**Year 9, Lesson 6**

Do Now:

1. S in SPORTIVAR stands for…….
2. Two things that you can use to measure your heart rate are…….
3. An example of a type of exercise that you can do to improve your speed is ……
4. If I selected 15 on the Borg Scale, this indicates my heart rate is (show workings out)…..
5. ‘The time taken to respond to a stimulus’, is the definition for which component of fitness…..

Read through the following to gain an understanding of what training for **strength**, **endurance** and **power** are:

**Training for Strength**

Definition: The maximum force (in Kg or N) that can be generated by a muscle or a muscle group.

Type of Training: Resistance Training - Resistance training is referred to by gym goers as weight training but the term refers to any form of exercise where you lift or pull against resistance. This could be using dumbells, a barbell, bodyweight, machines, kettlebells, powerbands or any other external resistance. Traditional resistance training uses dumbells or a barbell to perform an exercise for a specific number of **repetitions** with the aim of improving muscular strength, size or endurance.

**Key Understanding:**

**Repetitions** – the number of repeated actions for example 3 reps of 5Kg bicep curls.

Figure Rugby Players training and spotting to develop muscular strength

**Sets** – the number of repetitions within the set, and then the number of sets the performer actually does. For example: 3 sets of 10 reps 5Kg bicep curls would mean that the performer does 3x10 = 30 reps in 3 sets.

**Concept**: To develop **strength** a performer must use heavy weights with low reps.

The weight has to be >75% than the performer’s 1 rep max (the most they can safely lift) and the reps in each set should be between 1-6.

**Training for Muscular Endurance**

**Definition**: The ability of the muscular system to work efficiently, where a muscle can continue contracting over a period of time against a light to moderate fixed resistance load.

Figure Notice the size of the weight has reduced to enable the performer to lift more reps.

**Concept**: To develop muscular endurance the performer has to work the muscle in the way it is going to be used in the game/activity context and use repeated sub-maximal contractions for longer periods of time.

The number of reps **increases** to a maximum of *20 reps* in each set, and the number of sets can range from 3 to more, but the weight has to decrease to **<75% 1 rep max**.

**Training for Power**

Figure These actions are all plyometric but should include multiple repetitions of the action to about a minute in duration.

**Definition:** The product of *strength* and *speed* (strength x speed)

**Concept**: To develop power the performer must use both strength and speed in their efforts.

Power is directly linked to **explosive** types of movements like sprinting out the blocks or launching the javelin.

To develop power performers use a training type called **plyometric**.

**Plyometric training** involves the working muscle contracting to its full length and then reverting to its normal size and repeating this action without rest or pause in between. Typically, body weight is the resistance used but bands can also be very useful.

CAUTION: Plyometric training causes micro-tears in the muscle and can lead to injury if not managed carefully.

**Application of knowledge:**

Apply the above information to answer these quick questions:

1. State which one of the strength training methods requires repetitive actions where the muscle has to work between its normal and maximal range without pause or rest?

Answer:

1. If I am lifting heavy weights what health and safety measure should I include?

Answer:

1. How many reps in a set should I include if I am training to develop muscular strength?

Answer:

1. If I perform 3 sets of 20 reps with 5Kg weights on a shoulder press, bicep curl and tricep extension, which type of strength will I be developing?

Answer:

**Exam style questions:**

Answer the following questions that could be asked in your exam:

1) Henry is coaching a pair of sprinters. He is discussing resistance training with them, ‘If you press >75Kg of your 1 rep max 1-6 times per set, you will develop better what?’

Which one of the type of resistance training is Henry referring to? (1 mark)

*(Please* ***bold*** *and change the colour of your answer)*

Speed

Plyometric

Muscular Strength

Muscular Endurance

2) Elaine is a long-distance cyclist who uses the resistance training to improve her sporting performance

a) Explain why using high reps with low resistance on a resistance bike would lead to an improvement in Elaine’s sporting performance (2marks)

*Consider: what is the definition of Muscular Endurance*

*Consider: apply by providing an example of how it would help and why*

Answer:

b) Explain why using specificity would lead to an improvement in Elaine’s sporting performance (2marks)

*Consider: what is the definition of specificity*

*Consider: apply by providing an example of how it would help and why*

Answer: