

Important snaps
by Team PIS
Class- XIIth

SUBJECT: PHYSICAL EDUCATION
TEACHER: KUNAL ANAND

Highlights from chapter 1- PLANNING IN SPORTS

Q1 Explain the objectives of planning ?

Ans1 There are various objectives of planning which are-

1. **To reduce unnecessary pressure of immediacy** - In hurry a work can not be performed efficiently and smoothly. So to reduce the pressure of immediacy or urgency are the main objective of planning.
2. **To keep control over all the activities** - Planning helps in keeping good control in organizing a tournament as planning and control are connected with each other.
3. **To facilitate proper Co-ordination** - This objective of planning is related to facilitate proper coordination among the various members of committees, formed for to organise the competition.
4. **To reduce the chances of mistake** - A proper planning reduces the chances of mistake and oversights. Planning help to do work in systematic way.
5. **To increase the efficiency** - With a help of a proper planning the sports officials become more efficient. They perform their duties efficiently and effectively because planning provide chance to study their work.
6. **To increase the creativity** - To increase the creativity is another significant objective of planning. As a matter of fact, a proper planning increases the creativity among the officials, coaches and physical education teachers. In fact planning helps innovative and creative thinking because many new ideas come to the mind of officials when they make on a plan.
7. **To enhance the sports performance** - Without proper planning it is not possible to improve the performance of a sports person. In fact, training of sports activity of players are useless if it is not well planned.

Q2 Prepare the fixture in knock out & league tournaments.

Ans 2 Important Points of Knock-out Tournaments

1. Number of all teams taking part.
2. Number of total byes.
3. The number of total teams in each half or quarter.
4. The number of byes in each half or quarter.
5. Number of total rounds.
6. Total no. of matches = Total no. of teams-1.

Method of preparing fixture in Knock-out Tournament

Total no. of matches to be played, can be easily calculated by subtracting 1 (one) from total no. of participating teams i.e. If there are 12 teams ($12-1 = 11$) i.e. 11 matches will be organised.

Team can be easily divided into 2 halves if the total no. of teams is power of 2 i.e.- 2, 4, 8, 16, 32, 64, 128. etc.

If the no. of teams, is different from the above pattern i.e.- 3, 5, 6, 7, 9, 10, etc. byes will have to given. Bye is a dummy team that does not play in the first round.

Formula to give bye -

Example I - Total no. of teams = 7, total no. of matches = no. of team-1

Next higher no. which is power of 2 = 8

So, the no. of bye will be = $8-7 = 1$ [higher power of 2 - no. of teams)

Q3 Write the advantages & disadvantages of knock-out tournaments.

Ans3. Advantages of Knock-out Tournaments

1. Knock-out tournaments are less expensive.
2. It helps in developing the standard of the game, as each team tries to perform at their best to avoid defeat.
3. Within shortest possible time, tournament can be finished.
4. No. of officials required also get reduced to organise such tournaments

Disadvantages of Knock-out Tournaments

1. There are chances of even good enough teams getting eliminated in 1st and 2nd round itself.
2. There are chances of weak teams making it to final stages.
3. Viewers interest in the final match may get reduced.

*What is the league tournament ? Write its type of league tournament.

Explain its advantages & disadvantages of league tournaments

Q4. What is knock-out tournament?

Ans4. In knock-out tournament a team gets eliminated at the very first defeat. Only winning teams keep on continuing.

Q5. Explain league tournament?

Ans5. In this system of tournament each team plays with the rest of the teams once if the tournament is single league. In double

Q6. What is 'Bye'?

Ans6. It is a privilege given to a team to play directly in the second round. While drawing fixtures on knock-out basis if the number

Chapter 2 - Sports and Nutrition

Q1. List down four myths about dieting?

Ans1. (i) Healthy food is expensive.

(ii) Dieting makes you loose weight.

(iii) No fat diet is good.

(iv) Don't take milk immediately after eating fish

Q2. Mention two diseases which come from deficiency of protein?

Ans2. Kwashiorkor & Marasmus.

Q3. How many amino acids are found in proteins?

Ans3. 23 amino acids and 9 are essential for us.

Q4. Explain Balanced diet and its function in our body?

