

The Constitution of India

Chapter IV A

Fundamental Duties

ARTICLE 51A

Fundamental Duties- It shall be the duty of every citizen of India—

- (a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities, to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;
- (k) who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.



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Health and Physical Education

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Health and Physical Education Study Group

Dr. Surekha Sudam Daptare	Dr. Mary Benson
Mr. Ganesh Vilas Nimbalkar	Dr. Narayan Madhav Jadhav
Mr. Madhukar Bhika Mali	Smt. Shama Abdul Gafoor Maner
Mr. Lahu Ramchandra Pawar	Mr. Sanjay Baban Bhalerao
Mr. Udayaraj Shivajirao Kalambe	Mr. Rajendra Baburao Kapse
Mr. Rajesh Sudhakar Rao Kapse	Mr. Rajendra Nanasaheb Pawar
Mr. Nilesh Dattaram Parte	Mr. Hanamant Govind Phadtare
Mr. Mahadev Aba Kasgawade	Smt. Shalini Ganesh Avhad
Mr. Vishwanath Bhaguji Patole	Mr. Dattu Runza Jadhav
Mr. Shailesh Maruti Naik	Dr. Ajaykumar Lolage (Member Secretary)
Dr. Vidya Sainath Kulkarni	

Type Setting

Textbook Bureau, Pune

Cover

Mrs. Anuradha Gowli, Mrs. Pradnya Kale

Translation/Scrutinizer

Dr. Vandana Savant
Dr. Sachin Tumbare
Dr. Mahesh Deshpande
Dr. Sharad Aher
Mr. Anand Yadav

Illustration

Mr. Sachin Nimbalkar
Mr. Prashant Tribhuvan

Production

Mr. Sachidanand Aphale,
Chief Production Officer
Mr. Sandeep Ajagaokar,
Production officer

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Co-ordination

Dr. Ajaykumar Lolage
Special Officer, Work Experience
and Incharge Special Officer,
Health and Physical Education
Textbook Bureau, Pune

Publisher

Vivek Uttam Gosavi,
Controller
Maharashtra State Textbook
Bureau, Prabhadevi,
Mumbai-400025



The Constitution of India

Preamble

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens:

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.

NATIONAL ANTHEM

Jana-gana-mana-adhināyaka jaya hē
Bhārata-bhāgya-vidhātā,

Panjāba-Sindhu-Gujarāta-Marāthā
Drāvida-Utkala-Banga

Vindhya-Himāchala-Yamunā-Gangā
uchchala-jaladhi-taranga

Tava subha nāmē jāgē, tava subha āsisa māgē,
gāhē tava jaya-gāthā,

Jana-gana-mangala-dāyaka jaya hē
Bhārata-bhāgya-vidhātā,

Jaya hē, Jaya hē, Jaya hē,
Jaya jaya jaya, jaya hē.

PLEDGE

India is my country. All Indians
are my brothers and sisters.

I love my country, and I am proud
of its rich and varied heritage. I shall
always strive to be worthy of it.

I shall give my parents, teachers
and all elders respect, and treat
everyone with courtesy.

To my country and my people,
I pledge my devotion. In their
well-being and prosperity alone lies
my happiness.

Preface

Dear Students,

Welcome to Standard Eleven. We are delighted to hand you a textbook on Health and Physical Education.

The book covers topics such as development of physical fitness, obesity, nature and diet, yoga and mudra, doping, injury management, modern technology to activism, opportunities in sports, various sports, sports competitions, and success stories. You will also study the important concepts in the field of sports.

The importance of health and physical education is unique and you will become the ideal citizen of tomorrow's healthy and entrepreneurial India. This requires preparation for the body as well as the mind. This textbook is designed to focus the student learning process, emphasize creativity and constructivism to achieve the minimum potential for physical reinforcement, and make the learning process fun and pleasant.

Essentials for a career in health and physical education field are included in the textbook. It will definitely help you.

It is expected that you will be able to understand the subject more thoroughly while studying the textbook, with the help of suggested, supplementary studies, use of information technology, various media support, group discussions, presentations as well as the help of teachers and parents.

To find out more about content, information is given in Q R Code. Visual information will be available to you through this Q.R. Code to make the learning process pleasant.

While reading, understanding the content in this, textbook, please do inform us which part or area you like or is difficult to understand. We wish you the best in your future academic life.



(Vivek Uttam Gosavi)

Director

Pune

Date : 16 September 2019

Indian Solar Date : 25, Bhadrapad, 1941

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For teachers

Physical Education is the education provided by physical movements that are pleasant, dynamic and capacity enhancing for the physical, intellectual, emotional and social development of the students. Games are inventions of human culture that are natural and innate. Holistic development of the personality is the goal of physical education.

The influx of modern era facilities has increased inactivity. Over use of electronic gadgets is causing neglect towards exercise and games. It is also affecting the work-rest pattern of individuals. The resultant drawback is elevated stress levels and physical disorders. To overcome these drawbacks, the effective implementation of exercise and games through physical education is imperative.

The guidelines given below will channelize our efforts in fulfilling the goal of physical education :

- To create an interest in exercise and games among students Plan a child-centred curriculum.
- Be informed of sports plan, concessions and scholarships for sports persons and facilitate its utilization.
- Keeping close association with District Sports Officer, Taluka Sports Officer and various sports associations, furnish students with up-to-date information.
- Organize intramural and Inter School Competitions motivating students with opportunities to participate.
- Keep students abreast of latest information on rules and regulation of the game, exercise, physical activity and health.
- **Theory part :** To teach each chapter, teacher should use two periods. Some chapter or theory part can be conducted on playground.
- While teaching practical chapters use constructivism methodology e.g Self learning, activity based experiences etc.
- **Practical part :** 80% work weightage of total workload should be utilised for practical. Following points have been included in practical part. (1) Physical fitness (2) Various games (3) Yoga (4) Activities (Events) or project (Each student must complete at least two activities throughout year.)
- The subject Health and Physical Education is not only related to sport person or player, but it is also important for every student. Take efforts to give this information to every student.
- Use proper technical knowledge to improve the sports skill for disabled students with respect to their ability.
- The study group is grateful to **Dr. Mahesh Deshpande, Dr. Sharad Aher, Dr. Yogesh Bodke, Dr. Anand Lunkad, Prof. Rupesh Thopte and Prof. Manoj Devlekar** for their co-operation in the process of writing and editing this textbook.

The game brings joy and contentment. Be happy playing games and making others happy.

For students

Exercise and games have a positive influence on physiological activities of respiration, digestion, blood circulation, etc. in the body. Exercise alone cannot positively impact on physical fitness. Our diet, daily routine, rest and sleep time play a crucial role in physical fitness.

Development of physical fitness, Obesity, Nature and Diet, Yoga and mudra, Doping, Injury management, Modern technology to activism, Career Opportunities in sports, Various Games, Various Sport Competitions, Success stories of sportsmen, etc. are included in our curriculum.

To lead a long healthy and happy life, our body needs to be physically fit. For this, it is necessary to exercise regularly, and pursue the game and hobbies of our choice in leisure time.

Modern facilities provide ease and convenience of daily routines, resulting in a sedentary lifestyle. Various diseases and disorders such as heart disease, hypertension, diabetes, disorders of the spine and neck, kidney, obesity, depression etc. are the outcome of this modern lifestyle and is reflected on personal and social health.

The subject Health and Physical Education gives guidelines to leading a healthy, fit and happy life. 'Health is wealth' is a popular tag line indicating that personal physical fitness should be a priority. The subject provides the opportunity to comprehend and participate in regular exercise programs and games of individual choice to maintain physical fitness. .

The School Games Federation of India (SGFI) has incorporated various team and individual sports for competitive purpose. Choose one team and one individual sport to acquire in-depth knowledge of its rules skills and regulations. Utilising this newly acquired knowledge, strive to maintain individual physical and mental fitness.

Outcomes :

- Develop personality through play.
- Comprehend the effects of sports and exercise on the human body.
- Creates awareness about physical health and increases level of physical fitness.
- Spare specific time for exercise and sports.
- Apply Yoga program to improve mental health, relieve stress and increase concentration. Valuing an active lifestyle.

Prime mission – 'Health and Physical education for holistic development'

Health and Physical Education for standard XI

Competency statements

- To generate awareness of holistic development.
- To plan exercise and diet for physical fitness.
- To develop physical fitness through rhythmic exercise.
- To adopt advanced and technically sound exercise and skills.
- To comprehend the misconception and effect of performance enhancing drugs.
- To develop team spirit to embrace sportsmanship and leadership qualities.
- To acquire information about sports related injuries, first aid and cardiopulmonary resuscitation (CPR).
- To obtain information on professional opportunities in sports and how to acquire them.
- To be inspired by success stories of sportsmen.
- To be informed of the different levels of competition.
- To increase physical fitness through training programs.
- To develop physical and intellectual abilities based on innate strengths and weaknesses.
- To be informed about games, their rules and ground measurement.
- To be aware of modern technology that stimulates physical activity and fitness.
- To be informed about arrangement and facility management of various sports.
- To embrace a stress-free lifestyle.
- To practice and adopt a lifestyle that aids sports dexterity.

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Wimbledon Men's Cup



Cricket World Cup



Football World Cup



Wimbledon Women's Cup



Volleyball



Football



Basketball



Softball



Cricket Ball



Hockeyball

1. Development of Physical Fitness

Objectives

- (1) To get introduced to exercises for physical fitness development.
- (2) To be cognizant of activities that contribute to the development of physical fitness.
- (3) To gather information on scientific training methods to enhance physical fitness.
- (4) To motivate students to improve physical fitness through exercise activities and training methods.

Physical fitness is not just a theoretical subject to be read about, but is a subject to be experienced. This experience to be effective, it is important to understand some concepts related to physical fitness. Physical fitness development is not the need of players alone. Developing and maintaining physical fitness is a challenge, but not impossible. You have to dedicate some time for this during the day and take action. It does not require a lot of money or space, but only time and will power. It is important to understand that there is no shortcut to developing physical fitness.

Physical fitness consists of various components. A single activity alone is not sufficient to develop all these components. It is imperative to have a variety of activities to develop the different physical fitness components

Physical Fitness is identified as

- Health Related Physical Fitness
- Skill Related Physical Fitness

Health Related Physical Fitness components

- (1) Cardiovascular endurance
- (2) Muscular strength
- (3) Muscular endurance
- (4) Flexibility
- (5) Body composition

Skill Related Physical Fitness components

- (1) Speed
- (2) Power
- (3) Agility
- (4) Co-ordination
- (5) Balance
- (6) Reaction time

A few activities that help to develop the above components are as follows:

- 1. Cycling :** Cycling is an effective activity for enhancing endurance and stamina. It is also an effective activity for reducing fat levels and improving balance and co-ordination in the body. The use of bicycle for daily tasks will provide exercise to the body, save for travelling money and help reduce pollution. Likewise, organizing bicycle trips to nearby places will provide stability and fitness for recreation.

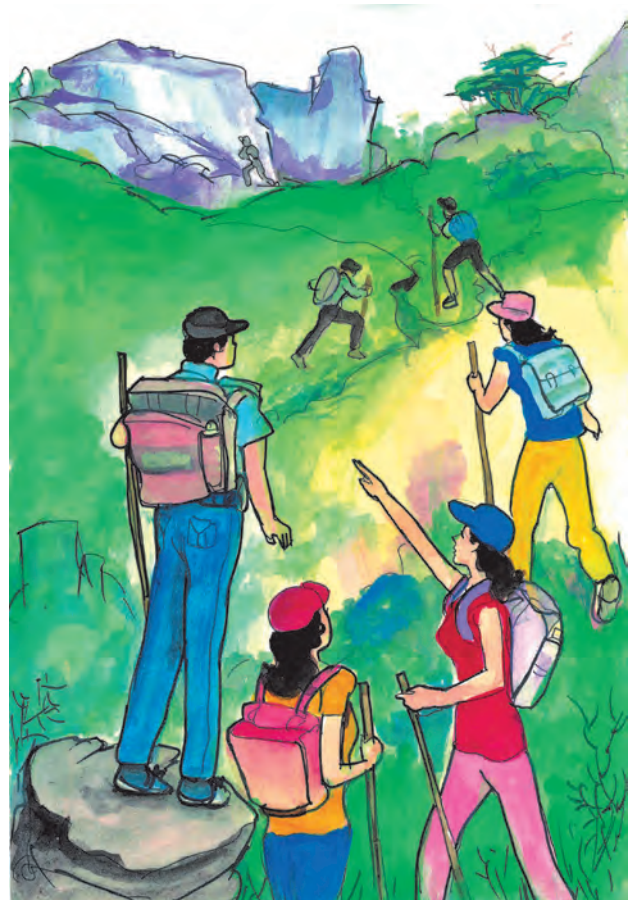


2. Rhythmic movements : Currently it is very popular among young generation because rhythmic activities like Dance and Zumba are based on music and so avoids boredom. Performing rhythmic movements step-wise for a period of 20 – 30 minutes will help to improve fitness variables. Different rhythmic activities include aerobics, Zumba, rhythmic gymnastics, etc. All these activities help to increase the endurance level of the body.



3. Games : Participating regularly in games of your choice will help to promote health and physical fitness. It helps to reduce academic stress, and is important to the mental and emotional aspects of fitness. Regular participation in various games such as kabaddi, kho-kho, football, basketball, table tennis, badminton, cricket, wrestling, etc. will help to maintain physical fitness.

4. Hiking and Trekking : Walking on nature trails along hilly regions has become a popular activity nowadays. Going for a hike or trek in between the hectic and fast paced life of today, helps to increase blood circulation, relaxes the mind and helps to improve mental health. Such activities are known as Lifestyle activities as they do not require company but can be done alone too.



5. Walking, running or swimming:

Walking, running or swimming helps to increase cardiovascular endurance and efficiency of the circulatory system. These activities are currently, very popular because they can help to control lifestyle diseases like diabetes and high blood pressure that are widely prevalent in society today. Swimming is an all round exercise. It helps in the rehabilitation process to heal injuries and also helps to control body temperature. Exercise by walking or running should be done for at least 20 to 60 minutes at a stretch. The intensity of the walk or run is an important factor while exercising. By regulating the walking or running pace, the intensity level of the exercise can be termed as low, moderate or high. There are different methods to monitor exercise intensity.

