Physical Education Class 12th

Including Important
Ques, MCQ & PYQ's

CBSE

PHYSICAL EDUCATION

CLASS 12

2022-23

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PREFACE

Physical education is a subject which can assist in the all-round development of a in academics as well as health, But in the abundance of many resources I often find students confused about which is the best resources for physical education.

Since I've been teaching the subject online for more than 3 years and educating more than 2 crore students on YouTube and other educational platforms now after analysing students perspective and testing my notes and study material I've accumulated this elaborate and accurate resource accordi g to t e l tes CBSE syl ab us

I'm sure it will help all my students in gaining knowledge in this domain and scoring good marks.

All students and reader's suggestions I welcome for any improvement in this resource.

- ZAKI SAUDAGAR

SYLLABUS

THEORY

UNIT I MANAGEMENT OF SPORTING EVENTS

- Functions of Sports Events Management (Planning, Organising, Staffing, Directing & Controlling)
- Various Committees & their Responsibilities (pre; during & post)
- Fixtures and its Procedures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)

UNIT II CHILDREN & WOMEN IN SPORTS

- Common Postural Deformities – Knock Knee; Bow Legs; Flat Foot; Round Shoulders; Lordosis, Kyphosis, and Scoliosis and their corrective measures
- Special consideration (Menarche & Menstrual Dysfunction)
- Female Athletes Triad (Osteoporosis, Amenorrhea, Eating Disorders)

UNIT III YOGA AS PREVENTIVE MEASURE FOR LIFESTYLE DISEASE

- Obesity: Procedure, Benefits & Contraindications for Tadasana, Katichakrasana, Pavanmuktasana, Matsayasana, Halasana, Pachimottansana, Ardha – Matsyendrasana, Dhanurasana, Ushtrasana, Suryabedhan pranayama.
- Diabetes: Procedure, Benefits & Contraindications for Katichakrasana, Pavanmuktasana,Bhujangasana, Shalabhasana, Dhanurasana, Supta-vajarasana, Paschimottanasana, Ardha-Mastendrasana, Mandukasana, Gomukasana, Yogmudra, Ushtrasana, Kapalabhati.
- Asthma: Procedure, Benefits & Contraindications for Tadasana, Urdhwahastottansana, UttanMandukasana, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalbhati, Gomukhasana Matsyaasana, Anuloma-Viloma.
- Hypertension: Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, Ardha Halasana, Sarala Matyasana, Gomukhasana, UttanMandukasana, Vakrasana, Bhujangasana, Makarasana, Shavasana, Nadishodhanapranayam, Sitlipranayam.

UNIT IV PHYSICAL EDUCATION & SPORTS FOR CWSN (CHILDREN WITH SPECIAL NEEDS – DIVYANG)

- Organizations promoting Disability Sports (Special Olympics; Paralympics; Deaflympics)
- Advantages of Physical Activities for children with special needs.
- Strategies to make Physical Activities assessable for children with special needs.

UNIT V SPORTS & NUTRITION

- Concept of balance diet and nutrition
- Macro and Micro Nutrients: Food sources & functions
- Nutritive & Non-Nutritive Components of Diet

UNIT VI TEST & MEASUREMENT IN SPORTS

- Fitness Test – SAI Khelo India Fitness Test in school:
  - Age group 5-8 yrs/ class 1-3: BMI, Flamingo Balance Test, Plate Tapping Test
  - Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit & Reach flexibility test, Strength Test (Abdominal Partial Curl Up, Push-Ups for boys, Modified Push-Ups for girls).
- Computing Basal Metabolic Rate (BMR)
- Rikli & Jones – Senior Citizen Fitness Test
  I. Chair Stand Test for lower body strength
  II. Arm Curl Test for upper body strength
  III. Chair Sit & Reach Test for lower body flexibility
  IV. Back Scratch Test for upper body flexibility
  V. Eight Foot Up & Go Test for agility
  VI. Six Minute Walk Test for Aerobic Endurance

UNIT VII PHYSIOLOGY & INJURIES IN SPORTS

- Physiological factors determining components of physical fitness
- Effect of exercise on Muscular System
- Effect of exercise on Cardio-Respiratory System
- Sports injuries: Classification (Soft Tissue Injuries -Abrasion, Contusion, Laceration, Incision, Sprain & Strain; Bone & Joint Injuries – Dislocation, Fractures – Green Stick, Comminuted, Transverse Oblique & Impacted)

UNIT VIII BIOMECHANICS & SPORTS

- Newton's Law of Motion & its application in sports
- Equilibrium – Dynamic & Static and Centre of Gravity and its application in sports
- Friction & Sports
- Projectile in Sports

UNIT IX PSYCHOLOGY & SPORTS

- Personality; its definition & types (Jung Classification & Big Five Theory)
- Meaning, Concept & Types of Aggressions in Sports
- Psychological Attributes in Sports – Self Esteem, Mental Imagery, Self Talk, Goal Setting

UNIT X TRAINING IN SPORTS

- Concept of Talent Identification and Talent Development in Sports

- Introduction to Sports Training Cycle – Micro, Meso, Macro Cycle.
- Types & Method to Develop – Strength, Endurance and Speed
- Types & Method to Develop – Flexibility and Coordinative Ability

PRACTICAL

Max. Marks 30

01	Physical Fitness Test: SAI Khelo India test, Brockport Physical Fitness Test* (BPFT)	6 Marks
02	Proficiency in Games and Sports (Skill of any one IOA recognised Sport/Game of Choice)**	7 Marks
03	Yogic Practices	7 Marks
04	Record File***	5 Marks
05	Viva Voice (Health/ Games & Sports/Yoga)	5 Marks

*Test for CWSN (any 4 items out of 27 items but 1 item from each component: Aerobic function, Body Composition, Muscular strength & endurance, range of motion or flexibility)

**CWSN (Children With Special Needs – Divyang): Bocce/Boccia, Sitting Volleyball, Wheel Chair Basketball, Unified Badminton, Unified Basketball, Unified Football, Blind Cricket, Goalball, Floorball, Wheel chair races and throws, or any other sport/games of choice.
Children With Special Needs may opt any one sport/game from the list as alternative for Yogic Practices. However, the sport/game must be different for Test – 'Proficiency in Games and Sports'*Record File shall include:

- Practical-1: Fitness tests administration.
- Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease.
- Practical-3: Anyone one IOA recognised Sport/Game of choice. Labelled diagram of Field & Equipment. Also mention its Rules, Terminologies & Skills.

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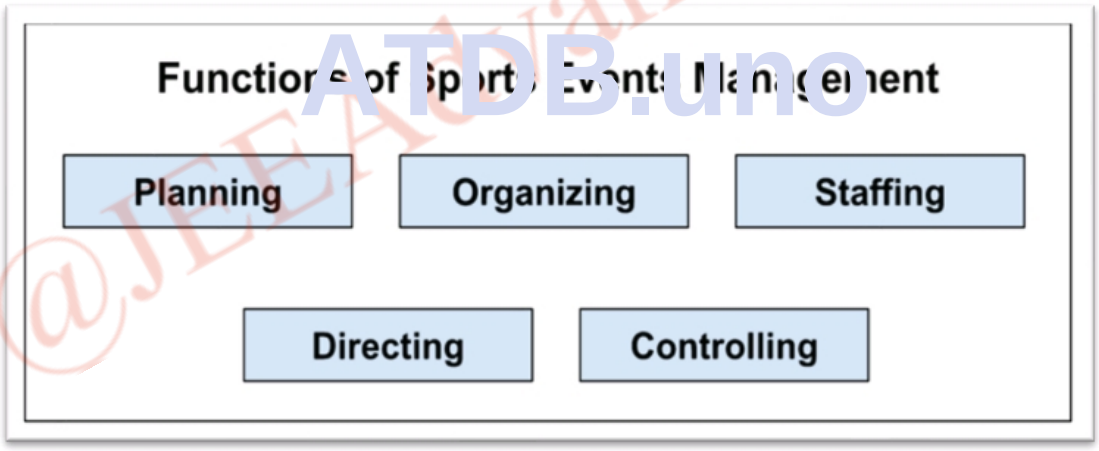
UNIT 1: MANAGEMENT OF SPORTS EVENTS

CONTENT:

- *Functions of Sports Events Management (Planning, Organising, Staffing, Directing & Controlling)*
- *Various Committees & their Responsibilities (pre; during & post)*
- *Fixtures and its Procedures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)*

Function of Sports Events Management



Planning: Planning is an intelligent process of thinking in advance about setting goals & developing strategies that are required to attain the goals efficiently.
"Planning is that process of making a sequence of work for a future line of action."

Organising: It means arranging everything in an orderly form for better utilisation of resources so that activities will run smoothly. This is the second function of management.

Staffing means finding the Right Person at the Right Place, having the Right Qualification, and Doing the Right Job at Right Time. On the other side, it focuses on filling the organisational structure positions.

Directing: Directing consists of a process or technique by which instruction can be issued and operations can be carried out as initially planned.

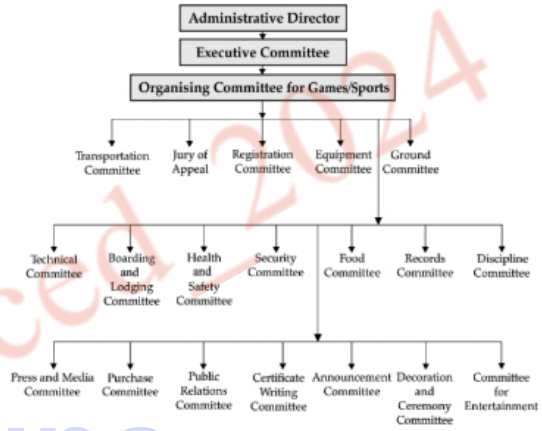
Controlling: The controlling task involves establishing performance standards, measuring current performance, comparing it with established standards, & taking corrective actions if there is any important deviation between actual & planned performance.

Various Committees & Responsibilities

Committees: "A committee is the group of people who come together to work on a project."
Various committees are formed to plan & successfully implement the plans to organise a tournament. Different committees are included, and each of them is assigned another task.

1) **Technical Committee**: This committee makes necessary arrangements regarding the technical works of the event. It also selects officials such as referees, judges, umpires, and timekeepers.
2) **Transportation Committee**: This committee is liable for providing transportation facilities to various teams at the sports events venue.
3) **Reception Committee**: This committee is responsible for welcoming the Chief Guest and spectators at the opening & closing ceremonies.
4) **Boarding & Lodging Committee**: This committee is responsible for making necessary arrangements for providing accommodation to the sportspersons & officials.
5) **Ground & Equipment Committee**: This committee makes necessary arrangements for equipment related to the event.
6) **Health & First Aid Committee:** This committee is formed to provide medical assistance to participants round the clock.
7) **Publicity Committee**: This committee organises all press releases and press conferences.
8) **Finance Committee**: This committee makes the budget for the event and handles the expenses in the tournament.
9) **Refreshment Committee**: This committee provides refreshments to the participants.

Responsibilities of Committees



Pre-Tournament Responsibilities:

- To prepare the budget for the tournament/event.
- To prepare Fixtures & programs for the tournament
- To form various committees for various tasks
- To send information to multiple teams about the date and venue of the game.
- To make arrangements regarding the boarding and lodging of the players during the game.
- To decide & arrange the prize certificate for winners.
- To prepare the ground for the sports tournament and set the equipment required for it.

During Tournament Responsibilities:

- Make sure proper arrangement regarding inauguration of sports tournaments.
- Maintain discipline & order.

Make sure that the tournament is being organised according to Fixtures.
- Make necessary announcements.
- First aid to injured
- Prepare proper scorecard
- Update information on the media & Reporter.

Post Tournament Responsibilities:
- To give prizes & certificates to the winning teams.
- Provide detailed results to the Media & Reporter.
- Present mementos to the chief guest & other special guests.
- Collect all records related to the tournament.
- Make payments to every official and pay additional charges. Make a Report on expenses.

Tournaments:

Humans have been competing with each other since the Stone Age. They provide a platform for players to show their skills and capabilities. Tournaments are also a source of enjoyment for many people.

Definition: "It is a competition for teams or Individuals in which a series of games is played, & the winners of each game play against each other until only one winner is left."

Importance of Tournaments:

1. Development of Sports Skills.
2. Helpful in Selection of Players.
3. Development of National & International Integration.
4. Development of social qualities such as brotherhood, respect, discipline, sympathy, tolerance, unity, etc is developed among participants through tournaments.

Types of Tournament

1. *Knock-out or Elimination tournament*
2. *League or Round Robin tournament.*
3. *Combination tournament.*
4. *Challenge tournament.*

Knock-out Tournament

In this type of tournament, a team that is once defeated automatically gets eliminated from the game. Only the winning continues in the match.

Advantages:
- The knock-out tournament is less expensive.
- The Tournament takes less time to complete.
- Helpful in enhancing the standards of the sports skill.
- The Minimum number of officials is required.

Disadvantages:
- Good teams May get eliminated earlier,
- Spectators May lose interest in the final match if a weak team enters the final.
- There is more chance of a weak team entering the finale.

League or Round Robin Tournament

It is a tournament in which each competitor meets all other competitors. There has to be sufficient time to complete the tournament. It is considered the best type of tournament.

Types of league Tournament:

1. **Single League Tournament-**

The total number of matches played in the match can be calculated by: N(N - 1)/2

2. Double League Tournament

The total number of matches played in the match can be calculated by: N(N - 1)

Advantages of League Tournament
- Only a strong or deserving team gets the victory
- Every team gets the maximum opportunity to prove themselves.
- Sports have become popular because of the no. of the tournament.
- Sports officials get enough time to watch the efficiency and performance of a player.
- Players get enough no. of opportunity.

- The Spectators also get enough opportunity to watch and enjoy the tournament.

Disadvantages of the Tournament

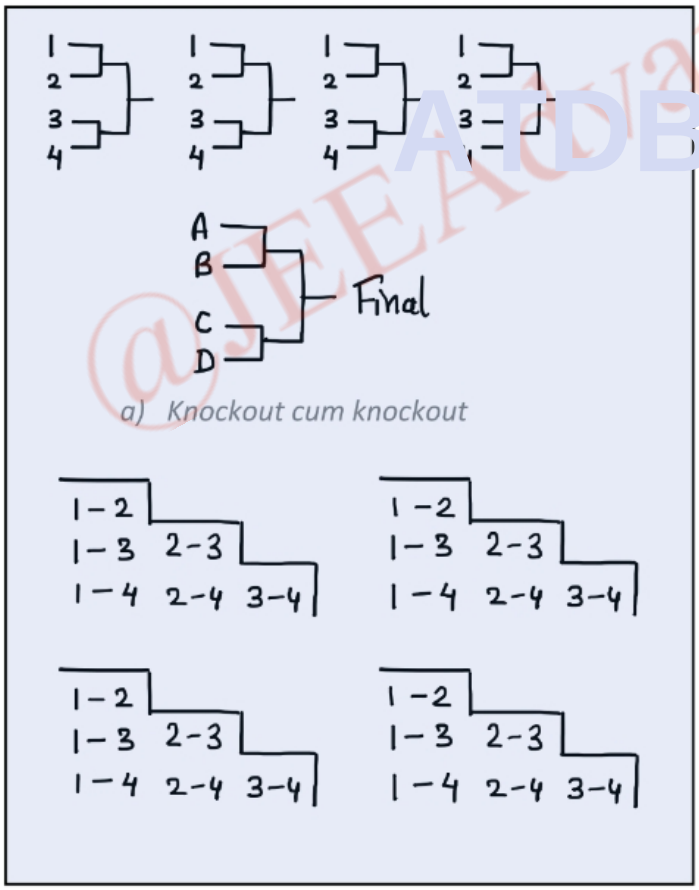
- Requires more time.& costs more.
- It requires making more arrangements for sports officials and teams.
- More time-consuming.

Combination Tournaments:

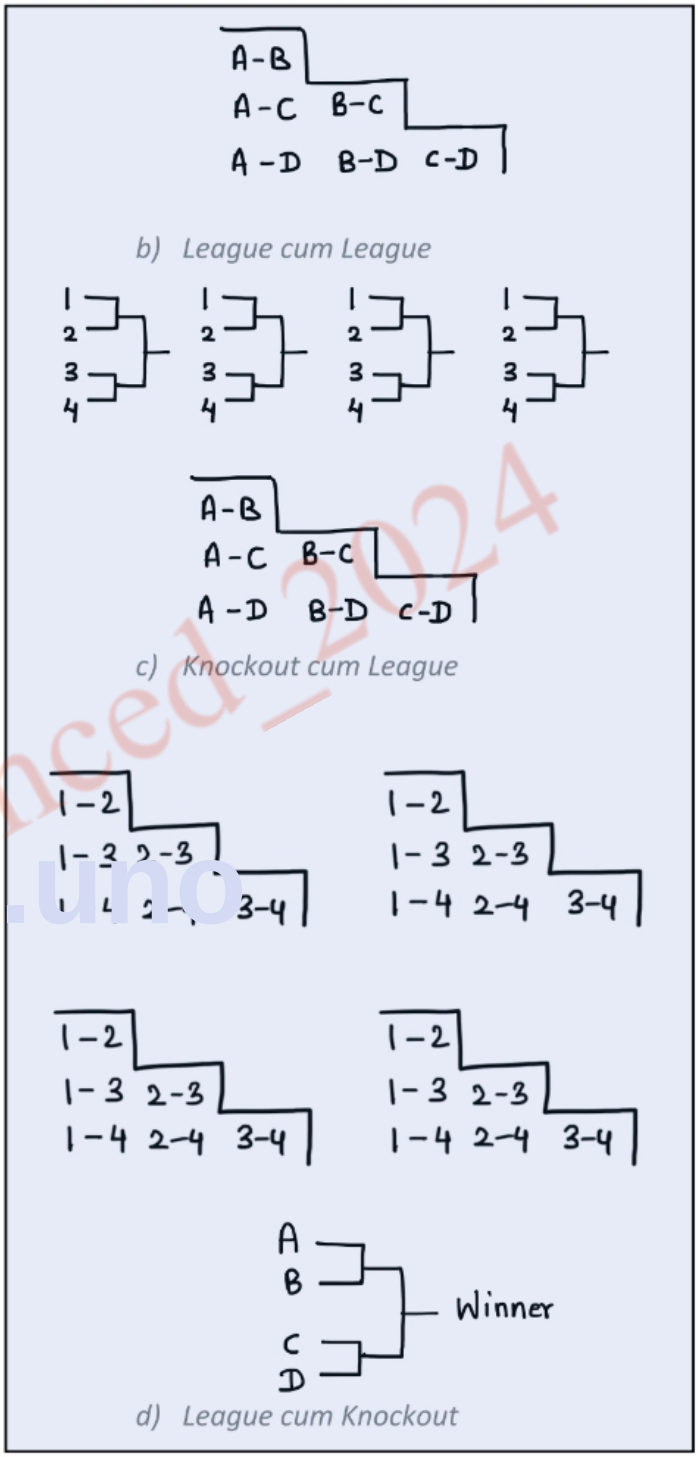
Combination Tournaments are conducted when the match is played on a group basis.

There are four combinations on which this tournament is organised.

1. Knock-out cum Knock-out
2. League cum League
3. Knock-out cum League
4. League cum Knock-out



a) Knockout cum knockout



b) League cum League

c) Knockout cum League

d) League cum Knockout

Some Important terminology :

Bye: In sports, bye refers to a team automatically advancing to the next round of tournament play without competing.

Formula : $2^n - N$

Rules for Byes:

- 1st Bye: Lower Half Last Team
- 2nd Bye: Upper Half First Team
- 3rd Bye: Lower Half First Team
- 4th Bye: Upper Half Last Team

And, so on…

Seeding: Seeding is a process by which Teams get special privileges; good teams are fitted in the fixture so that stronger teams do not meet each other in earlier rounds.

Rules for Seedings:

- 1st Seeding: Upper half first team
- 2nd Seeding: Lower half last team
- 3rd Seeding: Lower half First team
- 4th Seeding: Upper half last team

Ans so on…

Special Seeding: A process to place the stronger team/teams at appropriate places in the fixture and to avoid the elimination of such teams in the first round and give them a chance to participate in the quarter-final or semi-final is known as special seeding.

Fixtures:

Fixture is a process of arrangement the team in systematic order in various groups for competitive fights for physical activity.

There are 2 types of Fixtures:

- **Knockout Fixtures**
- **League Fixtures**

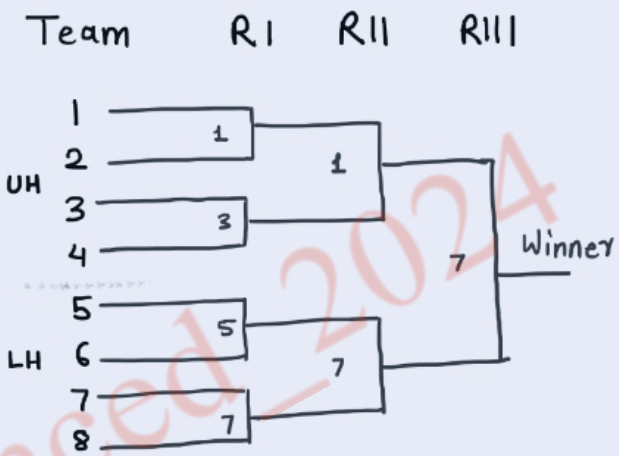
KNOCKOUT FIXTURES

How To Draw Knockout Fixtures for Even No of Teams:

- Total Number of Teams: (N)____
- Total Number of Teams in Upper half: N/2
- Total Number of Teams in Lower half: N/2
- Total Number of Byes: $2^n - N$
- Number of Rounds: (n) ___

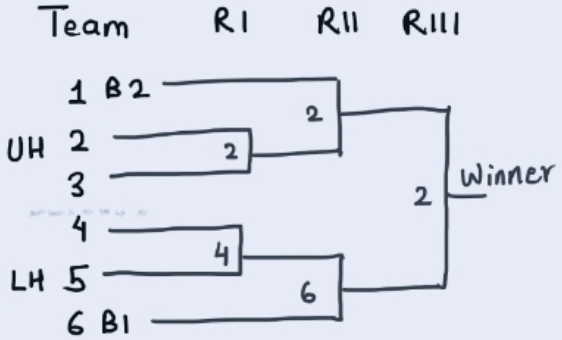
Draw Knockout fixtures for 8 Teams:

- Total Number of Teams: (N): 8
- Total Number of Teams in Upper half: N/2: 8/2=4
- Total Number of Teams in Lower half: N/2: 8/2=4
- Total Number of Byes: $2^3 - 8 = 8 - 8 = 0$
- Number of Rounds: (n) 3



Draw Knockout fixtures for 6 Teams:

- Total Number of Teams: (N): 6
- Total Number of Teams in Upper half: N/2: 6/2=3
- Total Number of Teams in Lower half: N/2: 6/2=3
- Total Number of Byes: $2^3 - 6 = 8 - 6 = 2$
- Number of Rounds: (n) 3



How To Draw Knockout Fixtures for Odd No of Teams:

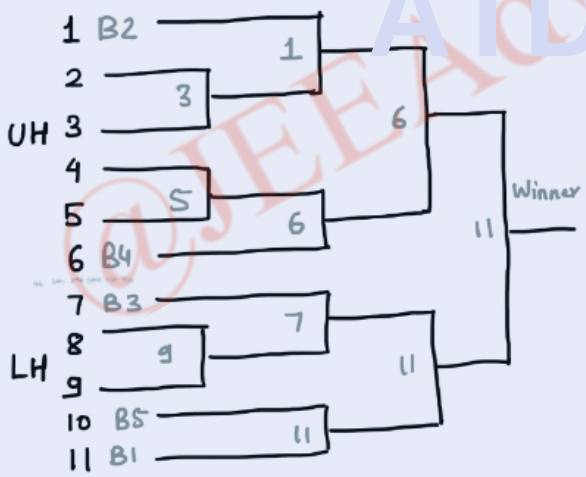
- Total Number of Teams: (N)____
- Total Number of Teams in Upper half: N+1/2

- Total Number of Teams in Lower half: N-1/2
- Total Number of Byes: B: $2^n - N$
- Number of Rounds: (n) ___
- No of Byes in Upper half: B-1/2
- No of Byes in Upper half: B+1/2

Draw Knockout fixtures for 11 Teams:

- Total Number of Teams: (N): 11
- Total Number of Teams in Upper half: N+1/2
  11+1/2 = 6
- Total Number of Teams in Lower half: N-1/2
  11-1/2 = 5
- Total Number of Byes: B:2-N = 2-11= 16-11=5
- Number of Rounds: (n) = 5
- No of Byes in Upper half: B-1/2= 5-1/2=2
- No of Byes in Upper half: B+1/2=5+1/2=3

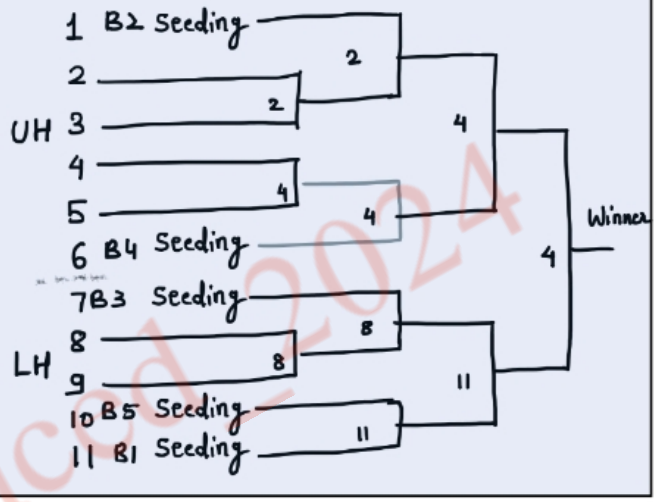
Team R1 RII RIII RIV



Draw Knockout fixtures for 11 Teams & 4 team seeded:

- Total Number of Teams: (N): 11
- Total Number of Teams in Upper half: N+1/2
  11+1/2 = 6
- Total Number of Teams in Lower half: N-1/2
  11-1/2 = 5
- Total Number of Byes: B:2-N = 2-11= 16-11=5
- Number of Rounds: (n) = 5
- No of Byes in Upper half: B-1/2= 5-1/2=2
- No of Byes in Upper half: B+1/2=5+1/2=3

Team R1 RII RIII RIV



LEAGUE TOURNAMENT:

1. Cyclic Method
2. Staircase Method
3. Tabular Method

CYCLIC METHOD

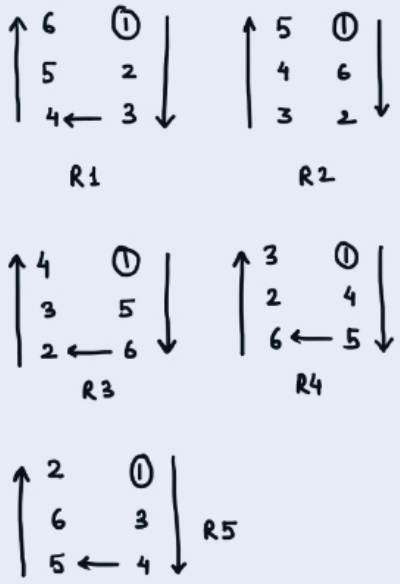
How To Draw League Fixtures:

- Number of Team N:___
- Number of Matches N(N-1)/2
- Number of Rounds: N-1
  For even number of teams
- Number of Rounds: N
  For odd number of teams

Draw League fixtures for 6 Teams:

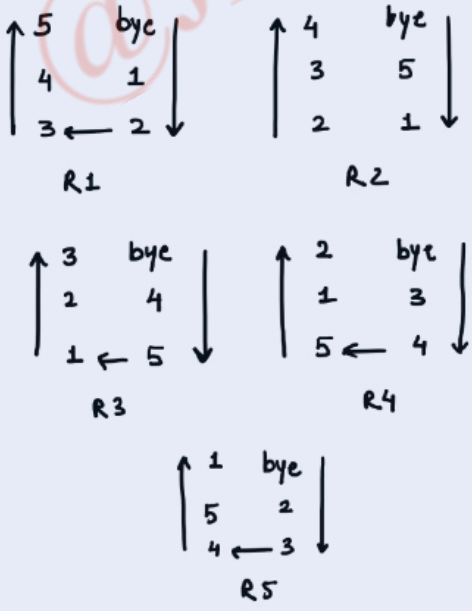
- Number of Team N: 6
- Number of Matches 6(6-1)/2= 15

- Number of Rounds: 6-1=5



Draw League fixtures for 5 Teams:

- Number of Team N: 5
- Number of Matches 5(5-1)/2= 10
- Number of Rounds: 5

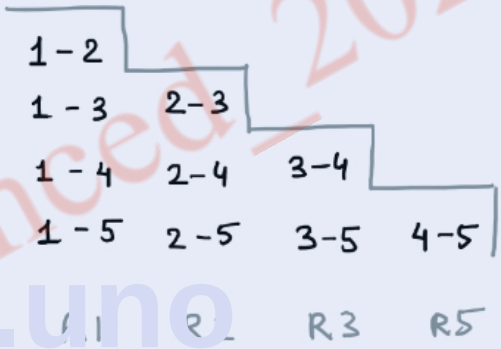


STAIRCASE METHOD:

- Number of Team N:___
- Number of Matches N(N-1)/2
- Number of Rounds: N-1
  Same for even & Odd number of teams

Draw League fixtures for 5 Teams:

- Number of Team N: 5
- Number of Matches 5(5-1)/2= 10
- Number of Rounds: N-1 = 4
  Same for even & Odd number of teams



EXERCISE

MCQ:

1. _____ is the procedure of arranging teams in a systematic order.
(A) Tournament
(B) Fixture
(C) Seeding
(D) Bye

2. Which of these is also known as round robin tournament?
(A) League
(B) Consolation
(C) Combination
(D) Challenge

3. In which method, no bye is given?
(A) Staircase
(B) League
(C) Round Robin
(D) Combination

4. League-cum-Knock Out Tournament is a part of which Tournament?
(A) Knock Out
(B) Round Robin
(C) Combination
(D) Consolation

5. What is the formula to determine number of matches in league fixture for even number of teams?
(A) N + ½
(B) N – ½
(C) N (N–1)/2
(D) N (N + 1)/2

6. _____ is a privilege given to a team which is decided generally by seeding it or by draw of lots.