Ans. Balanced diet :- Balanced diet is that which is consisted of various constituents of food in accurate and appropriate proportions.

Functions of Balanced diet :-

- (i)** Sufficient energy is given by balanced diet.
- (ii)** It helps individual to grow and develop to optimum level.
- (iii)** Proper functioning of organs is done by balanced diet.
- (iv)** It helps to repair or replace the worn out tissue.
- (v)** Balanced diet improves the defence of body.
- (vi)** It helps to improve the overall health status.
- (vii)** Balanced diet improves metabolism.
- (viii)** It prevents deficiency diseases and maintain body weight thus overall efficiency of individual improves.

Q5. Write importance of protein for our body ?

Ans. Proteins are basic structure of all living cells. Proteins are main components of muscles, tendons ligaments, organs, glands and all living body fluids like enzymes hormones and blood.

Proteins are needed for growth & development of body. It helps to repair or replace the worn out tissues. It does not provide energy in normal routine whereas it acts as energy source only under extreme starvation. Proteins are required for making blood, muscle, Nails, skin, Hair and body parts and repair them when needed and are important in some situation like early development and maturation, pregnancy lactation, or injury like burn etc.

Q6. Write difference between types of carbohydrate simple and complex carbohydrate?

Ans6.(i) Simple carbohydrate give quick energy on the other hand complex carbohydrates release slow energy.

(ii) The types of simple carbohydrates are Glucose, Galactose, Fructose, Maltose, Sucrose, Lactose. Complex are starch

(iii) Simple Carbohydrate are called mono saccharides while complex are called polysaccharides

(iv) Simple Carbohydrate are sweet in taste but complex are not sweet in taste

(v) They can be absorbed quickly other side complex carbohydrates takes time

(vi) Simple carbohydrates can be dissolved in water but complex not.

Q.7 How food intolerance is treated ? What are systems Explain in brief?

Ans7. Food intolerance is treated by medical help where we know the food which causes problem. Food intolerance is more common than food allergy. Food intolerance is a term used widely for varied physiological response associated with a particular food. The individual elements of certain foods that cannot be properly digested and absorbed by our digestive system.

Systems of Food Intolerance : -

Food intolerance can cause nausea, stomach pain, Diarrhoea, Vomiting, Flatulence Gas, Cramps heart burn, headache, irritability, or nervousness etc.

Chapter 3 - Yoga and Lifestyle

Q1. What do you mean by Asana?

Ans1. To sit in a comfortable position for everlasting period of time is called asana.

Q2. Mention the contraindications and two benefits of Paschimottanasana ?

Ans2. Contraindications of Paschimottanasana

- If you are suffering from enlarged liver or spleen or acute appendicitis, you never do this asana.
- Do not perform this asana if you are suffering from asthma or any other respiratory disease.
- Practice this asana under expert advice if you have any back or spine problem

Benefits of Paschimottanasana

1. Calms the brain and helps relieve stress and mild depression.
2. Stretches the spine, shoulders, hamstrings.

Q3.What do you mean by diabetes? Discuss the procedure, benefits and contraindications of Bhujangasana ?

Ans3. Diabetes is such a disorder that it causes sugar to build up in our blood stream instead of being used by the cells in the body.Procedure of Bhujangasana: In this asana the shape of the body remains like a snake that is why it is called Bhujangasana. In order to perform this asana, lie down on the belly on the ground. Keep your hands near the shoulders. Keep your legs close together. Now straiten up your arms slowly, raise the chest. Your head should turn backwards. Keep the position for sometime. Then get back to the former position. For good results, perform this asana for 4 to 5 times.

Benefits of Bhujangasana:

- It alleviates obesity.
- It provides strength and agility.
- It cures the disorders of urinary bladder.
- It cures the disease of liver.
- It improves blood circulation.
- It makes the vertebral column flexible and thin.
- It cures gas disorders, constipation and indigestion.
- It strengthens the muscles of hands.

2. Contraindications of Bhujangasana:

- People suffering from hernia, back injuries, headaches, and recent abdominal surgeries should not perform this asana.
- Pregnant women should not perform this asana.