6. Yoga :

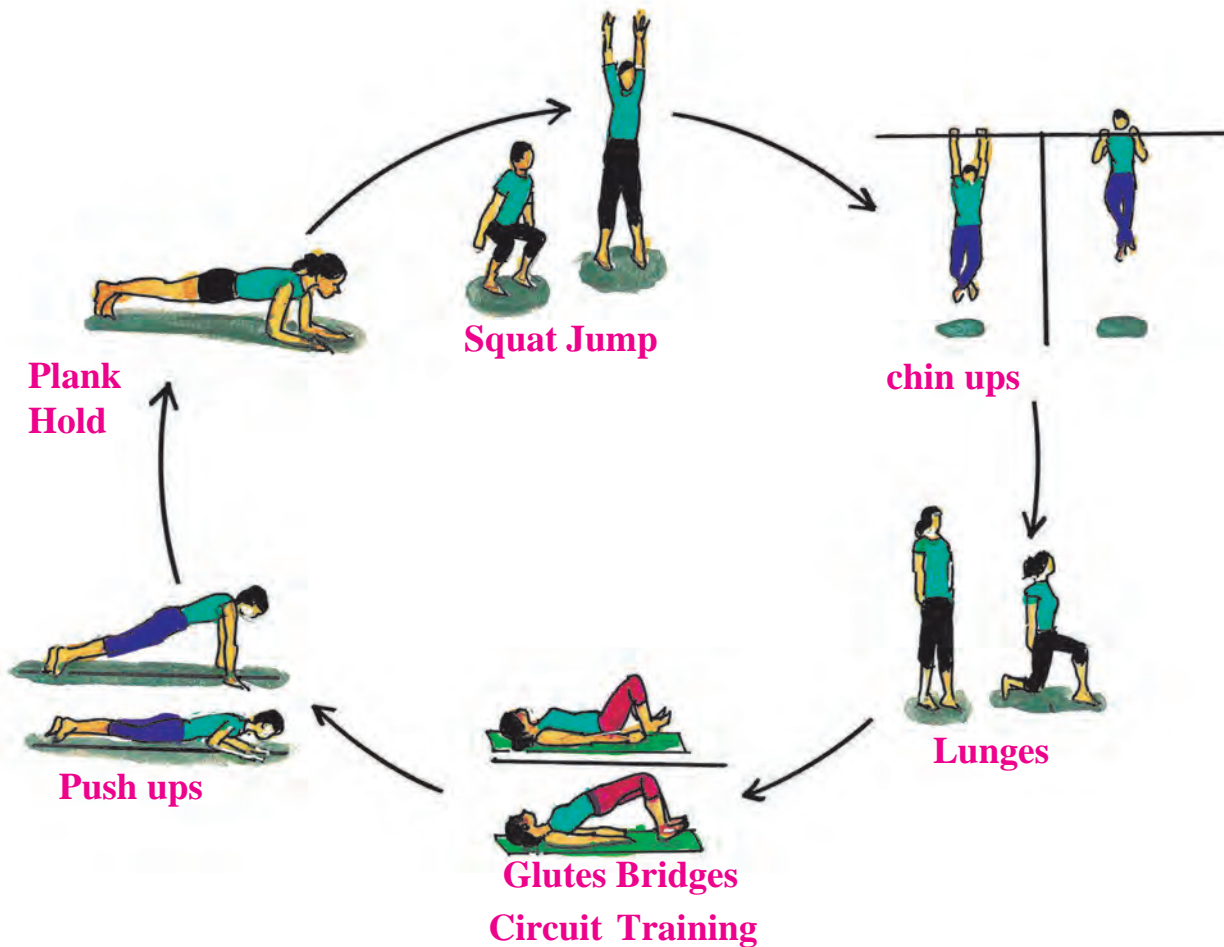


Yoga is one of the gifts that India has given to the world. Yoga is not just an exercise; it is a lifestyle. Yoga involves asana, pranayama, meditation. Yoga offers all kinds of benefits to life, physical, mental, emotional and

spiritual. It is very useful for mental stability and peace of mind. Likewise, yoga helps in controlling many diseases related to diabetes, blood pressure, lungs and heart related diseases, Which is mentioned in various Indian texts. When doing yoga, begin with expert's guidance.

7. Training Methods : Training methods have a very important role to play in development of fitness. There are various training methods that can help improve fitness. For example, Circuit training, Weight training, Fartlek training, Plyometric training, etc. The basic details of these training methods are as follows:

7.1 Circuit training : Amongst the different training methods used, Circuit training is one of the most well-known methods. This method is used to develop the physical fitness required for different sports. In this training method, many activities or exercises are done in a specific order that forms the circuit. Each exercise is to be done for a fixed time or for a fixed count and then the next exercise in the circuit is to be done. Improved muscle endurance and develop fitness is the prime objective of Circuit training.



- In circuit training there are at least 6 to 10 pre-decided exercise stations. The number of exercises can be increased based on the fitness of the sports person.
- Circuit training involves the exercise of major muscles in the body.
- After each exercise there is a rest period followed by the next exercise. The rest duration between two exercise stations can range from 30 to 60 seconds.
- The time duration or frequency of doing the exercise or activity at every station is fixed, based on the sport and the objective to be achieved in the process.
- When all the exercises selected for circuit training are performed once, then one circuit is completed. In one

such training session 2 to 6 circuits can be performed. Based on the fitness levels the number of such circuits is to be determined.

- The rest period between two circuits could be anywhere between 3 to 5 minutes.

7.2 Weight training : A very popular training method currently prevalent amongst youngsters is weight training. These include exercises performed with the help of free weights or machines. Increasing muscle strength and muscle endurance are the prime objective of weight training. Weight training as a training method is popular amongst common people, just as it is amongst sports persons.



Weight training

- Weight training exercises are different for the various body parts such as the arms, shoulders, chest, back and legs.
- In weight training, repetitions of each exercise is usually between 8 to 15 counts. It can vary depending on the level of fitness and the purpose.
- The number of sets of a particular exercise in weight training will be in the range of 2 to 3.
- Rest period between two sets of exercise is about one to three minutes.
- Weight training should be done for all the major muscle groups in the body and not be specific to one muscle.
- Seek expert guidance to maintain proper body posture while weight training to help avoid injury.
- Few Weight Training exercises:

Bench Press, Shoulder Press, Squat, Bicep Curl, Leg Press, etc.

Important

- Level of fitness of an individual is unique. So, while weight training avoid comparison with others.
- To observe results of any training a minimum of 6 to 8 weeks or more is needed. Immediate results in a day or two cannot be visible.

7.3 Plyometrics Training Method:

The fitness component of explosive strength can be enhanced with plyometric training. All movements in this training are fast, vigorous, and explosive. Plyometric training is more useful for sports like athletics, volleyball and basketball.



Plyometrics Training

- Plyometric Training involves intense and explosive movements and so individuals with joints problems should avoid this training.
- Proper warm up should be performed before plyometric training, followed by muscle relaxing exercises after training.
- Plyometric training should be done under the supervision of a specialist as there is possibility for injury.
- Rest duration between two sets could range between three to five minutes.
- Few Plyometric exercises : Squat Jump, Plyometric pushups, Box jump, Depth jump, Split squat jump, etc.

Intensity measurement while training:

Intensity is an important factor while exercising or training. To assess intensity level while training there are some objective techniques and some individualized techniques.

Borg RPE Scale is as follows :

Rate of Perceived Exertion (RPE):

This technique is very popular in assessing the intensity level while exercising and training.

Procedure : An individual can self-assess the intensity level of the workout on a scale from 0 to 10 while exercising or the trainer can rate the intensity of the workout observing the physical symptoms while the individual is exercising.

Table G. Borg's RPE scale

1–10 Borg Rating of Perceived Exertion Scale	
0	Rest
1	Really Easy
2	Easy
3	Moderate
4	Sort of Hard
5	Hard
6	
7	Really Hard
8	
9	Really, Really Hard
10	Maximal : Just like my hardest race

Talk test - is an easy method to monitor intensity while performing endurance exercises. It does not require any equipment. Walking, running, cycling, swimming, dancing are all endurance activities involving the cardio respiratory system. If the intensity is appropriate while doing these exercises then only it will help in developing the cardio vascular endurance and hence the talk test technique is useful to test the intensity.

Procedure : Walking, running or cycling elevates the breathing rate. While doing such activities if you can speak non-stop but cannot sing, then your intensity is medium. While walking if you cannot speak and you experience breathlessness

while speaking then the intensity is high.

Misconceptions about physical fitness and exercise

1. Weight training is meant for men and not for women is a big misconception.
2. Lifting weights or weight training by women will make their muscles big, like men is also a big misconception about weight training. By nature, there are physiological differences between men and women, and even though women do weight training, their muscles will not bulk like those of men. Some men feel that they need not go to the gym as they do not want to appear like a bodybuilder. But only going to the gym cannot make one look like a bodybuilder.
3. I don't want to lose weight so I don't need to exercise is a misconception of many people. Exercise is not only for weight loss or for athletes but is important for the basic health and well-being of the general public.
4. Exercising is very difficult, requires lot of time, sweat and hard work is a misconception in the society. Participating regularly in any physical activity of your choice, makes physical activity a part of your lifestyle. Research in exercise science has advanced so much that under proper and guided supervision, effectiveness of exercise can be experienced in a minimum period of time.
5. Exercising is boring. To make exercise interesting the lesson provides information on different activities like

rhythmic movement performed to music, hiking, etc. that are good forms of exercises. Playing regularly a sport of your choice is also a good form of exercising. So, exercise is not just about running and squat thrust.

6. To increase muscle mass, ingestion of protein supplements or protein shakes is necessary. This is a big misconception spreading amongst the youth now a days. Protein supplement is needed mainly for body builders or high performing sports persons as the natural diet consumed may not

be sufficient for those participating in high intensity workouts and long duration training. Protein supplementation is conducive in such cases.

7. Sit-ups or crunches reduces abdominal fat. Body fat around the abdomen cannot be reduced with exercise targeted to that region alone. But overall body fat levels can be brought down through proper exercise. Sit ups or crunches are exercises to increase abdominal muscle strength and muscle endurance but not burn fat around the abdominal region.

Exercise

Q.1 Fill in the blanks.

- (1) Circuit training consists of at least ----- exercises.
- (2) Plyometric training develops --- ----- component of fitness.
- (3) Borg's technique measures -----.
- (4) Rest time period between two sets of plyometric exercise should be ----- minutes.

Q.2 Answer in brief.

- (1) Write in short the benefits of weight training method.
- (2) Give information about plyometric training.
- (3) What are the various activities for developing fitness?
- (4) What are the misconceptions about fitness and exercise?

Supplementary Studies :

Prepare a circuit training program of at least 6 exercises for oneself.

2. Obesity

Objectives

- (1) To understand the information on obesity.
- (2) To understand the ill effects of excess body fat.
- (3) To be aware of obesity measurement techniques.
- (4) To be informed about possible diseases caused by obesity.
- (5) To know about obesity prevention and remedy.

Every individual is keen on a life that is healthy and free from disease.

The World Health Organization has appropriately defined health as *“Health is not merely the absence of disease or disability but. it is a state of complete physical, mental and social well-being”*

Illness or aggravation of a disorder affects the physical, mental or social aspect of the individual. Obesity is considered as disease as per guidelines and principles of health organization because it invites many other diseases.

Obesity is the abnormal or excessive accumulation of fat in the body. Obesity is a growing global issue and in India it is increasing very largely day by day. Previously, obesity was found to be higher in adults. However, in recent times, the prevalence of obesity has been increasing in all age groups. Although the World Health Organization has

declared obesity to be a disease and a disability, it seems that even most educated people still fail to realize it. Though the prevalence of obesity in rural areas are found to be low due to their active lifestyle, the overuse of modern equipment's is causing the people in rural areas to become inactive and hence they are also at risk of obesity.

Common Types Of Obesity

Apple Shape, Pear Shape :

Obese people have excess fat content in the body. The fat is stored more prominently in certain parts of the body. In India, obese people have a tendency to store this excess fat around their stomach and waist. In both men and women the fat is stored in different parts of the body and obesity in the individual can be identified based on it.



Pear Shape



Apple Shape

Techniques of Measuring Obesity:

There are different techniques developed to measure obesity. In this Body Mass Index (BMI), Waist to Hip Ratio (WHR), Skin-fold thickness, Fat percentage and other such measurements are used. Body mass index is the most prevalent out of these.

The World Health Organization has laid the criteria to categorise individuals as obese using BMI (Body Mass Index) and WHR (Waist to Hip ratio). BMI is the measurement of a person's weight with respect to the height. It is expected that as height increases weight also increases but it should be in proportion.

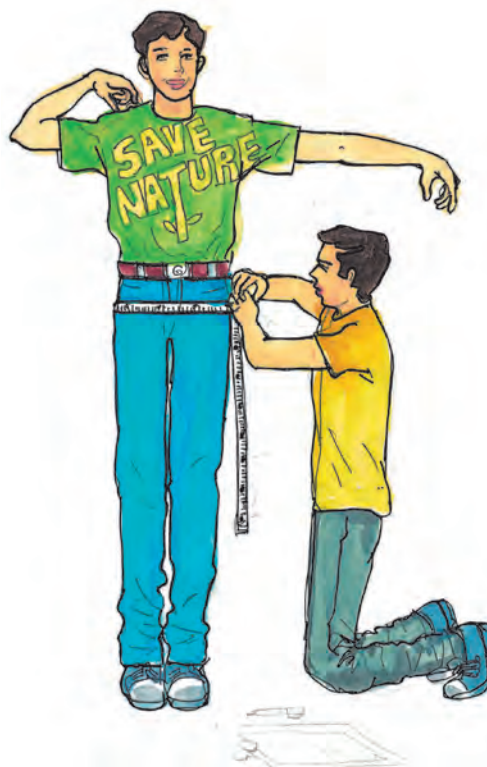
A) Waist to Hip Ratio :

$$\text{W.H.R.} = \frac{\text{Waist circumference (cm)}}{\text{Hip circumference (cm)}}$$

In men, this ratio should not be more than 1 and in women it should not be more than 0.85. You can find your WHR from the above mathematical formula.



Measuring Hip



Measuring waist

- 2. Body Mass Index :** Obesity means 30% excess weight than height. We must understand what is body mass index to assess whether our weight is appropriate or not. It is not possible to differentiate amount of muscles or amount of fat from BMI and this could be a limitation. For example many a times an athlete has excellent fitness but because of his body structure he may have high BMI, still he can not be called obese. That is why BMI is general measure. The weight is measured in kilograms and the height in meters. The weight is divided by the square of the height, to get the BMI.

$$\text{BMI} = \frac{\text{Weight (Kg)}}{\text{Height (M)}^2}$$



Measuring Weight



Measuring Height

The World Health Organization have made the following criteria available to interpret BMI.

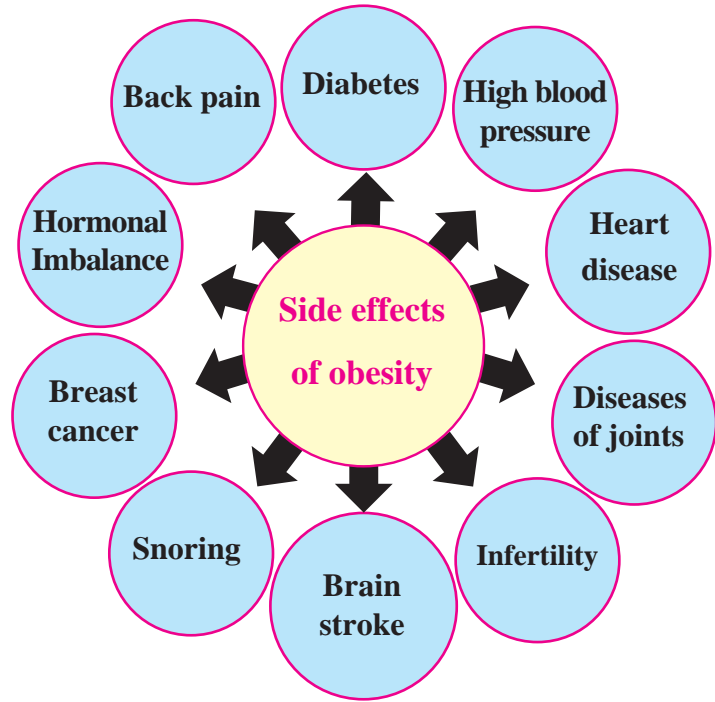
BMI	Classification
Less than 18.5	Underweight
18.5-24.9	Normal weight
25.0-29.9	Overweight
30.0-34.9	Class I obesity
35.0-39.9	Class II obesity
More than 40.0	Class III obesity

Various techniques for measuring fat content :

It is important to be aware of the fat percentage in the body weight of an individual. There are various scientific methods available to measure fat content.

1. Skin fold callipers can be used to measure fat in three to seven areas of the body. It is a simple and inexpensive method. Accuracy while measuring the skin fold is important.
2. By measuring the circumference of certain body parts is another simple method to estimate body fat.

3. Dual energy X-ray absorptiometry (DEXA) scan can measure fat content accurately.
4. Hydrostatic weighing in this density is measured by weighing under water. This method is accurate but not easily available.
5. Bioelectrical Impedance is one of the fast and easy method. Now a days there are many machines based on this principles that are available.
E.g. Fat Monitors.



Bad Effects of Obesity :

Many incurable diseases occur due to Obesity. Fat people get diseases like diabetes, blood pressure, heart disease, joints diseases, brain stroke, infertility, breast cancer, hormonal imbalance, back pain and snoring and many such diseases at early stage. Many times due to these reasons there is possibility that obese people die prematurely.

Causes of Obesity :

Obesity is not a sudden occurrence. Heredity, sedentary lifestyle, laziness, lack of movements, untimely eating, inappropriate eating habits, intake of excessive cold drinks, not following sleeping and wake up time, family environment, inappropriate mind-set and today's very important reason is screen time. (Screen time is the time spent using mobile, watching T.V, playing video games, laptop and computer etc.) They are all factors causing obesity. The most important factor is lifestyle. In fact it is found that obesity is due to laziness and inactivity.