(A) Seed
(B) Seeding
(C) Bye
(D) Staircasing

7. A league tournament is also known as _____ tournament.
(A) Staircase
(B) League
(C) Round Robin
(D) Combination

8. In staircase method, the fixtures are made like a _____.
(A) Ladder
(B) Staircase
(C) Stepping stones
(D) None of these

9. Calculate the total number of matches in 3rd round, If 28 teams will played in knockout tournament.
(A) 3
(B) 2
(C) 4
(D) 5

10. _____ is a large contest of many rounds among various teams.
(A) Tournament
(B) Match
(C) Fixture
(D) Bye

#Very Short Questions (PYQ's)

1. What is planning in games and sports? What do you understand by planning in sports? **2019**
2. What do you mean by seeding? **CBSE 2011, 2013, 2018**
3. What is bye? **2014,2018**
4. Explain procedure for giving bye. **2012,2013**
5. Write formula for giving bye. **CBSE 2016**

Short Questions (PYQ's)

1. How are various committees formed for tournaments? Write briefly. **CBSE 2016**
2. Draw the fixture of 7 teams on knock-out basis. **CBSE 2014**
3. Draw a fixture of 11 football teams participating in a tournament on the basis of knock-out. **CBSE 2016**

Long Questions (PYQ's)

1. Draw a knockout fixture for 19 teams, mentioning all the steps involved. **CBSE 2020**
2. Suggest the formation of various committees for systematic and smooth conduct of sports day in your school. **CBSE 2014**
3. Draw knock-out fixture for 27 tea[illegible]s. **CBSE 2013**
4. What do you mean by tourname[illegible] Dra[illegible]v a fixt[illegible]re of [illegible]3 tea[illegible]ms ir kn[illegible]c[illegible]-o[illegible]t tournaments. **CBSE 2011**
5. Draw a knock-out fixture of 21 teams mentioning all the steps involved. **CBSE 2016**
6. Draw a fixture of nine teams on the basis of league tournament using a cyclic method. **CBSE 2019**
7. Being sports captain of the school, prepare five important committees with their responsibilities to conduct one day run for health race. **CBSE 2015**
8. What do you understand by directing? Enlist its importance as a function of sports events management. **Expected Que.**
9. What do you understand by Management of sports event? Enlist its importance as a function of sports events management. **Expected Que.**
10. Describe the various committees for sports events. **Expected Que.**

Note: You can easily read and download answers from our website freely.

Website: https://zakisaudagar.in

UNIT 2: CHILDREN & WOMEN IN SPORTS

CONTENT:

- *Common Postural Deformities - Knock Knee; Bow Legs; Flat Foot; Round Shoulders; Lordosis, Kyphosis, and Scoliosis and their corrective measures*
- *Special consideration (Menarche & Menstrual Dysfunction)*
- *Female Athletes Triad (Osteoporosis, Amenorrhea, Eating Disorders)*

INTRODUCTION

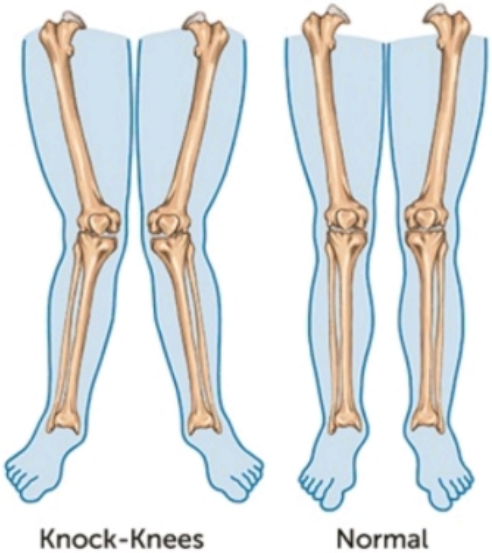
Children and women in sports are significant for any country's sports development. Children and women need to be physically and mentally strong for higher performance in sports. They need proper motor development.

Common Postural Deformities :

Knock knee:- It is a postural deformation in which both knees touch each other in the normal standing position. Due to this deformation, an individual usually faces difficulty in walking.

Causes of Knock Knee:

- Weakness of ligaments and muscles
- Overweight body
- Lack of a balanced diet
- Lack of Vitamin D

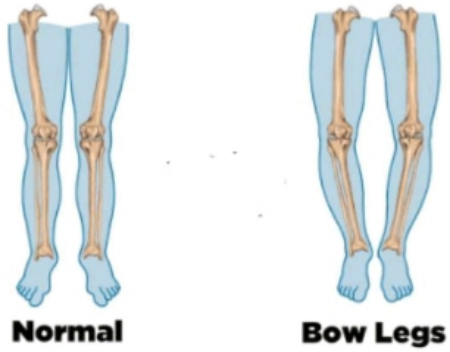


Knock-Knees Normal

Bow legs are a deformity, just the reverse of the knock-knee position. And there's a wide gap between the knees, and the deformation can be observed easily when an individual walks or runs.

Causes of Bow Leg:

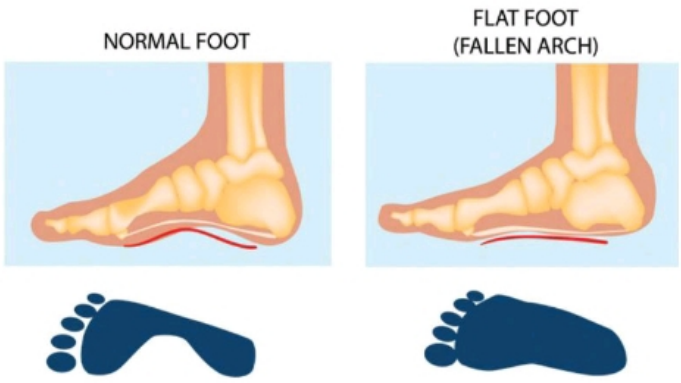
- Putting extra weight on leg muscles
- Lack of a balanced diet
- Lack of calcium or phosphorus in bones
- Improper way of walking
- Forcing a baby to walk at a very early age



Flat Foot: It is a deformity in which there is no arch in the foot, and the foot is completely flat. The individual faces problems with standing, walking, jumping, and running.

Causes of Flat foot:

- The heaviness of the body
- Standing for a long time
- Faulty posture
- Use of poor quality footwear and not having an arch.

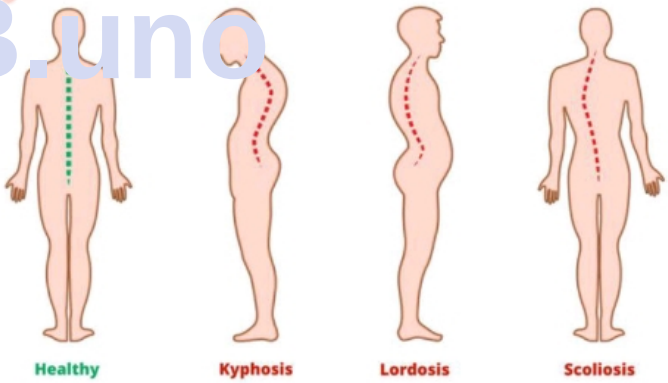


Round Shoulder:- It is a postural deformation in which the shoulders and chin are forwardly bent.

Causes of Round Shoulder:

- Due to poor posture at work, particularly working in desk.
- Faulty furniture
- Carrying a heavy load on shoulders
- Poor posture while sitting and standing

SPINAL CURVATURE



Kyphosis is the natural curve of the spine's upper back (thoracic) area. In the extreme curves, the spine looks like a "hunchback."

Causes of Kyphosis:

- Reading in dim light
- Carrying a heavy load on shoulders
- Wearing light and shapeless clothes
- The habit of bending while walking

Scoliosis is a postural defect in which one sizeable lateral curve extends throughout the

spine, or there may be two curves. This type of deformity is also called the 'S' shape curve.

Causes of Scoliosis:

- The short leg of one side
- One side flat foot
- Heredity defects
- One side paralysis of spine

Lordosis:- It is the inward curvature of the spine. It's an increased forward curve in the lumbar region. It creates problems with standing and walking.

Causes of Lordosis:-

- Habitual overeating
- Improper environment
- Lack of exercise
- Diseases affecting vertebrae
- Improper development of muscles

Corrective Measures of Deformities

Postural Deformities:-

There are two types of postural deformities, i.e., functional and structural. Only the soft tissues, i.e., the muscles and ligaments, are affected by functional deformities.

In the case of postural deformity, correction of postural deformities is possible through various physical activities.

Exercises for Knock Knees:-

- Horse riding is the best option for this deformity.
- Performing Padmasana & Gomukhasana.
- Keeping a pillow between the knees and standing erect for some time.

Butterflt Exercise

Half Butterfly Exercise

Squats

Side Leg Raises
(Both Side)

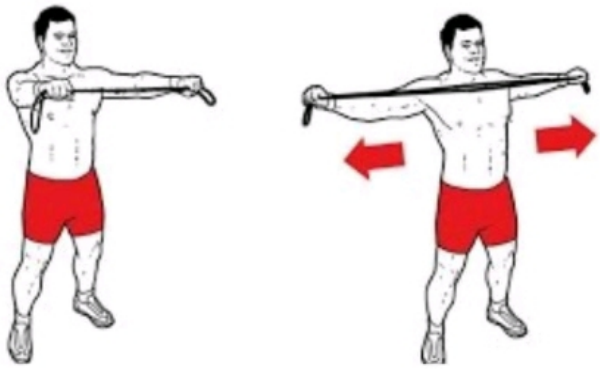
Frog Pose

Exercises for Bow Legs:-

- Walking by bending the toes in an inward position.
- Walking small distances on the inner edge of your feet.
- Performing Ardhamatsyendrasana.

Exercises for Round Shoulder:

- Hold the horizontal bar for some time regularly.
- Keep the tips of your fingers on your shoulders and encircle your elbows in clockwise and anti-clockwise directions for some time.
- Perform Dhanurasana & Chakrasana.



Exercises for Flat Foot:

- By rising on the toes, climbing stairs, and cycling.
- The emphasis should be on the exercises involving the flexor, foot, and ankle flexion.
- Exercise like sitting on a chair, grasping a pencil under the toes of one foot, and trying to write the alphabet with long strokes.
- For this, one should wear special shoes properly fitted with arch support made by an orthopaedical.

EXERCISE FOR SPINAL CURVATURE:

Exercises for Kyphosis:-

- Swimming, Bench press, and push-ups are helpful corrective measures.
- Lying on the back on a narrow bench with a ring weight pivoting from the elbows, the arms may bend to avoid any stress to the elbows.
- Corner exercises:- In these exercises, the individual stands facing towards the corner with one hand on the wall, arms at the shoulder level & elbow at 90° from this position, the body moves forward mainly from the ankle joint. This is the best exercise for stretching the pectoral muscles.
- Holding a stick in a wide grip with an arm extended above the hand and shoulder gives an excellent stretch to the pectoral muscles & also strengthens the neck.

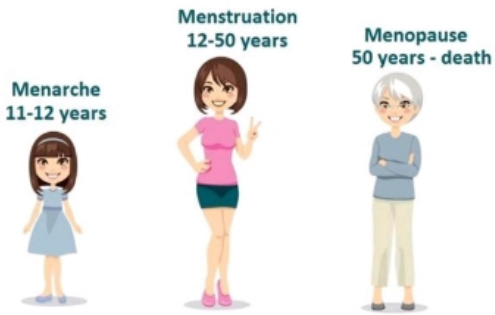
Exercises for Lordosis:-

- Lunge forward with your knees on a mat. Take the position of the foot beyond the knee. Place both hands on your knees. Straighten the hips of the rear leg by pushing the hips forward and holding the stretch. Repeat with the other side.
- Lie in a flat position on the ground. Keep your palms on the ground according to the shoulders' width. Push the torso up, keeping the pelvis on the floor. Hold this position for some time.
- Sit on a chair with feet wide apart. Bend and position your shoulders between your knees. Then reach to the floor under the back of the chair. Hold this position for some duration.

Exercises for Scoliosis:-

- To swim by breaststroke technique.
- Hanging from the horizontal bar.
- Hold the horizontal bar with your hands and swing your body to the left and right sides.
- Bending exercise should be performed on the opposite side of the 'C' shaped curve.

Special Consideration:



Menarche is the first menstrual bleeding of a young girl aged (9-16 years). Menstrual dysfunction is an irregular menstrual cycle in women. It can also be defined as "Abnormal bleeding during the menstrual cycle."

Factors & related problems:-

- The absence of menstrual duration: This problem may be due to an eating disorder, excessive exercise, stress, etc.
- Premenstrual syndrome: The female may face these symptoms before menstruating. Those symptoms are acne, backaches, sore breasts, headaches, constipation, depression, irritability, anxiety, etc.
- Abnormal Cramps: These are caused by a chemical in the body that makes the muscles in the uterus contract.
- Heavy or prolonged period: It is common for a girl's menstrual period to be heavier on some days than others.
- Irregular period cycle: A female's menstrual process is 28 days. Sometime, it may vary from 21 to 35 days. Delay in the first menstrual period.

Menopause is the time when a woman stops having menstrual periods, and is no longer able to have children. The age of menopause is generally between 45 and 55 years. It is not a disease or illness. It is a transition between two phases of a woman's life.

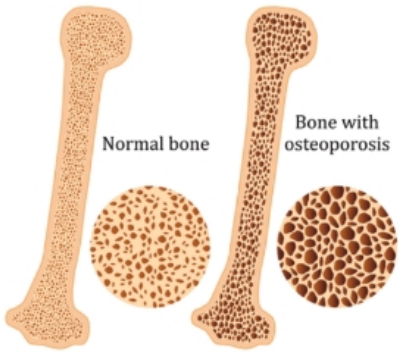
Female Athlete Triad (FAT):-

It is a syndrome of three related disorders usually seen in puberty or adult female athletes who aren't meeting their energy essentials, ultimately leaving them malnourished. This also impacts their performance adversely.

There are three components of FAT include:-

Osteoporosis:- It is a condition in which bones become weaker and brittle. Due to low estragon levels and poor nutrition, especially low calcium can lead to this problem. It reduces bone density in

females and improper bone function. This condition leads to stress on bones or fractures.



Amenorrhea:- It is a menstrual disorder in females 18 years and above, and there is no menstruation for three months or more.
Causes: genetic irregularities, over-exercise, and extreme psychological stresses.

Eating disorder:- Many females try to lose weight to improve their athletic performance, due to which they reduce their daily calorie intake.
An eating disorder is an abnormal or irregular eating behaviour that risks mental and physical health and can lead to malnutrition. Mostly it affects females.

Anorexia nervosa: In this eating disorder, the female athlete only thinks about food, dieting, and body weight all the time. They have distorted body structures. Other individuals usually feel that they are becoming thin, but they do not believe this. In front of the mirror, they see themselves as obese.

Bulimia nervosa: In this eating disorder, the female eats excessive food and then vomits it to avoid gaining weight. In this disorder, an individual binges on food and feels a loss of control. Then to prevent weight gain, try to vomit the food.

EXERCISE

MCQ's-

1. 11 to 12 years is the age of
(A) Early childhood
(B) Middle childhood
(C) Late childhood
(D) Adulthood

2. Postural _____ is one of the factors affecting motor skills.
(A) disorders
(B) disabilities
(C) deformities
(D) disease

3. The head, trunk and _____ controls are mastered before the coordination of hands and fingers.
(A) arm
(B) neck
(C) foot
(D) eye

4. Many diseases can be prevented by proper _____.
(A) medication
(B) treatment
(C) exposure
(D) immunization

5. Due to _____ a person normally faces difficulty during walking.
(A) Knock knees
(B) Round shoulders
(C) Flat foot
(D) Scoliosis

6. In case of _____ deformities, correction is possible through various physical activities.
(A) Functional
(B) Structural
(C) Both (A) and (B)
(D) None of these

7. Which of these is a remedial exercise for flat foot?
(A) Rising on toes
(B) Climbing stairs
(C) Cycling
(D) All of these

8. Women started to participate in sports from the year _____ onwards.
(A) 1800
(B) 1850
(C) 1900
(D) 1950

9. Aditi Ashok is associated with
(A) Cricket
(B) Golf
(C)Hockey
(D) Gymnastics

10. Which of these is not a reason for less participation for women in sports?
(A) Lack of fitness
(B) Male dominated culture
(C) Lack of personal safety
(D) Lack of will

Very Short Questions (PYQ's)

1. How can physical activities be corrective measures for common postural deformities? **All India 2011.**
2. Write about the deformities of spinal curvature. **All India 2016.**
3. Suggest exercises as corrective measures for round shoulders. **Delhi 2014**.
4. What are the causes of osteoporosis? **CBSE 2019**.

SHORT ANSWER QUESTIONS (PYQ's)

1. How can physical activities be corrective measures for common postural deformities? **All India 2011.**

2.. Write about the deformities of spinal curvature. **All India 2016.**

3. Suggest exercises as corrective measures for round shoulders. **Delhi 2014 Or** What do you mean by round shoulders? Suggest any four physical activities for correcting round shoulders. **All India 2015.**

4. What are the causes of osteoporosis? **CBSE 2019 Or** write in brief about osteoporosis. What are the causes of osteoporosis in women? **All India 2017.**

LONG ANSWER QUESTIONS (PYQ's)

1. Mention the causes, precautions, and corrective measures of knock knees. **Delhi 2012.**

2. Explain 'flat foot' and 'knock knees' and also suggest corrective measures for both postural deformities. **CBSE 2019.**

3. Suggest physical exercises as corrective measures for 'Kyphosis and Lordosis'. **All India 2014.**

4. Explain the causes, precautions, and remedies of bow legs. **All India 2013**.

5. What do you understand by the female athlete triad? Explain the symptoms and causes of any one of them. **CBSE 2020.**

Note: You can easily read and download answers from our website freely.

Website: https://zakisaudagar.in

UNIT 3: YOGA & LIFESTYLE

CONTENT:

- *Obesity: Procedure, Benefits & Contraindications for Tadasana,Katichakrasana,Pavanmuktasana, Matsayasana,Halasana,Pachimottansana,Ardha– Matsyendrasana,Dhanurasana,Ushtrasana, Suryabedhan pranayama.*
- *Diabetes: Procedure, Benefits & Contraindications for Katichakrasana,Pavanmuktasana,Bhujangasana, Shalabhasana,Dhanurasana,Supta-vajarasana, Paschimottanasana,Ardha-Mastendrasana, Mandukasana, Gomukasana, Yogmudra, Ushtrasana, Kapalabhati.*
- *Asthma: Procedure, Benefits & Contraindications for Tadasana,Urdhwahastottansana,UttanMandukasana, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalbhati, Gomukhasana Matsyaasana, Anuloma-Viloma.*
- *Hypertension: Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, Ardha Halasana,SaralaMatyasana,Gomukhasana,Uttan Mandukasana,Vakrasana,Bhujangasana,Makarasana, Shavasana, Nadishodhanapranayam, Sitlipranayam.*

INTRODUCTION

The word 'yoga' has been obtained from the Sanskrit word 'Yuj,' which implies 'union.' Patanjali has described the phrase yuj as 'stabilize the mind to the union of Atma (soul) and Paramatma (God).' It simply refers to the unity of body, mind, and spirit.

It's like uniting the individual self with the universal self. The power of yoga is in its flexibility, simplicity, & diversity.

Asana as a Preventive Measures:

Asanas can be defined as the ability to put the body in such a position that will make organs and glands more efficient, subsequently improving the health of the mind and body. Simply put, it means "Posture or Position to do yogic asanas."

Importance of Asanas:

- **Bones & joints become strong:** By performing regular asana, the bones, ligaments, and cartilages become strong. Along with that, the height of children is enhanced.
- **Blood circulation becomes normal:** By performing asana regularly, the stroke volume and cardiac output increase because cardiac muscles start working more strongly & efficiently. Blood circulation becomes proper & blood pressure normalizes and stabilizes.
- **Immune system is strengthened:** Regular asana and regular practice strengthen our immune system. As an outcome, our body becomes less prone to diseases.
- **Respiratory organs become efficient:** By performing asana regularly, the respiratory organs become more efficient. The size of the lungs and chest is also enhanced.
- **Efficiency of the excretory system enhances:** By regularly performing asana, the efficiency of the excretory system improves.
- **Muscles become strong:** by performing asana regularly, muscles of the body become strong—the efficiency of the muscles increases. The size of the muscles also increases. Fat does not accumulate in the body. The appearance of the body enhances.

OBESITY

Obesity: Procedure, Benefits & Contraindications for Tadasana,Katichakrasana,Pavanmuktasana, Matsayasana,Halasana,Pachimottansana,Ardha–Matsyendrasana,Dhanurasana,Ushtrasana, Suryabedhan pranayama

Obesity is referred to as a medical condition of the body in which the amount of fat increases to extreme levels. Obesity is measured by **"Body Mass Index," also called (BMI).** When BMI is more than 30, it is said to be an obese condition. Obesity leads to various diseases like diabetes, cardiovascular,hypertension,depression, etc.
This is because due to excess body fat, the organs inside the body cannot function properly.

Tadasana (Mountain Pose)

Procedure –

- This is done in a standing position.
- Stand straight and join the feet together.
- Toes must touch each other, and heels may be slightly apart.
- With a deep inhalation, raise both arms and then interlock the fingers.
- Stretch your shoulders and chest upward.
- Hold for 4 to 8 breaths.
- Exhale and drop the shoulders down.

Benefits: Knees, thighs, & ankles become stronger. Buttocks & abdomen get toned. It also makes the

spine more agile. It helps in increasing height and improves balance. It regulates the digestive, nervous and respiratory systems.

Contraindications

- Avoid during headaches or insomnia.
- Avoid low BP.

Pavanamuktasana

Procedure -

- This is done in a lying position.
- Lie flat on the back and keep the legs straight.
- Inhale slowly and, lift the legs & bend the knees. Bring upwards to the chest until the thigh touches the stomach.
- Hug the knees and lock the fingers.
- Place the nose tip between the knees.
- Exhale slowly and come back to the original position.

Benefits:

It cures acidity, indigestion, and constipation.

It is helpful for those suffering from gastrointestinal problems, arthritis, heart problems, and waist and back pain. It is very beneficial for reproductive organs

& menstruation disorders. It cures digestive problems & lowers the risk of heart disease.

Contraindications:

- Those who are suffering from high blood pressure, hernia, heart problems, and ulcers should avoid them.

Matsyasana (Fish Pose)

Procedure:

- This asana is done in a lying pose.
- Lift your hips and tuck your hands slightly beneath your buttocks and palms facing down. Draw your forearms & elbows in towards your body. Knees can either be bent or extended.
- With inhale, bend your elbows and press firmly on your forearms and elbows to lift your head & upper body away from the floor.
- Bring the crown of your head down on the floor.
- Remain in this position for a few minutes.
- Firm your shoulder blades into your back and lift your chest higher towards the ceiling, elongating your spine.

Benefits:

[illegible] relief from respiratory disorders, it increases lung capacity to a great extent. There is an increased supply of blood to the cervical and thoracic regions of the back, which helps tone the parathyroid, pituitary, & pineal glands.

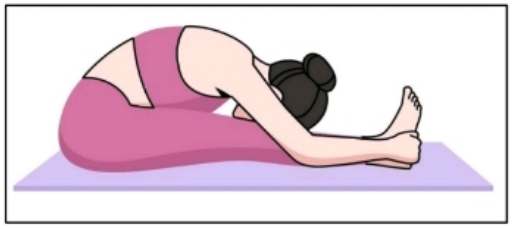
Contraindications:

- Individuals suffering from blood pressure should avoid this asana.
- Pregnant women should not attempt this yoga pose.

Paschimottanasana

Procedure:

- This is done in a sitting posture.
- Sit on the floor with the legs stretched out.
- Bend forwards and hold the big toes with the middle and index fingers. - Then, take five deep breaths and try to touch the knees with your forehead.



Benefits:

It stretches the hamstrings, the spine, shoulders, and hip joints. It also enhances the secretion of insulin from the pancreas and improves digestion, reduces headaches, anxiety, and insomnia.

Contraindications

- Pregnant women should avoid this asana.

Ardha-Matsyendrasana
(Half Spinal Twist Pose)

Procedure:

- This is done in a sitting posture.
- Sit with legs straight and stretched in front of you.
- Bend the left leg and bring it close to the body. Place it under the right buttocks.
- Then, place the right leg next to the left knee by taking it over the knee.
- Twist your waist, neck, and shoulders over your right shoulder. While doing it, keep your spine straight.
- Place the right hand behind and the left hand on the right knee.
- Then, repeat the procedure with the other leg.

Benefits:

It is one of the best poses to improve the spine's flexibility. It energizes the spine. It stretches the shoulders, hips, and neck. It stimulates the digestive enzymes in the belly, which helps in reducing belly fat. It improves the working of kidneys, pancreas, and small intestines.

Contraindications:

- Avoid during pregnancy and menstruation due to the strong twist in the abdomen.
- People with heart, abdominal, or slipped discs should avoid this asana.