Q4. What is hypertension? Discuss the benefits and contraindications of Ardha Chakrasana and Vajrasana ?

Ans4. Hypertension means increased blood pressure. The normal blood pressure of an adult is considered 120/80 mm Hg. A person, who

Benefits of Ardha Chakrasana:

- It helps to make ankles, spine, thigh, chest, shoulders, spine and abdomen stronger.
- It relieves stress and tension.
- It improves digestion.
- It cures menstrual disorders.
- It cures pain in legs.
- It reduces fat in the waist and thigh.
- It helps to alleviate upper back pain.
- It relieves stress in the neck and shoulders.

Contraindications of Ardha Chakrasana:

- Avoid performing this asana if you have migraine, headache, low blood pressure, diarrhoea and insomnia.
- Avoid practicing this asana if you have peptic ulcers and hernia.
- Avoid this asana in case of hip or spinal problems.
- Pregnant women should avoid this asana.

Benefits of Vajrasana:

- It is helpful for concentration.
- It is helpful in curing dysentery, back pain and chest diseases.
- It enhances memory.
- It cures problems related to menstruation.
- It cures mental stress.
- It strengthens the pelvic muscles.
- It removes postural defects.
- It prevents hernia and gives relief from piles.

Contraindication of Vajrasana:

- person suffering from joint pain should not perform vajrasana.
- The individuals who have any spinal column problem should not perform vajrasana.
- The individuals who have some difficulty in movement should practice vajrasana with a lot of care.

Chapter 4 - Children With Special Need

Q1. Give two advantages of correct posture?

Ans1. (i) Grace & Efficiency of Movement :- With the help of correct body posture efficient movement is possible, so in result balance & coordination of movement will be possible.

(ii) Physical Fitness :- Good posture is essential component of physical fitness by this other component like balance coordination flexibility will be achieved for fitness.

Q2. Explain briefly the causes of flat foot?

Ans2. Rapid increase in body weight, improper shoes, carry having weight for longer period of time may cause this problem. Weak muscles is the main cause, they unable to take the load of body.

Q3. What is lordosis? What are the causes of this problem and how can we treat this deformity.

Ans3. Lordosis : Lordosis in the problem of lumbar spine. In this postural deformity lumbar spine bends in front beyond the normal level. Abdomen is ahead of body and shoulders come outward and sideward. the body weight shifted backward. Thus lot of pressure on heels.

Causes of lordosis - Unbalanced diet, improper environment, improper development of muscles, obesity and diseases affecting vertebrae and spinal muscles are the main cause of lordosis, besides this no doing exercise and taking excessive food may also be big causes of lordosis.

Treatment for lordosis - This problem can be treated in the following way -

(a) **Paschimottanasana** - In this asanas legs are stretched forward we try to touch the forehead to the knees & while hands hold the feet.

(b) **Halasana** - In this asanas legs are raised up from the lying position. Slowly or bending legs towards the head, the feet – touch the floor and body makes a complete arc.

(c) **Alternate toe touching** - In this, feet apart and try to touch opposite hand to foot while other hand is raised up.

(d) **Stoop walking (Long stride walking)** - In this long stride during walking is done while body is bent forward and downward other alternative is stepping over stairs.

(e) **Proline lying (Makrasana)** - In this persons lies with face down whereas abdomen and chest touch the surface.

Q4. What are the causes of bad posture ? Explain detail ?

Ans. There are many causes of bad posture. Some are environmental and other may be due to heredity. Bad posture causes many health problems. It reduces the physical output or efficiency to a great extent. It leads to psychological stress, bad looking, less social acceptance etc. It is cause of many postural problems like kyphosis, round shoulders, lordosis Scoliosis, Knock knees, Bow legs Flat foot.

Some of General causes of bad posture are given below.

