CBSE Test Paper 04

CH- 07 Physiology and Injuries in Sports

1. What is hypertension?
2. What are the main causes of Scoliosis?
3. Write one physiological change due to ageing.
4. What is oxygen intake?
5. Explain the effects of ageing on day, lean body weight and BMR.
6. Enumerate any five effects of exercise on muscular system.
7. Mr Ram, a retired person, was regular at district park every morning. He saw that most of the old people complained of joint pains. He discussed with them and from next day he organised exercise classes for aged people. His efforts were appreciated by everyone.
    i. What values are shown by Mr Ram?
    ii. Generally, why do the old people complain of Joint pains?
    iii. How can exercises help in relieving that pain?
8. Write any three effects of exercise on the cardiovascular system.
9. What are the effects of exercise on Respiration System? Write in detail.
10. Describe physiological factors determining component of physical fitness.

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Answer

1. Hypertension also is known as high blood pressure is a long-term medical condition in which the blood pressure in the arteries is persistently elevated.

2. The main cause of Scoliosis are:

    - Heredity defects
    - Carrying Heavy Loads on one shoulder
    - One side flat foot

3. One physiological change which occurs due to aging is Cardiac output decreases, blood pressure increases and arteriosclerosis develops.

4. Oxygen intake is the amount of oxygen taken by the lungs from atmosphere.
5. With ageing, there us increase in accumulated fat and has ability to release stored fatty acids from adipose tissues for energy decreases. Similarly, lean body weight also decreases due to decrease in muscle size and decline in calcium and phosphorous content of the bones. BMR or Basal Metabolic Rate also reduces with ageing due to the decline in lean body weight.

6. The five effects of exercise on muscular system are :

    a. Size and shape of muscle changes: Regular exercise changes the shape and size of the muscle. Cells of the muscles are enlarged which change the shape and size of the muscle.
    b. Correct body posture; regular exercise keeps the correct posture of the body by strengthening the muscles. The postural deformities do not occur. If there is any physical deformity, then it is removed.
    c. Food storage increases: the capacity of food storage in body can be enhanced by doing regular exercises. This stored food can be utilized immediately when required.
    d. Toned muscles: regular exercise helps in keeping the muscles in toned position.

Muscles become firm and maintain a slight, a steady pull on the attachments.

e. Efficient movement of muscles: The movement of muscles becomes efficient and smooth. The movements during different activities become attractive.
f. Change in connective tissues: the connective tissues become powerful. These tissues can bear the stress of strenuous activity.

7. i. The values shown by Mr Ram are good moral character, self-discipline, decisiveness, logical and decision maker.
   ii. Old people complain of Joint pains because flexibility and elasticity of the ligaments and length of the tendons enveloping joints decrease with age.
   iii. Exercises strengthen the musculoskeletal systems, thereby preventing the joints from stiffening in one position This relieves pain.

8. The effects of exercise on the cardiovascular system are

   i. Cardiac output is the amount of blood pumped by the heart in 1 min. This increases directly with increasing exercise intensity.
   ii. The heart rate increases from a resting rate of 72 beats / min to 150 beats / min or even more.
   iii. The stroke volume, meaning the amount of blood pumped into the Aorta with every heartbeat, increases from a resting volume of 70-90 mL to 100-120 mL per beat.

9. Effects of exercise on respiratory system

   i. Strengthens will power to push beyond the capacity of regular training.
   ii. Decreases rate of respiration during exercise and at rest.
   iii. Strengthen muscles of Diaphragm and chest.
   iv. Increase in Tidal capacity.
   v. Activates unused Alveoli since more oxygen is required for endurance activities.

10. Physiological factors determining components of physical fitness are:

    i. Muscular strength: This is the maximum force or tension a muscle or a muscle group can exert against a resistance. Physiologically the muscle will increase in strength only if it has to increase its workload beyond what is ordinarily required of it.

ii. Power: This is the ability of the body to release maximum muscle contraction in the shortest possible time.
iii. Speed: This is the rapidity with which one can repeat successive movements in the same pattern.
iv. Muscular endurance This is the ability of a muscle or muscle group to perform repeated contractions against a resistance load or to sustain contraction for an extended period time with less discomfort and more rapid recovery.
v. Agility: This is the ability of a person to change direction or body position as quickly as possible and regain body control to proceed with another movement.
vi. Flexibility: This is a quality of the muscles, ligaments and tendons that enables the joints of the body to move easily through a complete range of movements.

"Most people say that as you get old, you have to give up things. I think you get old because you give up things. "Give your opinion what you think about this with the help of physiological changes due to ageing, the saying is correct because, by giving up your usual activities, you speed up the ageing process. In fact, the ageing process can be slowed down by continuing your usual activities, Regular exercise keeps the human body livelier, fitter and in better condition, thus delaying the ageing processes like Loss of elasticity from the lungs and chest wall, reduction in muscle strength and hypertrophy, increase in the fat content of the body, reducing flexibility.