Katichakrasana
(Waist Rotating Pose)

Procedure:

- Stand with both legs two feet apart. First, keep the arms by the sides.
- Raise both arms to shoulder level. While raising the arms, inhale. & now, exhale & twist the body to the left. Bring the right palm to your left shoulder and extend the left-hand wrapping around your waist. Then turn the head towards the left side & look over the left shoulder.
- Stop exhaling and retain the breath for a while.
- After a while, inhale and come back to the original position. Then, repeat on the right side. This constitutes one round. Perform five to ten rounds.

Benefits:- This yoga pose tones up the waist, hips, back, neck, and shoulders & increase the flexibility, it helps in managing body weight. It addresses many stomach-related health conditions. It helps to remove constipation & indigestion.

Contraindications:

- In the presence of a slipped disc.
- Chronic spinal disorders.
- In the presence of abdominal inflammation.
- In the presence of a hernia.

Halasana: (Plough-Pose)

Procedure:

- Lie on your back with legs close together and arms closer to the body. Place the palms on the floor & take a couple of deep breaths.
- Raise both legs together, keeping them straight. Raise the buttock, lower the legs over the head, and touch the floor with the toes.
- Raise the arms and support the back with the palms. Breathe normally. Stay in the position as long as it is comfortable.
- In one of the variations of this pose, hands are kept on the floor with palms facing the floor.
- In yet another variation, arms go over the head and catch hold of the toes.
- To release the position, bring the arms back to the floor, raise the legs, and lower the back roll over to the starting position

Benefits: - It tones up the digestive system and is good for constipation and indigestion.It improves the functions of the kidney, liver, pancreas, and adrenal.It improves the functions of the thyroid and thymus glands & boosts the immune system.

Contraindications: If you have a neck injury, diarrhoea, or menstruation, you shouldn't practice Halasana.

- If you have asthma or high blood pressure, you should avoid this asana.

Dhanurasana: (Bow Pose)

Dhanurasana is an intermediate-level back-bending yoga posture.

Procedure:

- Lie prone on the stomach with legs closer together. Place your arms flat on the floor closer to the body.
- Take a deep breath. After that, bend the knees and bring the feet close to the buttocks. Clasp the palms around the ankles.
- Raising the feet without losing the palms' grip over the ankles. Simultaneously lift the thigh, chest, and head, keeping the arms straight and arching the back.
- Then, tilt your head back, and now total body weight is on the stomach. Breathe slowly & keep the position as long as comfortable.
- Finally, release the position bringing back the legs down. While doing this, exhale. Keep lying on your stomach until your breath comes to normal.

Benefits:- This pose helpful for abdomen muscles. It Improve the functions of the liver, kidneys & pancreas. It improves conditions like indigestion, constipation, and infertility. It is helpful for weight reduction.

Contraindication: -

- It should not be performed by people suffering from high blood pressure, hernia, colitis, peptic ulcer, or heart ailment.
- It should also be avoided if pregnant.

Ustrasana (Camel Pose)

Procedure

- Sit on the floor, stretching your leg and keeping your spine erect, keeping palms on the ground side by the buttocks.
- Bend your leg by the keens & sit on your heels, placing the buttocks between the heels, the right big toe overlapping the left.
- Kneel on the floor, keeping your knees in line with the shoulders and soles of the feet facing the ceiling.
- Keep your hand on your thighs.
- Inhale and arch your back and place your palms on the heels of your feet.
- Keep your arms straight.
- Do not strain your neck; keep it neutral. Let your neck be free.
- Stay in this final position for a couple of breaths or as much longer as possible.
- Breathe out and slowly come to the normal position withdrawing your hands from the feet.

Benefits:- It improves the flexibility of the spine & strengthens it & also improves digestion.

Contraindication:

People suffering from severe back & neck injury, blood pressure, migraine, severe headaches should perform this asana.

Surya-Bedhan Pranayama:

It is a yoga breathing technique.

Procedure:

- Sit comfortably in Padmasana position.
- Keep your head & spine erect with close eyes.
- Shut down your left nostril with your ring finger & little finger.
- Now inhale slowly & deeply through your right nadi.
- After that, shut down your right nadi with the thumb of your right hand.
- Then exhale through your left nostril, along with keeping your right nostril closed at that time.
- Here one cycle completed.
- Repeat this procedure around 5 to 10 times.

Benefits: It activates the body functions & also very helpful for increasing the digestive system. It cures respiratory problems. It is the best breathing exercise for cold and cough, or other respiratory problems.

Contraindications: It should not to be practiced in case of blocked nostril, hypertension, heart problem, , anxiety, etc

DIABETES

Diabetes: Procedure, Benefits & Contraindications for Katichakrasana,Pavanmuktasana,Bhujangasana, Shalabhasana,Dhanurasana,Supta-vajarasana, Paschimottanasana,Ardha-Mastendrasana, Mandukasana, Gomukasana, Yogmudra, Ushtrasana, Kapalabhati.

Note: Some asanas are already discussed previously in the chapter.

It is a disease in which the pancreas fails to produce insulin or is unable to use the insulin which is produced effectively. Insulin is a hormone that the pancreas produces which helps glucose, present in the blood, to enter the cells in the body and provide energy. It is of two types viz. Type I & Type II.

- Type I diabetes is in which the body is unable to produce insulin.
- In Type II diabetes, the body makes insulin but is not able to use it effectively.

Bhujangasana (The Cobra Pose)

Procedure:

- This is done in a lying posture.
- Lie on your stomach and rest your forehead on the floor.
- Keep the feet and toes together and touch the ground.
- Place the hands at shoulder level and palms on the floor.
- Inhale and lift the head, chest, and abdomen towards the roof and keep the navel on the floor.
- Pull your torso back and off the floor with the support of your hands.

Benefits: It improves blood circulation in the body & decreases menstrual irregularities in females. It strengthens muscles of the chest, shoulders, arms, and abdomen. It is effective in urine disorders.

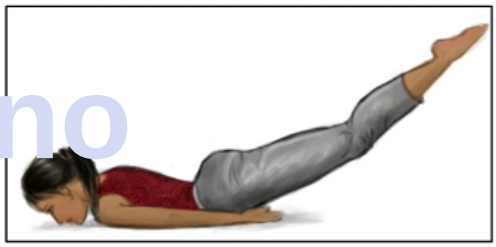
Contraindications:

- Avoid during pregnancy.
- It should be avoided by persons who are suffering from ulcers, heart problems, or any surgeries on the spine.

Shalabhasana {Locust Pose} :

Procedure:

- Lie on your stomach with arms placed on the floor closer to the body, and palms should face down. Place the legs close together with the soles facing up.
- Stretch the chin forward and keep it resting on the floor. Take a couple of deep breaths.
- Inhaling, raise the legs together to the most convenient possible height. The legs should be straight.
- Breathe normally, keep the position as long as it is comfortable and then release the position, exhaling by getting the legs back to the ground.



Benefits:- It strengthen lower back & pelvic region. This pose also tones up the nervous system. Helps in improving the appetite & alleviates the diseases of the bowel.

Contraindications:-

- This pose must be avoided by women during their pregnancy and menstruation.
- Do not try this asana if you are suffering from a hernia.

Supta Vajrasana:

Procedure

- Pose in Vajrasana. Bend the back with the support of an elbow first and follow the other

elbow next. Now in this position, the elbows should support the body.

- Now bring back the head to the floor, releasing the support of the elbows. Then lie on your back. Subsequently, place the palms on the thighs.
- Next, bring the top of your head towards the ground by making an arch on your back. And check the knees are still touching the floor.
- Place the hands on the thighs, breathe normally, and keep the position as long as it is comfortable.

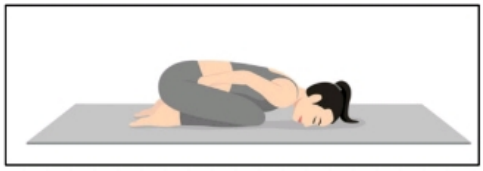
Benefits:- Beneficial for abdominal region. Thus, it improves the digestive system and thus problems like constipation. This pose also helps in respiratory system.

Contraindications: -

- This asana should not be practiced by anyone who is suffering from high blood pressure or vertigo.
- If you have a slipped disc or some serious ankle, knee, or back problem, then you should not practice this asana

Mandukasana:

- Sit in Vajrasana
- Put your left palm on your navel area and the right palm over the left one. Inhale deeply.
- Exhale and bend forward and take a suitable stretch on your naval region through your palms.
- Hold the pose as long as you can with slow inhaling and exhaling.
- Come to Vajrasana with a deep inhale.



Benefits:- It should be practiced by those who have asthmatic conditions. It strengthens the back if the practice is technically right.It is good for the chest and shoulders.

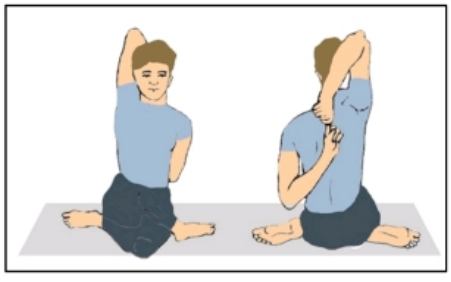
Contraindications-

- In the Lower back and spinal injury, one should refrain from doing this asana.
- Pregnant women might consult with a qualified yoga teacher or doctor before pursuing the practice.
- Stomach ache, diarrhea, knee, and ankle related condition should wait till recovery to do Mandukasana.

Gomukhasana (Cow Face Pose)

Procedure:

- This is done in a sitting position.
- Sit straight and stretch both legs together in front.
- Fold the right leg at the knee and place it on the ground by the side of the left buttock.
- Bringing the left leg from above the right leg, place it on the ground by the side of the right buttock.
- Fold the left arm and place it behind the back. Then, take the right hand over the right shoulder, and stretch it as much as you can until it reaches your left hand.
- Repeat it with the other leg.



Benefits: It helps in stretching and strengthening the muscles of the ankles, hips, thighs, shoulders, triceps, inner armpits, and chest. It helps cure sciatica and reduces stress and anxiety. It improves the functioning of the lungs.

Contraindications:

- Those who are suffering from shoulder, knee, or back pain should avoid it.
- Pregnant women should avoid it.

Yogmudra

Procedure:

- Sit in Lotus Posture. Bring your hands behind your back. Get hold of one wrist on the other hand. Close your eyes. Take a couple of normal breathing.
- Inhale deeply. Exhaling slowly, bend forward. Keep your spine straight. Touch the ground with your forehead. Breathe normally. Keep this position as long as you are comfortable.
- Exhale deeply. Come back to the sitting position inhaling slowly. Release the hands. Release from Lotus Posture.
- Again, Sit in Lotus Posture by changing the leg crossed the other way. This time, hold the other wrist with the opposite hand. Repeat steps 1 to Step 3.

Benefits:- Itis very beneficial for the abdominal organs. And practicing this asana helps in getting rid of constipation and heals gastric conditions. And improves the digestion system. It makes the spine, back, arms, shoulder, and hips more flexible.
Contradiction:

- If you have an ankle injury, you should never practice Yoga Mudra Asana.

People having any kind of shoulder injury must not practice this pose.

- Pregnant women must consult a doctor before practicing this pose.

Ustrasana or Camel Pose:

Procedure:

- Stand on your knees. Keep the thighs fully straight. Keep the knees and feet together.
- Lean in the backward direction. Slowly move more backward. Now reach the right heel with the right hand and the left heel with the left hand. Avoid straining the body.
- Push the hips in the forward direction. The thighs should be kept vertical.
- Then, bend the head and the spine as backward and as far as possible without straining.
- Relax the body and the muscles of the back.
- Support the body weight equally on the legs and arms.
- Keep the arms in such a way that they anchor the shoulders to maintain the back arch. Stay in the exact position for as long as you are comfortable.
- Then, release the hands from the heels one by one and return to the starting position.

Benefits- It helps get rid of all kinds of back pain. Stimulates the functioning of the thyroid gland. Makes the neck, back, chest & abdominal regions flexible.

Contradiction:

- Breath normally throughout the practice. Avoid long & deep breaths as the chest is already stretched during this asana. Taking long and deep breaths may create discomfort in breathing.
- People suffering from high or low blood pressure should avoid practicing this asana.

Kapalbhati

Procedure:

- Sit comfortably with your spine erect. Place your hands on your knees with palms open to the sky.
- Take a deep breath in.
- As you exhale, pull your navel back towards the spine. Do as much as you comfortably can. You may keep your right hand on the stomach to feel the abdominal muscles contract.
- As you relax the navel and abdomen, the breath flows into your lungs automatically.
- Take 20 such breaths to complete one round of Kapal Bhati.
- After completing the round, relax with your eyes closed and observe the sensations in your body.
- Do two more rounds of Kapal Bhati.

Benefits:It improves the health of your skin and gives you a radiant glow. It also help to cure asthma.It increases the capacity of your lungs and strengthens them.

Contraindication:-

- This practice of Kapalabhati pranayama should be evaded by anyone suffering from viral infections.
- Not to be practiced by women who are pregnant or are in their menstrual cycle.

ASTHMA

Asthma: Procedure, Benefits & Contraindications for Tadasana,Urdhwahastottansana,UttanMandukasana, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalbhati, Gomukhasana Matsyaasana, Anuloma-Viloma

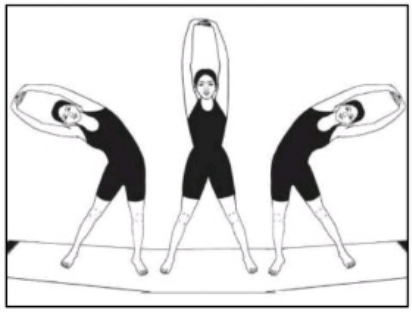
Note: Some asanas are already discussed previously in the chapter.

Asthma is a condition in which a person's airways in the lungs become narrow. Due to narrowness, airflow is obstructed. It creates breathing problems in a person. It is a long-term inflammatory disease. In this disease, the airways also swell up and produce extra mucus, which enhances breathing problems.

Urdhwahastottansana

Procedure:

- Stand in Tadasana
- Inhale and raise arms over the head. Interlock the fingers.
- Exhaling, bend to the left side from the waist.
- Maintain the position as long as you can. Come back to Tadasana.
- Do this 2-3 times or at your convenience.



Benefits :The asana is good for the health of the toes, feet, ankles, knees, buttocks, etc. It ensures proper movement to the alimentary canal,

especially the stomach, intestine, and large intestines, which results in relieving constipation.

Contraindication

- Pregnancy: Asana should be avoided during pregnancy.
- Legs pain: The patient suffering from leg pain should skip performing the yoga pose.
- -Dizziness: In case of dizziness, it should not perform.

UttanMandukasana

Procedure:

- Sit in Vajrasana.
- Spread both knees wide apart while the toes remain together.
- Raise your right arm, fold it and take it backward from above the right shoulder and place the palm below the left shoulder.
- Now fold the left arm similarly and place the palm from above below the right shoulder.
- Maintain the position. While coming back, slowly remove the left arm and then the right arm; bring the knees together as in the initial position.

Benefits: Efficient functioning of lungs. Lowers fat levels in the waist region and makes it tougher. Blood circulation is significantly improved.

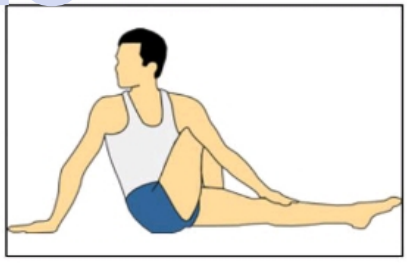
Contraindications

- It is best to avoid this pose during pregnancy or menstruation.
- Trying this pose with conditions like back pain and spinal cord deformity must be prohibited.

Vakrasana

Procedure:

- First, sit on a yoga map and stretch your legs stretched out.
- Try to bend your left leg from the knees and then try to place your foot beside the right knee.
- Exhale and then twist you're your waist towards the left and make sure that your spine is straight.
- Then, try to place your right arm towards the left side foot, and you need to do this in such a way that the outer side of the right arm touches the outer side of the left leg. And also, move your right hand beside the left foot.
- Take your left arm back and try to place your palm on the floor & do this in a way that the trunk is sufficiently twisted & straight.
- Then, you need to do the same on the other side.
- You can practice Vakrasana two to three times.



Benefits:Reduces the Stiffness by Increasing flexibility.Treats the problem of Slip Disc. Beneficial in case of diabetes.

Contraindications

Avoid this asana if you have slipped discs, ulcers, or severe spine, shoulder, or hip injuries. Also, as a closed twist, women who are pregnant should avoid this pose.

Anuloma-Viloma

Procedure:

- Sit in any comfortable meditative posture.
- Keep the head and spine erect.
- Close the eyes.
- Pay attention to the breath.
- Place the hands on their respective knees.
- Adopt nasagra mudra of the right hand and jnana mudra of the left hand.
- Close the right nostril with the thumb.
- Inhale through the left nostril and exhale through the right nostril, keeping the respiration rate slow, deep and silent.
- Inhale through the right nostril again.
- Exhale through the left nostril, keeping the respiration rate slow, deep and silent.

Benefits: Improvement in certain conditions. Helps in relieving migraine -Helps in relaxing the mind, You'll get clear and glowing skin

Contraindications

- If you are suffering from a cold, cough, and low blood pressure.
- Try to do this only in summer.

HYPERTENSION

Hypertension: Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, Ardha Halasana,SaralaMatyasana,Gomukhasana,Uttan Mandukasana,Vakrasana,Bhujangasana,Makarasana, Shavasana, Nadishodhanapranayam, Sitlipranayam

Note: Some asanas are already discussed previously in the chapter.

Uttanpadasana

Procedure:-

- Lie on your back in a comfortable position.
- Slowly flex your elbows to lift your back and arch your neck.
- Tilt the crown of your head to make it touch the floor.
- Take a deep breath in and lift your legs off the floor. The legs must be at an angle of 45 degrees.
- Make sure that your feet are together and your toes are pointing to the ceiling.
- Exhale deeply and stretch your arms forward. Then join your palms in a prayer pose. Your arms need to be parallel to the thighs.
- Your body must be balanced on your hips & crown of the head.
- Hold the pose for 20-30 seconds or as long as possible.
- To release the pose, inhale and bring your arms down slowly and place your hands on the floor. Exhale and bring your legs to the floor and relax your body in supine position.

Benefits:

- It is a great asana to stretch your arms and shoulders and improve upper body strength. It is a great pose to enhance one's agility and flexibility.

Contraindications

- Avoid this posture if there is any injury in the neck, back, pelvis, or leg muscles.
- Pregnant women must refrain from this pose.

ArdhaHalasana (Half Plough Pose)

Procedure:

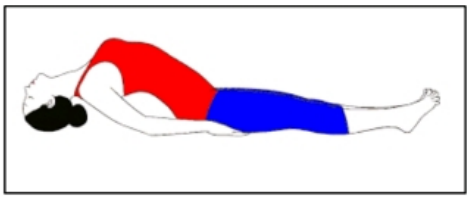
- Lie down in Shavasana (supine position).
- Join both legs and keep your hand with the thighs.
- Slowly breathe in and raise the leg perpendicular to the ground keeping the knee straight.
- Hold in the breathe and stay in this position as long as possible.
- Breathe out and bring back your legs.
- Come back to the normal position and relax for a while.
- Repeat the same 3 to 5 times

Benefits:
- Improves digestion and appetite.
- Improve blood circulation.
- Strengthens the thigh muscles and calf muscles.
- It is helpful to reduce abdomen fat and lose weight.

Contraindications
- Pregnant women should not do this yoga.
- This pose should not be done if there is cervical pain or a slipped disc.

Sarala Matyasana

Procedure:
- Lay flat on the back.
- With the support of your hands, keep the top of your head on the mat.
- Neck, upper back, and shoulders will be lifted from the ground.
- Relax your hands at the side of your body.
- Breathe normally and keep your toes stretched out.
- Hold the position for 30 seconds, and relax.

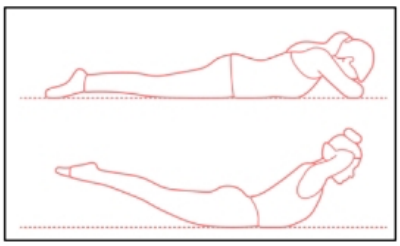


Benefits:It improves the digestion system.Helps to cure irritable bowel syndrome.Helps to get rid of abdominal-related issues.

Contraindications: People with cervical spondylitis and frozen shoulder practice under the instructions of a professional.

Makrasana

Procedure:
- Lie down straight on your stomach.
- Now join your elbows, make a stand and place your hands under the chin.
- Lift your chest.
- Keep your elbows and legs together.
- During inhaling, first, fold your one leg at a time and then both legs together.
- During folding, your ankles should touch the hips.
- While exhaling, your feet should be straight and keep your head steady.
- Repeat this for 20 to 25 times.



Benefits: - Beneficial in cervical, slipped disc. It is Beneficial for all spine-related problems.

Contraindications: - It shouldn't be done in case of pregnancy, Back injury & Neck injury, inflated lumbar curves

Shavasana: (Corpse Pose)

Procedure

- This is done in a lying position.
- Lie flat on the back, like in a sleeping pose.
- Keep the arms at the side and palms facing up and relax.
- Close the eyes and breathe deeply and slowly through the nostrils. Remain in the same pose for about 10 to 15 minutes.

Benefits: It relaxes the whole body. It releases stress, fatigue, depression, and tension. It improves concentration and cures insomnia.

Contraindications. - While performing the asana, one shouldn't feel asleep to extract the benefits of the pose.

Nadi-Shodhana Pranayama

Procedure:

- Sit comfortably and bring the Right hand into Vishnu Mudra (thumb to the Right nostril, ring & pinky fingers to the left, index and middle finger folded and resting at the base of the thumb)
- Exhale completely & Block the Right nostril and inhale through the Left nostril
- Release Right nostril and exhale & Block Left nostril and inhale Right
- Release Left nostril and exhale. This completes one full cycle
- Repeat 10-12 cycles

Benefits: Improves blood supply to the brain. Balances left and right hemispheres and promotes clear thinking.Reduces anxiety and stress and helps to manage hypertension.

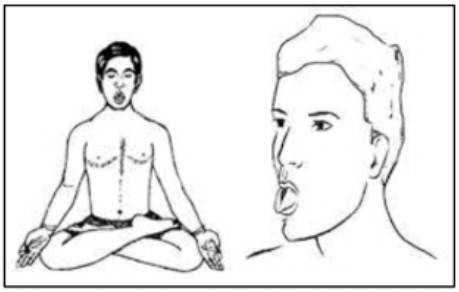
Contraindication:

- Initially, retention of breath should be avoided.
- At the slightest sign of discomfort, reduce the duration of inhalation and exhalation.
- Make sure that you don't force in any way and that there is no haste whatsoever.

Bhe[illegible]ama

Procedure:

- Sit in any comfortable posture
- Place your hands on the knees in Gyan Mudra
- Close your eyes and roll up the tongue and shape it as a tube
- Inhale maximum through the tongue
- Take the tongue inside the mouth and close the mouth
- Slowly exhale through the nostrils, remaining aware of the area used for smelling
- Repeat the procedure for four rounds



Benefits: - It cools the body and helps nerves and muscles to relax
This pranayama is beneficial for people suffering from high blood pressure. It promotes digestion It helps you control hunger and thirst

Contraindications

Best to avoid if suffering from blood pressure.
Not to be done if suffering from migraine.
It is best not to hold the breath within if having problems related to the heart.

EXERCISE

MCQ's-

1. The symptoms of obesity includes
(A) Gaining weight
(b) Retardness
(c) Laziness
(d) All of these

2. People are considered to suffer from obesity when their BMI is
(a) less than 25
(b) more than 25
(c) more than 30
(d) more than 35

3. Which one of the following asanas is not a remedial asana for treating obesity?
(a) Vajrasana
(b) Tadasana
(c) Trikonasana
(d) Ardha Matsyendrasana

4. Which one of the following asanas can be performed immediately after the meals?
(a) Chakrasana
(b) Dhanurasana
(c) Sukhasana
(d) Vajrasana

5. Which lifestyle disease can be cured by practising the asana shown below.
(a) Asthma
(b) Hypertension
(c) Obesity
(d) All of these

6. Which hormone is related with the problem of diabetes?
(a) Insulin
(b) Calcitonin
(c) Oxytocin
(d) Estrogens

7. Ramya's mother was suffering from Type-II diabetes. The doctor prescribed her some medicines and asked her to eat whole grains, avoid processed foods and do regular exercises to control the blood sugar levels. Blood sugar levels are controlled by _____ hormone.
(a) Thyroxin
(b) Progesterone
(c) Insulin
(d) Estrogen

8. Identify the asana shown below.
(a) Ardha Matseyendrasana
(b) Bhujangasana
(c) Paschimottanasana
(d) Pavanamuktasana

 # VERY SHORT ANSWER QUESTIONS (PYQ's)

1. Explain any two benefits of Ardha Matsyendrasana. **CBSE SQP 2021.**

2. What is the main physiological cause of Asthma? **CBSE 2018.**

 # SHORT ANSWER QUESTIONS (PYQ's)

1. What is the role of yoga in preventing lifestyle diseases? **CBSE 2019.**

2. Explain about the procedure and advantages of 'Bhujangasana'. **CBSE 2019.**

3. Explain the procedure and benefits of any one asana used to cure diabetes. **CBSE 2020.**

 # LONG ANSWER QUESTIONS (PYQ's)

1. Briefly explain the administration of Pawanmuktasana along with its contraindications and draw stick diagram. **CBSE SQP 2021 Term II.**

Note: You can easily read and download answers from our website freely.

Website: https://zakisaudagar.in

UNIT 4: PE & SPORTS FOR CWSN

CONTENT:

- *Organizations promoting Disability Sports (Special Olympics; Paralympics; Deaflympics)*
- *Advantages of Physical Activities for children with special needs.*
- *Strategies to make Physical Activities assessable for children with special needs.*

Organizations promoting Disability Sports:

SPECIAL OLYMPICS:

Introduction

- **Eunice Kennedy Shriver** founded the Special Olympics in 1968. The **purpose** of the Special Olympics is to provide year-round sports training & athletic competition in various Olympic-type sports for youngsters and adults with intellectual disabilities.
- It provides opportunities for athletes to develop their physical fitness, experience the joy of sportsmanship, and participates in sharing gifts, skills, and friendships with their families, community, and other Special Olympics athletes.

Special Olympic:

Headquarters - Washington DC.

Motto: "Let me win. But if I can't win, let me be brave in the attempt."

Special Olympics connects to these individuals through a wide range of training, health screenings, competitions, & fund-raising events. These games also entitle people to change their attitudes and support athletes. Sports improve health, confidence, & inspire a sense of competition.

In the Special Olympics, the emphasis is on what these individuals are capable of, so the attention shifts from disability to ability. Over 30 Olympic-style sports, from soccer to gymnastics to open water swimming, are part of these games. These incorporate athletics, badminton, basketball, cricket, horse riding, and hockey.

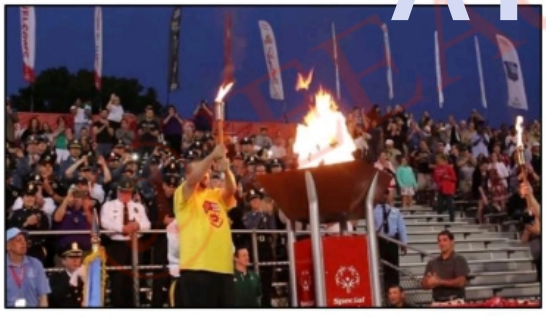
Special Olympic Logo:

The logo of Special Olympics is based on the Sculpture 'Joy and Happiness to all Children of the World'.

