WACE Physical Education Studies – Training Methods

Resistance Training Terminology

Term	Meaning	Term	Meaning
Repetitions (reps)	The number of times a weight will be lifted in a sequence	**Isometric resistance training**	Type of strength training where the joint angle and muscle length do not change during contraction.
Load	The amount of weight to be lifted	**Isotonic resistance training**	Muscle changes length working against a constant load
Sets	A group of repetitions performed without a rest	**Isokinetic resistance training**	Muscle changes length working against a varying load
1RM	The maximum weight that can be lifted in one maximal exertion	**Free weights**	
Speed of contraction	The speed at which the weight is lifted	**Own body resistance**	

Resistance training

- Aims to build muscle strength, muscle power or local muscular endurance by exercising individual muscles or muscle groups against a resistance

	Speed of contraction	%1RM	Volume (sets x reps)	Recovery
Endurance	medium	40-50%	2-3 x 15-30	30sec-1min
Hypertrophy	slow	65-75%	4-6 x 12-15	30sec-1min
Strength	slow	70-100%	3-5 x 1-10	2-3min
Power	fast	30-60%	2-3 x 10-12	2-3min

Continuous training

- Involves performing an activity, such as jogging, cycling or swimming, nonstop for a period of 20min or longer
- Used to develop cardiorespiratory endurance and muscular endurance

Fitness component	Training method
Cardiorespiratory endurance	• Continuous training • Fartlek training • Circuit training • Long interval training
Strength	• Resistance training • Circuit training
Power	• Resistance training • Circuit training • Plyometrics training
Local muscular endurance	• Resistance training • Circuit training • Continuous training
Speed and agility	• Short interval training • Circuit training • Plyometrics training
Flexibility	• Static stretching • Dynamic stretching • PNF stretching

Interval training

- Series of repeated bouts of exercise interrupted by pre-determined rest periods or lighter exercise
- Depending on the length of the work and exercise periods, interval training can be used to develop any 3 of the energy systems

Type	Duration of work period	Intensity	Duration of recovery period	Work: rest ratio
Long interval	30sec-10min	70-85%	30sec-10min	1:1
Intermediate interval	10-60sec	80-90%	20-180sec	1:2 or 1:3
Short interval	3-30sec	85-100%	20sec-3min	1:6

Circuit training

- Comprises a sequenced performance of exercises at different activity stations (typically, between 8-12 stations) completed in a given time or by a pre - determined work: rest ratio
- Can be tailored to develop multiple fitness components - speed, power, muscular endurance, agility

Fartlek training

- A variation of continuous training, involves random changes of intensity throughout the exercise bout
- Used to improve both aerobic and anerobic energy systems
- Random changes in speed are excellent for replicating demands of team sports

Flexibility training

4 major methods for improving flexibility

Type of stretching	How?	Most suited to?
Static	Muscle held at max range for 30sec	Recovery and developing static flexibility
Dynamic	Muscle is moved through ROM with controlled momentum	Warm up as designed to emulate expected movements about to perform
Ballistic	Involves bouncing into or out of a stretched position	Highly explosive activities like ballet dancers
PNF	Advanced form of flexibility training involving the contraction and stretching of specific muscle groups	Rehabilitation following injury

Plyometrics training

- Training method designed to produce fast, powerful movements and improve the functions of the nervous system
- Used to develop power, speed, and agility

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Syllabus reference	• Definition of training types ○ resistance training – (isometric, isotonic, isokinetic), interval training, continuous training, circuit training, fartlek, flexibility, plyometrics
Key term	**Definition/elaboration**