Improper diet and obesity

- Weight gain as we age is a natural tendency. However, having less and appropriate weight while ageing is ideal.
- Gaining body weight is always easy, but weight loss can be excruciating and difficult.
- Developing a pot belly is risky but can be easily avoided. It leads to an adverse effect on both the physical fitness and health.
- Excessive intake of foods such as potatoes, sugar, oils, vegetable ghee, sweets, etc. leads to obesity.

- Every individual should track their weight and ensure not to get overweight.

Understand the causes of obesity and check if it applies to someone you know.

- Modern and sedentary lifestyle
- Laziness
- Very little movement
- Getting work done by servants or others
- Eat more and work less
- Untimely eating
- Inappropriate eating habits

- Intake of excessive cold drinks
- Irregular sleeping and wake up time.
- Mental Imbalance
- Heredity

Prevention and Treatment of obesity :

Obesity can be controlled and reduced with appropriate diet and regular exercise. With regards to obesity, prevention is better than cure. The means to avoid obesity is awareness and adopting a healthy lifestyle accordingly. For this purpose from the school going age itself, health education is needed and an active lifestyle should be inculcated.

To avoid obesity

Do it	Don't do it
Do your own house work.	Avoid the overuse of mobile.
Use a bicycle instead of using a motor bike every time.	Minimize playing video games.
Eat appropriate diet.	Avoid over eating fried foods.
Eat more leafy vegetables.	Avoid junk food like burgers, pizza, etc.
Manage meal time.	Avoid consuming food made from maida.
Keep stomach a little empty.	Avoid eating late at night.
Get more active with emergence of a pot belly.	Avoid untimely eating due to pressure from friends, parents and siblings.
Be consistent in your daily routine.	Avoid irregularity in daily activities.
Sleep early in the night and wake up early in the morning.	Avoid sleeping late and getting up late.
Engage in physical activities during leisure time.	Avoid misuse of leisure time.
Participate in swimming, cycling, trekking groups, etc.	Avoid adopting bad habits.
Go for picnic on holidays.	Avoid misuse of holiday periods.
Challenge your own physical abilities.	Avoid Over confidence
Check body weight regularly.	Avoid untimely food habits

So, are we obese or not ? Let us find the answer to this question today and keep our routine work active.

Exercise

Q.1 Fill in the blanks.

1. Obesity is the excessive of -----
---- in the body.
2. -----organization has
declared obesity as an disease
and a disability.
3. In India, obese people have a
tendency to store fat around
their -----and -----.
4. To calculate BMI weight is
measured in ----- and height is
measured in ----- and weight is
divided by square of height.

5. Sanket has a BMI of 29.9, so it
will be classified as -----
type of obesity.

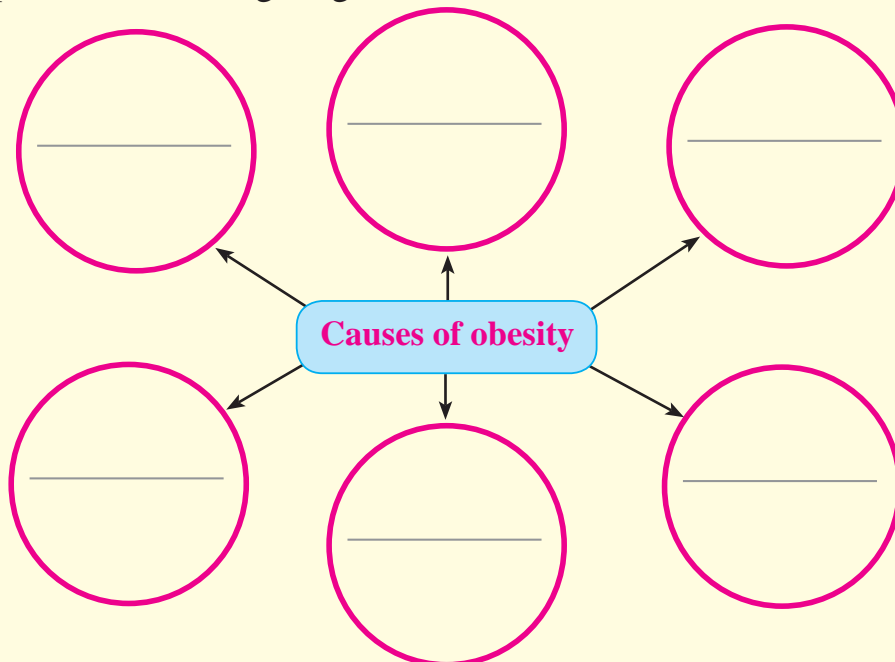
Q.2 Answer in brief.

1. Explain the definition of health
given by the World Health
Organization.
2. Write any six reasons of obesity.
3. Explain the hazards of obesity.
4. Explain how obesity can be
controlled.

Supplementary Studies :

Complete any one of the following activity.

- (1) Measure the weight and height of ten individuals known to you, and calculate their BMI, and decide the category which they can be placed as per the criterion.
- (2) Find and compare different methods to measure fat.
- (3) Make a list of appropriate and inappropriate food items.
- (4) Complete the following diagram.



3. Nature And Diet

Objectives

- (1) To understand importance of diet based on Indian Ayurvedic science.
- (2) To understand diet specific to one's region and natural environment.
- (3) To understand diet suitable to one's own nature.
- (4) To create awareness that diet affects on the body as well as the mind.
- (5) To maintain and enhance physical fitness through proper diet.
- (6) To differentiate between diet requirements of a player and a normal person.

Food is the most basic and renewable source of energy for the body. It is the source of fuel for the body to keep functioning continuously. Diet provides the life-giving nourishment that the body needs. It is the tonic that replenishes our body. In other words, diet enables the body to complete all the functions.

The energy required for every



organism comes from the food it consumes. All living organisms right from a single cell amoeba to the super intelligent human being, have the ability to obtain their food. Although the nature of food, the ability to obtain, consume and digest it, may be different for different living beings. The ultimate truth remains is that food sustains life.

Dietary factors as described in traditional Indian sciences

On a minute note it can be observed that each constituent of food is obtained from nature. All the living beings as well as the nutrition required by them has come from nature itself.

According to the principles of Indian Sciences the whole universe is formed after the integration of five basic elements that is the 'Panchmahabhutas', earth, water, fire, air and ether.

Although the universe is enabled after combining all above 'Panchmahabhutas' one always finds a dominance of one of these in the food that one consumes. For example one observes a dominance of the earth elements in wheat, jowar or component of water in fruits and milks or component of air in the fermented food substances.

Five basic elements (Panchmahabhutas) and six tastes (Shadrasas)

The diet consisting all the five Panchmahabhutas is a balanced diet as it is enriched with proper proportions of

carbohydrates, proteins, fats, vitamins and minerals. One can find the important information on diet in the Indian Ayurvedic science. According to Ayurveda, an ideal diet should incorporate all the six tastes (flavours.) They are sweet (madhura), sour (amla), salty (lavana), pungent (Tikhat), Bitter (katu) and Astringent (kashaya). Our daily diet should consist of these tastes.

The food based on these six different flavours is also a combination of the five basic elements (panchamahabhutas) in various proportions.

Example :

Sweet	-	earth and water
Sour	-	earth and fire
Salty	-	water and fire
Bitter	-	air and Ether
Pungent	-	air and Fire
Astringent	-	air and earth

Role of the six basic tastes

The food items consisting of these six types of tastes helps us to enhance our appetite as well as in different bodily functions and movements for example the sweet help in nourishing and strengthening the human body . The sour tasting food items help create an appetite , triggers the secretion of the digestive juices. The food items with salt help in giving taste to the food, reduces lethargy and obesity, increase secretions of various glands. The bitter food absorbs excessive secretions and helps digestion of food and maintain appetite. Pungent food activates gastro intestine and

absorbs excess secretion, reduces excess viscosity and gives taste to the food. Astringent food gives contentment to the mind. Thus the diet constituting of four colours should be inclusive of all six rasas. (tastes).

Food culture

The Indian culture is known for its diversity. This diversity is reflected in standard of living, costumes, traditions duties, religious practices followed and also the diet of the particular regions. The Indian food culture is the manifestation of deep thought process of our ancestors. Thus each such state came up with a diet conducive to their climate conditions and thus 'Ahar Sanskriti' was created;

Food components suited to the natural environment

The cereals, fruits and vegetables produced in a particular region are suitable for that region and thus became the staple diet of that region. It is the mechanism created by nature. Thus walnuts which are warm in nature are produced in colder regions while coconuts which quench thirst are produced in humid coastal regions. Thus the availability of different food constitutes to create a regional food culture. The regions are diverse in environment, temperature and water so they produce specific food grains, vegetables and fruits of unique quality.

Listen to the call of your body

It is always advisable to consume the food and grain produced locally as it is

easy for the body to digest. The food and grain produce not natural to region may lead to indigestion and can also cause various ailments. We and our food habits need to acclimatize to the climatic conditions in the region where we are staying. A dip in temperature creates a desire to drink hot tea while a rise to drink cold lemon water.

Seasonal diet

There is a wonderful scientific concept in Ayurveda called the 'Ritucharya'. The Ritucharya helps in creating a homeostasis by reducing the tension created due to the difference between the changing external environment and the actual condition of the internal constituents of the body. It helps in maintaining good health, building a good immune system and also helps eliminate the bad in the body.

As the earth revolves around the sun we experience the different seasons. In India basically, two time periods are followed: Uttarayana (northern movement of the sun) and Dakshinayana (southern solstice). These two time periods have three different seasons respectively. In Uttarayana the seasons are Shishira (winter), Vasanta (spring), Grishma (summer) while in Dakshinayana the seasons are Varsha (monsoon), Sharada (Autumn) and Hemanta (late autumn). Uttarayana indicates the ascent of the sun. In this period the sun and the wind are powerful. During this strength of the body goes down. It is called the Adana Period.

Dakshinayana indicates the descent of the sun or movement of sun in the southern direction. The earth becomes cool and the strength of the body increases. It is called the Visarga Period. With the knowledge of Ritucharya and by practicing regimen in accordance with the Ritu (season) to maintain harmony of the Tridosha - Vata, Pitta and Kapha one can stay healthy across seasons. If these scientific ideas are put into practice one can acquire and sustain good health. With the change in season there is high likelihood of changes in the Vata (wind), Pitta (bile) and Kapha (phlegm), causing various diseases. Our ancestors over the years have understood the importance of seasonal diet. Thus they interwoven the concept of seasonal diet with various festivals and celebrations, naturally leading to its faithful following by the society.

Diet based on physical needs of the body

Food is to be consumed based on the requirement of the body. An athlete may modify diet according to the immediate requirement to enable enhanced and consistent performance.

1. Diet for building strength :

Food for this purpose will increase the strength in the muscle fibers and the bones of the body. Such food will include a good quantity of milk, dates, fig, almond, pistachios, walnut, bananas, lentils, coconut, apricots, shrikhand, meat cooked with less spices, eggs and food of sweet flavor.

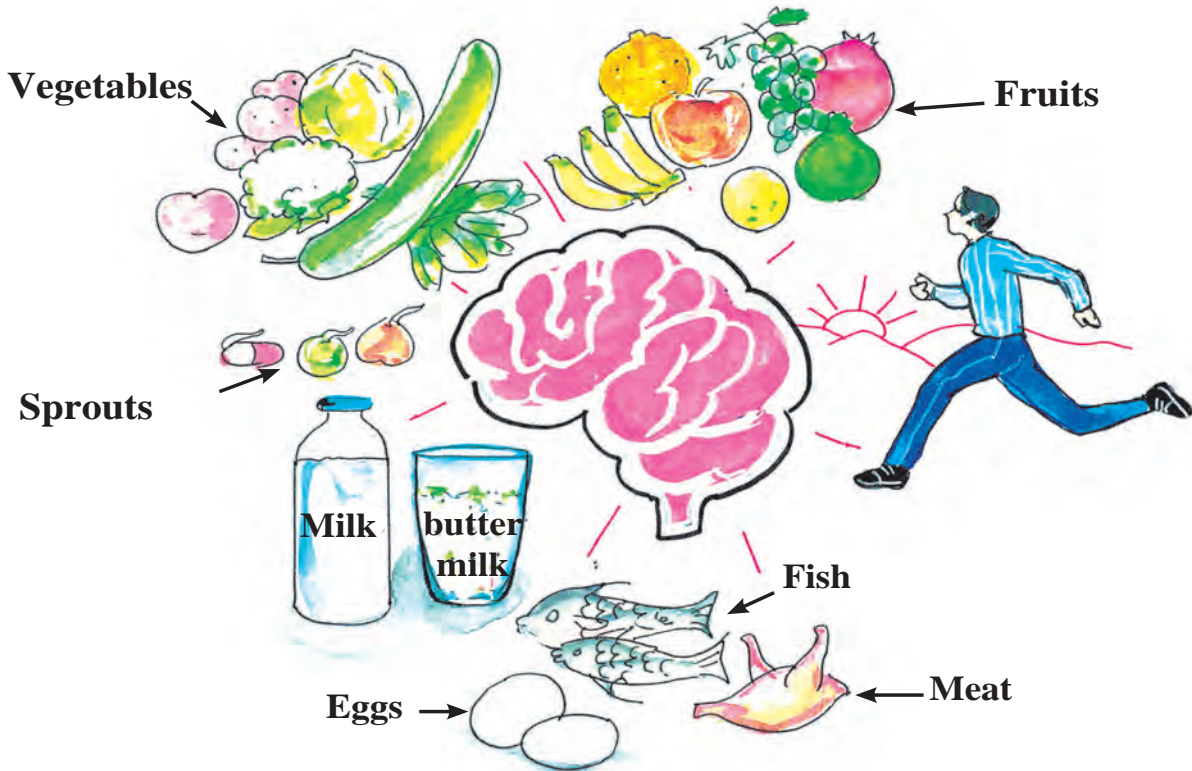
2. **Diet that reduces fatigue :** This diet needs to increase the stamina of the players and reduce the recovery time. They include sour juices, pomegranate juice, shrikhand pills, tamarind pills, butter milk, sweet and sour drinks.
3. **Rejuvenating diet :** After an entire day's load, relieving the body of fatigue alone is not sufficient. Following rest, the body with the help of a proper diet has to replenish itself for another day of workout and training. Dry fruits like figs, raisins, almonds, bananas, ghee, jaggery, non-veg soup, milkshakes are included.
4. **Performance enhancing diet :** Along with consistent and regular training there needs to be the intake of the right type of diet. Inclusion of ghee, fenugreek seeds, asofoetida, curry leaves, soybeans, beetroot is necessary. Such diet maintains the nutrients in the body and helps training at high level. For performance enhancement before competition a light diet, low on spices, should be incorporated. Day prior to competition sweet potato kheer, paratha made from potatoes, cheese paratha can be good. Also adequate rest before the competition will greatly help in performing well.

Diet and the mind

Many varying factors have been studied when taking diet into consideration. The nature of diet, its constituent substances, the need of the body, nutritional values of the food, digestion of the food consumed, ability of the body to facilitate the digestive process and many such factors have been looked into. However, there is one factor that is related to this complete process but is generally neglected and that is the human mind. The human mind although not a visible element in the body manifests its existence in different ways. For the proper functioning of the various systems of the body the mind has an important role to play. Assisting and controlling the functions of the organs of the body and assisting these processes at the right time and many such activities are controlled by the mind.

(1) Mind and Secretions of glands :

In the digestive system many secretions help in the digestive process. Salivary secretions, gastric juices play a very vital role in this process. If the mind is in a pleasant state all the secretions will take place in the right proportion. Unhappiness, sadness, irritability, anger such moods affect not only the intake but also the digestion process of the food consumed. Just as the physical fitness of the person is vital so also the mental fitness of the person plays an important role for achieving success. The



Diet and mind

feelings and emotions that play in the mind affect the mental state that control and moderate the release of hormones that affect the functioning of the body. This in turn affects the metabolic rate of the body. Consistent depressing thoughts affect release of secretions that control intake and digestion process. The feeling of hunger is present in every living thing. However, control over what to eat and how much to eat is at times lost due to a bad state of mind. A resulting ill effect is anorexia nervosa meaning very poor food intake with an unwarranted fear of being overweight or bulimia nervosa meaning bingeing, followed by methods for weight-loss by vomiting, excessive exercising or fasting.