Special Olympics

Special Olympic Flame:

The torch that is carried out & lit at Special Olympic Games is called as the '**Flame of Hop**



Sports & Games in Special Olympics:

Skiing: Alpine and Cross-country ,Swimming: Pool & Open Water, Gymnastics: Artistic and Rhythmic ,Speed Skating, Short Track, Handball, Netball, Equestrian, Athletics (Track and Field), Softball, Judo, Figure Skating, Badminton, Powerlifting, Floorball, Basketball.

Year	City	Country
1968	Chicago	USA
1970	Chicago	USA
1972	Los Angeles	USA
1975	Mount Pleasant	USA
1979	Brockport	USA
1983	Baton Rouge	USA
1987	Notre Dame & South Bend	USA
1991	Minneapolis and Saint Paul	USA
1995	New Haven	USA
1999	CH Durham & Rayleigh	USA
2003	Dublin	Ireland
2007	Shanghai	China
2011	Athens	Greece
2015	Los Angeles	USA
2019	Abu Dhabi	UAE
2023	**Berlin**	**Germany**

PARALYMPICS:

Paralympics are international multi-sport events initiated for athletes with disabilities like blindness, amputation, and cerebral palsy. Now they are held in four-year cycles.

The **motto** of the paralympic is "**Spirit in Motion**" motto was introduced in **2004** at the Paralympic Games in **Athens**. The previous motto was "**Mind, Body, Spirit**," introduced in **1994**.

History:-

- The Paralympics originated after Sir Ludwig Guttmann organized a sports competition for World War II British veterans with spinal cord damages in the UK in 1948.

- A similar competition took place in 1952, with athletes from the Netherlands joining the British opponents. These tournaments were, for the first time, held in 1960 in Rome.

- The phrase Paralympics was officially used only in 1988 during the games held in Seoul, South Korea. This was the summer Paralympics. The winter version of the games was first born in Sweden in 1976.

Categories:- Paralympics athletes compete in six different disability groups— cerebral palsy, amputee, visual impairment, intellectual disability, spinal cord injuries, and " les autres" athletes whose disability does not fit into one of the other categories, like Dwarfism].

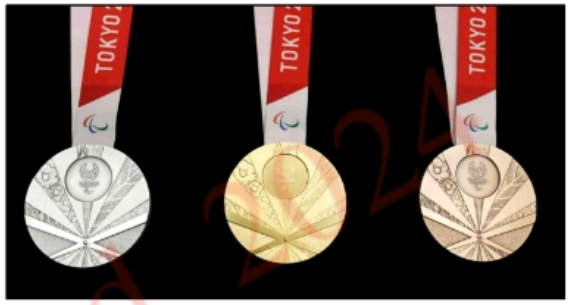
Opening Ceremony:- As the standard Olympic Games, the Paralympics also commence with an opening ceremony where the hosting nation plays its national anthem and hoists the nation's flag. After that, there is a march past by the participating countries. The formal opening announcement of the games is followed by a cultural program as the standard Olympics Games.

Governing Body:-These games are governed by the **International Paralympics Committee**, which was set up in **1989** and is **headquartered** in **Bonn, Germany**.

Events:-This Paralympics organized events such as javelin, archery, swimming, fencing, basketball, shot put, club throwing, table tennis, snooker, swimming, and the pentathlon. The Paralympics were held only for summer sports for more than ten years.

Awards:

The medals are give to the winners as awards after every Paralympic event. The competitors or teams that secure first, second and third position stand-up at the victory podium and are awarded with the medals.



Sports & Games in Paralympic Games:-

Athletics, Archery, Badminton, Boccia, Canoeing, Cycling, Equestrian, Football 5-a-side, Goalball, Rowing, Shooting, Judo, Powerlifting, Sitting Volleyball, Swimming, Table Tennis, Triathlon, Taekwondo, Wheelchair Basketball, Wheelchair Fencing, Wheelchair Tennis, an Wheelchair Rugby

Year	City	Country	Season
1960	Rome	Italy	Summer
1964	Tokyo	Japan	Summer
1968	Tel Aviv	Israel	Summer
1972	Heidelberg	Germany	Summer
1976	Ornskoldsvik	Sweden	Winter
1976	Toronto	Canada	Summer
1980	Geilo	Norway	Winter
1980	Arnhem	Netherlands	Summer
1984	Innsbruck	Austria	Winter
1984	Stoke Mandeville	UK	Summer
1988	Innsbruck	Austria	Winter
1988	Seoul	South Korea	Summer
1992	Tignes-Albertville	France	Winter
1992	Barcelona	Spain	Summer
1994	Lillehammer	Norway	Winter
1996	Atlanta	USA	Summer
1998	Nagano	Japan	Winter

2000	Sydney	Australia	Summer
2002	Salt lake city	USA	Winter
2004	Athens	Greece	Summer
2006	Turin	Italy	Winter
2008	Beijing	China	Summer
2010	Vancouver	Canada	Winter
2012	London	UK	Summer
2014	Sochi	Russia	Winter
2016	Rio	Brazil	Summer
2018	Pyeongchang	South Korea	Winter
2020	Tokyo	Japan	Summer
2022	**Beijing**	**China**	**Summer**

DEAFLYMPICS

- Deaflympics, This is where deaf athletes desire to reach the apex of competition by embracing the **motto** of Deaflympics "**PER LUDOS AEQUALITAS**" (Equality through sport) and sticking to the ideals of the Olympics.
- The Deaflympics (formerly called World Games for the Deaf and International Games for the Deaf) are an IOC-recognised event in which deaf athletes compete at an elite level. In 2001 that these games were renamed as Deaflympics.

History:

- The 1st games, known as the International Silent Games, were held in 1924 in Paris, with athletes from 9 European countries participating in it. 1924, Summer Deaflympics were held in Paris, from 10 to 17 August, equivalent to the Olympic Games for the deaf sportsperson. This was the 1st international sporting event held for athletes with a disability. The athletes excelled in road cycling, football, diving, shooting, tennis, swimming, etc.

- In 1996, the name of the Deaflympics was changed to 'World Games for the Deaf.,' The games are held every two years in succession and alternate between winter and summer games.

- The recent Deaflympics were held in July 2017 in Turkey. In total, 3148 athletes from 97 countries competed in 18 different sports with 21 disciplines in the games.

- Winter Deaflympics was formed in 1949 at Seinfeld, Austria. The 2015 Winter Deaflympics were organized in Russia, with 336 participating athletes from 27 countries.

Rules:-

Athletes must have a hearing loss of at least 55db in ore ear to qualify for the games. The use of cochlear implants and a hearing aid is not allowed during the competition for fair gameplay.

- The athletes in Deaflympics also have a more generous age range than the Olympic athletes, the youngest medallist was 12, and the oldest medallist in the history of the Deaflympics was nearly 76 years old.
- The Deaflympics referees do not use whistles; instead, they use flags. On the track, races are started by light rather than the sound of a gun.
- Also, spectators watching the games usually wave with hands to cheer their favourite athletes. All events are played the same way as at the Olympics Games.
- The rules for playing these sports are not modified in any way for deaf participants. This fact differentiates deaf sports from sports played by other groups of people having disabilities.

Features:-

- Deaf people are not disabled in any manner except communication, and this is only a disability or disadvantage when a deaf person is in a specific situation where hearing and speech are the primary forms of communication.
- Deaf people are a culturally distinctive minority group. The second oldest multi-sport Olympic event is the Deaflympics.

Year and Venue of Summer Deaflympics

Year	City	Country
1924	Paris	France
1928	Amsterdam	Netherlands
1931	Nuremberg	Germany
1935	London	UK
1939	Stockholm	Sweden
1949	Copenhagen	Denmark
1953	Brussels	Belgium
1957	Milan	Italy
1961	Helsinki	Finland
1965	Washington	USA
1969	Belgrade	Yugoslavia
1973	Malmo	Sweden
1977	Bucharest	Romania
1981	Cologne	Germany
1985	Los Angeles	USA
1989	Christchurch	New Zealand
1993	Sofia	Bulgaria
1997	Copenhagen	Bulgaria
2001	Rome	Greece
2005	Melbourne	Australia
2009	Taipei	China
2013	Sofia	Bulgaria
2017	Samsun	Turkey
2021-22	**Caxias do Sul**	**Brazil**

Year and Venue of Winter Deaflympics

Year	City	Country
1949	Seefeld	Austria
1953	Oslo	Norway
1955	Oberammergau	Germany
1959	Montana-Vennala	Switzerland
1963	Are	Sweden
1967	Berchtesgaden	West Germany
1971	Adelboden	Switzerland
1975	Lake Placid	United States
1979	Meribel	France
1983	Madonna di Campiglio	Italy
1987	Oslo	Norway
1991	Banff	Canada
1995	Yllas	Finland
1999	Davos	Switzerland
2003	Sundsvall	Sweden
2007	Salt Lake City	United States
2011	Vysoke Tatry, Slovakia	Slovakia
2015	Khanty-Mansiyak	Russia
2019	Sondrio Province	Italy

Strategies to make Physical Activities assessable for CWSN:-

- **Medical Check-up:** If we want to make physical activities accessible for children with special needs (CWSN), we need to understand the type of disabilities of children. For this purpose, a complete medical check-up of the children is required. It is essential because, without a complete medical check-up, the physical education teachers will have difficulty knowing about the type of disability the child is facing.
- **Assistive Technology:-** It refers to making equipment, devices, or tools that help these children to participate in learning activities like balls with bells, bigger balls, balls attached to strings to bring them back to the students, etc. If traditional schools develop adequate infrastructure to support the activities of children with special needs, then parents can get their children admitted to any school.
- **Creating a Specific Environment:-** This means creating a friendly environment by keeping in mind the specific requirements of disabled children. It shows that they are also required in society, and like other children their age, they can play. Students with special needs can be provided with specific play areas with special requirements as needed by them. For example,

these children often cannot tolerate loud music and glaring lights, so a lot of natural lighting should be there.

- **Activities Based on Interests:** Physical activities must be based on the interests, aptitudes, abilities, previous experiences, and limitations of children with special needs.
- **Modification of Rules:** Rules can be modified according to the needs of the children. They can be provided extra time or attempt to perform physical activity. They can also be given spare time to rest before doing the following physical activity.
- **Children's Previous Experience Must be taken into consideration:** For making physical activities more accessible for children with special needs, the concerned teacher of physical education should have an understanding and knowledge of children's previous experience with physical activities.
- **Specialized Equipment:** The size, weight, shape, and colour of the playing equipment also have to be customized. Visually handicapped children need brightly coloured equipment, while those with weak muscles need lighter design of equipment.

Advantages of Physical activities for CWSN:

Physical activities can provide significant benefits for children with special needs. Following are the advantages/benefits of physical activities for children with special needs:

- **Reduce depression & stress:** Physical activities may help reduce depression in children with disabilities. It also reduces their anxiety and stress levels.
- **Improve social interaction:** Physical activities provide children with ample opportunities for social interaction. Their social relations improve during involvement in these activities. Different types of sports activities lead to increased social integration, friendship, and bonding
- **Many Cognitive benefits:** Physical activities lead to cognitive skills such as thinking, reasoning, and remembering. It enables them to discover and access strengths that cannot be challenged in the classroom setting.
- **Fun activities:** Physical activities lead to mood benefits. They enjoy social interaction with both the fitness staff and other participants.
- **Increased fitness & Strength levels:** Children improve their muscle strength, coordination, and flexibility through regular physical activities. It also enhances better motor skills, balance, and body awareness.
- **Improve health quality:** Children have positive health and quality of life changes and raise their self-esteem. They get a feeling of accomplishment and possibly the taste of personal satisfaction. It will also increase their appetite and enhance the quality of sleep.

Decreases other health issues: Regular physical activities decrease secondary health complications like obesity, high blood pressure, low HDL cholesterol, and diabetes.

EXERCISE

MCQ's-

1. Cognitive disability is a broad term that includes
(a) Intellectual disability
(b) Locomotor disability
(c) Speech impairment
(d) All of these

2. Emotional imbalances or emotional outbursts are the symptoms of _____.
(a) Intellectual disability
(b) Cognitive disability
(c) Physical disability
(d) None of these

3. The class teacher of VII-A observed newly joined student Sam's behaviour. He is different from other students. He has difficulty in thinking and understanding concepts taught at school. The class teacher called his parents and suggested them to take him to a psychologist. The person with intellectual disability has IQ between
(a) 70-75%
(b) 80-85%
(c) 85-90%
(d) 90-95%

4. ADHD means
(a) Automatic Deficit Hyperactivity Disorder
(b) Attention Deficit Hyperactivity Disorder
(c) Attention Deficit Hyperactivity
(d) None of the above

5. A 6 year old boy is so hyperactive and talkative in class that the teacher, find it very difficult to assign a task for him. Based on this, answer the following. The boy is likely to suffer from
(a) SPD
(b) ODD
(c) ASD
(d) ADHD

6. Seetha who is studying in class XI at Kaveri School has a tendency to forget things along with a flickering mind. She is also not able to sit quietly in a place for a while. The teacher observed her and advised Seetha's parents during a parent teacher meeting to meet a counsellor. ADHD is most common among _____.

(a) Male
(b) Female
(c) Children
(d) None of these

7. Shivi joined as a teacher in a school that caters to students with special needs. The principal explained her about the special needs of the children and also about disability etiquettes. Most suitable word used for disable person is ___.
(a) Disabled person
(b) Retarded
(c) Divyang
(d) Blind

8. Regular physical exercise results in _____.
(a) Improved functional status
(b) Quality of life
(c) Improved cognitive abilities
(d) All of the above

9. SPD means
(a) Special Police Department
(b) Sensory Processing Disorder
(c) Special Processing Disorder
(d) Sensory Protecting Disorder

10. Children who are not cooperative, defiant and disrespectful towards elders are diagnosed with
(a) ODD
(b) OCD
(c) SPD
(d) ADHD

VERY SHORT ANSWER (PYQ's)

List down any two strategies to make physical activities accessible for CWSN. **CBSE SQP 2021 Term II.**

Note: You can easily read and download answers from our website freely

UNIT 5: SPORTS & NUTRITION

CONTENT:

- *Concept of balance diet and nutrition*
- *Macro and Micro Nutrients: Food sources & functions*
- *Nutritive & Non-Nutritive Components of Diet*

Concept of balanced Diet & Nutrition

Balanced Diet

A balanced diet refers to eating the right amount of food from all food groups or a diet that consists of all essential food constituents viz, protein, carbohydrates, vitamins, minerals, fat, and water in correct proportion is called a balanced diet.

Nutrition

Nutrition is a dynamic process that comprises the consumption of food to remain healthy, and it is essentially the process of nourishing or being nourished.

Nutrients: Essential substances present in the food. e.g., carbohydrates, protein, fat, vitamins & minerals.

Diet: This contains different types of foodstuffs. It helps protect us from diseases, repairs worn-out tissues, and gives energy.

Elements of Balance Diet: A diet that contains all the foodstuffs necessary to maintain good health consists of the following elements:

Macro Nutrient:- It is the majority of the individual Diet and is taken in large amounts.

- Carbohydrates
- Proteins
- Fats
- Water

Micro Nutrient:- It is the minority of individual diets and is taken in small amounts.

- Vitamin
- Mineral

Macro Nutrient

Carbohydrate

It is the most important source of energy. It contains the element of carbon, hydrogen, and oxygen carbohydrate, the organic compound that is essential for different digestive operations in our body. Potato, rice, bread, banana, apple, milk, corn, and grapes are rich sources of carbohydrates.

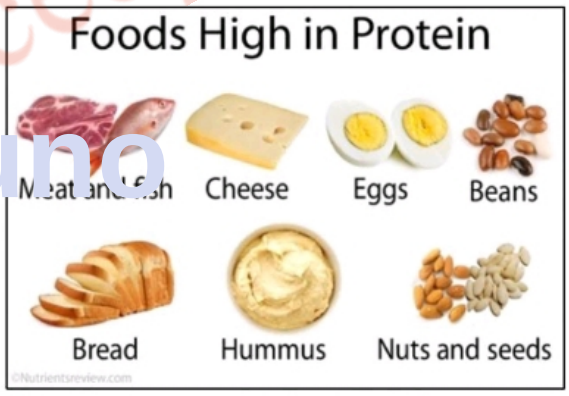
- Simple carbohydrates - these are soluble in water and are crystalline in nature they are sweet interest and are called sugar Ex - glucose, fructose sucrose lactose, etc.
- Complex carbohydrates are not soluble in water and are not sweeter in taste; they are also not crystalline. Ex - starch, glycogen, and cellulose.

Protein

It is beneficial for muscle building & Muscle repairing. It contains carbon, hydrogen, oxygen, nitrogen, and sometimes sulphur, they are large molecules that cannot be directly absorbed into our blood; they are turned into amino acids by our digestive system. Milk, eggs, cheese, pulses, meat, and fish are rich in proteins. The body required only 0.36 grams of protein per pound of the ideal body weight.

Some essential proteins or amino acids: are Histidine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Threonine, Tryptophan, and Valine.

Some non-essential proteins or amino acids - are Alanine, Arginine, Asparagine, Aspartate, Cysteine, Glutamate, Glutamine, Proline, and Serine.



Fat

The body utilizes fat as a reserve fuel source, and fat is the major storage form of energy in the body. Fats usually provide us with twice as much energy as carbohydrates. Fat contains carbon oxygen and hydrogen. It keeps us warm and protects our organs, and also helps in the production of hormones. Ghee, butter, and nuts are rich sources of fats, but too many fats can lead to diseases like high blood pressure, heart problem, and obesity.

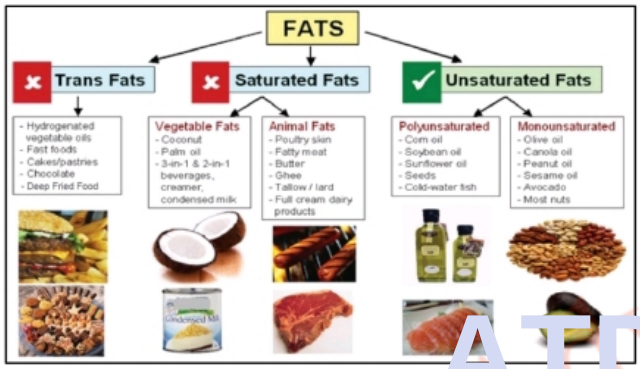
Types of fat -

Saturated fat: It will increase cholesterol in the body. These fats gave increased health risks.

Overconsumption of these fats increases the risk of heart-related issues, and it results in increased cholesterol levels. These fatty acids don't contain double bonds.

Unsaturated fat: It will lower the level of cholesterol in our body. The consumption of these fatty acids results in lowering the cholesterol levels in the blood. And in turn, it reduces the risk of heart-related complications.

Monounsaturated fatty acids contain one double bond ***Polyunsaturated fatty acids*** have more than one double bond.



Water:- Two-thirds of the human body is made up of water. It acts as a lubricant or body fluid, including blood, saliva, digestive juices, urine, sweat, etc. It helps our body to work well and maintain it is made up of hydrogen and oxygen. It will help in the transportation of nutrients to the cell of the body and is vital for the excretion of waste products. It will also regulate the body temperature and play a critical role in various chemical reactions that take place in our body.

Micro Nutrient:

Minerals

Mineral is an inorganic element required as an essential nutrient by organisms to perform physiological functions necessary for a healthy life. These are called protective foods.

Macro minerals: Calcium, potassium, sodium, magnesium, phosphorus.

Micro minerals: Iodine, iron, chromium, copper, cobalt.

Some important minerals:

- **Iron:-** It is important for the formation of haemoglobin. Its deficiency leads to anaemia, and sources are meat, eggs, and dry fruits.
- **Calcium** is needed to form strong bones and teeth, blood clotting, and muscle contraction. Its deficiency causes rickets and asthma, and sources are milk, egg yolk, cheese, and orange.
- **Phosphorus:** It is required to develop strong bones and make energy. Its sources are meat, egg, fish, and unpolished rice.
- **Potassium:-**It is essential for growth and better health of blood health. Its deficiency weakens the body's muscles, and sources are carrot, beetroot, onion, tomato, orange, and mango.
- **Sodium:-** It's needed to function the nervous system properly. Sources are milk & their products, meat, & eggs.
- **Iodine:** It is essential for proper thyroid function. Its deficiency causes goitre, and sources are seafood and salt.
- **Fluorine:** It is essential to make the teeth' enamel (polish) hard and prevent dental decay.
- **Copper**: It is helpful in the formation of red blood cells, connective tissue, and nerve fibre formation and functioning.
- **Zinc**: It is required for insulin production and the functioning of the male prostate, digestion, and metabolism.

- **Magnesium**: It is required for the development of the immune system and nerve transmission.
- **Sulphur**: It is required for the formation of proteins in the body.

Vitamins:

Vitamins are the chemicals that our body needs in small amounts to function properly.
They work in various ways, primarily by helping the macronutrients. They act as an antioxidant in our body.

Nutritive components of Diet:

Food contains various nutritional elements categorized as macro-nutrients and micro-nutrients. Macro-nutrients are those nutrients our body needs in large quantities that provide calories or energy for growth, metabolism, and other functions. They include carbohydrates, fats, and proteins. Micro-nutrients, such as vitamins and minerals, are involved with cellular and chemical processes in our body and are needed in small quantities. Also, act as antioxidants in our body. E.g., Protein, fat, carbs, vitamins, and minerals.

Protein

It is derived from the Greek word 'Proteas, 'which is 'best substance from foodstuff. '
The majority amount of protein is found in the tissues of the body.
It is also found in blood, teeth, delicate tissues & bones. If we extract water from our body, the maximum percentage of protein will be left behind the body. It is also called nitrogenous food.
Protein is the building block of our life.

Sources of protein:

Animal Protein:- Which we get from animal products. Egg: best example of rich protein because sufficient amounts of amino acids are found in eggs. Found in eggs, milk products, and meat.

Vegetable proteins - which we get from vegetables are called vegetable proteins. Found in pulses, beans, soybean, mustard groundnuts, etc.

Carbohydrate:

Essential nutrient component of the food. Carbohydrate acts like fuel in our body. They provide energy. We also need carbohydrates for the formation of fat. People who indulge in hard work need a maximum amount of carbohydrates. If an excessive amount of carbohydrates are taken by anyone, it will convert into excessive fat.
Source of carbohydrate - rice, Jawahar ok, pulses, dry pea, potato, sugar dates, etc.

Fat

Essential nutrient component of food. Fat provides heat & energy to the body. And also helps in providing lubricant to the body. It helps make the body soft and smooth and protects it from the extreme effects of hot and climate conditions.
For energy, fat is considered better than carbohydrates. Fat can be digested quickly and rapidly if used with carbs in food. If it is available in less quantity in the food, carbohydrates, to some extent, change into fat.
Sources of fat :

Animal source - butter, milk, meat, etc. | vegetable source - soybean mustard oil, potato, etc.

Vitamins:-

Important nutritional components of food, like protein, carbohydrates, and fat. It plays a vital role in a healthy life. Protect from various diseases. Increase the immunity of a body against diseases. Also, helps in the development of the body. If our Diet lacks different vitamins, we may suffer from various deficiency diseases.

Fat-soluble vitamins - these vitamins are easily dissolved in fat.

Water soluble vitamins - these vitamins are soluble in water.

Minerals:-

It is an essential nutritional component of the Diet. They are helpful for the health and general development of the body, proper functioning of the muscles, formation of the tooth, clotting of blood, etc.

Types of minerals

- Calcium
- Phosphorus
- Iron
- Iodine
- Sodium
- Potassium
- Sulfur etc.

Non-Nutritive components of Diet:-

Food contains some components that are not classified with the primary nutrient groups. All sorts of substances can be found in food-natural, intentional, and unintentional. Non-nutritive components of Diet mean components that do not add or supply energy or calories. Non-nutritive components of the Diet are discussed below.

Roughage or Fibres:-

There's no nutritive value. It is the undigested part of the food. It consists of water and improves intestinal function by adding bulk to the food. It prevents constipation.

Types of roughage:

Soluble fibers - can easily dissolve in water, reduce blood sugar fluctuation, and lower cholesterol.

Non soluble fibres - Insoluble fibres .

Thirty grams of fibres is recommended for an adult per day. Fibre reduces the risk of heart diseases & in preventing certain types of cancers.

Water:

It is an essential component of the Diet. Even blood comprises 90% of water. They transport nutrition to the various cell of the body. It is also helpful for the excretion of waste products.

Regulate the body temperature. What is also functions as a lubricant, keeps skin moist, and protects the body from shocks. Generally, 20% of water intake comes from food, and the remaining intake comes from drinking water.

Colour compound:

Food is made more attractive by the wide reflection of colors made possible through pigments. Natural pigments are found in fruit and vegetable. The color derived from animal products and green is less bright.

Plant components:

In addition to color and flavor components, some plants contain other non-nutritive substances that, when consumed, may have beneficial or normal effects—for example:- Coffee and tea, which contains caffeine.

Flavoured compound:

The flavor in foods is derived from both Nutrient & non-nutrient components. It is not easy to recognize the taste or flavor source. Among the non-nutrient components in foods are the organic acids that determine whether foods are acidic or basic. An acidic pH in foods not only contributes to a sour taste but the color of fruit juices, the hue of chocolate in baked products, and the release of carbon dioxide in a flour mixture. An alkaline pH contributes to a bitter taste.