- (1) **Accident** :- It may arise due to accidents. It may cause postural deformity due to injuries of muscles, joints & bones.
- (2) **Diseases** :- Many leads of health problems like diseases, illness and chronic sickness cause bad posture.
- (3) **Lack of Nutritional Diet** :- Sometime bad posture arises due to unbalanced diet, over diet, under diet and Lack of nutritional diet.
- (4) **Wrong Postural Habits** :- The wrong sitting posture a wrong postural habits during sitting standing lying working etc. cause bad posture.
- (5) **Improper treatment** :- Sometimes the improper treatment or wrong treatment for curing injury causes bad posture.
- (6) **Psychological Stress** :- Psychological stress in life leads to mental tension, unbalances emotions or behaviour changes. Sometimes it leads to postural deformity.
- (7) **Lack of sufficient strength** :- The poor muscular strength or the unbalance strength of agonist and antagonist muscular cause postural deformity.
- (8) **Age factor** :- In old age the muscular strength reduces this bad posture may arise.
- (9) **Poor Eyesight** :- Poor eyesight causes stress on our head and neck. Thus body bends forward and it may cause bad posture.
- (10) **Bad Shoes or Cloths** :- In some cases bad posture arises due to poor quality shoes or clothing.

Chapter 5 - Children and Women in Sports

Q1. What are the constraints of women participation in sports?

Ans1. Lack of parental support and encouragement from family.

2. Social barriers and stigma in life.
3. Traditional values can wash out.
4. Religion or customs does not permit (Purda system).
5. Personal constraints and pressure from family.
6. Less recognition to females.

Q2. Define Motor Development?

Ans2. Motor Development refers to the development of a child's bone, muscles and ability to move around any manipulate their movement.

Q3. Define Fine Motor Development?

Ans3. Fine Motor Development involves, the small muscles of the body, specially in the small movements of Fingers and hand such as Writing, Holding, Catching, Smashing etc.

Q4. Write the Advantages of Weight Training?

Ans4. 1. Improve the posture and range of motion:- Weight training helps to develop correct posture and extension, contraction of muscles leading to increase range of movement.

2. Increase muscles strength, bone density and endurance:- Resistance training can improve bone density and muscles mass. Due to the more muscles mass, the tolerance power is increased and improves endurance of the system.

3. Protection against the injury:- Weight training, improves physical activity, system of the body and reduces risk of injury.

4. Promote health blood pressure and Cholesterol level:- Physical exercise with the resistance training decreases bad cholesterol level and increases good cholesterol. It also improves blood circulation, which in turn maintains a healthy blood pressure.

5. Improves immune system function:- With the proper digestion, release of enzymes, Absorption of nutrients, release of toxic substances and healthy functioning of body Organs, the immune system functioning is improved and the body become capable of fighting against diseases and infections.

6. Improves Psycho-social well being:- A child with the well shaped healthy body with more potential to work is better accepted by society. A well maintained healthy physique makes a child more confident or raise his/her self esteem.

Chapter 6 - Test and Measurement

Q.1 What is test?

Ans. Test, may be called as tool, a question, set of question, an examination which use to measure a particular characteristic of an individual or a group of individuals.

Q.2 What is measurement?

Ans. According to R.N. Patel

“Measurement is an act or process that involves the assignment of numerical values to whatever is being tested. So it involves the quantity of something.”

Q.3 What do you understand by muscular strength?

Ans. It is the amount of force the muscle or a group of muscles can exert against resistance for short duration as in anaerobic activities.

Q4. Explain administration of Rockport one mile test.

Ans. Administration of Test :

- (i) Choose a windless day to conduct the test,
- (ii) Record your weight in pounds (lbs)
- (iii) Walk one mile (1609 mt) as fast as possible,
- (iv) Record the time to complete the one mile walk,
- (v) Immediately on finishing the walk record your heart rate (beats per minute),
- (vi) Determine your maximum cardio-respiratory ability (VO_2) from the calculation given below.

Calculation procedure : Analysis of the result is done by comparing it with the result of previous test. It is expected that, appropriate training between each test should be done to show improvement.

The formula used to calculate VO_2 Max is : $132.853 - (0.0769 \times \text{weight}) - (0.3877 \times \text{Age}) + (6.315 \times \text{Gender}) - (3.2649 \times \text{Time}) - (0.1565 \times \text{Heart rate})$

Where :-

- (a) Weight is in pounds (lbs),
- (b) Gender: Male - 1 and Female = 0
- (c) Time is expressed in minutes and seconds,
- (d) Heart rate is in beats/minute
- (e) Age in years.

Q5. Describe in short Harvard step test ?