Both these conditions are detrimental to the body and will result in poor performance.

The ancient science of Ayurveda and Yoga has deeply considered this aspect of mind affecting the body functions. The unpleasant state of mind aggravating the negative effects on the body has been explicit in the science of Ayurveda.

(2) **Relation of diet and mind :**

People are constantly under stress. The stress to achieve success and maintain it, stress caused due to poor performance, professional competitiveness, fast paced lifestyle, inadequate rest, all affect the efforts and the ability of the individual. It is necessary to be aware of these realities and overcome them. Keeping the mind in a pleasant

state while eating, keeping negative thoughts away and enjoying food without stress is important. If these techniques are followed then success and contentment will be achieved even faster.

Individuals today are in a constant state of anxiousness and worry, having a fear of failure. Their diet should make use of good fat, sweet and sour flavoured food items; food made using ginger, garlic, coconut, asafoetida, mint leaves, fruits and vegetables. It is helpful to reduce the use of green peas, potatoes, *pavata* and *harbhara*.

A constant state of aggressiveness as seen in athletes can lead to an irritable gall bladder. This causes excess secretion of bile. In such times avoid consumption of millet, urad, sesame, tur, pungent and spicy food. Instead, increased intake of leafy vegetables and fruits, bottle gourd, pumpkin, red pumpkin, grapes, black currant, avala, gulkhanda is helpful.

Diet of sportsperson

A wholesome diet is necessary to nourish the body. So also, replenishing the body with nutrient rich diet is imperative. The body that is involved in labour intensive work gets exhausted faster and requires greater amount of nutrient rich replenishment. To ensure this happens, the diet moderation needs to be according to the intensity of exercise performed. Otherwise the growth of the body is stunted and it becomes the

doorway to the causes of various injuries and ailments.

1. Adequate diet : One of the essential qualities that a player needs to acquire is muscle strength, and more importantly to maintain it over time. So, while planning the athletes diet the following should be considered:

- Exercise – type and duration
- Duration and exertion caused in daily travel
- Duration of time spend outdoor in school / college

In all, the daily physical activities performed, the energy requirements for the same, the dietary components that will provide for these energy requirements, all need to be considered.

2. The Balanced diet : The daily diet of the athlete should be complete with maximum nutritional values. For example, the carbohydrate should be made available from grains that are unpolished or grains that are processed to the minimum. Proteins obtained from cereals, sprouts, cooked pulses, good quality milk and dairy products, poultry products like egg, meat, fat and ghee, homemade butter should be emphasized. Vitamins and minerals should be obtained from the natural sources of fruits and vegetables. Care should be taken not to focus on only one component of a wholesome diet. But every component of the diet

should be catered to while considering the dietary plan of an athlete.

Consuming food rich in carbohydrates an hour before training will be an instant source of energy for the body. Food such as boiled potatoes, sweet

potatoes, banana, groundnuts are advisable. 3 - 4 hours post training it is advisable to consume food rich in protein such as cereals, sprouts, soya beans, dairy products, non-fatty food, eggs and non-veg food.

Exercise

Q.1. Answer in one sentence.

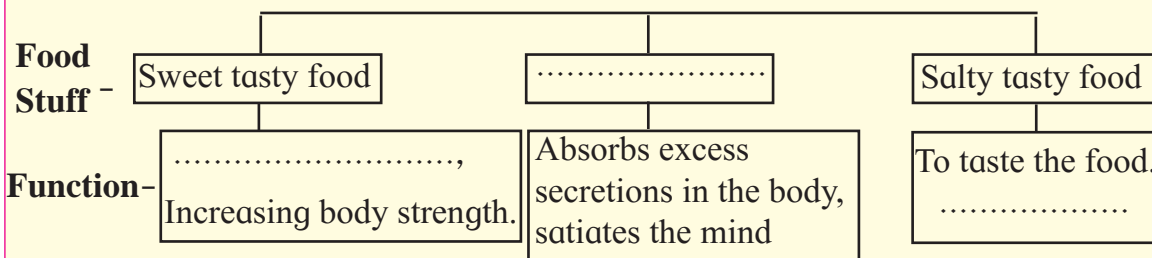
- (1) According to the theories of Panchamahabhut write the five components of food ?
- (2) What is meant by Adana Period?
- (3) What is the immediate source of energy for an athlete ?
- (4) Write any four components of food that help replenish the athletes body?
- (5) What should be the state of mind while having a meal?

Q.2. Match the following.

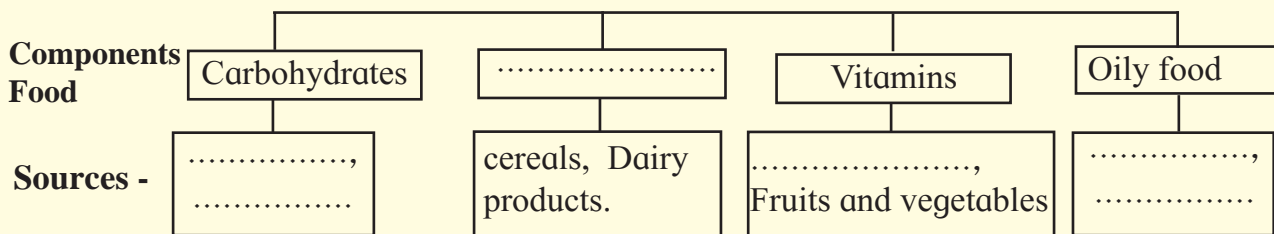
Group 'A'	Group 'B'
1) Diet for strength	a) Sour juices, shrikhand, butter milk, etc
2) Diet to replenish the body	b) Whole milk, banana, apricot, eggs, etc
3) Diet to reduce fatigue	c) Dry fruits, non-veg soup, sugar, milkshakes, etc

Supplementary Studies :

- (1) Fill in the blank based on secretions and its functions.



- (2) Complete the flow chart of the following dietary components.



4. Yoga and Mudra

Objectives

- (1) To adopt a stress-free lifestyle.
- (2) To accept pros and cons in oneself and achieve progress.
- (3) To study the various Mudra.
- (4) To maintain an emotional balance.
- (5) To achieve a positive approach to life.

Yoga

Yoga is an effective pathway to a happy and prosperous life. The word Yoga is derived from the Sanskrit root word 'yuj' which literally means to bind, join, attach and yoke, to direct and concentrate one's attention on, to use and apply. It means union or communion. It is 'the yoking of all the powers of body, mind and soul to God; it means the disciplining of the intellect, the mind, the emotions, the will, which Yoga presumes; it means a poise of the soul which enables to look at life in all its aspects evenly'.

The physical, psychological, emotional, intellectual, spiritual aspect in human beings personality is unique. Yoga is the key or a pathway to achieving balance in all these aspects. The practice of Yoga is an effective medium for the holistic development of the child.

Need for Yoga

The serene beauty of nature has been polluted which is man-made, emanating from polluted thought processes in man,

resulting in a negative vibe in the surroundings, without being explicit.

People are drifting apart from each other socially and within the family. Honesty and simplicity in life is a lost virtue. Dissatisfaction and intolerance are on the rise. Ethical way of life is being polluted progressively. The imbalance of the body, mind and soul, has begun to consume the individual physically and mentally. To steer away from this polluted and corrupted way of life, purity of conscience and maturity is imperative. The study and practice of Yoga as a way of life could be a life changing experience.

Asanas (Posture)

Meaning : The state or position of the body in which we can feel comfortable and steady is called the Asanas.

Asanas can be classified in two ways :

- based on purpose or objective
- body position

Let us understand further what it means.

1. Based on purpose or objective – The asanas based on purpose or objective are classified into 3 main groups :

A) Meditative asanas : These postures are useful during the practice of pranayama and meditation. They keep the body stable and comfortable for maximum duration. e.g. padmasana, siddhasana, vajrasana, swastikasana

B) Health enhancing / physique enhancing asanas : These asanas

are practiced to improve the physique and/or maintain health. e.g. sarvangasana, bhujangasana, vakrasana, etc.

C) Resting asanas : These asanas keep the body and mind relaxed, in a state of rest. e.g. shavasana, makarasana.

2. Based on body position – The practice of asanas need the body to move into different positions to get into the final pose. The final position of the asana when performed is supine, prone, sitting or standing.

1. Asanas in the supine position (lying on the back)

(A) Dronasana – (30 sec)



Position :

- (1) Exhale and while inhaling lift legs, shoulder and trunk off the ground keeping knee joint and elbow straight and hands moving as close to the toe as possible and touching toe in the final pose. The angle should be 45° to earth.
- (2) The weight of the body rests on the buttocks, be aware of the tensing abdominal muscles.
- (3) Look towards the toe, be comfortable and stable without straining and hold the final position.
- (4) Keep breathing normally while holding the final pose.

Releasing the Asana : In the reverse order release asana to original position.

Precautions : People suffering from severe headache and migraine should avoid this pose. Also, those suffering from spinal disorders should not practice this asana.

Benefits : The abdomen is toned and improves blood flow. Increase the muscle endurance. The efficiency of the spine and neck is also increased.

(B) Chakrasana (30 sec)



Position :

- (1) Lie in supine position, bend knee keeping feet hip-width apart and bring it close to buttocks.
- (2) Lift hands up and place palms on the floor behind the shoulder with fingers pointing to the shoulder.
- (3) Once comfortable, inhale and raise the hips maximum off the ground then slowly raise the shoulder with upper and lower limbs supporting the body weight.
- (4) Let head hang in a relaxed manner at the neck and try to keep knee and elbow as straight as possible in the final pose.
- (5) Keep breathing normally while holding the pose.

Precautions : People with slip disc, wrist injury, vertigo, high blood pressure or neck injury should avoid or perform under expert supervision.

Benefits : Increases spine flexibility and strength, tones the abdominal region, expands the chest increasing lung capacity, stimulates nervous and endocrine system, strengthens arms, shoulders and wrists.

2. Asanas in the prone position (lying on the stomach) (A) Bhujangasana



Position :

- (1) Lie on the stomach, feet together, hands to the side, forehead on the floor.
- (2) Move hands to the front, place palm on the ground at shoulder level.
- (3) Placing body weight on the palms inhale and raise head and trunk off the ground keeping elbows slightly bent.
- (4) Arch the neck backward but make sure shoulder blades are firm and away from the ears and feel the stomach pressed to the floor in the final pose.
- (5) Keep breathing normally while holding the pose.

Releasing the Asana : In the reverse order release asana to original position.

Precautions : People suffering from hernia, back injuries, intestinal disorder should avoid the asana.

Benefits : Makes the spine stronger and more flexible, stimulates digestive, reproductive and urinary system, regulates metabolism, works as a great stress release.

(B) Shalabhasana (30 sec)



Position :

- (1) Lie on the stomach with chin pressing to the ground and hands under the thighs and palms touching the floor.
- (2) While inhaling and pressing the palm to the ground, raise both feet off the ground keeping knee straight and feet together, toe pointing backward and hold final pose.
- (3) Keep breathing normally while holding the pose.

Releasing the Asana : In the reverse order release asana to original position.

Precautions : People suffering from hernia, hyper tension, heart ailments, peptic ulcers should avoid practice of the asana.

Benefits : Strengthens the lumbar region, activates liver, kidneys and pelvic organs, regulates intestinal function, stimulates appetite, alleviates backache during menses.

3. Asanas in the sitting position

(A) Baddha padmasana (30 sec)



Position :

- (1) Sit in Padmasana and cross hands behind the back such that right hand grips big toe of right leg placed on left thigh and left-hand grips left toe placed on the right thigh.
- (2) Bend the head down and place chin on the chest and hold the final pose.
- (3) Keep normal breathing while in the pose.
- (4) In reverse order, asana should be released.

Precautions : People with disorders in the abdomen and having undergone surgery should practice after consultation with doctor and under guidance of an expert.

Benefits : The asana calms the mind, gives flexibility to the joints of the arms and legs, increases efficiency of the respiratory system.

(B) Akarna dhanurasana (30 sec)



Position :

- (1) Sit on the floor with the legs together extended straight in front, keeping head, back and shoulders erect.
- (2) Slide right hand toward the left toe and left hand towards right toe and grip them between thumb and index finger.
- (3) While breathing, gently pull left toe with the right hand upward towards right ear, without bending at the neck.
- (4) Keep the neck straight and gaze at the left-hand grip on the right toe and hold the final pose.
- (5) Maintain normal breathing.
- (6) Repeat the steps to pull right toe to left ear.

Releasing the Asana : In the reverse order release asana to original position.

Precautions : Avoid straining the body beyond its physical capacity. In case of injury to the limbs perform the asana under expert supervision.

Benefits : Strengthening of the muscles of the hands, legs, waist and knee joint. It has a positive effect on those with rheumatic disorders.

4. Asanas in the standing position

(A) Virasana (30 sec)



Position :

- (1) Stand on both feet. Take a stride in front with the right leg and lunge forward to form 90° at the right knee, keeping left leg straight at knee.
- (2) Raise both hands up sideways, above the head and join the palms fingers pointing to sky, elbows straight and stretch to allow hands to touch the ears.
- (3) Move joined palms backwards behind the head, leaning the head back along with the hands bending backward from the back.
- (4) Keep breathing normal and look upwards and hold the pose.
- (5) Return to standing on both legs and repeat this pose using left leg.

Releasing the Asana : In the reverse order release asana to original position.

Precautions : Keep complete control over the movement especially while bending backward. Stay within capacity and perform without straining oneself.

Benefits : The legs, waist, spine and neck are bent backwards clearing the toxins

and resulting in effective blood circulation. Spine flexibility increases and flexibility of abdominal muscles improve.

(B) Kati Chakrasan (30 sec)



Position :

- (1) Stand on both feet with hands to the side.
- (2) Exhale, then while inhaling raise right hand sideways, up and above the head without bending at the elbow and hand touching the ear.
- (3) Stretch the right hand upwards and simultaneously slide left hand down along the side of the left leg towards the knee.
- (4) Do it by bending at the waist sideways to the left and hold the pose.
- (5) Repeat the same with change in hand positions and bending to the right side.

Releasing the Asana : In the reverse order release asana to original position.

Precautions : While bending sideways avoid leaning forward. In the beginning to maintain balance keep feet slightly apart.

Benefits : The flexibility of the spine increases and breathing pattern improves.

Few guidelines to be followed while performing the Asanas

- Keep both the body and mind steady and calm while performing the asanas.
- Avoid jerking the body while getting into the pose.
- Do not hold the final pose by pulling and straining the body parts, as spontaneous consistent practice will give dominion over the asana.
- The final pose is not important but the approach is vital.
- Breathing pattern should be regular.
- Practice asanas in a clean and healthy environment.

Pranayama

The fourth limb of Ashtanga Yoga is Pranayama. The control over breath during the inhalation and exhalation process is pranayama

Pranayama can be divided into 3 distinct parts;

1. **Purak (Inhalation)** : The process of breathing in, the air into the lungs is called inhalation.
2. **Kumbhak (Retention)** : The process of holding the breath is called retention. There are two types of retention that can take place. Antarkumbhak where the breath inhaled is retained in the lungs and Bahyakumbhak where retention is after the breath is exhaled from the lungs.
3. **Rechak (Exhalation)** : The process of breathing out, the air from the lungs is called exhalation.

The practice of Pranayama is done based on these three distinct parts. A few practices of pranayama are given that could be followed.

(A) Shitkari

Procedure :



Take a comfortable meditative seated position which may be padmasana, vajrasana, sukhasana or ardhpadmasana. Press the upper and lower teeth and touch tongue to the top front teeth. Open lips in a wide smile and inhale through the teeth producing “ssssssiiiiii” sound. Close mouth and exhale through your nose. Repeat 10 times.

Precaution : Keep spine erect and neck straight and focus attention on the breath.

Benefits : The inner parts, eyes and ears experience cooling, digestion improves, disorders caused by acidity is reduced.