VITAMIN	WHAT IT DOES	WHERE IS IT FOUND
Biotin	• Energy storage • Protein, carbohydrate, and fat metabolism	• Avocados • Cauliflower • Eggs • Fruits (e.g., raspberries) • Liver • Pork • Salmon • Whole grains
Folate/Folic Acid *Important for pregnant women and women capable of becoming pregnant*	• Prevention of birth defects • Protein metabolism • Red blood cell formation	• Asparagus • Avocado • Beans and peas • Enriched grain products (e.g., bread, cereal, pasta, rice) • Green leafy vegetables (e.g., spinach) • Orange juice
Niacin	• Cholesterol production • Conversion of food into energy • Digestion • Nervous system function	• Beans • Beef • Enriched grain products (e.g., bread, cereal, pasta, rice) • Nuts • Pork • Poultry • Seafood • Whole grains
Pantothenic Acid	• Conversion of food into energy • Fat metabolism • Hormone production • Nervous system function • Red blood cell formation	• Avocados • Beans and peas • Broccoli • Eggs • Milk • Mushrooms • Poultry • Seafood • Sweet potatoes • Whole grains • Yogurt
Riboflavin	• Conversion of food into energy • Growth and development • Red blood cell formation	• Eggs • Enriched grain products (e.g., bread, cereal, pasta, rice) • Meats • Milk • Mushrooms • Poultry • Seafood (e.g., oysters) • Spinach
Thiamin	• Conversion of food into energy • Nervous system function	• Beans and peas • Enriched grain products (e.g., bread, cere… ic • Nuts • Pork • …unflow… seeds • …ole g…ns
Vitamin A	• Growth and development • Immune function • Reproduction • Red blood cell formation • Skin and bone formation • Vision	• Cantaloupe • Carrots • Dairy products • Eggs • Fortified cereals • Green leafy vegetables (e.g., spinach and broccoli) • Pumpkin • Red peppers • Sweet potatoes
Vitamin B_6	• Immune function • Nervous system function • Protein, carbohydrate, and fat metabolism • Red blood cell formation	• Chickpeas • Fruits (other than citrus) • Potatoes • Salmon • Tuna
Vitamin B_{12}	• Conversion of food into energy • Nervous system function • Red blood cell formation	• Dairy products • Eggs • Fortified cereals • Meats • Poultry • Seafood (e.g., clams, trout, salmon, haddock, tuna)
Vitamin C	• Antioxidant • Collagen and connective tissue formation • Immune function • Wound healing	• Broccoli • Brussels sprouts • Cantaloupe • Citrus fruits and juices (e.g., oranges and grapefruit) • Kiwifruit • Peppers • Strawberries • Tomatoes and tomato juice
Vitamin D *Nutrient of concern for most Americans*	• Blood pressure regulation • Bone growth • Calcium balance • Hormone production • Immune function • Nervous system function	• Eggs • Fish (e.g., herring, mackerel, salmon, trout, and tuna) • Fish liver oil • Fortified cereals • Fortified dairy products • Fortified margarine • Fortified orange juice • Fortified soy beverages (soymilk)
Vitamin E	• Antioxidant • Formation of blood vessels • Immune function	• Fortified cereals and juices • Green vegetables (e.g., spinach and broccoli) • Nuts and seeds • Peanuts and peanut butter • Vegetable oils
Vitamin K	• Blood clotting • Strong bones	• Green vegetables (e.g., broccoli, kale, spinach, turnip greens, collards, Swiss chard, mustard greens)

MINERAL	WHAT IT DOES	WHERE IS IT FOUND
Calcium *Nutrient of concern for most Americans*	• Blood clotting • Bone and teeth formation • Constriction and relaxation of blood vessels • Hormone secretion • Muscle contraction • Nervous system function	• Almond, rice, coconut, and hemp milks • Canned seafood with bones (e.g., salmon and sardines) • Dairy products • Fortified cereals and juices • Fortified soy beverages (soymilk) • Green vegetables (e.g., spinach, kale, broccoli, turnip greens) • Tofu (made with calcium sulfate)
Chloride	• Acid-base balance • Conversion of food into energy • Digestion • Fluid balance • Nervous system function	• Celery • Lettuce • Olives • Rye • Salt substitutes • Seaweeds (e.g., dulse and kelp) • Table salt and sea salt • Tomatoes
Chromium	• Insulin function • Protein, carbohydrate, and fat metabolism	• Broccoli • Fruits (e.g., apple and banana) • Grape and orange juice • Meats • Spices (e.g., garlic and basil) • Turkey • Whole grains
Copper	• Antioxidant • Bone formation • Collagen and connective tissue formation • Energy production • Iron metabolism • Nervous system function	• Chocolate and cocoa • Crustaceans and shellfish • Lentils • Nuts and seeds • Organ meats (e.g., liver) • Whole grains
Iodine	• Growth and development • Metabolism • Reproduction • Thyroid hormone production	• Breads and cereals • Dairy products • Iodized salt • Potatoes • Seafood • Seaweed • Turkey
Iron *Nutrient of concern for young children, pregnant women, and women capable of becoming pregnant*	• Energy production • Growth and development • Immune function • Red blood cell formation • Reproduction • Wound healing	• Beans and peas • Dark green vegetables • Meats • Poultry • Prunes and prune juice • Raisins • Seafood • Whole grain, enriched, and fortified cereals and breads
Magnesium	• Blood pressure regulation • Blood sugar regulation • Bone formation • Energy production • Hormone secretion • Immune function • Muscle contraction • Nervous system function • Normal heart rhythm • Protein formation	• Avocados • Bananas • Beans and peas • Dairy products • Green leafy vegetables (e.g., spinach) • Nuts and pumpkin seeds • Potatoes • Raisins • Wheat bran • Whole grains
Manganese	• Carbohydrate, protein, and cholesterol metabolism • Cartilage and bone formation • Wound healing	• Beans • Nuts • Pineapple • Spinach • Sweet potato • Whole grains
Molybdenum	• Enzyme production	• Beans and peas • Nuts • Whole grains
Phosphorus	• Acid-base balance • Bone formation • Energy production and storage • Hormone activation	• Beans and peas • Dairy products • Meats • Nuts and seeds • Poultry • Seafood • Whole grain, enriched, and fortified cereals and breads
Potassium *Nutrient of concern for most Americans*	• Blood pressure regulation • Carbohydrate metabolism • Fluid balance • Growth and development • Heart function • Muscle contraction • Nervous system function • Protein formation	• Bananas • Beet greens • Juices (e.g., carrot, pomegranate, prune, orange, and tomato) • Milk • Oranges and orange juice • Potatoes and sweet potatoes • Prunes and prune juice • Spinach • Tomatoes and tomato products • White beans • Yogurt
Selenium	• Antioxidant • Immune function • Reproduction • Thyroid function	• Eggs • Enriched pasta and rice • Meats • Nuts (e.g., Brazil nuts) and seeds • Poultry • Seafood • Whole grains

EXERCISE

MCQ's-

1. Vitamin _____ makes teeth and bones strong.
(A) A
(B) B
(C) C
(D) D

2. Which of the following is a Micro-nutrient?
(A) Carbohydrates
(B) Fats
(C) Water
(D) Vitamins.

3. Which of the following is a macro mineral?
(A) Iodine
(B) Iron
(C) Copper
(D) Calcium

4. Which nutrient is the chief fuel for muscular contraction?
(A) Carbohydrates
(B) Fats
(C) Proteins
(D) Vitamins

5. There is no prominent evidence that additional amount of _____ improves the performance.
(A) Fats
(B) Minerals
(C) Vitamins
(D) Water

6. Which of these is not a symptom of food intolerance?
(A) Nausea
(B) Binging
(C) Stomach pain
(D) Nervousness

7. Which of these is not a food myth?
(A) Eggs increase cholesterol levels, so avoid them.
(B) Drinking while eating makes you fat.
(C) Binging is good for health.
(D) Starve yourself if you want to lose weight.

8. Extreme reduction in calories is a ?
(A) food myth
(B) pitfall of dieting
(C) symptom of food intolerance
(D) way to manage food intolerance

9. What is the calculation method of BMI?
(A) Height Weight ´ Weight
(B) Height Height Weight ´
(C) Weight Height ´ Height
(D) Weight Weight Height ´

10. _____ are actually the organic compounds that are important for different digestive operations in our bodies.
(A) Carbohydrates
(B) Vitamins
(C) Minerals
(D) Proteins

Q. 15 What is the approximate composition of water in our body?
(A) one-half
(B) one-third
(C) two-third
(D) three-fifth

VERY SHORT QUESTIONS (PYQ's)

1. What is balanced diet? **Delhi 2014.**

2. What are fats? **Delhi 2013**.

3. What are vitamins? **All India 2014, 2010.**

4. Enlist two sources of calcium and iron separately. **Delhi 2015.**

5. Enlist two non-nutritive components of diet. **All India 2015.**

6. Name the types and sources of roughage. **All India 2010.**

SHORT ANSWER QUESTIONS (PYQ's)

1. What is the difference between macro and micro nutrients? **All India 2011**.

2. What are nutritive and non-nutritive components of diet? **Explain. Delhi 2017.**

3. Write briefly about protein as an essential component of diet. **All India; Delhi 2016**.

4. List down the nutritive com ent f di t a d exp in a y **20.**

5. What do you understand by non-nutritive component? Elucidate any four non-nutritive components of diet. **CBSE 2020.**

LONG ANSWER QUESTIONS (PYQ's)

1. What do you mean by balanced diet and nutrition? Explain. **Delhi 2012.**

2. Explain any five essential elements of diet. **Delhi 2014.**

3. 'Vitamins are essential for our metabolic process'. What happens if we devoid our diet of vitamins? **All India 2012.**

4. Vitamins are very essential for working of the body and are divided into two groups. Explain about them. **All India 2015.**

5. Explain macro nutrients and role in our diet. **CBSE 2019.**

Note: You can easily read and download answers from our website freely.

Website: https://zakisaudagar.in

UNIT 6: TEST & MEASUREMENT IN SPORTS

CONTENT:

- *Fitness Test – SAI Khelo India Fitness Test in school: o Age group 5-8 yrs class 1-3: BMI, Flamingo Balance Test, Plate Tapping Test o Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit & Reach flexibility test, Strength Test (Abdominal Partial Curl Up, Push-Ups for boys, Modified Push-Ups for girls).*
- *Computing Basal Metabolic Rate (BMR)*
- *Rikli & Jones - Senior Citizen Fitness Test*
  - *I. Chair Stand Test for lower body strength*
  - *II. Arm Curl Test for upper body strength*
  - *III. Chair Sit & Reach Test for lower body flexibility*
  - *IV. Back Scratch Test for upper body flexibility*
  - *V. Eight Foot Up & Go Test for agility*
  - *VI. Six Minute Walk Test for Aerobic Endurance*

INTRODUCTION

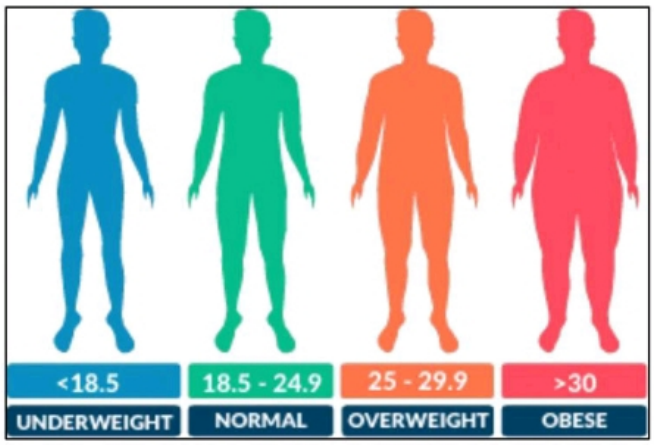
- Test & measurement is the instrument for getting crucial details regarding students' or sportsperson's needs, capacities, abilities, and attitudes. Every task and work needs evaluation. Evaluation relies upon tests and measurement. It is essential to check the progress of an individual.
- The test provides data or scores which can be measured and evaluated. A test helps to collect data that can be used for additional improvement.
- In Physical Education, tests are used to gather information or data about a specific skill, endurance, strength, attitude, and knowledge & measurement are related to measuring size, weight, height, vital capacity, achievement, etc.

SAI Khelo India Fitness Test in school

Age group 5-8yrs/ class 1-3:-

1. Body Mass Index (BMI)

Body Composition refers mainly to the distribution of muscle and fat in the body. Body size such as height, length, and girth are also grouped under this component. The test performed is (BMI), which is calculated from body Weight (W) and height(H). BMI = W/(H x H), where W is body weight in kilograms and H is height in meters. The higher the score usually indicates higher the levels of body fat.



Measuring Height Accurately:

- Remove the participant's shoes, bulky clothing, hair ornaments & unbraid hair that hinders the measurement.
- Take height measurements on flooring that is not carpeted and against a flat surface, such as a wall with no molding.
- Have the participant stand with their feet flat together, back against the wall. Ensure legs are straight, arms are at the sides, and shoulders are level.
- Ensure the participant is looking straight and that the line of sight is parallel with the ground.
- Take the measurement when the participant stands with head, shoulders, buttocks, & heels touching the flat surface (i.e., wall). Depending on the normal body shape of the participant, all points may not touch the wall at the same time.
- Use a flat headpiece to create a right angle with the wall & lower the headpiece until it touches the crown of the head.
- Also, make sure the measurers' eyes are at the same level as the headpiece.
- Lightly label where the bottom of the headpiece meets the wall.
- Then, utilize a metal tape to calculate from the base on the floor to the marked measurement on the wall to get the participant's height measurement.
- Accurately register the height to the nearest 0.1 cm.

Measuring Weight Accurately:

- Use a digital scale.
- Avoid using spring-loaded bathroom scales.
- Place the scale on hard flooring (such as wood or tile) rather than carpet.
- Have the participant remove shoes & heavy clothing, such as sweaters or jackets.
- Have the participant stand with their feet in the middle of the scale.
- Record the weight to the closest decimal fraction (for example, 25.1 kilograms).

2. Plate Tapping Test:-

What does it measure:- It tests the speed and coordination of limb movement.

How to Perform:

If possible, the table height should be modified so that the participant is standing comfortably in front of the discs.

- The two yellow discs are positioned with their centres 60 cm apart on the table. The rectangle is set equidistant between both discs.
- The non-preferred hand is positioned on the rectangle.
- The participant moves their preferred hand back and forth between the discs over the hand in the centre as fast as possible.
- This action is replicated for 25 full cycles, which is 50 taps.

Equipment Required:
Table (with adjustable height), two yellow discs (20cm diameter each), rectangle (30 x 20 cm), and a stopwatch.

Scoring:
The time taken to complete 25 cycles (50 taps) is recorded.

Test Administrative:
Participants should be provoked to stand in a balanced posture and feet apart to shoulder width. Results are normally better if the participant can maintain a constant speed during most of the run.

3. Flamingo Balance Test:

What does it measure:-
The ability to balance successfully on one single leg. This single leg balance test evaluates the strength of the leg, pelvic, and trunk muscles as well as Static balance.

How to Perform:-
Stand on the beam, and keep balance by holding the instructor's hand (if required to start).

Equipment Required:-
Non-Slippery even surface and stopwatch it can be done by just standing on a beam.
During balancing on the preferred leg, the free leg is flexed at the knee, and the foot of this leg is held close to the buttocks.

Scoring:

- The total number of losses or falls of balance in 60 seconds of balancing is recorded.
- Watch is started as the instructor lets go of the participant.
- If there are greater than 15 falls in the starting 30 seconds itself, then the test is terminated.
- Pause the stopwatch every time the participant loses balance (either by falling off the beam or letting go of the foot being held).
- Resume cover again timing until they lose balance.
- And count the number of falls in 60 seconds of balancing.

Administrative Suggestion:
Participants should be encouraged to keep their eyes focused on a stationary object straight ahead.

Age group 9-18yrs/ class 4-12:

1. Partial Curl-Up:

The curl-up test measures abdominal muscular strength and endurance of the abdominals and hip-flexors, which are significant in back support and core stability.

How to Perform:-

- The subject lies on a flat, cushioned, and clean surface with knees flexed, normally at 90 degrees, with hands straight on the sides with palms facing downwards closer to the ground and parallel to the body.

- The participant raises the trunk in a smooth motion, keeping the arms in position and curling up the preferred amount (at least 6 inches above the ground towards the parallel strips).
- The trunk is dropped back to the floor so that the upper back or shoulder blades touch the floor.

Equipment Required:

Clean, flat & cushioned surface with two parallel strips (which are 6 inches apart), Recording sheets, Pen, and stopwatch.

Scoring:

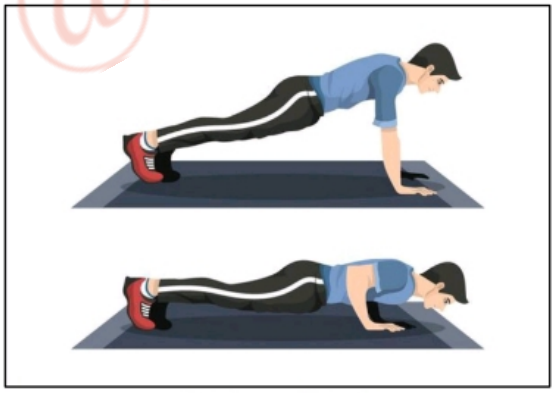
Record the highest number of Curl ups in a time period of 30 seconds.

Administrative Suggestion:

Participants should be urged to keep a normal breathing rate. Results are usually better if the subject can maintain a constant pace during the activity.

2. Push-up Boys & Modified Push-up for Girls:

Upper body strength, endurance, and trunk stability.



Push up (Boys)

How to Perform:

- A standard push-up starts with the hands and toes touching the ground, the body and legs in a straight line, feet slightly apart from one another, and the arms at shoulder width separated, extended, and at a right angle to the body.
- Keeping the back & knees straight, the participant lowers the body to a predetermined point to touch some other object, or until there is an angle of 90-degree with the elbows, then returns back to the beginning position with the arms extended.
- This movement is repeated, and the test continues until exhaustion, or until they can not do any more in rhythm or have reached the target number of push-ups.

For Girls:

The push-up technique is with the knees resting on the ground.

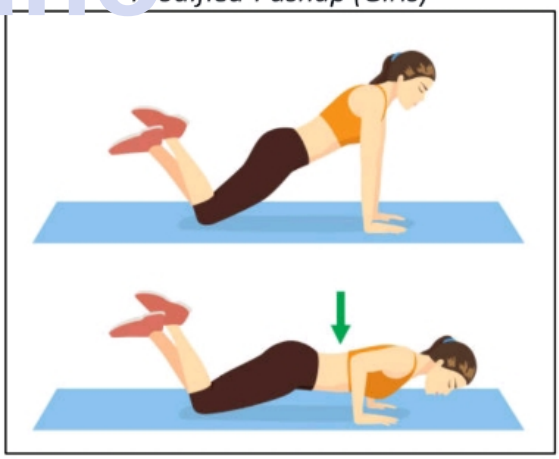
Equipment Required:

Flat, clean, cushioned surface/Gym mat

Scoring:

Record the number of correctly completed push-ups

Modified-Pushup (Girls)



Administrative Suggestion:

- Participants should be encouraged to emphasize keeping their backs straight.
- Results are generally better if the participant can maintain a constant pace during the activity.

3.Sit and Reach test:

What does it measure:

A standard measure of flexibility specifically measures the flexibility of the lower back & hamstring muscles. This test is significant because tightness in this region is implicated in lumbar lordosis, lower back pain, and forward pelvic tilt.

How to Perform:

- This test involves sitting on the ground with legs stretched out straight forward.
- Shoes don't need to be removed. The soles of the feet are positioned flat against the Sit & Reach box.
- Both knees should be locked & pressed flat to the floor – the tester may assist by holding them down.
- With the palms facing downwards, and the hands-on top of each other, the participant reaches forward along the measuring line as far as attainable.
- Assure that both hands remain at the same level, not one going further forward than the other.
- After some practice, the participant reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Equipment Required:

Sit & reach box with the following dimensions:- 12" x 10" (front & back) 12" x 12" (sides) 12" x 21" (top) mark the top panel with cm/mm gradations.

The vertical plane against which the participant's feet will be placed must be exactly at the 23 cm mark. Flat clean cushioned surface/Gym Mats

Scoring:

The score is recorded (difference between the starting position and final position), in cm and mm, as the distance reached by the hand.

Administrative Suggestion:

- Proper warm-up & static stretching of the lower back and posterior thigh is very important for this test. A partner placing their hands lightly across the knees can prevent the flexing of the knees.
- Keep the hands over each other (like a fish pose). In order to control the test apparatus from sliding away from the subjects during the test, it should be placed against an immovable object like a wall.
- The test trials repeated if:-
  - The hands reach out unevenly or
  - If The knees are flexed at the time of doing the test.

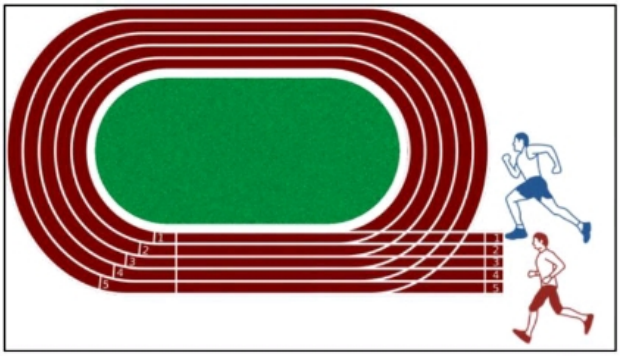
4. 600-meter Run/Walk:

What does it measure:

Cardiovascular Fitness/Cardiovascular Endurance

How to Perform:

- Participants are instructed to run 600 meters at the fastest achievable pace.
- The participants initiate on signal, "ready, start," as they cross the finish line; elapsed time should be informed to the participants.
- Walking is permitted, but the aim is to cover the distance in the fastest or shortest possible time.



Equipment Required:
Whistle, stopwatch, marker cone, lime powder, measuring tape, 200 or 400 meters with 1.22 meter (minimum 1 meter) width, preferably on a flat and an even playground with a marking of starting and finish line.

Scoring:
Time is taken for completion (Run or Walk) in min, sec.

Administrative Suggestion:

- Participants should be motivated to practice running with emphasis placed on the concept of pace.
- Results are generally better if the participant can maintain a steady pace during most of the run and perhaps use a strong closing effort.

5. 50-meter Dash (standing start)

What does it measure: Determines acceleration and speed

How to Perform:

- A thorough warm-up should be given, including some practice starts and accelerations.
- Start from a static position, with one foot in front of the other. The front foot must be either on or behind the starting line. This beginning position should be static (dead start).
- The tester should provide suggestions for maximizing speed (such as keeping low and driving hard with the arms and legs) and be encouraged to continue running hard through the finish line.

Equipment Required:
Measuring tape or marked track, cone markers, stopwatch, flat and clear surface of at least 60 meters.

Scoring: Time is taken for completion

Administrative Suggestion:

- Participants should be provoked to practice running with stress placed on the concept of pace.
- Results are usually more satisfactory if the participant can maintain a constant pace during most of the run and perhaps use a strong closing effort.

Computing Basal Metabolic Rate:

Basal metabolic rate, also called (BMR) is the total number of calories or minimum level of energy that our body requires to execute basic functions such as breathing, circulation, digestion, cell production, nutrient processing, ion transport, and protein synthesis, etc. That means all our bodily processes that happen beyond our control.

Calculate your BMR:
You can find BMI by using a formula developed by scientists, or you can get it tested in a lab. You can also use an online calculator.

Often the Harris-Benedict equation is used to estimate basal metabolic rate (BMR).

For Men:- BMR = 88.362 + (13.397 x weight in kg) + (4.799 x height in cm) – (5.677 x age in years)

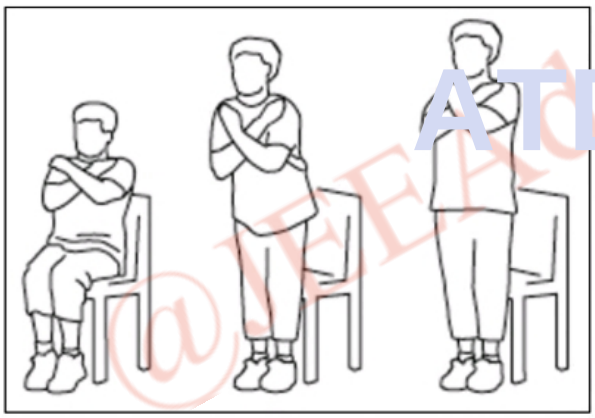
For Women:- BMR = 447.593 + (9.247 x weight in kg) + (3.098 x height in cm) – (4.330 x age in years)

Rikli & Jones Test:

The senior citizen fitness test was designed by Roberta Rikli & Dr Jessie Jones. This test consists of six comfortable & simple tests that assess the functional fitness of senior citizens.

1. Chair Stand Test:

This test is to check leg strength & muscle endurance.



Requirements:

Straight back chair without arms about 45 cm high and stopwatch.

Test Administration:

- Position the chair against the wall
- The person sits on the chair with their feet apart
- Arms crossed at the wrist & held close to the chest
- From a sitting position, stand completely
- Repeats for 30 seconds
- The number of complete chair stands is scored.

2. Arm Curl Test-

This test measures upper body strength & endurance. The goal is to do as many arm curls in 30 sec.

Requirements:

- 4-pound dumbbell for women and 8 pounds for men.
- A chair without an armrest.
- [illegible] to watch.

Test Administration:

- The person sits on the chair carrying the dumbbell, arms vertically downward.
- Curl their forearm up through a full range of motion
- The number of complete curl-up actions is the score.

3. Chair Sit and Reach test:

The purpose of this test is to measure lower body flexibility.

Requirements:

Ruler, Straight back Chair 45 cm high.

Test Administration

- The subject sits on the end of a chair.
- One foot is on the floor, and the other foot is extended with the knee straight.
- Exhale and reach towards the toe.
- Keep the back straight and head up.

- Hold the reach for 2 seconds.
- Perform the test twice & consider the best.

4. Back Scratch Test:

The back scratch test measures the general range of motion of the shoulder. It requires a ruler.

Test Administration-

- This test is done in a standing position.
- One hand is placed behind the head over the shoulder.
- Place the other hand behind the back. And fingers up.
- Now try to touch both arms and fingers.
- Try the test twice & consider the best.

5. 8 Feet Up And Go Test:

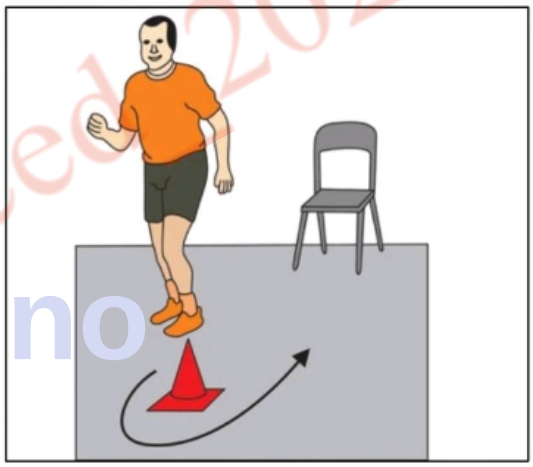
This test is created to measure speed, agility, and balance while moving.

Requirements:

Stopwatch, straight back chair, measuring tape & Cone markers.

Test Administration:

- Position a chair against the wall.
- Keep one cone eight feet away in front of a chair.
- The person sits on the chair & hands resting on the knees.
- On the command 'Go,' a person stands up and walks around the cone as quickly as possible and sits down on the chair.
- Scoring is counted based on the time taken to perform.

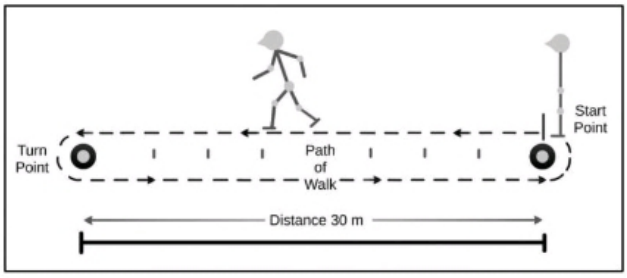


6. 6 Minute Walk Test:

This test is performed to measure Aerobic fitness.

Requirements:

Measuring tape to mark track distance, chair for rest, and stopwatch.



Test Administration:

- The walking track is laid in a rectangle area with cone marking.
- A person walks as quickly as possible for six minutes to cover the maximum distance.
- A person can set their own pace and can stop to take a rest.
- Measure in meters the distance covered by a person in six minutes.