Ans5. The Harvard Step Test is a method used to assess cardio-respiratory fitness, which was developed by Brouhaetal. (1943) in the Harvard Fatigue Laboratories during World War II. It is based on heart rate recovery following a given work load of 5 minutes or until exhaustion.

What do we need?

- A gym bench or box. 20inches high.
- A stopwatch
- cadence
- An assistant

SCORING THE TEST

There are two versions of the Harvard Step Test, the short form and the long form.

·**Short Form Equation** - Fitness Index = $(100 \times \text{test duration in seconds})$ divided by $(5.5 \times \text{pulse count between 1 and 1.5 minutes})$.

·**Long form Equation** - Fitness Index = $(100 \times \text{test duration in seconds})$ divided by $(2 \times \text{sum of heart beats in the recovery periods})$.

Chapter 7 - Physiology and Injuries

Q1. What is stroke volume?

Ans. Stroke volume is a volume, which the heart pumps out the blood in a stroke in aorta.

Q2. Define oxygen intake?

Ans. It is the amount of oxygen, which can be taken by the lungs from the atmosphere.

Q3. Define physical fitness?

Ans. Physical fitness is considered a measure of the body's ability to perform effectively & efficiently in work and leisure activities, to be healthy, resist hyperkinetic disease & emergency situations.

Q4. What is cardiac output?

Ans. The total volume of blood, pumped by heart per minute. $\text{Cardiac output} = \text{heart rate} * \text{stroke volume}$.

Q5. What is oxygen uptake?

Ans. The amount of oxygen, which can be absorbed and consumed by the working muscle from the blood.

Q6. Explain the effect of Exercise on Circulatory System?

Ans. 1. Increase in heart size:- Regular exercise develop the muscles of heart. It increases The size of heart along-with the strengthening of heart. Heart becomes efficient in doing Its job.

2. Decrease in cholesterol level:- Regular exercise reduces the level of cholesterol in Our blood. The level of cholesterol in our blood is directly linked with blood pressure. Exercise decreases the level of low density protein and increases the level of high density of protein. It means that exercise decreases the LDL (bad cholesterol) and Increase HDL (good cholesterol)

3. Faster adaptation to workload:- Due to the regular exercise, the heart can adapt to working load quickly i.e. Quick adjustment of heart according to body needs.

4. Increase in No. and efficiency of capillaries:- With the regular exercise, efficiency and No of capillaries are increased with the increase of Muscle Mass. The unused and new capillaries become efficient and nourish the various cells effectively.

5. Improve the working capacity of cardio-vascular system:- Regular exercise Improve cardio-vascular system thus the blood travels faster through the blood vessels and increased circulation of blood makes healing faster.

Q7. Discuss the physiological factors determine the flexibility?

Ans. 1. Muscle strength: -The muscle should have minimum level of strength to make the movement, specially against the gravity or external force.

2. Joint structure:- There are different types of joint in human body, some of the joints intrinsically have greater range of motion than others for example-The ball & socket Joint of the shoulder has the greatest range of motion in comparison to the knee joint.

3. Internal environment:- Internal environment of athlete influences the flexibility. For example-warm bath increases body temperature and flexibility whereas 10 minutes outside stay in 10c temperature reduces the body temperature and flexibility.

4. Injury:- Injuries to connecting tissues and muscles can lead to thickening or fibroin on the effected area. Fibrous tissues are less elastic and can lead to limb shortening and lead to reduce flexibility.

5. Age and gender:- Flexibility decreases with the advancement of age. However it is trainable. It can be enhanced with the help of training as strength and endurance are enhanced. Gender also determine the flexibility. Females tend to be more flexible than male .

6. Active and sedentary life style:- Regular activities enhance the flexibility, whereas Inactive individual looses flexibility due to the soft tissues and joints shrinking and loosing extensibility.

7. Heredity:- Bony structures of joints and structure length and flexibilities of the joint capsules and surrounding ligaments are genetical and cannot be altered by stretching programs.

Q8. What are the types of injury and its possible causes?

Ans.