(B) Suryabhedan :

Procedure :



Take a comfortable meditative seated position which may be padmasana, vajrasana, sukhasana or ardhpadmasana. The left hand is placed in gnyan mudra while the right hand is kept in pranavmudra. Eyes are gently closed. Using the right hand little finger and the ring finger gently press and close the left nostril. Inhale from the right nostril and exhale also from the right nostril.

Precaution : Do not apply too much pressure when closing the nostril. Do not hold and keep breath.

Benefits : The digestive process (fire) is activated that helps metabolism.

Preparation to practice Pranayama

- Expertise over asanas help effective practice of pranayama.
- Body and mind should be totally steady.
- Breathing pattern should be calm and regular.
- Do not practice pranayama where the air is polluted.
- Pranayama should be practiced under guidance of an expert.
- Take care to avoid strain on breathing, without a reason.

Mudra

Mudra is a Sanskrit word which is expressed as happiness or joy ('Mud'-happiness, 'da'- to give). Mudras are a life enforcing invention in Yoga. Mudras are given an important place in Hath yoga. The study and practice of mudras and bandhas help to experience the effectiveness of Asanas and Pranayama. The practice of mudras can cause the 'awakening of the kundalini' – a life force dormant and lying at the base of the spine, leading to spiritual liberation. The practice of Asanas and pranayama along with mudras and bandhas sensitizes the individual and leads to the path of

dharna, dhyana and samadhi. Mudras affect very specific parts of the body. The different prana in the body is balanced through the practice of mudras. Traditionally, the Rudhital mudra, Yoga mudra, Sinhamudra, Brahmamudra, Ashwinimudra, Viparit karni mudra, Pranav mudra are the meditative mudras. Hathayoga pradipika and shivsahtya give 10 mudras while Gheranda Samihita literature gives 25 mudras. Mudras are considered a separate part in yoga. The following are the 10 mudras according to the literature of Hathayoga: Maha mudra, Maha bandha, Maha vedh, Khechari, Uddiyaan, Muladharbandh, Jalandhar bandha, Viparit karni, Vajroliche sahajoli and Aamroli and Shaktichalan.

Mudra are gestures formed by some part of the body. They guide the energy flow to specific areas of the brain. They are done in conjunction with breathing to increase the flow of Prana in the body. The practice of mudra develops a connect with the patterns of the brain that influence unconscious reflexes in the different areas. The internal energy is balanced and redirected, creating an impact on the sensory organs, tendons and glands veins.

Classification of Mudras

(1) Hand mudras : These mudras are mainly used in the practice of pranayama, dhyana and dharana. The five fingers of the hand represent the pancha mahabhoot. Thumb – sun / fire, index finger – air, middle finger – space, ring finger – earth, little finger – water. Based on the imbalances in the constituents of the body the mudras are used to keep the body healthy. The outflow of body energy is stopped through the practice of mudras. Dhyana mudra, Bhairav mudra, Akash mudra, Vayu mudra,

Jal mudra, Hruday mudra are various mudras performed by the hand.



Dhyana Mudra



Bhairav Mudra



Akash Mudra



Vayu Mudra



Jal Mudra



Hruday Mudra

(2) **Expression of the face to perform mudra** : Eyes, ear, nose, tongue and hands are used to perform many mudras. Shambhavi mudra, nasagraha drushti, Khechari mudra, Kaki mudra, Shanmukhi mudra, Akashi mudra are many such known mudras.



Khechari Mudra



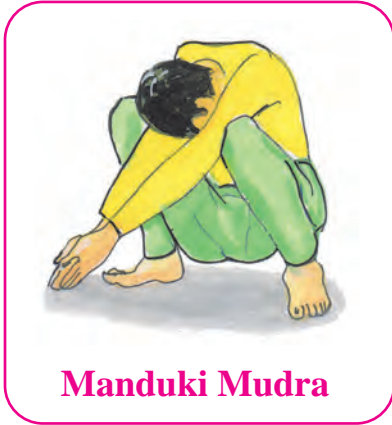
Kaki Mudra

(3) Mudras using body position :

Viparit karni, yoga mudra, Tadagi mudra, Manduki mudra, Ashwini mudra, etc.

Benefits :

- Maintains physical and mental balance.
- Specific body energy is gained
- Intellect is activated effectively
- Mental peace and internal happiness is experienced
- Positive approach is imbibed



Manduki Mudra

Exercise

Q.1. Fill in the blanks

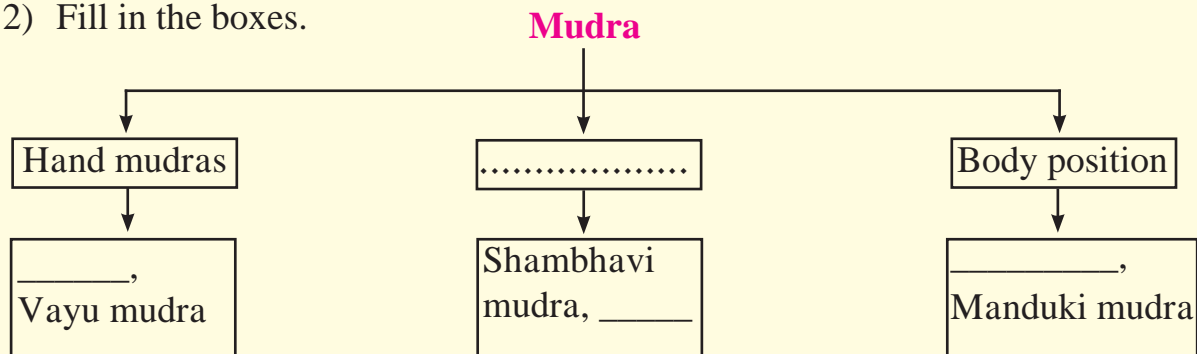
- (1) _____ are gestures formed by some part of the body.
- (2) Yogasana make the body _____.
- (3) Filling of the lungs with air is _____.
- (4) Holding of the breath is _____.

Q.2. Write answers

- (1) Write any four names of Mudras.
- (2) Explain and write a few lines on the concept of Yoga.
- (3) Write any four benefits of Mudras.
- (4) What guidelines need to be followed while practicing Asana.

Supplementary Studies :

- 1) Write information about one standing and one sitting asana not mentioned in the text book.
- 2) Fill in the boxes.



5. Doping (Stimulants)

Objectives

- (1) To create awareness of the ill effects of stimulants.
- (2) To become aware of banned drugs and their ill effects.
- (3) To be informed about doping.
- (4) To create awareness among athletes to avoid doping.
- (5) To be informed about the physical and social dangers of doping.
- (6) To emphasise on enhancing the natural abilities of an athlete.
- (7) To create awareness and emphasise on clean competitions.

Athletes strive to achieve success taking great pains to train and putting in a lot of hard work. The determined athlete trains day in and day out to outshine others in competitions. But at times, the lure to prizes, money, fame and many such benefits that come with victory leads to bad decisions. The athlete uses doping as a boost, to provide the short cut method to long years of training to help them win.

What is Doping ?

The unnatural use of performance enhancing drugs to improve the athletes physical abilities and qualities, it is called doping.

Doping includes the use of steroids, forbidden drugs such as stimulants, narcotics, diuretics, peptide hormones, and use of forbidden methods such as blood transfusions.

Doping in sports is becoming more pervasive. More and more athletes are falling prey to its use and causing irreversible damage to their body. The objective to bring all athletes on the same platform through sports competitions and have uniformity amongst them while competing with each other based on their innate abilities, is lost.

Doping by using forbidden drugs can be fatal. The life span of the individual is shortened. Human nature becomes very aggressive due to doping. There is the experience of emotional insensitivity leading to depression and lethargy.



Performance enhancing drugs and their side effects

Drug	Side effects
Anabolic steroid	Kidney damage, liver cancer, hair loss, low sperm count etc.
Stimulants	Death caused due to heart failure
Diuretics	Elevated blood sugar levels, nausea, vomiting, diarrhoea, dermatitis, lethargy, etc.
Erythropoietin (E.P.O)	Highly increased red blood cell.

Doping incidents in athletes

- (1) In 1986 an English cyclist died due to over dose of Cocaine.
- (2) In 1986, American basketball player Leonard Kevin Bias died due to doping.
- (3) Professional footballer Don Rodgers died of excess doping.
- (4) In 1988, Canadian sprinter Ben Johnson was found guilty of doping. His gold medal in the Seoul Olympics was taken back as he was proven guilty for the use of anabolic steroids.
- (5) In 1988 Seoul Olympics, Bulgarian weight lifter Angel Guenchev was banned from competitions for the use of diuretics.
- (6) 7 time cycling champion of 'Tour de France', Lance Armstrong was found guilty for doping.

To prevent such malpractices in the field of sports, advanced high-tech testing methods based on scientific methodologies have been introduced. For success in the field of sports there is a need for the right approach. To display remarkable and legendary performances, virtues of honesty, pride, fair play, team spirit, team work, commitment and courage needs to be fostered. Games are played to experience true pleasure and recognise our unique potential. Players need to develop their natural sporting talents and enhance their performance. They need to stay away from the short cut route of doping.

Supplement protein

The use of supplement protein powder and creatine can also be a form of doping. In India, many popular sports persons, movie stars garner attention for their style and sophistication. A number of popular sport stars and movie stars are known for their great looks and fit body. In the craze to emulate them, teenagers who have just passed out from school seek membership to gyms. They are in a hurry to look slim, well-shaped or muscular as per choice. Taking advantage of this express desire, most gyms have on sale supplements, protein powder and creatine which provide the gym great profit margins. Although there is no great need for such supplementation for an average person, masked information is given out to increase the demand for these powder containers. Information on the natural sources for pre work and post work out diet is not imparted in the gym. There is a misconceived notion created by the gym trainers that the body will shape up

faster and better with such additions. And people in a hurry to see quick results end up spending huge amount of money on such supplements.

For a toned and fit physique, the body has to be trained over a period of time consistently with a proper diet. Only ingesting the artificial powder forms of the food components, do not get the body into shape. These instant and express ways will backfire causing damage to the body and health of the individual. In extreme cases, the individual can also risk losing one's life. However, over a period of time certain supplements may be required depending on the body's response and metabolism. But these should be consumed only after consultation with a qualified doctor or nutritionist.



Misconception	Reality
1. Consumption of supplement (protein powder) can generate six pack abs.	1. When not really necessary the intake of supplements can lead to kidney failure.
2. Use of supplements will help quick fat loss.	2. Supplements used for weight loss pose a health hazard.
3. I am a sports person or I train regularly so it is necessary that I consume supplements or performance enhancing drugs.	3. High level sports performance depends on proper training and wholesome diet. A well-balanced diet is sufficient for a person who exercises for fitness.
4. High level performing sport stars, movie stars use dope to build and maintain their attractive physique.	4. High level performing sport stars and movie stars maintain fitness by physically working out and modifying their diet in consultation with a doctor.

Exercise

Q.1. Write answers.

- (1) What is doping ? What are the side effects of doping ?
- (2) Write the names of some narcotics ?
- (3) What are the misconceptions with regards to ingestion of supplements ?
- (4) Complete the given table below.

Dope	Side effects
Diuretic
.....	Death caused due to heart failure
Erythropoietin (E.P.O)
.....	Kidney failure, liver cancer

Supplementary Study :

- (1) Mention the names of sports personalities found guilty of doping and banned from competing, in the format given below.

Sr. No	Sports personality	Country	Sport	Competition	Year
1.					
2.					
3.					
4.					
5.					

- (2) Name two sports personalities who have won medals in the competition but had to forfeit them having proven guilty of doping.

Sr. No	Sports personality	Country	Sport	Competition	Year
1.					
2.					

6. Injury Management

Objectives

- (1) To be cognizant about possible injuries.
- (2) To understand preventive measures of injuries.
- (3) To be aware of the injury management techniques.
- (4) To understand need of appropriate sportswear and protective materials.

Injuries are a possibility during sports practice or competitions and the reason for these injuries could be many. There are two forms of injuries, according to nature of injury.

1. Minor injuries

Player can play in these type of injuries

2. Major injuries

Player cannot continue play with major injuries and continuing play could be dangerous. Such injuries can be avoided with care and taking precautionary measures.

Precautionary measures to avoid injuries

- (1) **Fitness** : To achieve a level of performance the player needs an inherent ability. With fitness the player can exhibit a worthy performance. During practice or competitions if the fitness levels of the player is excellent, then injuries can be avoided.
- (2) **Warm up and Cool down** : Appropriate and adequate warm up prepares the complete body for further activities. Muscles, bones and joints reach optimum performance capacity and so, any

shock to the muscle and joints is protected by the body's appropriate response thus avoiding injury. Cooling down exercises reduces harmful substances like lactic acid which accumulates in the body during training. Cool down exercises improves blood circulation and provides maximum oxygen to the body. The body recovers quickly and avoids injuries, muscle cramps and muscle pain.

- (3) **Psychological preparation** : If a player of any game is not psychologically prepared, then the chances to cause injury to self and others during play is greater. Psychological preparation assists the player in quick and appropriate decision making, maintaining proper body posture with proper movements that help avoid injury.
- (4) **Climatic conditions** : Practice and competition environments need to be as similar as possible. A difference in them, drastically affects performance of the body. Extreme cold, extreme warmth or places having greater air resistance, all adversely affect performance.
- (5) **Appropriate sportswear and protective material** : The sportswear should not be too loose or too tight. Avoid sportswear that is obstructive to playing. Avoid the use of damaged and broken equipment. Certified sports equipment should be used to avoid injuries.
- (6) **Abide by the rules** : Strictly adhering to the rules of the game by players and spectators during practice and

competition can help avoid possibility of injury and help exhibit the game safely.

(7) Fatigue : Extensive competition and practice sessions that lead to fatigue should be avoided. Fatigue may cause injury to joints, muscles and organs in the body. Play or practice should be stopped when experiencing fatigue.

Basic awareness about the cause of injury during practice or competition is essential for players to reduce injury.