EXERCISE

MCQ's-

1. Which of these is not a component of motor fitness test?
(A) Agility
(B) Balance
(C) Coordination
(D) Endurance

2. When was AAHPERD Youth Fitness Test revised?
(A) 1972
(B) 1976
(C) 1988
(D) 2002

3. 600-yard run/walk is conducted to test.
(A) Speed
(B) Flexibility
(C) Endurance
(D) Agility

4. How many forms are there for Harvard Step Test?
(A) 1
(B) 2
(C) 3
(D) 4

5. Sit & reach test is conducted for
(A) Flexibility
(B) Motor fitness
(C) Endurance
(D) Speed

6. Flexibility is the range of motion around a __.
(A) joint
(B) cell
(C) arm
(D) leg

7. Flexibility is determined by elasticity of muscles, tendons and _____.
(A) cell
(B) skin
(C) ligaments
(D) tissue

8. Sit & Reach Test is performed after__
(A) cooling-down
(B) warming-up
(C) warming-down
(D) cooling-up

9. Arm Curl Test measures ____
(A) Upper body strength
(B) Lower body strength
(C) Limb strength
(D) Head strength

10. Back stretch test is used to measure __ .
(A) Overall Speed
(B) Upper body Flexibility
(C) Lower body Power
(D) Whole body Movement

11. Which of these is needed for Eight Foot Up & Go Test?
(A) Shoes
(B) Stop watch
(C) Walking stick (D) Obstacles

VERY SHORT QUESTIONS (PYQ's)

1. Which test would you suggest for your grandmother to test lower body flexibility? **All India 2015.**

2. Your grandmother feels she has reduced her upper body flexibility and therefore she wants to test herself. Which test would you suggest her? **All India 2017; Delhi 2015.**

SHORT ANSWER QESTIONS (PYQ's)

1. Explain the purpose and procedure of any two batteries for the Motor Fitness Test. **CBSE 2020.**

2. Explain the ''Eight Foot Up and Go'' Test for measuring agility and dynamic balance. **CBSE 2018.**

Or

Explain the procedure for Eight Foot Up and Go Test. **All India 2016.**

LONG ANSWER QUESTION (PYQ's)

1. Describe the procedure for administering the Rikli and Jones Senior Citizen Fitness Test. **CBSE 2014.**

UNIT 7: Physiology & Injuries in Sports

CONTENT:

- *Physiological factors determining components of physical fitness*
- *Effect of exercise on Muscular System*
- *Effect of exercise on Cardio-Respiratory System*
- *Sports injuries: Classification (Soft Tissue Injuries -Abrasion, Contusion, Laceration, Incision, Sprain & Strain; Bone & Joint Injuries - Dislocation, Fractures - Green Stick, Comminuted, Transverse Oblique & Impacted)*

INTRODUCTION

- Physiology and sports are all about improving performance by knowing how our body works during exercise. We can train our bodies better and more effectively using scientific principles.
- Physiology deals with the functioning of the body systems and their effects. Through regular training, the physiological function of the body system can be improved, and thus body efficiency also increases a lot.
- In other words, physiology is basically the study of how exercises or sports activities alter the structure and functioning of our body.

Physiological Factors Determining Components of Physical Fitness

Physiological factors determine the components of physical fitness. The main features of physical fitness are speed, strength, flexibility, endurance, etc. are as follows:-

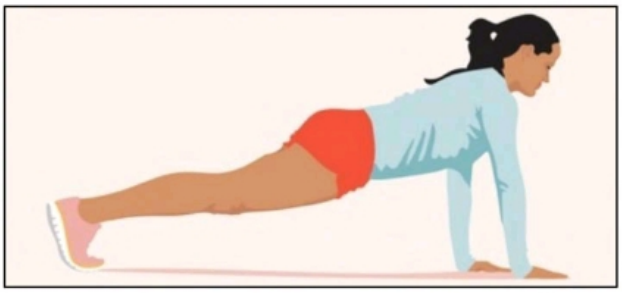
Physiological Factors Determining Strength:

Strength: The maximum amount of force that a muscle or group of muscles can exert during a single contraction.

- **Size of the Muscle:** The muscle's size determines an individual's strength. It is well-known that bigger sizes and larger muscles can produce more force.
- **Body Weight:** There is a correlation between body weight and strength. It has been noticed that someone's with heavier body weights are stronger than someone with lighter weights.
- **Muscular composition:** Concentric and Eccentric muscular contraction regulates our muscular action in a controlled manner. Muscles that contain more percentage of fast twitch fibers produce more strength. The fast twitch fibers can contract much quicker & thus. They can produce more force. On the other hand, the slow twitch fibers are not capable of contracting faster, but they are capable of contracting for a longer duration.
- **Age & Gender:** Age is a factor that affects muscle strength. Muscle strength is maximum generally in the age of 15-30 years. Male has more strength as compared to females.
- **Nerve Impulse:** The nervous system also play an essential role in muscle strength. Impulses produced by the Nervous System control muscle contraction.

Physiological Factors Determining Endurance:-

Endurance refers to your body's physical capability to sustain an exercise for an extended period.



- **Aerobic Capacity:** It refers to the capacity to maintain adequate oxygen O2 in the working muscles of the human body. This impacts the level of endurance of individuals.
  - **Oxygen Intake:** This is the amount of oxygen the lungs take. This intake depends on the vital capacity, lung size, the strength of lung muscles, and chest cavity size.
  - **Oxygen Uptake:** It is the amount of O2 that can be absorbed & consumed by the muscles from the blood.
- **Lactic acid tolerance:** More lactic acid tolerance delays fatigue and tiredness, which improves endurance.
- **Muscle Composition:** The Slow twitch fibers are beneficial for endurance. Thus, muscle composition containing more slow twitch fibers is good for endurance activities.
- **Movement Economy:** The economic movements are essential for endurance performance. A runner who can run at a given pace with less energy use can continue at the same speed for longer. From a movement economy, we can save energy.

Physiological Factors Determining Speed:

Speed: It is the rate at which someone can move all or part of their body when performing a movement or covering a distance.

- **Flexibility**: Flexibility also determines the speed to a particular dimension. In fact, good

flexibility allows maximum range of movement without much internal resistance. Flexibility also enables the complete utilization of explosive strength.

- **Explosive Strength:** It is a very quick and explosive movement. Explosive strength is essential. It depends upon metabolic rate, muscle coordination, and muscle size. The explosive force of muscles can be enhanced through regular training, which will also improve the speed.
- **Muscle Composition:** Muscles consist of 2 types of fibers, i.e., fast twitch fibers (aka white fibers) and slow twitch fibers (aka red fibers). A person containing more fast twitch fibers will have greater speed.
- **ATP energy store:** More ATP (Phosphagen) stores, the faster the energy release, which helps to improve speed.
- **Mobility of the Nervous System:** The instantaneous contraction & relaxation of the muscles occur due to the nervous system's quick excitation. The rapid movements give more magnific speed.

Physiological Factors Determining flexibility:

- **Age and Gender:** The age of a person & gender determines the level of flexibility. It decreases with the passage of age. Women are more flexible than men. It can be improved with the help of training, as strength & endurance are improved.
- **Joint Structure:** The human body has different types of joints. Some of the joints naturally have a greater range of motion, E.g., the ball & socket joint of the shoulder has the most excellent range of motion compared to the knee joint.
- **Previous Injury:** Injuries to connective tissues & muscles can lead to fibrosing on the affected area. Fibrous tissues are less elastic & can lead to limb shortening & eventually lead to reduced flexibility.
- **Ligament Elasticity:** Ligament connects two bones. More the elasticity of the ligament, the greater the flexibility of the joints.

Effect of exercises on various systems

Exercises Physiology optimizes our body's cardiovascular, respiratory, nervous, muscular, and endocrine systems. Exercises are a vital part of our lifestyle. It increases various demands on our bodies. As a result, our body starts compensating for demand by increasing muscle tissues and neural connections.

Effects of Exercise on Cardiorespiratory System:

- **Increase in Heart Size:** Regular exercises develop the heart muscles. It grows the size of the heart along with strengthening the heart.
- **Increased Blood Circulation:** As the heart rate increases, blood circulation increases in the body to deliver oxygen to muscles. As a result, the flow or movement of blood increases to tissues or organs.
- **Increased Blood Pressure:** Endurance exercise leads to an increase in systolic blood pressure, directly proportional to the increase in exercise intensity. The raised systolic blood pressure is a cause of the increased cardiac output that accompanies increasing work rates. With most types of training, there is the tiniest change in diastolic blood pressure.
- **Increased Stroke Volume:** The volume of blood pumped during one beat or contraction is called stroke volume. During exercise, stroke volume boosts as more oxygen is required, which is accomplished by delivering blood to muscles. After an endurance training program, the capacity of the heart to pump blood in one contraction increased by 20 to 50 percent.
- **Increased Size and Strength of Heart:** Continuous aerobic exercises help to increase the strength and the size of the heart, which helps in better performance. It is also referred to as cardiac hypertrophy.
- **Decrease in Resting Heart Rate:** Due to the improved efficiency of the heart, it is needed to pump less blood to meet the body's needs. As a result, heart rate at rest reduces.
- **Normal Blood Pressure:** In response to endurance training, there can be a substantial reduction in both systolic & diastolic blood pressure. Regular exercise helps in keeping the blood pressure normal.
- **Respiratory Rate Increases:** Our body requires more oxygen during exercise, and to meet this increased demand, the respiratory rate (breathing rate) increases. The standard respiration rate for a grown-up at rest is 12 to 20 breaths per minute. But during exercises, it can increase to 40 breaths per minute.

Effects of Exercise on Muscular System:

Muscular system of the body plays a vital role in the body's functioning. Exercise works as motivation and gives stress to muscles. It improves both the strength & endurance of the muscular system of a person.

- **Muscular Size:** Although a person's genes largely determine muscle size (and other physical characteristics such as height), muscle size is also affected by the intensity of exercises. For example, in weightlifting, the diameter of the muscles increases.
- **Delays Fatigue:** Regular exercise delays the onset of fatigue as exercise develops the fitness levels and increases endurance, thereby delaying fatigue.
- **Maintaining Toned Muscles:** Regular exercise helps keep the muscles in a toned position. Muscles become firm and maintain a slight and steady pull on the attachments.
- **Control Your Weight:** Exercise is essential in controlling your weight and obesity. To maintain weight, the calories you eat and drink

must equal the energy you burn. To lose weight, you must use more calories than you intake.

- **Increased muscle flexibility:** Due to an increase in blood flow and temperature increase in the elasticity of muscles. Mobility and stretching exercises also play a dominant role in increasing muscular flexibility.
- **Increase in Size & No. of Mitochondria:** Aerobic exercises lead to growth in size and numbers of mitochondria, which take in more oxygen and produce more ATP & energy.
- **Increase in Endurance:** If exercise is performed regularly and for a more extended period, it increases endurance.

SPORTS INJURIES:

In sports, injuries are very common & they can occur to anyone at any time. Injury causes damage to any internal and external parts of the human body, affecting individuals' health. It can be classified as:

Soft Tissue Injuries:

The most common soft tissues injured are tendons, muscles, and ligaments. These injuries usually occur during sports and exercise, but sometimes simple everyday activities can cause an injury. Sprains, strains, contusions, Abrasion, Laceration, and Incision, are common soft-tissue injuries.

Classification of Soft tissue Injuries:

Abrasion

Injuries most commonly occur due to moving contact with a rough surface, causing a rubbing away of the upper surface layers of the body.

Cause: Abrasion injuries commonly occur when exposed skin comes into contact with a rough surface, caused by rubbing away the upper layers of the body.

Treatment: Clean the surface of the affected part and try to stop bleeding at the earliest by compression bandages.

Contusion

It happens due to a direct hit by any tangible thing. In contusion, blood vessels in the muscle are broken and sometimes bleeding may occur.

Cause: When enough force strikes a part of the body to crush underlying muscle fibers & connective tissue without damaging the skin, a contusion may occur. It can also be due to a blow from a collision with a player, a piece of equipment, or a heavy fall.

Prevention: All the safety gear to be worn while playing (Helmet, anal guards) should be worn.

Treatment:- Anti-inflammatory drugs or other medications for pain relief as prescribed by the doctor.

Laceration

A laceration is a deep cut or tearing of your skin. In the circumstances of deep lacerations, bleeding can be rapid and extensive. Accidents with knives, tools, and machinery are frequent causes of lacerations.

Cause: laceration results from the skin hitting an adjacent object or an object striking the skin with much force.
Prevention: Proper personal safety equipment, including eye protection, can help prevent the same.
Treatment: Clean the surface of the affected part. Stop bleeding quickly with compression bandages.

Strain:

Strain is a muscle injury that can be mild or severe. It is tearing a muscle or tissue connecting muscle to bone (tendon).
Cause: Strains occur suddenly (acute strain) or develop slowly over time (chronic strain). It includes lifting heavy objects, running, jumping, throwing, etc.
Prevention: Regular stretching and strengthening exercise for any sport can be the preventive measure against strain.
Treatment: It can be managed by applying ice packs and maintaining the strained muscle in a stretched position. (RICE: rest, ice, compression, and elevation).

Sprain

Sprain is the stretching or tearing of ligaments, the fibrous tissue which connects bones in the joints. A sprain may occur when you overextend or tear a ligament while stressing a joint. The most typical location for a sprain is the ankles.

Cause: A sprain occurs when one overextends or tears a ligament while severely straining a joint.
Prevention: Regular stretching and strengthening exercises for any sport can be the preventive measure for such a sports injury.

Incision

Incision is a soft tissue injury. It may occur due to sharp-edged objects of sports Equipment or spikes

etc. Blood usually comes out freely from the incision. Sometimes arteries or veins may be cut.
Cause: It can be caused by a clean, sharp-edged object like a razor, knife, or glass splinter.
Prevention: The area should be made free from sharp edges.

Treatment: Carefully wash the affected area with soap & water to remove the dirt. Dry the incision with a clean and fresh towel before applying the dressing.

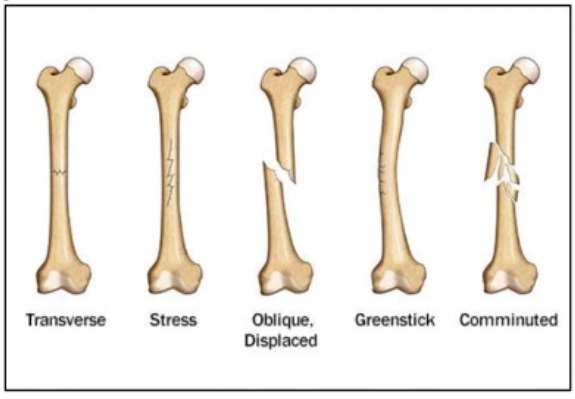
Bone & Joint Injuries:

Hard Tissue Injuries

Fracture:

A fracture is a broken bone. It can range from a light crack to a complete break. Bone can fracture lengthwise, crosswise, in several places, or into many pieces. Mostly fractures happen when a bone is impacted by more force or pressure than it can support.

Types of Fractures:



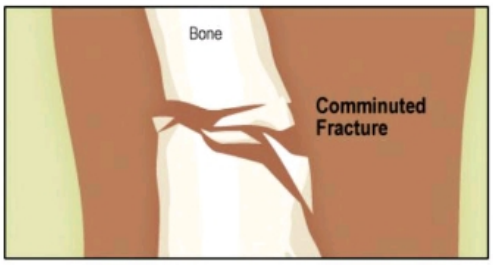
Greenstick:

A fracture in a young, soft bone in which the bone bends is called greenstick.
Causes: These fractures commonly occur with a fall.
Prevention: Promoting regular exercise and ensuring the child's safety by equipping proper safety equipment & adequate calcium in the diet can also help in preventing this kind of fracture.

Treatment: Removable splints result in better outcomes than casting in children with Lorus distal radius fractures.

Comminuted:

A fracture in which a bone is broken, splinted, or crushed into several pieces.



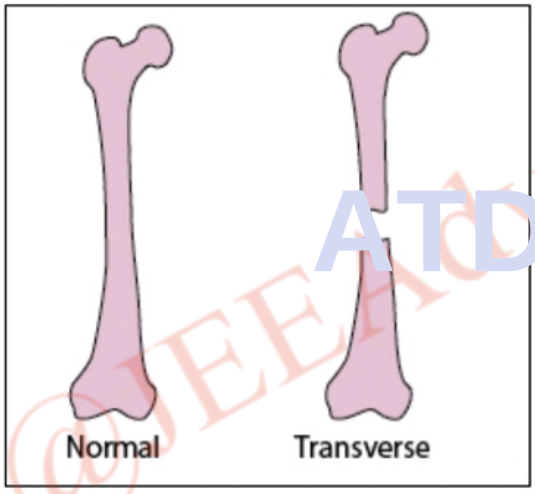
Causes: Direct and indirect trauma or violence can be causes of commutated fracture.

Prevention: Maintaining strong bones by eating food rich in calcium and regular exercise can help prevent this type of fracture.
Treatment: An X-ray is important for diagnosing the condition. An open reduction is when the bone fragments are jammed together using surgical nails, wire plates, etc., which is required for commutated fracture.

Transverse

Transverse fractures are complete fractures that traverse the bone perpendicular to the axis of the bone.

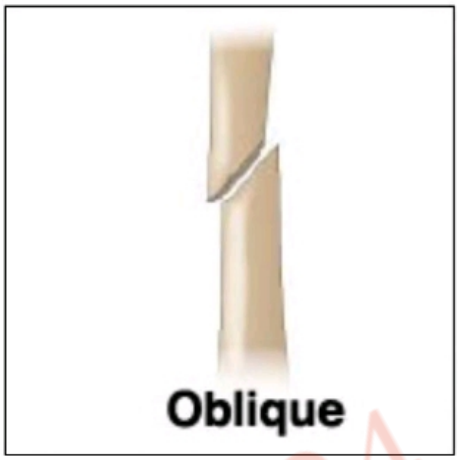
Causes: When a large force is transmitted directly or perpendicularly to the bone.



Prevention: Physical activity and weight-bearing exercises will strengthen bones and make them denser. Bones can also be strengthened by eating calcium-rich foods and regular exercise.
Treatment: Can be treated at home along with rest & medicine. An abdominal binder or back brace (called TSL) may be prescribed to relieve the pain by limiting motion at the fracture site.

Oblique:

An oblique fracture is one in which the bone breaks diagonally.



Causes An injury usually causes this fracture to the bone as the result of a fall, accident, or other trauma.
Prevention: Bones can be strengthened by eating food rich in calcium and exercising regularly to help prevent this type of fracture.
Treatment: It relies upon the severity of the crack or break. Anti-inflammatory medication reduction can also help to some extent.

Impacted

This type of fracture happens when the broken ends of the bones are crammed together by the force of the injury.

Causes: It is caused when someone falls from a height with a significant impact.
Prevention: Increased physical activity, weight-bearing exercises, and a good
intake of calcium in food can help prevent this type of fracture.

Treatment: In an impacted fracture and the bones get broken into fragments. Therefore, a splint or a sling may be required to keep the fractured bones in place, such that movement of the sharp ends of the broken bone is controlled. This is critical to prevent further damage to the bone.

Dislocation:

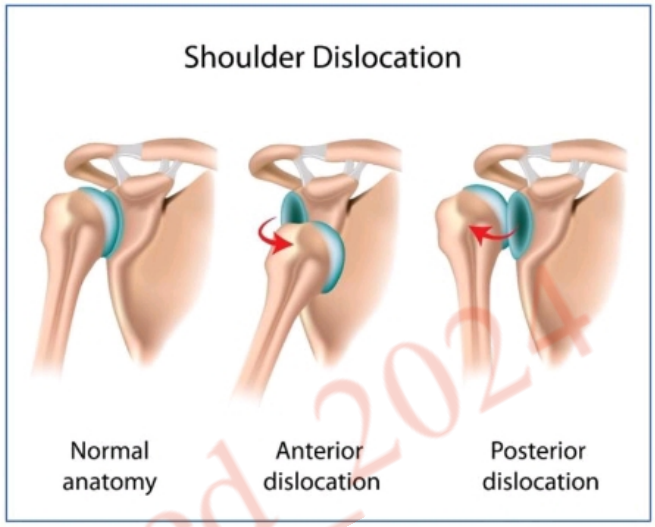
Dislocations are joint injuries that force the ends of your bones out of position. A joint dislocation, also called luxation, occurs when there is an abnormal separation in the joint, where two or more bones meet. A dislocated joint can be treated through medication, manipulation, rest or surgery.

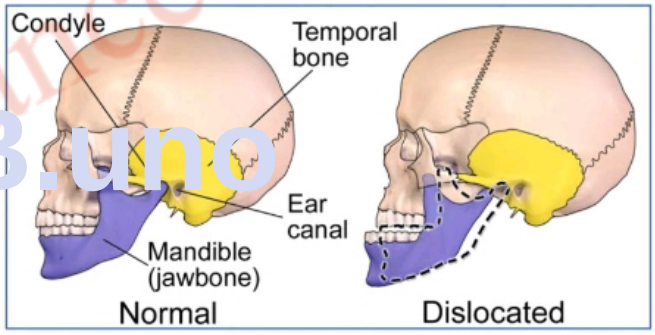
Causes - Trauma that forces a joint out of place causes a dislocation. Accidents, falls, and contact sports such as football are common causes of this injury. Dislocations also occur during regular activities when the muscles and tendons surrounding the joint are weak. These injuries happen more often in older peor[illegible] wh[illegible]ve weaker muscles and balance issues.

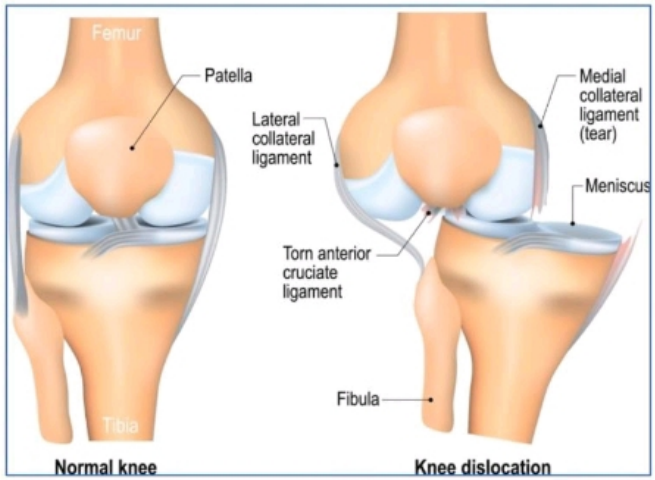
Symptoms - Symptoms of a dislocation vary depending on the severity and location of the injury. The symptoms of a dislocated joint include:

- Pain
- Swelling
- Bruising
- Instability of the joint
- Loss of ability to move the joint
- Visibly deformed joint (bone looks out of place)

Treatment - Treatment can vary based on the severity of the injury, and the joint that is dislocated. Applying ice and keeping the joint elevated can help reduce pain while you wait to see a doctor.







EXERCISE

MCQ's-

1. The capacity of muscles to absorb and consume oxygen is called
(a) Oxygen intake
(b) Oxygen uptake
(c) Oxygen gain
(d) Oxygen transfer

2. Which factor of a person determines the range of motions and level of flexibility?
(a) Joint structure
(b) Internal environment
(c) Age and gender
(d) Previous injury

3. The components of physical fitness are determined by the physiological factors. The main components of physical fitness are strength, speed, endurance, flexibility, etc. These components make a person physically fit. Age and gender play a very important role in which of these components?
(a) Endurance
(b) Strength
(c) Explosive Strength
(d) Speed

4. Early morning, we observe many older people following fitness regime. One day Ram observed a 60-year-old man was holding his chest on the ground. When Ram approached him, he said that he felt chest pain regularly after jogging. What is the rate of normal heart beat of an adult?
(a) 72
(b) 80
(c) 65
(d) 90

5. Laceration is a _____.
(a) irregular cut on skin
(b) tissue injury
(c) seelling
(d) ligament injury

6. Sprain is an injury of the _____.
(a) Muscle
(b) Ligament
(c) Joint
(d) Bone

7. The First-aid given to sprain injury are _____.
(a) RICE
(b) Following doctor's advice
(c) Giving massage to affected part
(d) Apply muscle ointment

8. It is the fracture which occurs when a bone bends and cracks, instead of breaking completely into separate pieces.
(a) Transverse
(b) Comminuted
(c) Green Stick
(d) Stress

10. Sports instructor showed the students of class XII, how to give first-aid in case of minor injuries of sprain and strain. He told them about PRICE. The letter 'C' in PRICE stands
(a) Conduction
(b) Compression
(c) Concussion
(d) Contraction

VERY SHORT QUESTIONS (PYQ's)

1. Why does involvement in regular exercise delay the onset of fatigue? **All India 2015.**

2. List any four changes happening in the muscular system due to exercising. **CBSE SQP 2021.**

3. Calculate how much blood is pumped by the heart of a normal untrained male in one minute. **All India 2015.**

4. What is stroke volume? **All India 2016.**

5. What is oxygen uptake? **All India 2017.**

6. Which type of sports injury is known as 'strain'? **CBSE 2019**.

7. What do you mean by soft tissue injuries? **CBSE 2019**.

8. What kind of sports injury can be termed as abrasion? **All India 2016.**

9. What is incision? **All India 2017.**

10. Explain the meaning of cardiac output. **CBSE 2018.**

11. What type of sports injury can be termed as 'Laceration' in sports? **CBSE 2018.**

LONG ANSWER QUESTIONS (PYQ's)

1. What are the various factors affecting physiological fitness? Explain. **All India 2015**.

Or

Discuss the physiological factors determining components of physical fitness. **Delhi 2015.**

2. What are the effects of exercising on the cardiorespiratory system? Explain. **CBSE 2020.**

3. Write in detail about the dislocation and fractures among the bones and joint injuries. **All India 2016.**

Note: You can easily read and download answers from our website freely.

Website: https://zakisaudagar.in

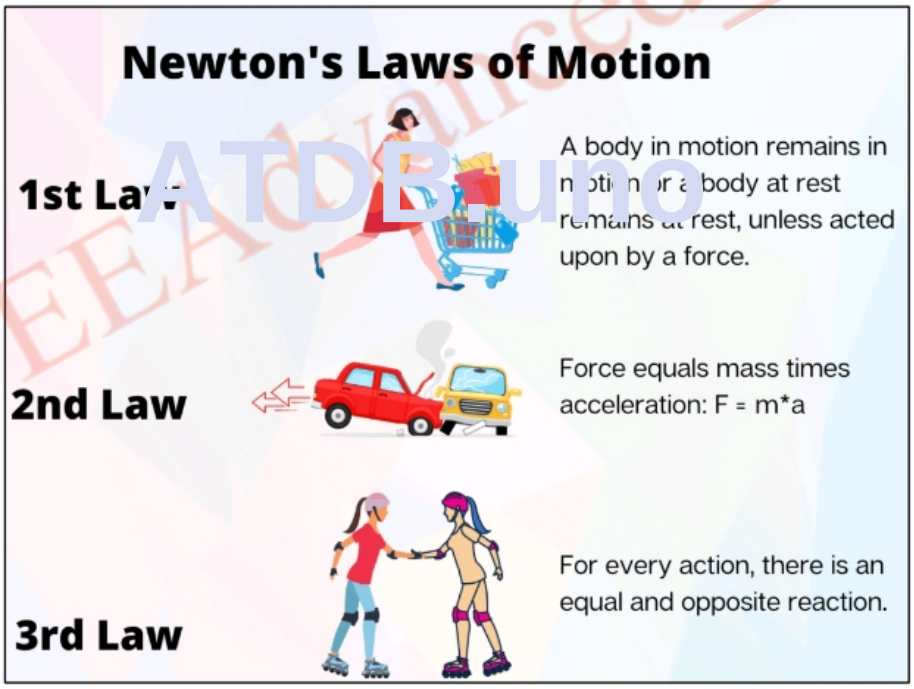
UNIT 8: Biomechanics & Sports

CONTENT:

- *Newton's Law of Motion & its application in sports*
- *Equilibrium – Dynamic & Static and Centre of Gravity and its application in sports*
- *Friction & Sports*
- *Projectile in Sports*

Newton's Law of Motion & its application in sports:

The three laws of motion were formulated by Newton. These are described below:



- **Law of Inertia:**
  This law states "when an object at rest remains at rest or if in motion remains in motion at a constant velocity until & unless acted on by a net external force."
  - Usually, if an object is in motion, it remains in motion unless something or some external force stops it. The external force may be a gravitational force, the surface of the playing field, a defensive player, or the braking action of the sportsperson's body to stop.
  - For example, if you roll a ball, it will continue moving unless friction or something else stops it by force.

- **Law of Acceleration:**
  It is the second law of motion. According to this law, "A change in the acceleration of an object is directly proportional to the force producing it & inversely proportional to its mass.
  - Therefore, F=ma ,Here F= Force, m=mass & a=acceleration.
  - For example- Pushing a car or a truck.

