

CBSE Test Paper 02
CH- 07 Physiology and Injuries in Sports

1. What is physiology and why is it important in sports?
2. What are the components of physical fitness?
3. What is power?
4. What is residual air volume?
5. How the muscular system of males and females are different?
6. What are the long term effects of exercise on cardiovascular system?
7. What are the immediate effects of exercise on cardiovascular system?
8. Regular physical activities cannot stop the clock of ageing: but definitely it can slow the process. Justify.
9. Write in detail about the physiological changes taking place due to ageing.
10. What do you understand by Coordinative ability? Discuss about different types of coordinative abilities.

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Answer

1. Physiology- Physiology is the study of how functioning our organs, systems. tissues, cells etc. Physiology is very important for an athlete. Because This is essential to understand how to attain physical fitness in order to enhance the performance in sports.
2. The various components of physical fitness are:
 - a. Flexibility
 - b. Strength
 - c. Endurance
 - d. Speed
 - e. Coordinative abilities
3. This is the ability of the body to release maximum muscle contraction in the shortest possible time.
4. Residual air volume is that amount of air, which is left in the lungs after exhalation.
5. The muscular strength of females is less than males. The contraction and extension of muscles of females are less forceful whereas males have a more forceful contraction and extension of muscles. The bones and ligaments attached to the muscles are stronger in males than in females.
6. The various long term effects of exercise on cardiovascular system are:
 - a. Increase in the size of heart
 - b. Decrease in resting heart rate
 - c. Stroke volume increase at rest
 - d. Increase in cardiac output
 - e. Increased blood flow
 - f. Decrease in blood pressure
 - g. Increase in blood volume
 - h. Quicker recovery rate

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- i. Reduced risk of heart disease

7. The various immediate effects of exercise on cardiovascular system are:

- a. increase in heart rate
- b. increase in stroke volume
- c. increase in blood flow
- d. increase in cardiac output
- e. increase in blood pressure

8. Role of regular exercise on ageing process: Regular exercise always promotes healthy ageing process. Getting older is a regular cycle of life. Regular exercise delays the changes which occur due to ageing. The role of regular exercise is as follows.

(i) Muscles lose strength due to ageing. But we can maintain their strength for longer period if we exercise regularly.

(ii) With increase in age cardiorespiratory fitness decreases but those who continue to exercise keep their cardio system efficient which slows down the process of ageing.

(iii) Muscles and joints become less flexible and agile with age. But regular exercise removes various joint problems and keeps the person healthy and fit, saves from osteoporosis.

(iv) More severe changes in ageing are on skin which lead to wrinkles and decreased elasticity. Regular exercise tones up the muscles and because of aerobic consumption and better flow of circulation to all the parts of the body, there is glow on the skin with less wrinkles.

Definitely Regular physical activities slow down the ageing process. One day each one of us is going to grow old but regular exercises become an asset to live a good quality life.

9. Physiological changes taking place due to ageing are

- i. **Muscle Size and Strength** As an individual gets older, there is a decline in muscle size. It is believed that this decline is due to a reduced amount of protein as well as a decline in the number and size of muscle fibres.

- ii. **Respiratory System** With advancing age, the uptake and exchange of oxygen reduces. The airways and lung tissues become less elastic due to ageing.

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- iii. **Cardiovascular System** A number of studies have shown that as individual get older, their overall heart size becomes smaller. Maximum stroke volume, cardiac output and blood flow also decrease with age.
 - iv. **Nervous System** This system is responsible for reactions and movements. The brain's weight, network of the nerves and blood flow decrease with age due to which the reaction time and movement time also slows down.
 - v. **Bone Density** It decreases with increasing age which means that elderly people are much more prone to bone injury than young people whose bones have reached full growth and maturity.
 - vi. **Slowing of the Digestive System** With increased in age, the digestive process slows down due to reduction in the production of digestive enzymes.
 - vii. **Sensory Organs** With increasing age, the sensory organs become less receptive. There is visual impairment, hearing loss, diminishing of the taste buds and loss of sense of smell as one progresses in age.

All these factors cause various changes in a person. This is the reason why old people have difficulty in balancing, walking and have slow reaction time.

10. Coordinative abilities are those abilities which enable an individual to do various related activities accurately and efficiently. Coordinative abilities mainly depend on the central Nervous System.

Types:

- i. Orientation ability
- ii. Coupling ability
- iii. Reaction ability:
 - a. simple reaction ability
 - b. Complex reaction Ability
- iv. Balance Ability