Type of Injury	Structure	Possible Cause
Soft Tissue		
Sprain	Ligament	Excessive movement force the joint past its maximum range of motion, or external violence such As a side push on the knee during a football kick.
Strain	Muscle or Tendon	Overstretching of muscles or tendon generally during sudden acceleration or deceleration.
Contusion(bruise or Haematoma) or a Cork	Muscle, Tendon Or Skin	Direct blow from a collision with A player or piece of equipment, orfrom a heavy fall.
Open wound-cut, Abrasion, laceration	Skin	Direct blow from a collision with a player or piece of equipment.
Hare Tissue		
Fracture	Bone	Direct trauma such as a blow: Indirect trauma such as falling on an outstretched hand
Dislocation/ Subluxation	Joint	Excessive movement of the Joint.

Q9. Discuss the physiological factors, determine the strength as a component of physical Fitness?

Ans. 1. Muscle size:- Muscle strength directly depends on the cross sectional area of muscle. It is well known that bigger and larger muscle can produce more force. The force produced by the same size of muscles in males and females is approximately the same but males are found to be stronger because they have larger and bigger muscles in comparison to females.

2. Body weight:- There is a positive correlation between the body weight and strength. Individuals with the heavier body weight are stronger than the individual with the lighter weight.

3. Muscle composition:- The muscle composition is genetically determined and cannot be changed by any type of training.

4. Nerve impulses:- The nervous system also plays a role in muscle strength. The brain and nervous system has power to activate more motor units when they need to generate larger amount of force. Through the strength training, the body learns to recruit more motor units and increase these units.

5. Age and gender:- Age and gender is a factor which affects the muscle strength. Muscle strength declines with the age but it is primarily due to a decrease in muscle cross-sectional area and decline in the amount of contractile tissues within the muscle fibres. Regular strength training limits loss of muscle strength with ageing. Men has greater absolute muscle strength than women.

Chapter 8 - Biomechanics and Sports

Q1. Define the term biomechanics.

Ans. Biomechanics is defined as systematic study of mechanics of body joints. According to Wikipedia, “Biomechanics is the study of the structure and function of biological system of humans.”

Q2. Name the laws of motion.

Ans. There are three laws of motion,

- i. 1st law of motion or law of inertia
- ii. 2nd law of motion or law of acceleration
- iii. 3rd law of motion or law of reaction

Q3. While walking, which law of motion is used?

Ans. While walking third law of motion, i.e. law of reaction is used.

Q4. What do you understand by equilibrium?

Ans. Equilibrium is defined as a state of balance or a stable situation, where opposite forces cancel each other out and where no changes are occurring.

Q5. State the three law of motion with suitable examples of its application in sports.

Ans. FIRST LAW OF MOTION OR LAW OF INERTIA

According to first law of motion an object at rest will remain at rest or an object in motion will remain at motion at constant velocity unless acted upon by a force.

It also gives the idea that to change the state of rest or uniform motion of a body in a straight line some external agency is needed. This agency is called force.

Example:

(a.) A moving football slows down and then stops often sometime.

It comes to rest due to the friction between the ground and the ball.

(b.) To take start in sprint races, to lift the opponent in wrestling, to start hammer throw.

SECOND LAW OF MOTION (The Law of Acceleration)

According to Newton's second law of motion, the rate of change of momentum of a body is directly proportional to the impressed force and takes place in the direction of force.

Example:

(a.) A cricket player while catching a ball moves his hands backwards. Initially the ball is moving with a certain velocity. The player has to apply a retarding force to bring the ball to rest in his hands.

(b.) In baseball player hits the ball hard to throw it far away.

THIRD LAW OF MOTION

According to the Newton's third law of motion, to every action there is always an equal and opposite reaction.

Example:

(a.) The swimmer pushes the water in the backward direction with a certain force. Water pushes the man forwards with an equal and opposite force.

(b.) Walking: when a person walks on the road, he presses the ground in backward direction and the ground exerts an equal and opposite force on the person in the forward direction.

(c.) Shooting: when a bullet is fired from a rifle with a certain force (action) there is an equal and opposite force exerted on the rifle in the backward direction (reaction)

Q6. Elucidate the importance of biomechanics in sports ?