- **Law of Reaction:**
  According to this "To every action there is always an equal but opposite reaction" There are also many examples in sports where this law is applied, e.g., springing on a diving board to gain maximum height, bouncing on a trampoline, and thrusting against the water in Swimming.

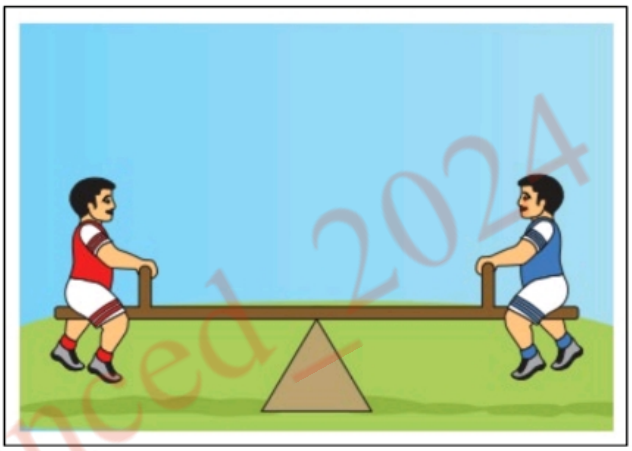
Applications of Newton's Law of Motion:

The application of this law in various sports is given below.

- **Walking**: When a person walks, they press the ground in the backward direction (action) with their feet. The ground pushes them forward with an equal force (reaction).
- **Swimming**: A swimmer pushes the water backward (action). The water pushes the swimmer ahead (reaction) with the same force.
- **Shooting**: In shooting, when a gun or pistol is fired, the bullet moves forward (action)—the gun or pistol jerks backward (reaction).
- **High Jump:** A high jumper can jump higher off a solid surface because it opposes their body with as much force as they can generate, in contrast to sand or any other unstable surface.
- **Basketball:** When a basketball player dribbles, they exert force on the ball, and the ball strikes the floor with force (action). Then, the ball comes up with an equal force from the floor (reaction).

Equilibrium

Equilibrium is a state of balance or stable situation where opposite forces cancel each other out and no changes occur. In mechanics, equilibrium is related to the forces acting on a body. When a system or body is in equilibrium then there is no tendency to change.



Types of Equilibrium:

- **Static Equilibrium:-** It is the balance of the body during rest or in a stationary position.

- **Dynamic Equilibrium:-** Dynamic equilibrium is the balance of the body during movement.

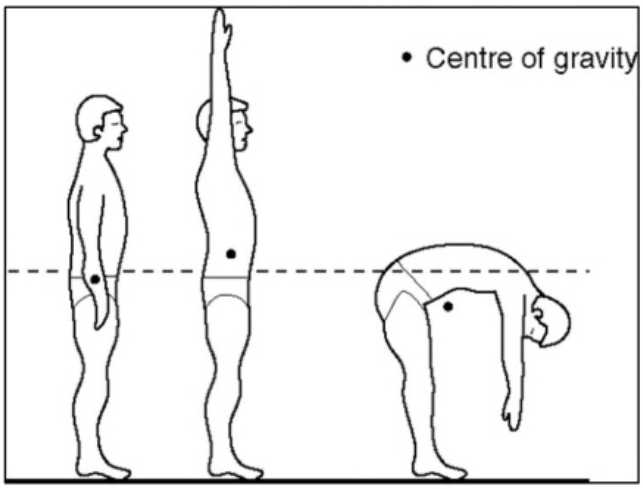
Principle of Equilibrium in Sports:

Stability principles give athletes rules about holding positions and staying on balance when running. They guide training to improve positions firmness for static and dynamic balance.

Center Of Gravity :

The Center of gravity is the point in a system or body around which its weight or mass is evenly balanced or distributed & through this the gravitational force acts. The center of gravity is fixed, stated the size and shape of the body do not change.The center of gravity acts according to the

athlete's body position. For example, the runner's center of gravity is in the lower region of the pelvis and infront of his body because his upper body is leaning forward. Lowering the center of gravity in front portion of his lower body is beneficial for gaining speed.



So, Center of gravity can shift according to the shape and size of object. An athlete that bends their legs will lower the position of their center of gravity. This position leads to greater stability, especially in sports such as wrestling.

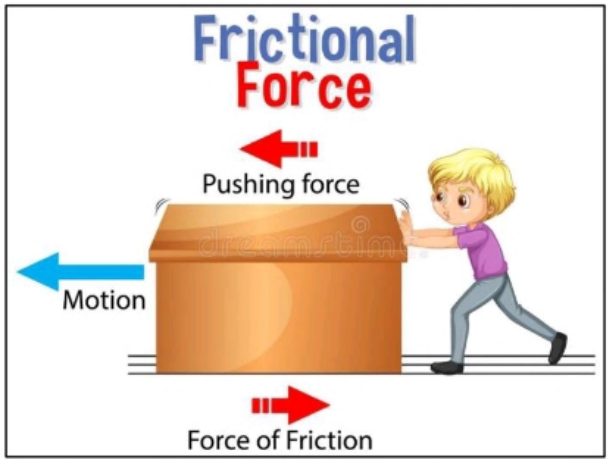
Application of Equilibrium in Sports:

An athlete's CG is the exact middle of the body around which it can rotate freely in any direction and where the weight is balanced on all opposite sides. It exists along the body's midline at about 55% of the athlete's height.

- To maintain balance when still, the athlete's center of gravity must remain over the base of support. For example, beginning a free weight lifting movement, such as the squat, requires the lifter to hold a standing position back Squat in Power Rack.
- To regain lost balance, an athlete can enlarge the support base and reposition the center of gravity over it. Example: Placing the feet wider to prevent falling after being pushed helps recover balance.
- When lifting or carrying an object, shift the body weight in order to maintain balance. Example: Lean in the opposite direction when carrying a heavy equipment bag.
- For the greatest stability in all directions, the center of gravity should be over the center of base of support. Example: Holding a handstand requires the hips to remain toward the center of the base formed by the hands.
- An athlete can become more stable by lowering the center of gravity. Example: A shotput follow through involves bending the knees to prevent fouling.
- The greater the friction between the athlete's body & supporting surface, the greater the ability to maintain balance. Example: Wearing shoes that prevent excessive sliding on a playing surface.

Friction and Its Types:

It is defined as "**the resistance offered by the surfaces comes in contact when they move past each other**."



- Friction provides grip that is needed to walk without slipping.

- Friction is caused due to the irregular or deformation on the two surfaces in contact.
- Friction is depends upon the roughness of the surface.
- Example of friction in sports In the field of Tennis, the friction between ball & racket. In the field of Football, friction between the ball, ground, and the player's shoes, etc.

Types of Friction:

There are two types of friction-

Static friction:

It is defined as the force that is applied to an object and object remain at rest until the force of static friction is overcome.

The magnitude of the static force is equal in the opposite direction when a small amount of force is applied. When the force increases, at some point, maximum static friction is reached.

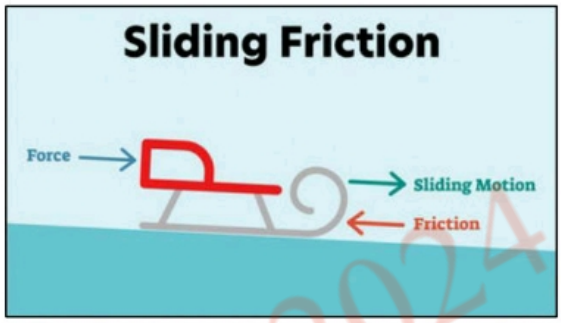
Examples:-Skiing against the snow, Creating heat by rubbing both hands together, Table lamp resting on the table

Dynamic Friction:

It is the opposing force that comes into play when one body moves over the surface of another. It is the friction related with motion or with the simple term a body slides over another body and experiences an opposing force known as dynamic friction.

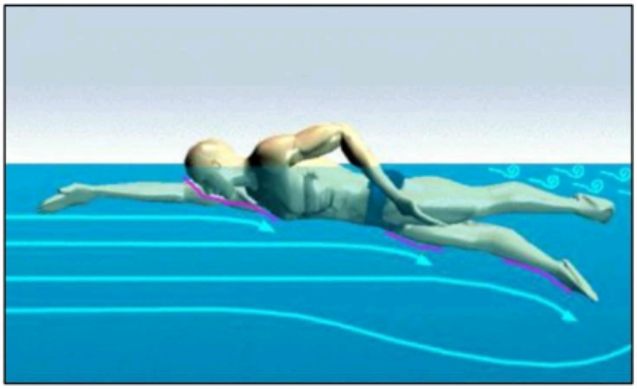
There are two types of Dynamic Friction.

- **Sliding Friction:** Sliding friction is the resistance created between any two objects when they are sliding against each other. E.g., Ice skating.



- **Rolling Friction**: Rolling friction is defined as the force which resists the motion of a ball or wheel and is the weakest type of friction. E.g., rolling the log on the ground, Wheels of the moving vehicles.

- **Fluid Friction:** Fluid friction is defined as the friction between the fluid's layers when they are moving relative to each other. Eg. The flow of ink in pens Swimming.



Advantages of friction:

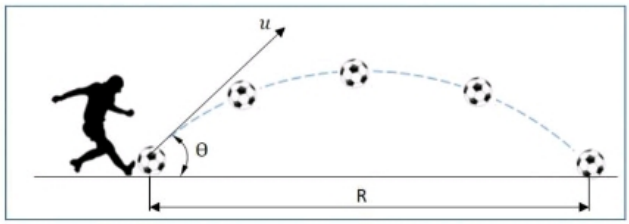
- Friction enables us to walk freely.
- It helps to support the ladder against a wall.
- It becomes possible to transfer one form of energy to another.
- Breaks of vehicles work due to friction.

Disadvantages of friction:

- It always resists the motion so extra energy is required to overcome it.
- It causes wear and tear on machines.
- It decreases the life expectancy of moving parts of vehicles.
- Since friction is beneficial in some cases and harmful in others.

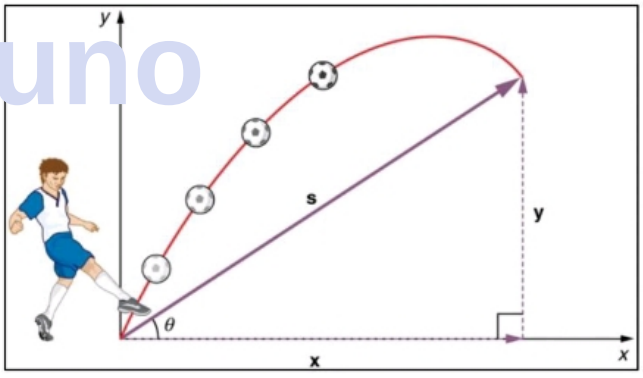
Projectile In Sports:

A projectile is any object which is shot or thrown into the space. Once it leave the ground, it will follow a flight path called a parabola until it returns back to ground. This phenomenon is applied to balls, javelins, discus, long jumpers, high jumpers, and horse show jumping. After throwing the object in space two forces starts acting on it:-
Weight (due to gravity) & resistance by air.
In badminton, a shuttlecock is very light and has feathers that increase the air resistance. As a result, its flight path is different. For Eg, a heavy object such as a shot put will be virtually unaffected by air resistance.



Factor affecting Projectile Trajectory are mentioned below:

- **Angle of projection:** When an object which is projected at different angles covers a different distance. When it is projected or released at an angle of 25', making a parabolic or curved path & coves lesser distance, when it is released at an angle of 42' & 45', it makes a parabolic or curved path & covers maximum distance. So the distance covered by an object depends on the trajectory.



- **Projected height relevant to the landing surface:** If the projection height and landing surface are equal, then the object should be released at an angle of 42' to 45', covering maximum distance.
  If the level of the landing surface is more than the projection height, the angle shall be increased, i.e., it should be more than 45'. So object cover a maximum distance.
  If the level of the Landing surface is less than the projection height, the angle of projection should be decreased. I.e., it should be less the

45'. The things cover maximum distance. So the horizontal distance depends upon the projection height and landing surface relevancy.

- **Initial velocity:** The distance covered by an object depends on the projectiles initial velocity. If the initial velocity is greater, than object covers the maximum distance & vice versa.
- **Gravity:** It is the force of attraction which the earth exerts on other objects. It also decreases the projectile motion and pull it back to earth. It is limiting the vertical component of the projectile. A Light weight object, if projected, will have a longer elevation in comparison to a heavier object with the same force.
- **Air Resistance:** It is a force that is caused due to air when any object moves through it this force acts in opposite direction of the body.
- **Spin:** The amount & direction of spin acting on a projectile will directly affect the distance travelled or covered by a projectile. The reason behind this fact is the air pressure acting on the object. Upper air pressure is maximum on the object and lower air pressure is minimum on the object.

EXERCISE

MCQ's

1. Acceleration of an object will increase as the net force increases depending on its:
(A) Density
(B) Mass
(C) Shape
(D) Volume

2. The body structure of mesomorphic people is like
(A) Fatty
(B) Large muscles and bones
(C) Solid
(D) Obese

3. _____ is the field in sport science that applies laws of mechanics and physics to human performance.
(A) Biomechanics
(B) Force
(C) Dynamics
(D) Speed

4. The Law of Acceleration is also known as
(A) Law of Inertia
(B) Law of action and reaction
(C) Law of momentum
(D) Boyle's Law

5. _____ analyses motion in terms of time, displacement, velocity, or acceleration.
(A) Biomechanics
(B) Force
(C) Kinematics
(D) Speed

6. _____tends to change a body's state of rest or motion.
(A) Biomechanics
(B) Force
(C) Dynamics
(D) Kinematics

7. Hinge joints, such as at the knee and elbow, allow only for _____.
(A) Abduction
(B) Adduction
(C) Flexion & Extension
(D) All of the above

8. _____ is a movement towards the midline.
(A) Abduction
(D) Extension

9. _____ refers to a movement that increases the angle between two body parts.
(A) Abduction
(B) Adduction
(C) Flexion
(D) Extension

(B) Adduction
(C) Flexion

10. Flexion refers to a movement that _____ the angle between two body parts.
(A) increases
(B) decreases
(C) does not change
(D) changes invariably

 # VERY SHORT QUESTIONS (PYQ's)

1. Explain, what is 'dynamic friction'. **All India 2016.**

2. What do you mean by rolling friction? **Delhi 2014.**

 # LONG ANSWER QUESTIONS (PYQ's)

1. Explain Newton's laws of motion and their application in sports**. CBSE 2020**.

2. What is friction? Is it advantageous or disadvantageous in the field of games and sports? **All India 2017, Delhi 2012.**

Note: You can easily read and download answers from our website freely.

Website: https://zakisaudagar.in

UNIT 9: Psychology & Sports

CONTENT:

- *Personality; its definition & types (Jung Classification & Big Five Theory)*
- *Meaning, Concept & Types of Aggressions in Sports*
- *Psychological Attributes in Sports – Self Esteem, Mental Imagery, Self-Talk, Goal Setting*

Personality [Jung Classification & Big Five Theory]

Personality:

It is an organized set of characteristics possessed by an Individual that influence their cognitions, emotions, motivation, and behaviour in various situations.

"Personality contains the combination of emotional, attitude, and behavioural response patterns of an individual".

People with good Personalities are likable, enjoyable and pleasant to be with. Personality is a body of an individual's habits, traits, attitudes, and ideals that have organized external roles and statuses. They relate internally to goals, motivation, and various aspects of selfhood.

Personality is a combined total of all that a person is. It is the totality of anyone's behaviour towards oneself and others and includes everything about the person, their physical, emotional, social, mental, and spiritual makeup.

Some definitions of personality are as follows:

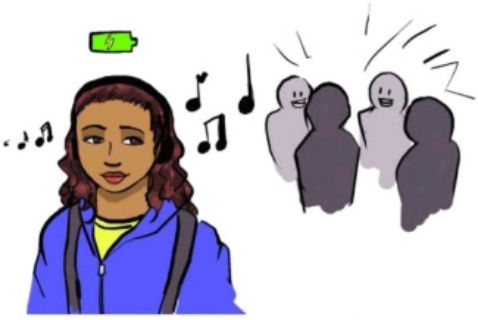
- According to **Ogburn and Nimkoff**, "The totality of an individual's sentiments, attitudes, ideas, habits, skills, and behaviors is personality."
- According to **JP Guildford**, "Personality is an individual's unique pattern of traits which distinguishes one individual from the other."
- According to **NL Munn**, "Personality is the most characteristic integration of an individual's structure, mode of interest, attitude, behaviour, capacities, abilities, and aptitudes."

Types Of Personality:

<u>Types of Personality according to Jung's Classification</u>:

C G Jung has classified personality on the basis of sociability character as introverts, extroverts and ambiverts. These are described below:

- **Introverts:** These are the persons who share characteristics such as shyness, social withdrawal and tendency to talk less. Owing to these characteristics such persons seem to be self-centred, unable to adjust easily in society or social situations. They are very sensible, rigid in ideas and future oriented.



- **Extroverts:** Extroverts have a tendency to be friendly, outgoing, talkative and social in nature. They usually prefer social contacts. They are generous, supportive and courageous. They may be called happy, g, lucky persons. They show interest in present reality than future. They do not have hesitation. They express their feelings openly. They take decision and act upon it quickly. They are not affected easily by difficulties and troubles.

- **Ambiverts:** There are only few persons who are pure introverts or pure extroverts. The remaining majority of persons possess both the qualities or traits of introverts and extroverts such persons are called as ambiverts.

Types of Personality according to Big Five Theory:

These are openness, conscientiousness, extraversion, agreeableness, and neuroticism, also called **OCEAN**.

- **Openness:** These people like to learn new things and concepts and enjoy new experiences. They are open to change. Openness reflects curiosity and creativity.
- **Conscientiousness:** They are self-disciplined, reliable, and prompt. Such people are organized, systematic and complete in all respects.
- **Extroversion:** They have high energy, positive emotions, sociability, and a tendency to seek stimulation in the company of others and be talkative. They are social & caring.
- **Agreeableness**: They possess the quality of being compassionate, cooperative towards others, helpful nature, and trusting others.
- **Neuroticism**: They experience unpleasant emotions quickly, such as anger, anxiety, and depression. Such individuals remain Moody and tense.

Aggressions in Sports:

In sports, aggression is a characteristic that may have many negative & positive effects on performance.

Aggression refers to a range of behavior that can result in both physical & psychological harm to oneself or others in an environment.
This kind of social interaction harms another person, either physically or mentally.
According to **Baron and Richardsons**, "any form of behavior directed toward the aim of injuring or harming any living being who is motivated to evade such treatment is aggression."

Types of Aggression in Sports In sports, aggression has been categorized into three types:

Hostile Aggression:

It is a type of aggression that is committed to response to a perceived threat or insult. It is unplanned, reactionary, impulsive, and fuelled by intense emotion instead of the desire to achieve a goal.
Aggressors typically feel a loss of control during outbursts and characteristically experience physiological hyperarousal.
Thus, it is also sometimes known as reactive aggression.
For example, a cricket bowler throwing a bouncer deliberately injures the cricket batsman or distracts his concentration.

Instrumental Aggression:

Instrumental aggression is harmful behaviour without provocation to obtain an outcome for others.
Instrumental aggression does consist of an aggressive intent to harm an opponent physically or psychologically without necessarily being angry. For example, proficient players show instrumental aggression on the field as they have greater self-control to manage their aggression.

Assertive Aggression:

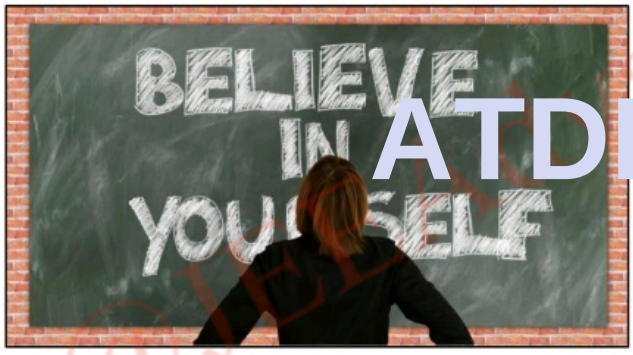
It is all about standing up for oneself, but aggression usually includes attacking, threatening, or (to a lesser degree) ignoring others.
Assertive individuals stand up for themselves, their beliefs, values, and needs. And they do so in an unthreatening, respectful, nonviolent way. When being assertive, the intention is to establish dominance rather than harm the opponent.
Behaviours such as tackling in rugby, checking in ice hockey, and breaking up a double play in baseball may be considered assertive as long as these are performed as legal components of the contest and without malice.

Psychological Attributes in Sports [Self Esteem, Mental Imagery, Self Talk, Goal Setting]:

Psychological attributes are connected to the mental balance of an individual enclosed in their social interactions as robust attractors within complicated dynamic processes with emergent properties, distinct from physical entities located in precise areas of the brain.

Self-esteem:

It is used to describe an individual's overall subjective sense of personal value or worth. In other terms, self-esteem may be defined as how much you appreciate and like yourself regardless of the circumstances.



Self-esteem is lowest in childhood and gradually increases during adolescence and adulthood, reaching a relatively stable and enduring level.
It impacts your decision-making process, relationships, emotional health, and overall well-being. Self-esteem also impacts motivation, as people with a healthy & positive view of themselves understand their potential and may feel motivated to take on new challenges.

People with high self-esteem:

- Always have a firm understanding of their skills.
- They can maintain healthy relationships with others because they have a healthy relationship with themselves.
- They have realistic and appropriate expectations of themselves and their abilities.
- They understand their needs and can express them.

People with low self-esteem:

- They tend to feel less sure of their abilities and may doubt their decision-making process.
- They don't feel motivated to try novel things because they don't believe they're capable of reaching their goals.
- They may have issues with relationships and expressing their needs.
- They also experience low confidence levels and feel unlovable and unworthy.

People with overly high self-esteem:

- They may overestimate their skills and feel entitled to succeed, even without the ability to back up their belief in themselves.
- They may struggle with relationship issues and block themselves from self-improvement because they see themselves as perfect.

Mental Imagery:

It enables us to manipulate and reactivate internal representations when the corresponding stimuli are absent. In the subject of visual mental imagery, this approach gives rise to the experience of seeing with the mind's eye. Mental imagery means a very relevant part of an individual's mental life. Because of its inner status and complexity, its study raises methodological problems and requires differentiation & specifications.

Mental imagery concerns the athletes imagining themselves in an environment and completing a specific activity using their senses (sight, hear, feel and smell). The images include the athlete performing successfully and feeling pleased with their performance.

Self-Talk:

When you talk to yourself or your inner voice, it is called self-talk. This inner voice merges conscious thoughts with inbuilt beliefs and biases to create an internal monologue throughout the day; you might not be aware that you're doing it, but you almost certainly are.

Self-talk refers to our inner dialogue. It is the statements we say to ourselves, in our mind or out loud. It's like giving own selves a pep talk before a date, job interview, or before any competition.

This practice certainly helps us regulate & appraise our thoughts and emotions and can help relieve stress and anxiety in certain situations.

Athletes even engage in self-talk during training and in competition, saying things like, "keep going" and "focus on form" or "I'm feeling strong." In sports, self-talk can serve two functions:-

It boasts an athlete's motivation & encouraging them to put in more effort.

Goal Setting:

It is simply the development of an action plan designed to motivate and guide a person or group toward an objective. Proper goal setting means a person has committed thought, behaviour, and emotion towards attaining the goal.

It is a powerful approach for thinking about your ideal future and motivating yourself to turn your vision of this future into reality. It helps you select where you want to go or what you want to achieve. By knowing this, you can concentrate on your efforts. Also, you can quickly spot distractions.

Goal setting focuses on increasing someone's motivational levels to achieve success by using energy levels to attain the overall goal.

In sports, goal setting can become one of the most critical skills to assist athletes in optimizing their performance. It can also help athletes to focus on what is essential and give them a sense of control and positive self-direction.

Intelligent goals always help athletes gain confidence and believe in their ability to succeed. Goal setting with proper follow-up can improve performance, influence motivation, and help athletes reach their potential.

EXERCISE

MCQ's-

1. Endomorphic, Mesomorphic and Ectomorphic are types of _____.
(a) Bones
(b) Joints
(c) Personalities
(d) Muscles

2. Traits like insight, imagination, receptivity towards new ideas are involved with _____.
(a) Openness
(b) Conscientiousness
(c) Agreeableness
(d) Extroversion

3. If an individual is moved by internal or external forces towards the goal, it is known as _____.
(a) Goal setting
(b) Outer forces
(c) Motivation
(d) Personality development

4. The source of intrinsic motivation is _____.
(a) Teachers
(b) Family
(c) Self
(d) Siblings

5. Any physical behaviour intentionally aimed to harm others is known as _____.
(a) Hostile aggression
(b) Instrumental aggression
(c) Negative aggression
(d) Assertive aggression

6. Ramu is a student of class X. He has a pear shaped body and rounded physique. He has short and thick arms and legs. He does not like to take part in any physical activity or sports. Based on case, answer the following question. Amit is having a personality of
(a) Endomorph
(b) Mesomorph
(c) Ectomorph
(d) None of the above

7. Which of the following is the example of Trait Theory of personality?
(a) Sheldon's classification
(b) Jung Classification
(c) Personality
(d) Intrinsic

8. Ishan lost in the finals of Badminton championships held in his school. He got disappointed and stopped talking to anyone. He didn't meet even his friends. His coach advised his parents to take him to a psychologist so that he can understand Ishan's problem and provide solutions to cope up. Taking help of psychologist becomes _____ kind of motivation.
(a) Intrinsic
(b) Extrinsic
(c) Ambivert
(d) Both (a) and (b)

9. In the 'Big Five Theory', five personality traits are described. These traits are the attributes that describe a person. The traits given in Big Five Theory are collectively called as OCEAN. What does A stands in OCEAN?
(a) Amiable
(b) Adorable
(c) Agreeableness
(d) Aggression

10. Endomorphic people are ____.
(a) Obese
(b) Energetic
(c) Solid Body
(d) Adventures

 # VERY SHORT QUESTIONS (PYQ's)

1. What do you mean by the term aggression in sports? **CBSE 2018.**

 # SHORT ANSWER QUESTIONS (PYQ's)

1. What are the types of aggression? **CBSE 2020.**

 # LONG ANSWER QUESTIONS (PYQ's)

1. Explain the structure of personality. Describe the role of sports in developing the personality. **Delhi 2016.**

2. Explain any three personality types of Big five theory. **CBSE SQP 2021 Term II.**

Note: You can easily read and download answers from our website freely.

Website: https://zakisaudagar.in

UNIT 10: Training in Sports

CONTENT:

- *Concept of Talent Identification & Talent Development in Sports*
- *Introduction to Sports Training Cycle – Micro, Meso, Macro Cycle.*
- *Types & Method to Develop – Strength, Endurance and Speed*
- *Types & Method to Develop – Flexibility and Coordinative Ability*

Concept of Talent Identification & Talent Development in Sports:

- Talent Identification is essential to ensure that the appropriate players are being selected. A selection must be made fairly and equitably. This demands a better understanding of player identification and adopting a suitable selection policy.
- Selectors must ensure that they are assessing the correct qualities and attributes and ensure selection consistency.
- Talent identification is the method of recognizing current players that have the potential to excel. It involves an attempt to predict an individual's future capacity for performance.
- Talent identification is based on several areas, these being physical attributes, physiological skills, technical skills, psychological skills, cognitive skills, and social skills.
- It is important that the talent identification program has a clear focus that emphasizes on identifying players with long-term potential rather than current, tournament-winning ability.

Types & Method to Develop

Strength:

According to **Barrow and McGee**, "Strength is the capacity of the whole body or any of its part to exert force."

