**Exam Revision for Year 10 PPE1**

**Components of Fitness**

**Cardiovascular Fitness** – Ability to exercise the whole body for long periods of time without fatigue.

* AEROBIC EXERCISE - Maintain the intensity of exercise without fatigue/delay the onset of fatigue
* ANAEROBIC EXERCISE – repay oxygen debt FASTER

**Strength** – The maximum amount of force a muscle can exert against a resistance

**Muscular Endurance** – Ability to use the voluntary muscles many times without fatigue

**Body Composition** – Percentage of body weight that is fat, muscle and bone

All athletes have a different body composition – some require more/less MUSCLE MASS. Endurance athletes do not want EXCESS BODY-WEIGHT

**Flexibility** – Range of movement possible at a joint, how far we can stretch or reach

* Reach FURTHER
* Prevent INJURY (in ALL sports)
* Make more AESTHETIC POSITIONS (e.g. in gymnastics)

**Speed** – How fast we can cover a particular distance or move a certain part of the body

**Reaction Time** – Time between presentation of **stimulus** and onset of movement

**Balance** – The ability to retain the body’s **centre of mass** above the base of support

* Hold a position without wobbling or falling

**Agility** – The ability to **change the position** of the body **quickly** and **under control**

* Dodge/evade opponents

**Co-ordination** – Ability to use 2 or more body parts at the same time

**Power** – Ability to do strength performances at speed (Power = strength x speed)

* Power is EXPLOSIVE
* JUMP is always linked to power

**Principles of Training**

Remember **SPORT I FITT**

**Specificity** - Training should match the requirements of the sport

**Progressive Overload** - **Gradually** increasing the intensity of training to make gains in fitness AND to avoid injury

**Overtraining** - **rest and recovery** needed to prevent injury

**Reversibility** - using the other principles and avoiding gaps in training to avoid loss of fitness

**Thresholds of training** - matching the INTENSITY of exercise to the requirements of the sport.

Karvonen formula – MAX HR = 220-age.

**Lower THRESHOLD** 60% of MHR (MHR x 0.6).

**Upper THRESHOLD** 80% of MHR (MHR x 0.8)

**Individual needs -** Gender, age, health, experience

**Frequency** – How often you train

**Intensity** – How hard you train

**Time** – How long you train for

**Type –** The type of training you do

**Warming – up and cooling – down**

**Warm up** - to prepare body for exercise.

3 parts

1. Pulse raising – to increase blood flow to the working muscles
2. Stretching – increase elasticity of muscles
3. sport specific drills – prepare body with sport-specific movements,

BENEFITS

* Prevent injury (increase elasticity of muscle)
* Increase level of performance (by using sport-specific skills in warm-up)

**Cool Down** - return body to homeostasis.

2 parts

1. Slow jogging/walking,
2. Stretching

BENEFITS

* Prevent muscle soreness
* Maintain blood-flow for removal of lactic acid and prevent blood-pooling.

**Methods of Training**

**Continuous** – sub-maximal intensity, long in duration, no breaks.

* Improves CV fitness

**Fartlek** – changes of intensity – periods of high-intensity work, interspersed with lower intensity recovery – no breaks. Recovery is active.

* Improves CV fitness, aerobic and anaerobic fitness
* **Most suited to GAMES players**

**Interval** – Maximal-intensity work, interspersed with periods of rest

* Improves Speed (**HIGH INTENSITY** followed by **STOPPED REST**)

**Circuit** – stations with different exercises

* Can be adapted to match your sport
* Can be skill-related or fitness-related (or both)
* Can work more than one component of fitness
* Can adjust the length of rounds and length of rest-periods

**Plyometrics** –

* Improves explosive POWER
* MOST suited to JUMPS

**Weight Training/Resistance Training**-

* Improves strength OR muscular endurance –
* Strength = High weights/low reps
* Muscular Endurance = Low weights/high reps

**Fitness classes;**

* **Body pump** - muscular endurance;
* **Aerobics** - aerobic/CV fitness;
* **Spinning** - CV fitness/muscular endurance (specific to cycling events);
* **Pilates/Yoga** - flexibility

YOU MUST KNOW THE ADVANTAGES AND DISADVANTAGES FOR EACH ONE!!

**Fitness Tests**

**Cardiovascular fitness** – Cooper 12 minute tests (run, swim), Harvard Step Test;

**Strength** – grip dynamometer;

**Muscular endurance** – one-minute sit-up, one-minute press-up;

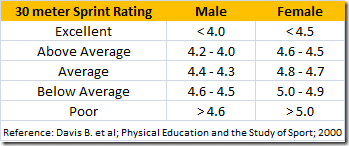
**Speed** – 30m sprint;

**Power** – vertical jump (remember power is always linked to JUMP);

**Flexibility** – sit and reach

**Agility -** illinois agility test

Data must be assessed against normative data, for example below. If a male got less than 4 seconds it would be classed as excellent:



**The “Relative Importance”**

This is a skill needed for almost every 9 mark question on paper 1

This asks you to make decision about something, in relation to the others.

The easiest way to do this is to place something in rank-order of importance.

AO1 – knowledge

AO2 – Link to the sport in the question

AO3 – Conclusion about the relative importance

EXAMPLES