Ans.(i.) Improves performance in sports: principles of biomechanics tell us about right techniques, effective and result oriented posture to get more efficient results by applying minimum muscular force which in turn improves performance in sports.

(ii.) Improvement in technique: with the help of biomechanics principles the physical education teacher corrects the mistakes. This helps in improving the game and performance of the player.

(iii.) Development of improved sports equipment: the principles of biomechanics are used to modify the sports equipments. For example, tee shirts, studs, spikes, swimming costumes, hockey sticks, different size footballs and low weight helmets for protection.

(iv.) Improve in training techniques: a teacher can analyse the player's movement or action with the help of the biomechanics principles. It helps in improving the training techniques.

(v.) Prevents sports injuries: it helps to find out the factors or the forces that can lead to the injuries during the game situation. It also helps in prevention of the sports injury.

(vi.) Helps in understanding human body: it gives the knowledge of different systems of our body. For example, nervous system, muscular system and skeletal system.

(vii.) Knowledge of safety principles: biomechanics gives the understanding to analyse different movements that can harm the player. The teachers remove those unnecessary and harmful movements.

(viii.) Helps in research work: biomechanics helps in teaching and learning process. It also helps the teacher to acquire precision and accuracy of movement.

(ix.) Creates confidence in player: The player knows that he is executing the movement scientifically with the help of principal of biomechanics. Thus the confidence of the player is enhanced.

(x.) Helps in maintaining healthy body: Principals of biomechanics gives deep knowledge about the effect of physical forces and movements over the body as well as the movements which are safe and promotes health. Thus biomechanics helps in maintaining healthy body.

(xi.) Increases the popularity of sports: biomechanics principles have brought remarkable improvements in respect of technique, equipment, skill and play fields. It helps in promoting the games and sports in the masses.

Chapter 9 - Psychology and Sports

Q.1 What is stress ?

Ans. It is the physiological and psychological changes in the body caused by an event which create the situation of fight or flight, is called stress. Stress disturbs the normal physical or mental health of a person.

Q.2 What do you mean by anxiety ?

Ans. Anxiety is an unpleasant feeling related with uneasy fear or worry. Anxiety is a chronic fear that limits our ability to carry out normal function.

Q.3 What do you understand by coping ?

Ans. Coping is the way to deal with unfavourable situations in a better manner. It is the conscious efforts to overcome from the unsolved problem or ability to tolerate unfavourable condition.

Q.4 Define Personality.

Ans. The word personality is derived from Latin word 'persona' meaning 'mask'. According to Guildford - "Personality is of an individual's unique pattern of traits.

Q5. What are the types of personalities and explain one of them with its importance in physical education and sports.

Ans. There are following types of personalities in games and sports

1. **Endomorphic** - A person of such personality is flaky, soft fat, happy, outgoing, roly polly and who are found to fool easy going, slow in reaction and sociable. It is also called eiscerotonic. In games and sports these type of personality can prove better in strength dominant sports.

2. **Mesomorphic** - A person of such personality having well developed body, assertive, athletic build, bold and risk taking who is adventurous courageous and having a linking with physical activity. It is also called somatotonic. In games e' sports these type of personality can prove better in team games, like football, hockey etc.

Ectomorphic - A person of such personality having weak and delicate body type. They are reserve, anxious pessimistic, studious, tense, introvert. This also called cerbrotonic.

In games and sports these type of personality can prove better in endurance dominant sports, like - athletics. At last you can say that these types of personalities have great importance in games and sports to chose and perform in different sports activities.

Q6. What are the dimensions of personality?

Ans. Physical dimension - The word physical itself the meaning of body structure or the physique as the primary aspect of humour personality here duty has a very important sole for the development of this aspect of personality. But appropriate environment is also required for development of this dimension physical dimension of personality means how we look, height, weight, etc.

Mental and intellectual dimension - A person is known by his mind and body and cannot survive effectively in absence of one part. How we react and response quickly to any situation or event in games and sports, entirely depends upon our mental and intellectual dimension of personality. It help in learning new skills, adjust in new circumstances.

Social dimension - An individual lakes part in games and sports to satisfy or gain social value like status power, affection inherent attitude, tendency, interest and capabilities. He has to modify his behaviour to follow the rules, customs and tradition of society.

