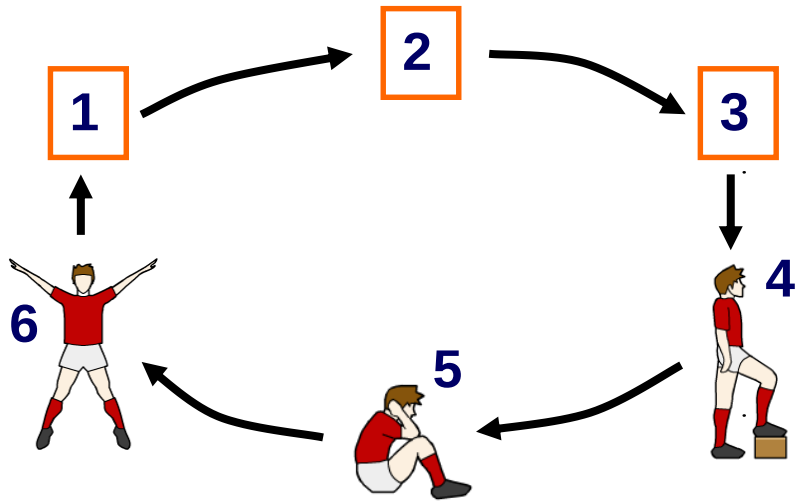
Exam-style questions

1. In relation to weight training, what is meant by the following:
    a) repetitions
    b) sets

2. Circuit training is a commonly used method of training.
    a) Give two advantages of using circuit training.
    b) Give one possible disadvantage of using circuit training.

Exam-style questions

3.



The diagram opposite shows the layout of a fitness circuit.

David is working on his general fitness and has decided to vary his method of training as much as possible. He is planning a fitness circuit, but has only included three activities so far.

Suggest three more activities that he may include in his fitness circuit.