According to **Brian Mac** states, "Strength is the ability to exert force against a resistance."

Strength is one of the most significant motor components of fitness & plays a substantial role in most sporting events. It's the amount of force that muscles are able to produce in completing a task. In other words, strength is the ability of a muscle or a group of muscles to act or overcome resistance. Strength in sports refers to muscular strength.

Types of Strength:

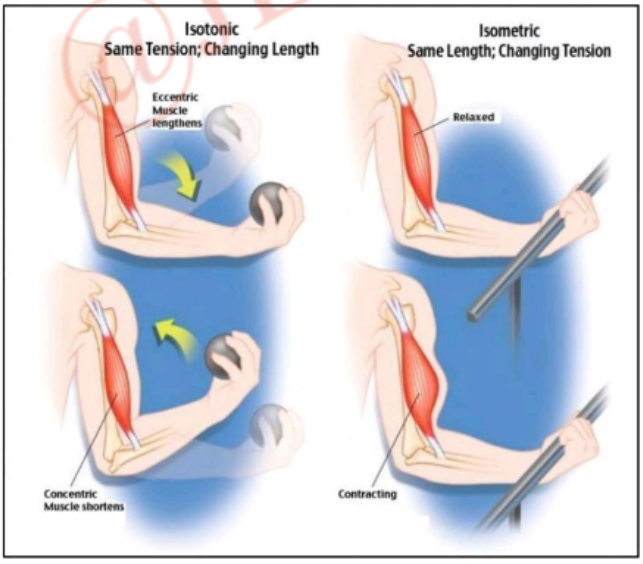
Strength can be divided into the following types:-

- **Static Strength:** It is the ability of muscles to act against resistance from one position. This strength is also known as isometric strength. It is the ability to apply the force where the length of the muscle does not change & there is no visible joint movement.
  E.g., Weight lifting, Plank, etc.
- **Dynamic Strength:** It is the strength that a person needs to maintain his body over a prolonged period or to be able to apply force against an object.
  E.g., a gymnast, wrestling, pull-ups, push-ups, etc.
- **Maximum Strength:** It's the ability of muscles to overcome maximum resistance in a single repetition. E.g., long jump, shot put, javelin throw, weightlifting, discuss throw, etc.
- **Explosive Strength:** It's the ability of muscles to overcome resistance as quickly as possible. Or, it can be said that it is a combination of strength and speed. This type of strength is mostly used in volleyball spiking, basketball jumps, sprint events, etc.
- **Strength Endurance:** It is the ability of a muscle to overcome resistance under the condition of fatigue or for as long as possible. It's the ability of a muscle to perform repeated contractions & without fatigue. Strength endurance can be static or dynamic, depending on whether the movement is static (isometric) or dynamic (isotonic). This kind of strength is mainly used in long-distance marathons, Tug of War, swimming, distance cycling, etc.

Method of Develop Strength:

- **Isometric Exercises:** Isometric exercises are those exercises that are not visible. In particular, there are no direct movements; thus, they can't be observed. In these exercises, work is performed but not seen directly. In these exercises, a group of muscles carries out tension against the other group of muscles.
  These exercises are beneficial in sports like archery, Judo, weightlifting, etc. Examples of these exercises are Plank, static lunges pressing or pushing a wall, lifting a hefty weight, pulling the rope in a tug-of-war match, etc.

- **Isotonic Exercises:** While doing exercises, tension builds in working muscles, and there is a change in length. Muscles get shortened and lengthened. Isotonic exercises tone up these muscles. Muscles become flexible. Activities like Jumping, running, and Weight lifting are some examples of isotonic exercises. E.g., isotonic are HEAVY weights lifting, arms curling, etc. It causes a specific increase in muscular growth.

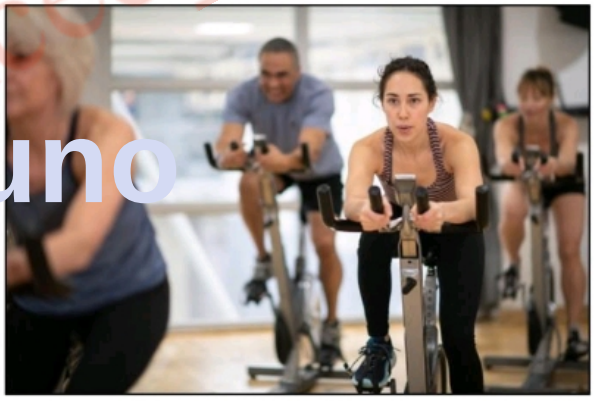


Isotonic exercises are of 2 types.:-

a) Concentric- It means the upward movement of the muscles like lifting dumbbells, throwing a ball, etc. It shortens the muscles as a person overcomes the force of weight.

b) Eccentric- It means the lowered movement of the muscles, like lowering a dumbbell down. It lengthens the muscles while being resisted by the force of weight.

- **Isokinetic Exercises:** In these exercises, there is a movement with continuous tension in both flexor & extensor muscles. In this, the muscles contract throughout the range of movement at a constant speed.
  Both flexor & extension of muscles contract simultaneously happen. As a result, both muscles develop. Hence it takes less time to build muscle. E.g., Bicycle and swimming.



Endurance:

Endurance is the ability to sustain or continue an activity.

In different terms, it is the ability to resist fatigue for a more extended period. Endurance is required in almost all major sports. It's among the most important components for middle and long-distance races, football, hockey, basketball, handball, etc.

Types of Endurance:

- **Speed Endurance**: This is the kind of Endurance in which the activity is done with high speed and high intensity. This Endurance is for a briefer duration (from 30 to 60 sec) with 80% to 90% of top speed ability.
  This type of Endurance is required in medium-distance races, swimming, basketball, tennis, badminton, etc.
- **Strength Endurance**: This type of activity is done powerfully & forcefully for a shorter duration. This duration is within 2 to 3 minutes. Strength endurance is generally performed in the absence of oxygen. It's required in wrestling, boxing, Judo, etc.
- **Long-term Endurance**: This type of Endurance is needed when the activity is performed for a longer duration, and the intensity or pace is slow. It delays fatigue and is necessary for long-distance running, cycling, cross country, marathon, football, etc.

Method to Develop Endurance:

- **Continuous Training Method:** It's one of the best approaches for improving Endurance. In this method, the Athletes perform running for long periods without taking a rest in between.
  In this method, the speed remains slow because the exercise is done for a more extended period. This method develops a remarkably high level of Endurance.

This method has three types:

  - **Slow Continuous Training Method**:- This method is used by long-distance runners. The workout duration is 1 - 2 hours, and the distance covered is 10 - 20 km.
  - **Fast Continuous Training Method**:- This method is used by middle-distance runners. The workout duration is 15 -40 minutes, and the distance covered is 5-10 km.

- **Variable Continuous Training Method**:- This method combines fast & slow pace continuous methods. In this, the workout is done with a variable speed of 40-100 percent of the best capacity.

Advantages of Continuous Training Method:

- Increases glycogen in muscle
- Increases in number and size of mitochondria
- Increases efficiency of heart and lungs
- Improves willpower and confidence

- **Interval Training Method**:- This method follows the principle of effort and incomplete recovery. It is special endurance training that includes high-intensity workouts followed by incomplete rest. Also, this method is the best method for endurance development. The Interval training method is based on scientific principles where the load is controlled through various factors to provide incomplete recovery.

Workout – Rest – Workout – Rest

- **Fartlek Training Method**:- The only thing to keep in mind is that he needs to reach the finishing point in the desired time.
  Advantages of Fartlek Training Method-
- It can practice during the off-season period
- It develops creativity and gives adventure
- Natural motivation is there with no boredom
- The art of self-learning is experienced.

Speed

It is the ability to perform a movement faster. It is the capacity to move a body with the greatest

possible velocity. Speed relies on heredity but can be developed through proper training.

Thesis and Schnabel defined speed as "the prerequisite to do motor actions under given conditions (movement task, external force, individual prerequisite) in the minimum of time."

Johnson and Nelson defined speed as "the capacity of an individual to perform successive movement of the same pattern at a fast rate."

Types of Speed:

- **Reaction Ability:** The ability to react quickly to a signal. It depends completely on the coordinative abilities of a person. Different games & sports have different types of signals like visual, tactile, and auditory, to name some. And the ability to respond to such signals accurately and as fast as possible is known as reaction ability. It can further be classified into simple and complex reaction abilities.
- **Acceleration Ability**:- It is the ability to achieve a high speed of movement from a stationary position. This ability is crucial in almost every game & sport but holds a great influence in running events. It depends significantly on a sportsperson's explosive strength, technique & movement frequency.
- **Movement Speed**:- It is described as the ability to execute a single movement in the least possible time. It's highly related to acyclic sports, though its importance is limited to the initial phase in cyclic sports. It is dependent on the explosive strength & technique of the sportsperson.
- **Locomotor ability**:- It is the ability to maintain maximum speed when in motion for the maximum possible distance. It is necessary for sports like 100m & 200m sprints, skating & high-speed cycling.
- **Speed Endurance**:- It is the ability to move at high speed for a longer duration of time, which means under the condition of fatigue. It is a combination of 2 words speed and Endurance. It depends highly on anaerobic capacity, technique & psychic factors.

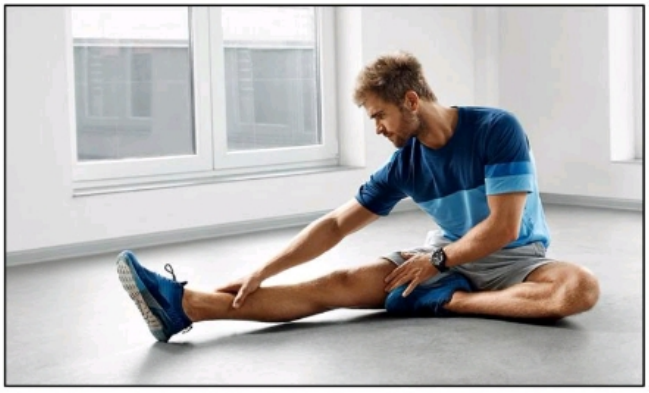
Method to Improve Speed:

- **Acceleration Run**:- In this method, Athletes try to attain top speed as fast as possible. They run for a very short (20 – 30 meter) distance with the maximum speed possible. This is repeated five to ten times with an adequate rest period. The first few strides should be shorter & the frequencies of steps are very fast.
- **Pace Run Training Method**:- Pace races mean running the whole distance of a race at a constant speed. For 800-meter training, athletes can run a distance of 300m or 20% of racing distance at full speed.

Flexibility:

It is when the joints can move to their maximum range. It's the ability to perform a movement with greater range. It is affected by muscle length, tendons, and adjoin ligaments. Flexibility helps prevent injuries, improve posture, make joints healthy, and Improve balance.

Therefore, it can be said that flexibility is helpful in many ways, such as in preventing injuries, improving posture, reducing back pain, maintaining healthy joints, improving balance while making movements & learning various skills quickly, for example, backstroke in swimming.



Types of Flexibility:

Flexibility can be divided into two types, which are as follows-

- **Active Flexibility:** It is the ability to perform the movement with greater range without using external help, only with the help of muscular force. Ex, stretching, push-ups, running, etc.
  - **Static Flexibility**: It is required for movements done while the individual is in a static position, i.e., standing, sitting, or lying.
  - **Dynamic Flexibility**: it is required for executing movements when an individual is moving.
- **Passive Flexibility:** It is the ability to perform the movement with a greater range using external help with the help of a partner. Ex. stretching with a partner.

Method to Develop Flexibility:

- **Ballistic Method:-** In this method, individuals perform various stretching exercises while in motion. In this, they are stretching the muscle with the help of swinging the limbs.
- **Static Stretching Method:-** In this method, various slow stretching exercises are done from a stationary position and held in the final position for some time.
- **Passive Flexibility Method**:- This method involves flexibility exercises done with external help. Such as stretch ropes, partner help, bid role ball, bar stand, etc.
- **Proprioceptive Neuromuscular Facilitation Techniques (PNF):-** This technique is used by advanced athletes to gain flexibility. Here an individual moves into a stretch position then your partner holds the limb in this position.

Coordinate ability:

It is the ability of the body to execute the movement with perfection and efficiency. It's the ability to execute a sequence of movements accurately and smoothly.

Coordination is needed for qualitative movement. It is the proper combination of speed, strength, Endurance, and flexibility during movement.

Zimmerman states, "Coordinative abilities are understood as relatively stabilized & generalized patterns of motor control and regulation processes. These enable the sportsman to do a group of movements with better quality and effect."

Types of Coordinative Abilities:

- **Orientation Ability:** The ability to determine and change the body's position and movements in different situations.

- **Differentiation Ability:** It is the ability to achieve a high level of fine-tuning of individual and body part movements.
- **Coupling Ability:** It is the ability to coordinate body parts' movement with one another. It is vital in sports where fast movements have to be done—for example, gymnastics, team games, etc.
- **Rhythm Ability:** The ability to do body movements according to a given rhythm, like gymnastics or performing floor exercises with a definite rhythm. This type includes gymnastics, synchronized swimming, diving, skating, etc.
- **Reaction Ability:** The ability to react quickly and effectively to a signal.
- **Adaptation Ability:** It is the ability to adjust or completely change the movement according to evolving situations.
- **Balance Ability:** It is the ability to maintain balance during the entire body movement and to regain balance quickly after disturbing balance movements. This ability is essential in most sports and games.

Method to Develop Coordinative Ability:

- **Physical Exercise:** Through enough variation in physical exercise, motor coordination can be developed. While practicing, several variations should be done to develop coordinative abilities effectively.
- **Suitable General and Special Exercise:** Different types of exercises should be done to improve general coordinative abilities and specific exercises should be selected to improve specific abilities.
- **Movement should be Executed Correctly and Consciously**: The movements must be done correctly and consciously with concentration. It enables the sportsman to control and regulation of movements. For teaching the exercises, audio-visual aids should be used.
- **Means for Improving Functional Capacity of Motor Sense Organs:** The coordinative abilities depend on the functional capacity of various sense organs such as acoustic, optic, tactile, kinaesthetic, and vestibular. The functional capacity of these organs can be improved by doing which the sportsman remains physically passive.
- **Variation of Exercise:** Limited number of exercise does not give desired results because each set of exercises have an effect for a certain period of time. Therefore the exercise can be changed frequently. Hence the sportsman should be continuously doing new and unaccustomed exercises for the best effect.

Introduction of Sports Training Cycle:

The sports training cycle, also referred to as Periodized Training, works on the concept of overload & adaptation by stressing the body over some time, allowing it to recover & then stressing it again. Athletes can gradually build fitness.

Periodization is the procedure of dividing an annual training plan into specific time blocks, where each and every block has a particular goal and delivers your body with different types of stresses. This lets you to create some hard training

periods & some easier periods to facilitate recovery. It also helps you develop different physiological abilities during various training phases. By structuring the season with these cycles in mind, An Individual can ensure that you're building and recovering adequately for optimal adaptation.

During base training, one focuses on developing aerobic & muscular Endurance.

During the intensity phase, the main focus switches to lactate threshold and aerobic capacity, which is VO2 max.

As one enters the competition phase, greater emphasis is placed on increasing anaerobic capacity and neuromuscular power. Most significantly, periodization is the best method to promote the training effect, which consists of transformations in someone's cardiopulmonary and musculoskeletal systems that result in greater Endurance & speed. To develop an effective workout program, it is necessary to understand the foundation of periodization. This foundation includes three cycles; macrocycles, mesocycles, and micro-cycles.

Macrocycles:- A macrocycle refers to the entire season or training period as a whole. For an athlete, if the competitive season happens once a year, then the macrocycle will be of a full year. If there will be two competitions within a year, then we say there are two macrocycles. Macrocycles are then further divided into mesocycles.

Mesocycles:- Here, we start to think about what types of training we want to prioritize at different times. A mesocycle refers to a special training block within a season, i.e., the strength phase. Here the focus will be on the strength that will sustain the main overriding goal for, let's say, a powerlifter, whose main goal is going to be pulling big numbers at a powerlifting competition. So for one mesocycle, the priority might be hypertrophy. For someone else, it might be skill acquisition. A mesocycle can go for some weeks to a few months.

Micro-cycles:- Within mesocycle, we have micro-cycles. These are the least unit or block of time within a mesocycle and are normally a week long though it can vary from a few days to a few weeks.

EXERCISE

MCQ's-

1. The ability which help to overcome the resistance with speed, is known as _____.
(a) Maximum Strength
(b) Explosive Strength
(c) Static Strength
(d) None of these

2. The method in which there will be no change in the length of the muscle is known as _____.
(a) Isometric Method
(b) Isotonic Method
(c) Isokinetic Method
(d) Fartlek Method

3. Which exercise method was developed by De Loone in 1954?
(a) Isometric Exercises
(b) Isotonic Exercises
(c) Isokinetic Exercises
(d) None of these

4. While exercising on a multigym, the type of muscular contraction that occurs is
(a) Isotonic
(b) Isometric
(c) Isokinetic
(d) Eccentric

5. Resistance ability against fatigue is called
(a) Strength
(b) Speed
(c) Endurance
(d) Agility

6. Which component of physical fitness is most important for a sport like wrestling?
(a) Speed
(b) Strength
(c) Endurance
(d) Flexibility

7. Tez practices pace run technique to increase his speed as he wants to take part in the Athletics meet to be held in his school next month. Generally what is the length of Pace run?
(a) 100 m
(b) 200 m
(c) 400 m
(d) 800 m

8. In sports, different types of coordinative abilities are needed. These abilities depend on the central nervous system. Which ability determines and changes the position and movements of the body in different types of situations?
(a) Balance Ability
(b) Orientation Ability
(c) Rhythm Ability
(d) Adaptation Ability

9. Zain has the aim of joining any of the uniform services like police, army, air force etc. But he has not qualified the 1500 m run in their selection criteria. Without qualifying this run, he can't go for the next level. 1500 m run is conducted to find the:
(a) Endurance ability
(b) Speed
(c) Strength
(d) Explosive

10. Which type of exercise are being explained by he s or s nst uctor?
(a) Isotonic
(b) Isokinetic
(c) Isometric
(d) Pace run

VERY SHORT QUESTIONS (PYQ's)

1. Define isotonic exercises. **All India 2011.**
2. Which methods will you suggest to develop endurance? **CBSE 2019.**
3. What is speed? **Delhi 2014.**
4. What are pace races? **Delhi 2013.**
5. What is active flexibility? **All India 2014.**
6. What is coordinative ability? **CBSE 2018.**

SHORT ANSWER QUESTIONS (PYQ's)

1. What is strength? What are the different types of strength? **All India 2014.**
2. Differentiate between isometric and isotonic exercises. **CBSE 2020, 2016.**

3. Explain interval training method. **All India 2017.**

Or

Explain the various methods of its development. **All India 2014.**

4. What are the salient features of the Fartlek training method? **CBSE SQP 2021 Term II.**

5. Explain the advantages of Fartlek training. **All India 2014.**

6. Define speed and explain any one method to develop it. **CBSE 2020.**

Or

Define speed. Explain the methods of speed development. **Delhi 2016, 15.**

7. Explain the physiological factors determining speed.

Or

Write in brief about any three physiological factors determining speed. **Delhi 2016, 14.**

Or

Explain the types of speed. **All India 2012.**

8. Briefly explain different types of coordinative abilities. **All India 2016.**

 # LONG ANSWER QUESTIONS (PYQ's)

1. Write in detail about strength improving methods-Isometric, Isotonic and Isokinetic. **CBSE 2019.**

2. Define flexibility and explain the methods to develop flexibility. **CBSE SQP 2021 Tern II.**

3. Discuss in detail the different types of coordinative ability. **CBSE 2020.**

Or

What do you understand by coordinative ability? Discuss about different types of coordinative abilities. **CBSE 2019.**

SAMPLE QUESTION PAPER
PHYSICAL EDUCATION (048)
SESSION (2022-23)

TIME ALLOWED: 3 HRS MAX. MARKS: 70

GENERAL INSTRUCTIONS:

1) The question paper consists of 5 sections and 37 Questions.
2) Section A consists of question 1-18 carrying 1 mark each and is multiple choice questions. All questions are compulsory.
3) Sections B consist of questions 19-24 carrying 2 marks each and are very short answer types and should not exceed 60-90 words. Attempt any 5.
4) Sections C consist of Question 25-30 carrying 3 marks each and are short answer types and should not exceed 100-150 words. Attempt any 5.
5) Sections D consist of Question 31-33 carrying 4 marks each and are case studies. There is internal choice available.
6) Section E consists of Question 34-37 carrying 5 marks each and are short answer types and should not exceed 200-300 words. Attempt any 3.

(SECTION -A)

Q1. Identify the asana:

a) Paschimottanasana
b) Halasana
c) Vajrasana
d) Dhanurasana

(Question for visually impaired)

Which asana amongst these can be done just after having meals?
a) Bhujangasana
b) Dhanurasana
c) Vajrasana
d) Ardhmatsyendrasana

Q2. A person who likes to learn new things, new concepts and new experiences are categorized as _____.
a) Agreeableness
b) Extroversion
c) Conscientiousness
d) Openness

Q3. Cartwheel in gymnastics is an example of _____
a) Static Equilibrium
b) Dynamic Equilibrium
c) Active Equilibrium
d) Passive Equilibrium

Q4. Slow twitch fibres are _____ in colour.
a) White
b) Red
c) Transparent
d) Brown

Q5. Jumping on the spot is an example of _____
a) Iso-metric
b) Iso-tonic
c) Iso-kinetic
d) Iso-kinesthetic

Q6. Take-off in Long jump is an example of _____ strength.
a) Explosive strength
b) Maximum strength
c) Strength endurance
d) Static strength

Q7.. The amount of oxygen which can be absorbed and consumed by the working muscles from the blood is called _____
a) Oxygen Uptake
b) Oxygen Intake
c) Oxygen Transport
d) Vital capacity

Q8. In Law of Acceleration "acceleration of an object is directly proportionate to its _____"
a) Force
b) Mass
c) Speed
d) Size

*Q9. Given below are the two statements labeled Assertion (A) and Reason (R).
Assertion: Intrinsic motivation has long term benefits.
Reason: As factors behind it are naturally pursuing actions that provide fun, pleasure, fulfillment or challenge
In the context of the above two statements, which one of the following is correct?
a) Both (A) and (R) are true and (R) is the correct explanation of (A).
b) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
c) (A) is true, but (R) is false.
d) (A) is false, but (R) is true

Q10. Carbohydrates which are soluble in water and crystalline in structure.
a) Simple
b) Complex
c) Compound
d) Complicated

Q11. Which amongst these is not a micro mineral?
a) Iodine
b) Magnesium
c) Iron
d) Copper

Q12. Which asana is helpful in increasing height?
a) Sukhasana
b) Tadasana
c) Bhujangasana
d) Vajrasana

*Q13. How many byes will be given if there are 17 teams?
a) 1
b) 8
c) 15
d) 12

* Q14. How many matches will be played in the knockout tournaments first round if there are 15 teams?
a) 8
b) 7
c) 5
d) 6

Q15.Watching others play and enjoy which in turn motivates the Child with special need to participate is a part of which kind of strategy?
a) Mental
b) Physical
c) Psychological
d) Social

*Q16. Match the following:

I.	Garudasana.	1.Round shoulder
II.	Gomukhasana.	2. Lordosis
III.	Chakrasana.	3. Bow legs
IV.	Naukasana.	4. Knock knees

a) I-3,II-4,III-1,IV-2
b) I-1,II-3,III-4,IV-2
c) I-4,II-2,III-1,IV-3
d) I-2,II-3,III-4,IV-1

*Q17. Match the following:

I.	Chair stand test.	1. Lower Body strength
II.	Arm curl test.	2. Aerobic Endurance
III.	Back scratch test.	3. Upper body strength
IV.	Six minute walk test.	4. Upper body flexibility

a) I-1,II-3,III-4,IV-2
b) I-2,II-3,III-1,IV-4
c) I-1,II-3,III-2,IV-4
d) I-2,II-3,III-4,IV-1

Q18. Weakening of bones due to loss of bone density and improper bone formation is known as_____
a) Amenorrhea
b) Anorexia Nervosa
c) Osteoporosis
d) Lordosis

(SECTION B)

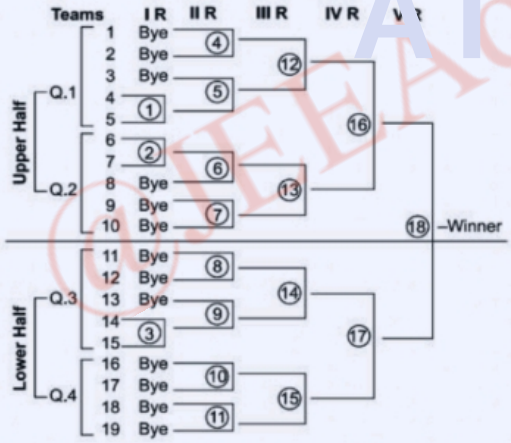
Q19. List down any four effects of exercise on the muscular system. (0.5*4)
Q20.List down any four benefits of self talk by athletes in sports (0.5*4)
Q21. List down any four advantages of fartlek training method. (0.5*4)
Q22. Explain any two types of soft tissue injuries with help of examples. (0.5*4)
Q23. Write down the objectives and administration of the flamingo test. (1+1)
*Q24. What should be the basic nutrient in a weightlifter's diet and why? (1+1)

(SECTION C)

*Q25.Create a mind map including any six advantages of physical activities for children with special needs. (0.5X6=3)
Q26. What are carbohydrates? Differentiate between its types. {1+ (0.5*4)}
Q27. Define bye. Explain the rules of giving bye with help of an example. (1+2)
*Q28. Make a table explaining any three personalities from Big five theory and their characteristics. (1+1+1)
Q29.. Explain any three physiological factors determining strength. (1+1+1)
Q30. What is the meaning of female athletes Triad? Explain any two in brief. (1+ 2)

(SECTION D)

*31.



On the basis of above given fixture answer the following questions: (4X1=4)

a) total number of matches in 2nd round are _____
b) What is the formula for calculating the total number of matches?
c) The fourth round in this case can also be called as_____
d) What is the formula for calculating the number of byes

OR

The formula for calculating number of rounds is _____

(Question for visually impaired)

List down any four committees working during conduct of a competition and briefly explain their role.

Q32. The teachers as well as coaches always make their best efforts to improve the performance of their students in various competitive games and sports. They can help to improve the performance of students if they have adequate knowledge of biomechanics. (4X1=4)

a) The more force one exerts on the downward bounce, the higher the ball bounces into the air. Which law is this statement being referred to?
b) Among the above given pictures, Newton's 3rd law is depicted in_____
c) Newton's second law is also known as_____
d) The study of human body and various forces acting on it is_____

OR

A high jumper can jump higher off a solid surface because it opposes his or her body with as much force as he/she is able to generate. This example refers to which law of motion?

(Question for visually impaired)

What is equilibrium? Explain its types along with the factors increasing equilibrium. (1+4)

Q33. In relation to the pictures, answer the following questions.

a. What is the mission of the first organization?
b. What is the Motto of the first organization?
c. Until 1965 the games in the second picture were known as _____
d. Second picture games are conducted after every _____years.
(Question for visually impaired)

(SECTION E)

Q34. List down any four asanas used for prevention of asthma. Explain the procedure for administration of any one of them with help of a stick diagram. (2+2+1)

*Q35. Make a table of test items listed under fitness test by SAI (Age group 9-18 yrs) along with the objectives of conducting them. Explain the administration of any one of them. (4+1)

Q36. Define flexibility along with its types. Explain any two methods used to develop flexibility. (2+3)

Q37. Define Projectile and explain any two factors affecting projectile with help of examples from sports. (1+4)