Emotional dimension - Emotions play a great role in games and sports. Emotions are personal in nature and differ in nature from person to person. Every child responses differently as they have different emotions. The above dimension of personality helps to select different sports according to their nature, built, temperament etc.

Chapter 10 - Training in Sports

Q1. What is speed?

Ans. It is the ability of an individual to cover a unit distance in minimum time.

Q2. What is strength?

Ans. It is the ability of an individual to overcome or act against resistance.

Q3. What is endurance?

Ans. It is the ability of an individual to resist the fatigue for long time.

Q4. What is flexibility?

Ans. It is the ability of an individual to move his or her joints effectively through a full range.

Q5. What is coordinative ability?

Ans. It is the ability of an individual to perform a sequence of movements smoothly and accurately.

Q6. What are the methods to develop/improve flexibility? Explain.

Ans. (1) Stretch & hold methods - We stretch our joints to maximum limit and hold it for a few seconds before returning to the initial phase. The holding period must be not more than 3 to 8 secs. This method is also used for improving passive flexibility.

(2) Ballistic method - In this method the stretching exercises are done in a swing, so this is called the ballistic method. A proper warm-up should be done before these exercises. Due to over-stretching of the muscle, there may be an injury. The stretching exercise can be done in a rhythm.

(3) Post - isometric method - This method is based on the principle of proprioceptive neuro - muscular facilitation means, if a muscle is contracted maximally for a few seconds, then after the contraction it remains in a static position for a few seconds for 6-7 seconds and gives very low resistance to that stretch. The duration of the stretch should be increased upto 8-10 second and repeated 4-8 times for each muscle group.

Q7. Briefly explain any two methods for improving speed write down the factors determining speed?

Ans. Two methods for developing speed are -

(1) Acceleration Run - Acceleration run are usually used to develop speed indirectly by improving explosive strength, technique, flexibility and movement frequency. It is the ability of a sprinter to achieve high speed from a stationary position. For direct improvement of acceleration speed a sprinter should do 25-30 metres sprints of 6-12 times. The maximum speed should be achieved within 5-6 seconds. Sufficient intervals should be provided between the repetition.

(2) Pace run - Pace run means sunning the whole distance with a constant speed. Generally 800 m and above races are included in pace races. An athlete can run a distance of 300 m at full speed but in longer races such as 800 m or above. he must reserve his energy by reducing the speed.

Q8. What do you understand by maximum strength?

Ans. It is the ability to apply maximum force by a group of muscles against maximum resistance. Maximum strength is usually not used in majority of sports, it is used in those sports where heavy weight, resistance have to be tackled, like - weight lifting, throwing, roman ring and take off in jump. If the resistance is less, less strength is needed to overcome it. The maximum strength is a motor ability and involves force application during a voluntary movement. It serves as the base of good explosive strength and strength endurance.

Q9. What is the difference between active and passive flexibility?

Ans. Active flexibility is the ability of an individual to do the joint movement for a longer range without any external help. Active flexibility is always greater than passive flexibility Ex.- Doing any stretching exercise without external help.
Passive - The ability to do a joint movement with a greater range with an external help of a partner. This flexibility is largely determined by joint structure, stretchability of the muscle and ligament. Passive flexibility helps in the development of active flexibility.

Q10. “Endurance is one of the most important factor for high performance in games & sports.” Explain.

Ans. Basic endurance is the ability of an individual to do the movement in which large no. of body muscles involve at slow pace for a long duration such as walking, jogging, swimming at a moderate speed. General endurance is the ability of an individual to do movement under the condition of fatigue.

Specific endurance is the ability of an individual to complete the task without any fatigue. It's requirement is depends upon the nature of activity (games and sports). Requirement of specific endurance of a boxer is different from that of a wrestler.

Speed endurance is the ability of an individual to perform a movement with high speed under the condition of fatigue upto 45 seconds.

In **short terms endurance**, the activity lasts from 45 seconds to 2 minutes. Ex. 800m race.

The medium time endurance is needed for 1500m race, lasting from 2 min to 11 minutes.

Long term endurance is needed for those sports which require more than 11 minutes time. Ex. 5000m to 10000m race.