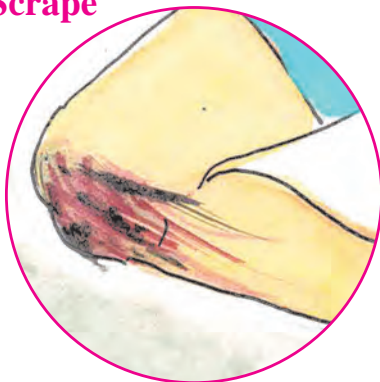
Types of Sports injuries :

Generally, three types of injuries occur in sports

1. Soft tissue (skin) injuries
2. Joint injuries
3. Bone injuries

(1) Soft tissue (Skin) Injuries

A) Scrape



B) Bruises



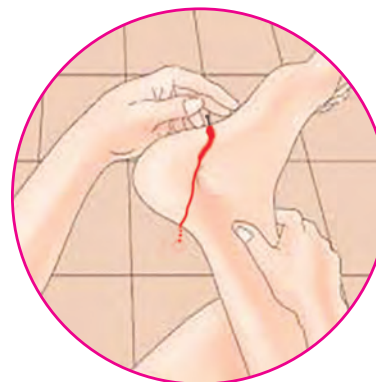
C) Cut



D) Sprain



E) Prick



F) Punch



(2) Joint injuries

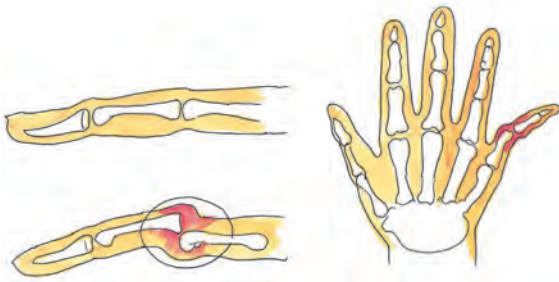
A) Partial dislocation



Basic Position

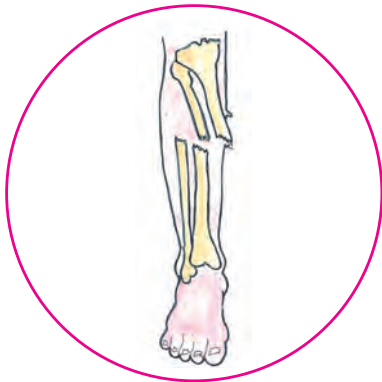


B) Complete dislocation

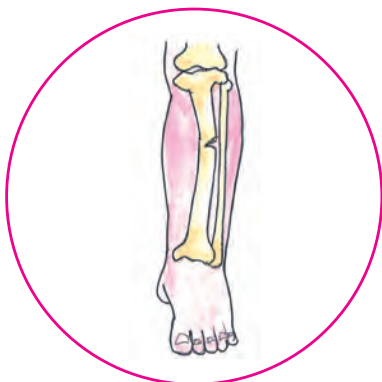


(3) Bone injuries

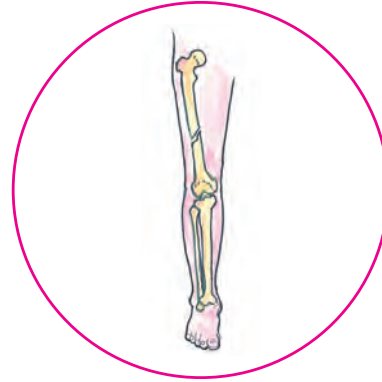
A) Compound fracture



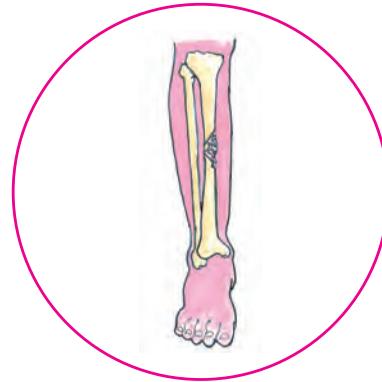
B) Greenstick fracture



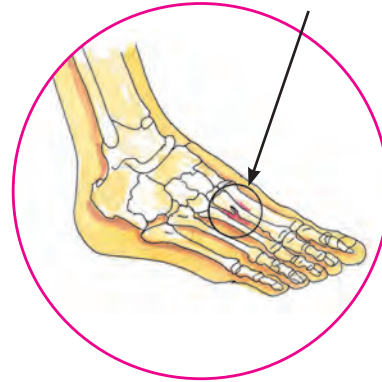
C) Oblique fracture



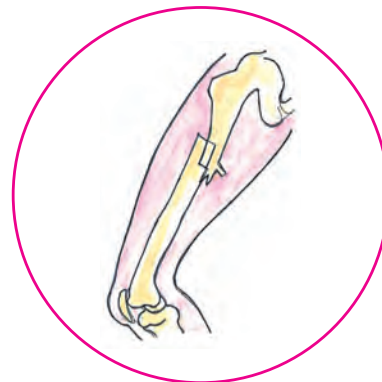
D) Comminuted fracture



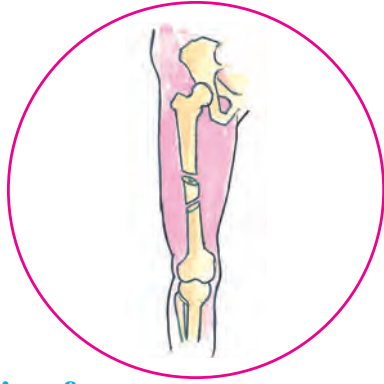
E) Fracture of the metatarsal bone due to stress.



F) Compression fracture



G) Segmental fracture



Injuries from games or sports when appropriate care is not taken

Game	Types of injuries
Tennis	Injuries to elbow, knee, leg
Boxing	Injuries to the face, brain and fingers
Diving	Injuries to head
Fencing	Face injury
Weight lifting	Shoulder, back and spine injury
Throwing events	Injuries to shoulder and elbow
Basket ball	Fingers and shoulder injury
Rafting	Injury to nerves
Horse riding	Back and spine injury
Games on ice, Kabaddi, Kho kho	Injuries to hands and legs

Training for long durations or constant participation in competitions can cause defect leading to injuries to the body.

First aid

Many a times, players get injured while playing or practicing. On such occasions, expert help may not be at hand and so, appropriate and immediate remedial measures need to be taken. This immediate remedial measure is first aid.

Goal of first aid

1. To help casualties
2. To reduce distress in them
3. To save life

Motive of first aid

To provide appropriate first help to the victim or casualty before getting access to a doctor or hospital.

Importance of first aid

In normal day to day life or in the life of a sports person, accidents can take place. Every individual should be aware of first aid and how it needs to be imparted. Moreover, there is greater need amongst the sports teachers, trainers and sports persons to generate awareness about first aid.

Injury management

1. Soft tissue injury management and rehabilitation.

- Rest the injured body part.
- Place an ice pack on the injured part for 20 to 30 minutes.
- Do not massage the injured body part for 48 hours.
- Clean the wound and bandage it to stop blood flow.
- Give cold compression to avoid and reduce swelling.
- Use pain killer medicines or spray to reduce pain.
- For support use safe and sturdy equipment.
- Visit the doctor for proper and complete treatment.
- Give appropriate rehabilitation exercises for the injured part till full recovery and retrieval of complete mobility.

2. Joints injury management and rehabilitation

- If possible, reset the dislocated joint with mild hands.

- Keep the patient in restful position and avoid movement of injured part.
- Give cold compression to injured part to reduce swelling.
- Use or tie a support bandage to injured joint and take to the doctor.
- Evaluate the injury using Arthroscopy or X-ray.
- Plaster the joint for a duration as prescribed by the doctor.
- Get operated if required.
- Perform prescribed exercises for recovery and strengthening of muscles around the injured joint.

3. Bone injury management and rehabilitation

- Stop movement of the injured part.
- Support the injured bone with flat wooden scale or object.
- Immediately take injured person to hospital.
- Examine the position and type of fracture using bone scan or X-ray.
- Realign the broken bone through surgery
- Plaster the affected area for a duration as prescribed by the doctor.
- Under the direction of the doctor, include movements and regular isometric exercises as prescribed.

Cardiopulmonary Resuscitation (CPR)

Note :

CPR is an emergency lifesaving first aid method. Before using this technique take the guidance of experts having in-depth knowledge and training

- Try to arouse the victim, call for help.

- First ensure personal safety.
- Call out to the victim and check for response.
- Call out to others for help.
- Dial 108 for ambulance.



Arousing



Calling for help

Check breathing

- Examine if victim is breathing
- If victim is not breathing kneel down to his side.
- Tilt the head backwards.
- Raise the chin upwards.
- Wipe and clean mouth to clear the breathing pathway.



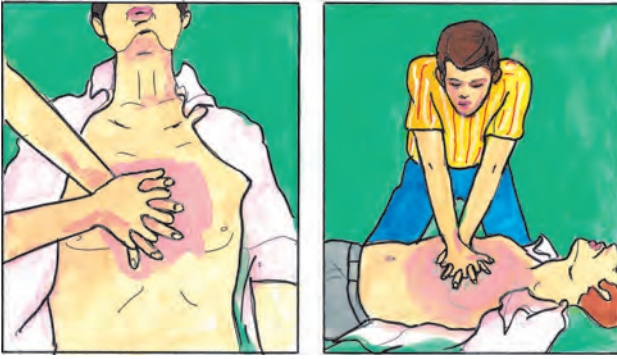
Checking for breath



Raising chin

Chest compression at the rate 100 per minute

- Spread and keep left hand palm on the centre of the chest
- Place right hand palm over the left hand and interlock fingers between them. Bend over the victim from the waist and without bending at the



Pressing and releasing chest with both hands

elbow give chest compression 4-5 cm deep.

- The chest compression should be at the rate of 100 per minute.
- After every compression release the pressure on chest to allow previous position enabling blood flow towards the heart.

Exercise

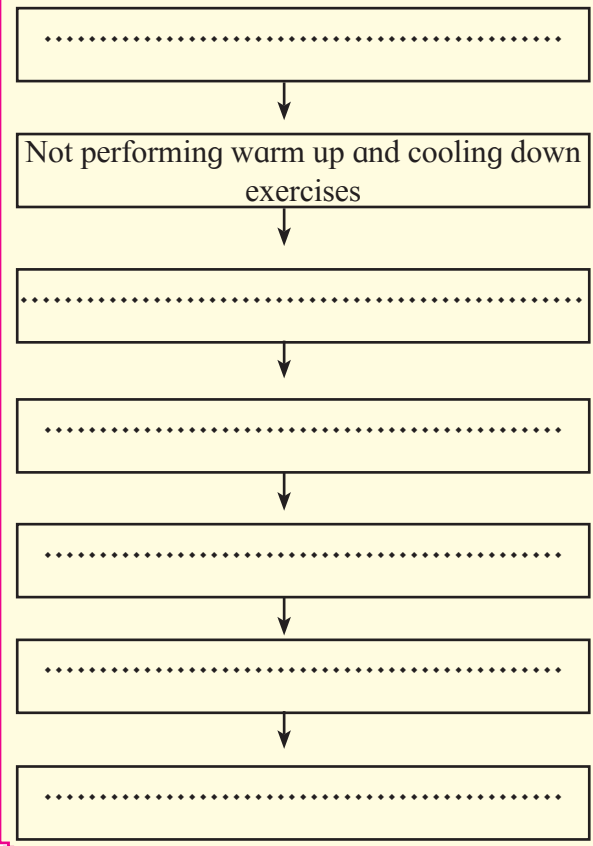
Q.1. Write answers.

- (1) What is injury?
- (2) What are the preventive measures to avoid injury?
- (3) What is meant by first aid?
- (4) Classify the injuries under the two categories given below :
(cut, transverse fracture, pricked, compound fracture, sprain, stress fracture)

Soft tissue injury	Bone injury
.....
.....
.....
.....
.....
.....
.....

Supplementary Studies :

- (1) While playing Kabaddi a player has suffered a bone injury. As a teammate how will you help manage the injury?
- (2) Complete the flowchart giving the causes of injuries.



7. Modern Technology - Activism

Objectives

- (1) To know about modern technology
- (2) To generate awareness about the harmful effects of modern technology and its overuse
- (3) To know about the contribution of modern technology towards, physical activity and its development

Technology and physical activity

Today's world is known as a world of Information Technology (IT). Information Technology and advanced technology has made human life very convenient. Without leaving the house all requirements can be ordered and home delivered, using technology. Appliances in the house can be switched on or off and operated using the mobile.

Advanced technology has brought about a comfortable lifestyle. In fact, it has made many things easily possible. But then, the question arises whether this advanced technology is reducing our activeness?

Although, modern technology has improved the work power, it has inversely reduced the physical work capacity of individuals. This has resulted in many diseases attacking the human body.

Before such advancement of technology, a family used leisure time to be in the company of each other and enjoy playing some games. During vacations, students enjoyed skipping, swinging on trees and so on. But today, when children get together during vacations or when the family gets

together, instead of playing, children spend time glued to mobiles, tabs or computers.

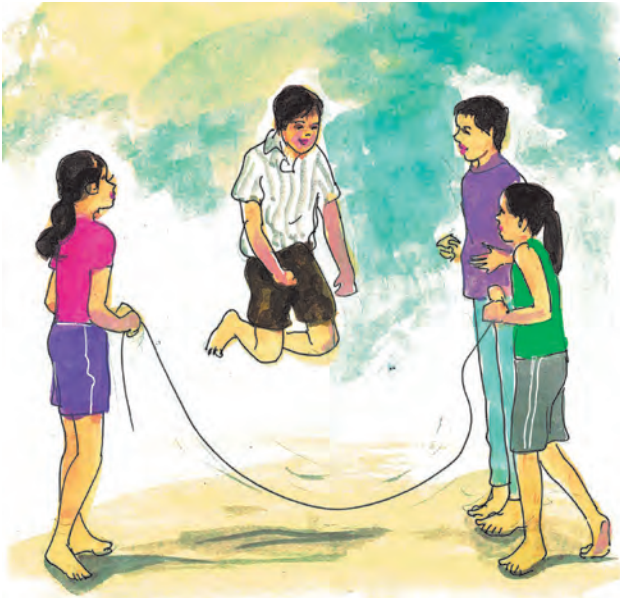
Ideally in a day, a minimum of one hour should be set aside to participate in some form of physical activity. But most studies indicate that maximum students are physically inactive.



Family - 1



Family - 2



Game - 1

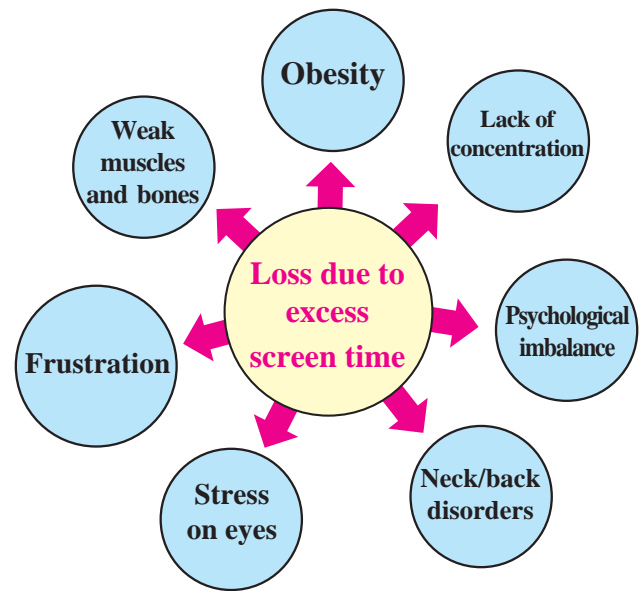


Game - 2

Screen time and physical activeness

Screen time refers to the time spent in front of TV, computer, mobile and video games. Children with longer screen time spend very minimal time engaging in physical activity. This increased inactivity deforms the physique, reduces muscle strength and increases an influx of diseases. A variety of studies have also concluded that, increased screen time is a reason for obesity among children.

In fact, with the use of technology mankind is making progress. However, not limiting the use of technology will weaken mankind physically, although



materialistic advancement is being made by leaps and bounds.

To really enjoy the benefits of changing technology for convenience and ease to use, it is necessary to adhere to certain limits. Given below are certain rules that can be followed. Think about it.

- Rule 1 :** Using of computer/ mobile/ TV as per time pre decided by parents.
- Rule 2 :** Continuous use of computer or mobile for not more than 20-30 minutes.
- Rule 3 :** Maintaining proper body posture by keeping the spine erect and having the mobile or computer at an appropriate distance from the eye.
- Rule 4 :** Spending minimum 1 hour for physical activities like cycling, swimming or playing.
- Rule 5 :** Using mobile or computer for gaining new knowledge rather than for social networking and playing games.

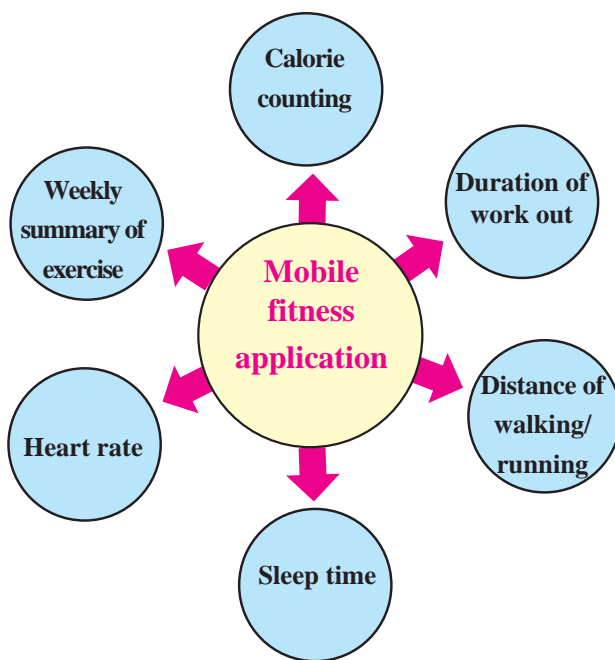
Let's resolve to follow all these rules and increase physical activity along with the use of modern technology.

Remember : we should at least walk 10,000 to 12,000 steps every day.

Technology and Activism

The world of modern technology and the day to day advancement in technology has brought drastic changes to routine activities like using a mobile phone to talk, listen to music, watch videos, buy and sell items, etc. Technology has influenced daily life of mankind in a large way but this technology can also be used to keep oneself active. Let's identify the technologies that can help, to stay active.

