**CBSE Test Paper 02**

**CH- 12 Training in Sports**

1. What is Pace race ?
2. What do you mean by strength endurance?
3. What is adaptive ability?
4. What is active flexibility?
5. What is reaction ability?
6. What is dynamic stretching method?
7. Briefly explain different types of coordinative abilities.
8. Explain the physiological factors determining speed.
9. What do you understand by High Altitude Training in sports? What is the impact of high altitude training on athletes? Write in detail.
10. Define speed and describe the types and various methods of Improving Speed.

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**Answer**

1. Pace race : The speed of Athlete requires a high degree of concentration and complete attention towards the race. It means the pace has to be set with other athlete.
2. Strength Endurance: It is the ability to overcome resistance or to act against resistance under conditions of fatigue.
3. Adaptive ability enables modifications of motor activity on the basis of comparison or anticipation of new or changing conditions during performing motor activity.
4. Active flexibility exercises are for people trying to increase or maintain flexibility on their own. They require no assistance to perform simple movements, such as arm circles or flexing of fingers.
5. Reaction ability- It is the ability to react immediately to a signal. They are of two types as simple reaction & complex reaction.

6. Dynamic stretching is a technique that many athletes should be accustomed to. This type of stretching can be in the form of leg swing walks or carioca just to name a few. This is a great way for teens to work on their flexibility in a fun way. It allows them to be active and it can be done with groups and teas. This type of stretching goes for more than two seconds and is done without stopping the movement.

7. The different types of coordinative abilities are:

    1. Differentiation Ability It is the ability to achieve a high level of fine-tuning or harmony of individual movement phases and body part movements.
    2. Coupling Ability It is the ability to coordinate body part movements (e.g movements of hand, feet, trunk etc) with one another and in relation to a definite goal-oriented whole body movement Couplmg ability is especially important in sports in which movements with a high degree of difficulty have to be done e.g gymnastics, team games.
    3. Reaction Ability It is the ability to react quickly and effectively to a signal.
    4. Rhythm Ability It is the ability to perceive an externally given rhythm and to reproduce it in motor action.

5. Adaptation Ability It is the ability to adjust or completely change the movement programme during movement on the basis of changes or anticipated changes in the situation.

Basic coordination abilities:

1. Adaptive ability enables modifications of motor activity on the basis of comparison or anticipation of new or changing conditions during performing motor activity.
2. Balance ability is understood as an ability to keep body or its parts in a relatively stable position.
3. Combinatory ability is understood as an ability to simultaneously put partial movements together into more complex movement structures.
4. Orientation ability is an ability to realize position of the body or its parts in space and time. Rhythm ability enables to grasp and meteorically express rhythm which is externally determined or contained in the motor activity itself.

8. Physiological factors for determining speed:

The following are the factors for determining speed:

1. Reaction Speed It is the ability to respond to a given stimulus as quickly as possible In sports, reaction ability is not only significant to react quickly to a signal, but It should also be accurate according to situation.
2. Movement Speed It is the ability to do a single movement m the minimum time. Movement speed is of high relevance in sports like jumping. throwing. kicking. boxing etc.
3. Acceleration Speed It is the ability to increase speed from minimum to maximum This form of speed, to a great extent, depends upon explosive strength, frequency of movement and technique This ability is important in swimming. hockey, football, gymnastics etc.
4. Locomotor Ability It can be defined as the ability to maintain maximum speed of locomotion over a period of tune as far as possible. This ability is very important m races, speed skating. swimming, hockey, football etc.
5. Muscle composition: The muscles which consist of more percentage of fast twitch

fibers contract with more speed and produce a greater speed. Different muscles of the body have different percentage of fast twitch fibers.

6. Explosive strength: it depends on the shape, size and coordination of muscles. For very quick and explosive movement, explosive strength is required. The related proportion of fast twitch fibers and slow twitch fibers determines the maximum possible speed with which the muscle can contract.
7. Flexibility: It also determines the speed. Good flexibility allows maximum range of movements and also enables complete utilization of explosive strength.
8. Biochemical reserves and metabolic power: muscles requires more amount of energy and high rate of consumption for maximum speed performance. For this purpose the stores of ATP & CP in the muscles should be enough. If the store is less, the working process of the muscles slows down after short time.

9. It is the training done at high altitudes (2400-5000 feet above sea level) to bring efficiency in using oxygen and thereby enhancing the performance. This type of training is practised on high hills for several weeks. At high altitudes, the oxygen level is comparatively low, so athletes develop greater endurance, ability and strength. Relative lack of oxygen in high altitudes compels the body to increase the mass of red blood cells. When these athletes travel to lower altitudes for competition, then their production of red blood cells remains high which gives them a competitive advantage. The impacts of high altitude training are as follows:

    i. **Increase Red Blood Cells -** Altitude training increases the red blood cell formation in the blood. This increases the efficiency of the athlete.
    ii. **Improves the Delivery of Oxygen to Muscles -** The level of oxygen at high altitude is low so it brings greater efficiency to the muscles.
    iii. **Greater Lactic Acid Tolerance -** When muscles are able to tolerate lactic acid for a longer duration, then they work longer without fatigue.
    iv. **Increase in Lean Muscle Mass -** As the muscles become more efficient, their muscle mass increases and fat reduces making the body fitter.

10. Speed is the rate of motion, or the rate of change of position. It is expressed as distance moved per unit of time. Speed is measured in the same physical units of measurement as velocity. Speed is defined as the ability of an individual to perform similar movements consecutively at Fastest rate, e.g., short distance races like 100

metres and 200 metres. Speed as the capacity of an individual to perform successive movement of the same pattern at a fast rate.

Types of Speed:
1) Movement speed: It is the ability to do a movement in minimum time. It depends upon technique, explosive strength, flexibility and coordinative abilities.
2) Locomotor ability: It is the ability to maintain maximum speed for a maximum time or distance. Events like 100mt, 200 mt, 400mt requires this ability.
3) Speed Endurance: Speed endurance is the ability to perform movements with high speed under conditions of fatigue. This depends upon technique, local muscular endurance and lactic acid tolerance ability.

Methods for improving speed.
1) Acceleration runs- It is the ability to increase speed from jogging to running and finally sprinting. It depends on explosive strength, frequency of movement & technique. To attain maximum speed from a stationary position this is practised after learning proper technique.
2) pace run or races- A competitive pace race is a timed race in which the objective is not to finish in the least time, but to finish within the prescribed time and in the best physical condition. In some races, the prescribed time is very narrowly defined and the winner is the competitor who finishes closest to the prescribed time. Complete recovery is ensured between two repetitions. This means to running the whole distance of a race at a constant speed. In this the athlete runs the race with uniform speed.