(1) Mobile - Fitness application : Smart phones have made many things easy in life. Some applications in them can be used to track intensity of exercise done, the duration of exercise, etc. and so increasing the awareness about staying active.



Mobile fitness application

Some useful mobile applications :

- A. Google fit
- B. Samsung health
- C. Nike plus
- D. Run keeper
- E. Fitness builder

(2) Wearable smart devices : Apparel that provide details of vitals while performing exercise are called as wearable smart devices e. g. Smart wrist watch. To make use of these devices their related app is to be download to the mobile.

A. Smart Wrist watch : Nowadays, wrist watches are available which gives us information about our fitness, let alone time. e.g. duration of exercise, calories burnt, etc. Also, alarms and reminders alert the user for remaining sedentary for long time.

B. Smart Rope : This skipping rope displays the number of jumps performed like an image in front of your eyes.

C. Smart Shoes : Special technology is used to make these shoes. The electronic devices fixed in the shoes provides complete data of your work out on your smart phone.

D. Smart Socks/gloves : These socks and gloves, like the shoes gather data on the duration of time spend actively or the intensity of the exercises performed.

E. Smart Shorts : Instead of the regular shorts, these shorts have a chip that saves the data about the exercise program onto the smart phone.

F. Virtual games : Now a days, people prefer playing on a mobile or the computer. As a remedial to overcome this problem, companies have introduced

virtual games. The technology generates a virtual image of the opponent. The equipment's used like badminton racquet, cricket bat or ball, table tennis bat, etc. are made using special technologies that are movement sensitive.

All the movements used in actual play on the ground are required while playing the virtual games. Therefore, these games provide a good opportunity to stay active



Benefits of exercising with modern technology :

- Objectives can be achieved.
- Motivated to exercise.
- Face the challenges.
- Exercise with friends online.
- Gifts and prizes can be won for achieving targets decided on the fitness apps.
- Information of exercise can be easily shared in friend circles.
- Smart phones can measure and alert the user of the exercise repetitions, intensity and movement established to improve exercise precision.
- Smartphones are capable of alerting user about proper body posture and appropriate distribution of weight over hand and legs while doing exercise and so helps to avoid injuries.

Exercise

Q.1. Answer the following questions in one sentence.

- (1) What is screen time?
- (2) Name the wearable smart devices.
- (3) Write the names of any two mobile fitness applications.
- (4) Write any two benefits of exercising using modern technology.

Q. 2. Write whether true or false.

- (1) No harm is caused to the body due to overuse of mobile.
- (2) While exercising appropriate body posture should be maintained.
- (3) Heart rate can be measured using mobile fitness applications.
- (4) In virtual games player cannot play without the guidance of others.

Supplementary Studies :

- (1) Measure and compare your screen time and activity time for a week.
- (2) Make your own rules for self to limit the use of technological gadgets, mobile and computer.

8. Career Opportunities in Sports

Objectives

- (1) To explain the importance of professional attitude in life
- (2) To develop professional attitude in students
- (3) To pursue professional goal recognizing inherent capacity and interest
- (4) To explore various professional opportunities generated by physical education, sports, exercise and science.
- (5) To generate awareness of marketing skills and device marketing strategies.

Earlier sports was seen as an entertainment, but now a days this approach is changing rapidly. The scope in sports is expanding globally and our nation is not an exception. Along with the local level sports field, the awareness of different sports is proving to be remarkable at taluka and district level. Not only this but we can see many events happening at the national and International level. The huge response to various sports competitions taking place in remote villages, setting up of gymnasiums and training centers for various games in villages, sports and gym facilities in five star hotels, ever increasing number of recreational clubs in metropolitan cities, large number of people walking or running morning and evening for fitness in cities and villages, all are indicators of the increasing awareness amongst population towards fitness related activities. Fast paced

urbanization and increased health awareness could be another reason. We see Sportspersons earn millions all over the world. Improved standard of living, fame, stability, satisfaction and inner peace is very evident in their lives. Today, society is tremendously passionate towards sports and sportsperson. But not all can become successful sportsperson. Even so, those passionate of sports, exercise and physical health and having an in-depth knowledge of a variety of sports can easily achieve success in this field. So lets understand the career opportunities in the field of sports and physical education.

Player, teacher/ trainer opportunities

(1) **Player** : state, national, and international level medalist.

Qualification : 12th pass,

Opportunity areas : Government, semi government organizations, private organizations, professional sports organization and companies, for Medal Winners in Maharashtra a 5 % quota for government jobs.

(2) **Physical education teacher** :

Qualification : B.P.E., B.P.Ed., M.P.Ed., M.Phil.

Opportunity areas : Primary, secondary, higher secondary and international schools,

(3) **Director of physical education and sports** :

Qualification : M.P.Ed., Ph.D., SET/NET

Opportunity areas : Senior college and Universities. SET/NET

(4) Trainer : for various games/asst. trainer/athletics director/ sports information director/ training and conditioning coach.

Qualification : Sports Authority of India- NIS (one year) and certificate course (6 weeks) etc.

Opportunities : Central and state government sports offices, private sports organization, sports entrepreneur, military and private training camps and clubs etc.

Health and Fitness sector

Public interest towards health and physical fitness has been remarkable in the last decade. People are experiencing the benefits of regular exercise. The field of fitness generates the opportunity to earn money but more importantly own health can be maintained. Those who are in this field are always energetic, happy and enthusiastic.

(1) Fitness trainer/personal trainer/ gym trainer :

Education : Diploma in fitness training, fitness trainer certificate course, personal trainer course, or B.P.Ed., M.P.Ed., NIS (fitness), etc.

Opportunity area : Various fitness centers, gymnasiums, training centers, health clubs, figure saloon, own business or personal clients.

(2) Sports massage therapist/ assistant :

Education : Diploma in integrated sports massage, certificate course in sports massage, diploma in massage, sports massage course, government recognized certificate and degree courses.

Opportunity areas : Hospitals, private clubs, sports clubs or centers, personal business, support staff for various sports, military training institutes, etc.

(3) Sports medicine specialist/ assistant/ sports medicine physician :

Education : Diploma in sport medicine.

Opportunity areas : Private hospital, own business, clubs, private sports center, member on medical squad of International and nation level players.

(4) Sports and fitness nutritionist/ Sports physician :

Education : Certificate course in sports nutrition, diploma in sports nutrition.

Opportunity areas : Consultant in private hospitals, own business, tie-up with various sports clubs, weight control spa, squad member of medical team, etc.

(5) Sports psychologist/psychotherapist :

Education : Post graduate diploma in sports psychology.

Opportunity areas : Own business, personal advisor to sportsperson, consultant with various famous team (Support staff member)

(6) Physical therapist/ Physical therapy assistant/ growth and development expert/ sports massage therapist :

Education : Degree course in Physical therapy, master's in physical therapy

Opportunity areas : Support staff of national and international level teams, private business with famous sports clubs, Military training institutes (Private consultant)

(7) Lab technician/ assistant :

Education : Sports science laboratory technician course.

Opportunity areas : Private institutes, research institutes studying physical changes in sports players.

Sports media :

- (1) **Sports journalist/ sports news reporter/ sports writer/ sports columnist/ sports editor/ sports publisher, etc.**

Education : bachelor in sports journalism / television journalism/ radio journalism

Opportunity areas : Private sports media, e.g. newspapers, periodicals, Private institutes publishing sports articles, free-lance column writer, etc.

- (2) **Sports photographer/ Sports videographer/ camera operator (Spider cam) Sports data operator/ data analyst/ internet sports producer, etc.**

Education : Certificate courses on photography, videography, data operating and data analyzing and experience certificates

Opportunity areas : Private institutes live telecasting national and international sports events , Personal business.

- (3) **Sports critic / sports talk show host / interviewer / radio sports producer etc. :**

Education : Sports broadcasting training, cinematography course, Expert of sports field and talented and experienced player of particular game.

Opportunity areas : Radio and telecasting private companies, private organizations telecasting local to international (professional) competition, own business opportunity.

Sports management area :

- (1) **Sports manager :**

Education - Certificate course in sports management, bachelor of sports management, post graduate diploma in sports management, etc.

Opportunity areas - Mega events organized by pro sports franchises.

- (2) **Recreation officer/ Sports center manager/ sports association manager/ sports development officer/ assistant supporting coach/ athletics management officer/ sports agent/ senior manager/ event or facility officer/ safety officer/ consultant/ membership director/ outdoor recreation planner/ travelling secretary/ marketing director/ executive director/ stadium manager/ sports event co-coordinator/ equipment manager/ score board operator/ food manager**

Education : B.A. in sports management, advance diploma in food management, advance diploma in cricket management and experience from private mega event managing institute.

Opportunity areas : Companies organizing mega sports event , Sports related competitions, commercial groups organizing sports events, cruise jobs, sports equipment producing companies, sports management companies, Sports marketing companies, sports advertising companies, Small and large sports organizations, recreation club, sports complex, government sports offices, BCCI, ICC, Football federation, hockey federation, YMCA, YHA, YWCA, similar government undertaking and self-financed institutes, private security organizations, etc.

Production and sale of sports equipment

- (1) **Sports equipment seller/ manager/ Retailer of sportswear :** Person with knowledge of various sports and anyone who is interested to work in this field.

Opportunity areas : Private retail sports equipment manufacturer/ seller.

- (2) **Sports equipment manufacturer and wholesaler/ Sportswear manufacturer and wholesaler.**

Person with knowledge of various sports and anyone interested in this field and who can invest capital for business.

Opportunity areas : International companies researching changing needs and requirements of sports and sportspersons providing requirement and comfort, safety and support for high performance standard.

- (3) **Sports equipment production industry/ sports facility manager/ product designer in sports: In depth detailed knowledge in various sports, study of required sports equipment, person aware of modern and upcoming changes in the field, diploma in sports technology.**

Opportunity areas : National and international sports equipment producing industries.

- (4) **Sports equipment manufacturing technician/ researcher/ material engineer sports :** Diploma in sports technology, advance diploma in sports engineering (foreign degree) manufacturing system engineering in sports, etc.

Opportunity areas : various industrial groups providing sports material in national and international market.

- (5) **Sports equipment production skilled and unskilled workers :** Person trained in technical education and person who can work as unskilled worker.

Opportunity areas : Industries manufacturing units for sports equipment.

Field of Yoga

- (1) **Yoga trainer/ yoga teacher/ yoga therapist/ yoga instructor/ yoga aerobics instructor/ yoga research officer/ yoga and naturopathy :**

Education : certificate course in yoga, teacher's training course in yoga, course in fitness-diet-yoga, B.A. in yoga, B.Sc. in yoga science and yoga therapy, diploma in yoga, M. Sc. in yoga science and yoga therapy, inner engineering, etc.

Opportunity areas : Resorts, gymnasiums, training institutes, health centres, housing society, yoga institutes, personal yoga training centre, etc.

Private business in Sports field

- (1) **Self-owned private sports organizations :** Clubs providing latest training in various national and international sports, fitness centres, aerobic dance clubs, health club, dance studio, swimming training school, water sports centres, adventure sports centre, (water base, air base, land base) various sports academy, sports school (Government krida-parabodhini), laughter club, organizing sports expose, sports NGO, sports tourism, etc.

- (2) **Game officials (Referees and judges):**

Education : Passing technical official or referee exams of games at the state, national and international level.

Opportunity areas : Government, semi government, private, sports association organized competitions, game official in state, national and international competitions organized by major private companies and organizations.

Career in sports, fitness, and physical education is in vogue today. The immense opportunities in the field of sports is attracting students studying in

all streams. There is also a demand worldwide, for traditional sports unique to our country, facilitated through some formal and informal courses.

Exercise

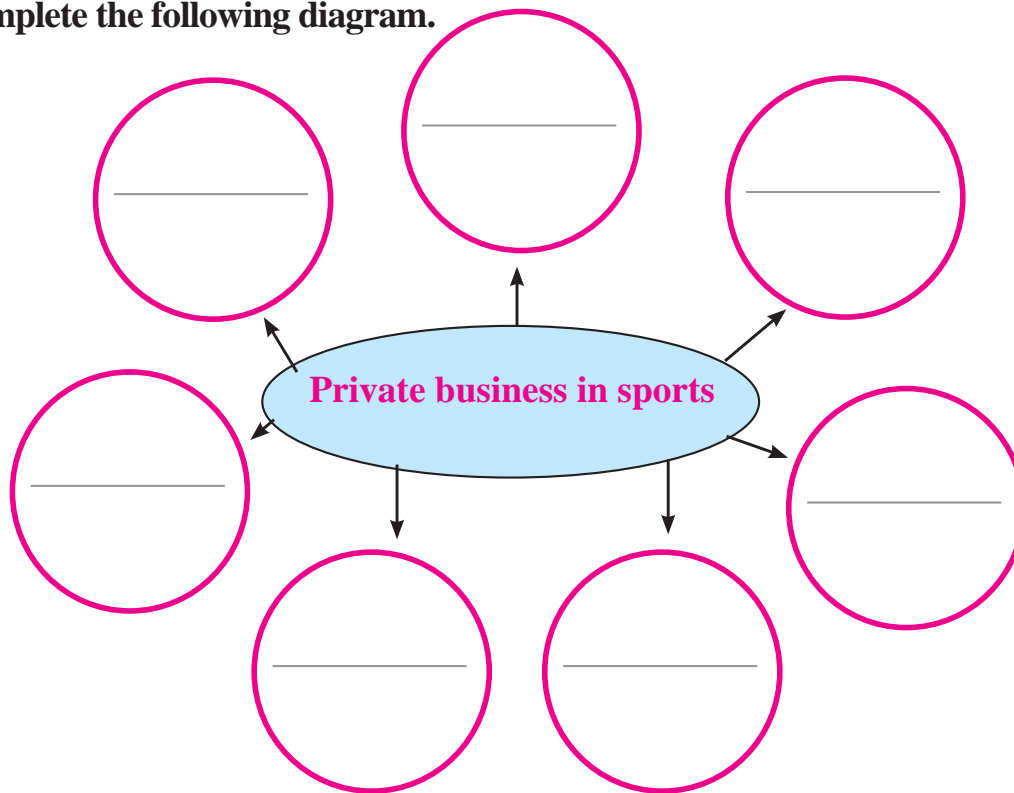
Q.1 Answer following questions in your own words.

- (1) Which career option would you select from given sports opportunities?
- (2) What opportunities in sports field are available for student of the science stream?
- (3) Which field do you like from this lesson and why?

Q.2 Match the following.

- | Group 'A' | Group 'B' |
|------------------------------------|---------------------------------|
| (1) Sports management field | (I) Material engineering sports |
| (2) Sports equipment manufacturing | (II) sports massage therapist |
| (3) Health and Fitness | (III) Swimming training school |
| (4) Private business | (IV) Travelling secretary |

Q.3 Complete the following diagram.



Supplementary Studies :

- (1) Take an interview of sports person working in government services as staff /officer and prepare notes.
- (2) Record an interview of sports equipment retailer and keep in your collection.

9. Various Games

Objectives

- (1) To update information about the games included in the sports activities of the schools by School Games Federation of India.
- (2) To study the rules and regulations of all games included in the list.
- (3) To develop the skill sets required for all games.
- (4) To develop personality through sports.
- (5) To provide information about various competitions held for various games.

The relation between civilization and sports exists from ancient times. Every civilization has its own sports culture, which has developed as per its geographical, climatic and physical conditions. In old days sports were a form of entertainment and used to display bravery. As time progressed professionalism has crept into it. According to sports journalist Grantland Rice “losing or winning in a game is not important, but the way you play the game is more important”..

If we think about the Indian sports scene, the youth here is not at all interested in moving towards any sport other than cricket, as per a published manual. The importance of sports is not only to limited to raise the image of the country by winning medals but sports has tremendous importance in life.

Sports not only, physically conditions the body, it toughens the mental attitude. Realization of a healthy mind in a healthy body has led to a need to remain healthy and fit. One pathway to being

healthy and fit is by playing a sport. Sports conditions and strengthens the body, trains the mind to accept victory or loss, but above all sports inculcates a very important life skill self-discipline.

Sporting activity carried out fairly, with strict guidelines and rules enable competitive sports to be enjoyed. Along with rules, competitive sports bring to the fore skill sets and temperament of the sports person. Thus, sports help develop the personality of the individual. Also, sport is no longer just a means of entertainment but a profession. Encouraging participation in sports competition at different levels opens a plethora of opportunities for budding talent.

In India, various types of sports and games are played in different parts of this vast and ancient country. Each has its own organizations and governing bodies that are recognized at state and national level. The School Games Federation of India (SGFI) conducts competition in games and sports for school going children at the national level. To participate at the national level the district sports department conducts competitions at the state, division, district and taluka level. The yearly calendar of the SGFI lists the sports and games included or excluded for competitions.

Note : The Health and Physical Education teacher may choose the sport and games that can be encouraged based on the geographic conditions, convenience and availability of equipment. Incorporate entertaining traditional games to highlight local culture and traditions. List of games and sports competitions are given in the QR code.

List of some games and sports

1. Invasion games	2. Net Games
<ol style="list-style-type: none"> 1. Football 2. Handball 3. Basketball 4. Hockey 5. Kabaddi 6. Netball 7. Rugby 8. Roll Ball 9. Roller hockey 	<ol style="list-style-type: none"> 1. Ball badminton 2. Volleyball 3. Shooting ball 4. Throw ball 5. Tennis 6. Badminton 7. Soft Tennis 8. Table tennis 9. Sepak takraw 10. Tennikoit
3. Combative Games	4. Striking Games
<ol style="list-style-type: none"> 1. Wrestling 2. Wushu 3. Judo 4. Karate 5. Boxing 6. Kickboxing 7. Sikai martial arts 8. Fencing 9. Unifight 10. Teng Su-do 11. Kudo 12. Mallakhamb 13. Ashte do Akhada 14. Taekwondo 	<ol style="list-style-type: none"> 1. Baseball 2. Cricket 3. Softball 4. Carrom 5. Squash 6. Montexball
	5. Target Games
	<ol style="list-style-type: none"> 1. Archery 2. Rifle shooting
	6. Lifting games
	<ol style="list-style-type: none"> 1. Weightlifting 2. Powerlifting

7. Tag games	8. Other games
<ol style="list-style-type: none"> 1. Kho-Kho 2. Atya Patya 3. Dodgeball 	<ol style="list-style-type: none"> 1. Athletics 2. Swimming 3. Gymnastics 4. Yoga 5. Chess 6. Modern pentathlon 7. Skating 8. Cycling (Track & Road)



10. Various Sports Competitions

Objectives

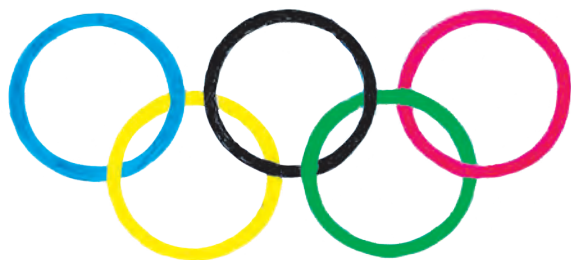
- (1) To update information about various national and international sports events.
- (2) To understand the history of various sports events.
- (3) To know the different aspects of each sports events.
- (4) To comprehend the planning and organizing aspects of sports at various levels.

Few International Sports Competitions

1. Olympic Games
2. Asian Games
3. Commonwealth Games
4. SAF Games

Few National Sports Competitions

1. National sports events
2. Khelo India
3. National school sports



1. Olympic Games

The first ancient Olympics was held in Athens, Greece in the year 1896. It is the effort of Frenchman Baron Pierre Coubertin who organized a physical education conference. A central committee of 200 sports teams was set up in France under his chairmanship. He proposed to

revive the ancient Greece Olympic Games and in 1894 sent circulars to different nations inviting them for a learning conference in Paris which resulted in the modern Olympics. He is therefore, known as the Father of modern Olympics.

The authority responsible for organising the modern Olympic Games is the International Olympic committee (IOC). This committee consists of 1 to 3 representatives from every nation. Their headquarters is at Lausanne, Switzerland. The modern Olympics have continued to adhere to the traditions, objectives and elements of the ancient Olympics.

In Latin The motto of Olympic Games is *Citius, Altius, Fortius*. In English it means Faster, Higher, Stronger. There are five circles in Blue, Black, Yellow, Green and Red colour intermingled with each other on the Olympic Flag. These five circles resemble five continents and their unity.

During the opening ceremony, the Olympic Song is played. Then all the players march on the tunes of the band and salute to the chief guest. Afterwards thousands of doves are set free on the sounds of the *bigul*. At the same time the Olympic torch enters the stadium and the Olympic torch is lit. As the Olympic song is being played, the Olympic flag is hoisted. An elite player from the host country takes the oath on behalf of all the players. At this time players of different countries mix with each other and display the relationship of world brotherhood to the audience.

2. Asian Games

The end of World War II saw a revolution amongst nations in the Asian continent. The Olympic values of friendship and not war, started penetrating worldwide. India was also not behind in this new change in the field of sports. In Fact, India was ahead in the sports field in the Asian Continent. During this time GuruDatta Sondhi and



2018 Jakarta Asian Championship

many other strived hard to start sports festival of Asian Countries on the Olympic platform. The western Asian Games got a break due to the world war but there was no break in the efforts of GuruDutta Sondhi.

With time, along with India many countries became independent. The idea of restoring the Far Eastern Games was raised at the 1948 Summer Olympics. However, Guru Dutt Sondhi, a member of the International Olympic Committee from India, proposed the idea of a whole new competition - Asian Games, as a sporting event where all Asian nations can be represented. It succeeded the Far Eastern Games and was the revival of the Western Asiatic Games.

The proposal of Guru Dutt Sondhi led to the forming of the Asian Games Federation in 1949 that owned the Asian Games. The

federation held the first Asian Games from 4 to 11 March, 1951 in Delhi. The games witnessed the participation of 489 athletes from 11 countries and 8 sports disciplines. The Asian games are conducted every 4 years. There is a 2-year gap between the Olympic Games and the Asian Games.

3. Commonwealth Games

After the Olympic Games, the



2010 Delhi Commonwealth Games

Commonwealth Games is another major multisport event involving athletes from the Commonwealth of Nations. These nations are the political association of member states that were former territories of the British Empire. These games were known as the British Empire Games from 1930 to 1950, the British Empire and Commonwealth Games and British Commonwealth Games in the later periods.

To celebrate the coronation of King George V, the Festival of the Empire was held in London in 1911 which included the inter-empire sports championship.

India received the honour of hosting the 2010 Commonwealth Games in New Delhi.

4. SAF Games

The South Asian Games formerly known as the South Asian Federation Games are a biennial multi-sport event held among the athletes from South Asia. The desire to promote a friendly and amicable relationship amongst the seven SAARC nations, led to the establishment of the South Asian Federation Games in 1981 in Delhi. The South Asia Olympic Council (SAOC)

formed in 1983 is the governing body for these games.

The first South Asian Games were hosted by Kathmandu, Nepal in 1984. This multi sport event has been organized every year from 1984 to 1987 except in 1986 as it was a year of Commonwealth Games and Asian Games. From 1987 onwards it was held every 2 years. The participating nations for the South Asian Games include India, Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka.

1. National Games

The first National Games on the lines of the Olympics were held in 1985 in New Delhi in memory of Indira Gandhiji. The duration and the regulations of the National Games are within the jurisdiction of the Indian Olympic Association. All states and Union territories were allowed to participate in these games. The main objective is to inculcate unity and the spirit of sportsmanship through participation in these games.

2. Khelo India

The importance of sports and fitness in one's life is invaluable. Playing sports inculcates team spirit, develops strategic and analytical thinking, leadership skills, goal setting and risk taking abilities. A fit and healthy individual leads to an equally healthy society and strong nation.

The Khelo India programme has been introduced to revive the sports culture in India at the grass-root level and achieve sporting excellence. The revamped Khelo India Scheme was launched during the financial year 2017-18 with the twin objective of mass participation and promotion of excellence in sports. The aim was to build a strong framework

for all the Indian sports, as well as establishing India as a great sporting nation.

Khelo India is the platform to inspire young talent to showcase their tremendous potential, scout for talent and groom them by providing state of the art infrastructure and training of the highest levels. This initiative took flight in 2018 due to efforts of then Sports Minister Col. Rajyavardhan Singh Rathore, Olympian with bronze medal in Shooting.

- Khelo India Youth games is held annually.
- It is a national level multidisciplinary grassroot games in India.
- It is held for two categories, namely under – 17 years school students and under – 21 years college students.
- 16 sports were included for the Khelo India youth games competition
- Talented players identified in priority sports disciplines would be provided financial assistance of INR 5 lakhs per annum for 8 years.
- Promotion of 20 universities across India as hubs for sporting excellence.
- Focus on nurturing talent and connecting rural India to global games.
- Efforts to encourage an increased penetration of sports in the education curriculum, with a tool kit to measure physical fitness levels.

Activities :

Find information about National School Games.

Exercise

Q.1 Answer in one sentence.

- (1) In which year was the first modern Olympics conducted?
- (2) Who is known as the father of modern Olympics?
- (3) In which year was the Indian Olympic Association established?
- (4) What is the motto of the Olympic Games?
- (5) Who is the founder of the Asian games competitions?
- (6) What is the total number of nations that participate in the Commonwealth Games?
- (7) In which year was the first South Asian Games organized?

- (8) In which year was the first national games conducted?

Q.2 Answer in one sentence.

- a) The first modern Olympics was held in the city of _____.
- b) The headquarters of the International Olympic Committee is in _____.
- c) The first Asian games was conducted in the year _____.
- d) The Commonwealth Games were conducted in India in the year _____.
- e) The 2018 inaugural Khelo India Youth Games was conducted in _____.

Supplementary Study :

- (1) List the different games and disciplines that are included in the modern Olympics games.
- (2) Write the player's information in the picture below.



Success Stories of Sportsmen

Sportsperson to Sports Minister - Rajyvardhan Singh Rathore



Rajyvardhan Singh Rathore was born to Col. Laxman Singh Rathore and Manju Rathore on January 29, 1970 in Jaisalmer, Rajasthan. He became the first Indian to win a silver medal in men's shooting double trap at the Olympics.

In school life, Rathore was an outstanding player in basketball, volleyball, cricket, football, kabaddi and athletics. He was awarded a scholarship from the School Game Federation of India for his outstanding performance in national cricket. Representing National Defence Academy (NDA) basketball team, he won Gold medal for individual performance. He was honored with the "NDA" Blazer's Best Player award. After entering Indian Military Academy in Dehradun, he won gold medals in volleyball, football, cricket, boxing, water polo. Being the best player, he was awarded the Gold Medal of the Sikh Regiment and received the Board of Honour for Best Cadet.

In 1996, Rajyvardhan Rathore began his training for shooting at the Army Marksman Infantry School and regular practice took place at K.D. Karni Singh Shooting Range in Delhi. In 2003, he won bronze medal in the World Championship held at Nicosia in Cyprus.

As a lieutenant in the Indian Army he won a silver medal in the men's double trap shooting event at the 2004 Athens Olympics. Rajyvardhan played a crucial role in winning gold for the team in the Asian Clay Shooting Championship held in the year 2005. He won gold medals three times in the Asian competitions between 2002 and 2004. Rajyvardhan won 25 international medals in various competitions like the Commonwealth Championships of 2002 and 2006, the ISSF World Shooting Championships and the Asian Clay Target Championships.

After retiring from the army, he became active in politics. In 2014 he was elected to the Lok Sabha and served as Minister of State for Information and Broadcasting following which he was entrusted with the Sports Ministry which he took up very passionately.

He believed sports participation amongst the youth is vital for the future of the country, inculcating leadership qualities and nurturing virtuous individuals. Indian sportspersons should have access to international platform to display one's skills and abilities to the world. With these thoughts, Rajyvardhan Rathore implemented many innovative plans like Khelo India and Target Olympic Podium (TOP) that resulted in generating keen interest for sports.

In recognition to his contribution to the field of sports, Rajyvardhan Rathore was awarded the Arjuna Award by the Government of India in 2003-04 and the Rajiv Gandhi Khel Ratna award in 2004-05. He went on to receive the highest civilian award the Padma Shri in 2005-06 and was the first Indian soldier below the rank of brigadier to receive such a medal. All Indians salute this talented sportsperson!

USHA - Tenacious Personality



PT Usha is a dominant personality both in India and the world over and was a great athlete. Even today, children take her name when talking of the fastest woman on the track.

Born on June 27, 1964 as the second daughter of 6 children to Paithal and Lakshmi Amma, she lived with her family in a village named Payyoli, Kozikhode district, Kerala. P T Usha comes from a very humble and poor background. Even then she displayed a special aptitude and passion to play which was noticed by the sports loving Physical Education teacher of her school Balakrishnan Master. Once while talking to parents, his eyes fell on a group of small girls playing in the field. He noticed a pair of very fast-moving feet in the group. It belonged to a dusky girl in blue skirt and white blouse. Patiently waiting for their game to finish he gently called and enquired her name. Very shyly she responded Usha of class 4.

Balakrishnan Master used to select few students and make them practice running and jumps in preparation for competitions. Usha too joined them. In return he used to provide them tea and snacks from a nearby stall which the children enjoyed. The PE teacher made Usha from 4th standard, run with the district champion of the 7th standard and PT Usha won that race. It was a defining moment, a beginning of her exploits on the athletic track. In 1976, the Kerala government started a training center at

Kannur district. Usha won a scholarship of Rs 250 from her district and joined the new facility for athletic training. Her parents especially her mother, encouraged and gave her confidence.

P.T.Usha's career

At the age of 16 she became the youngest Indian athlete to qualify for the Olympics held at Moscow in the year 1980.

In 1982 Usha bagged a silver medal in the 100 m and the 200 m run, at the Asian Track and Field, Usha bagged gold in the 400m. She created a world record by winning gold in 100, 200, 400 metre run, In the 1986 Seoul Asian Games, Usha brought home four gold medals and a silver in the 100 meters run.

Her outstanding achievement in athletics earned her many names such as 'Golden Girl', 'Payyoli Express'. and many more. For her excellent achievements in sports, in 1984, Usha was conferred with the Padma Shri and Arjuna Award.

In 1991, the golden girl found her better half in V. Srinivasan. The duo got married and were later blessed with a son named Ujjwal. The sabbatical she took from athletics for moving the family way did not hinder her return. She continued winning medals and breaking National records and at the age of 34, she won silver medal in the 200 and 400 meters run in the Asian Track Federation meet held at Fukuoka in Japan, proving that age cannot be a barrier to any success.

She did not stop after doing so much. To keep her dream alive, she runs an athletic school in Kerala, where she gives athletic training to the youth.

P T Usha in the Asian Games

1982 – Delhi, 2 silver medals.

1986 – Seoul, 4 gold medals, 1 silver medal

1990 – Beijing, 3 silver medals

1994 – Hiroshima, 1 silver medal

Complete the table by getting the following players information.

Sr. No	Name of the player	Types of play	Competition Performance	Awards
1.	Khashaba Jadhav			
2.	Leander Paes			
3.	Karnam Mallehwari			
4.	Rajvardhan Singh Rathod			
5.	Abhinav Bindra			
6.	Sushil Kumar			
7.	Vijender Singh			
8.	Vijay Kumar			
9.	Yogeshwar Dutt			
10.	Mary Kom			
11.	Saina Nehwal			
12.	Gagan Narang			
13.	P. V. Sindu			
14.	Sakshi Malik			
15.	Hima Das			

Practical work

1	<p>Physical Fitness</p> <ul style="list-style-type: none"> • Training Methods : Circuit Training, Weight Training, Plyometric Training, Fartlek Training, Obstacle course, Aerobics / Zumba, ABC Drills, etc. <p>Suggestions : While practicing these training methods, one should know the number of sets, order of rotations, relaxation between two sets, intensity, variety, complexity and integration of the two exercises accordingly.</p>
2	<p>Athletic Events (compulsory)</p> <ul style="list-style-type: none"> • Running - 100m / 200m / 400m any one; 800m / 1500m any one • Throwing and jumping events - Practice any one throw and one jump. In addition to this practice other field events (optional).
3	<p>Various games and sports events</p> <ul style="list-style-type: none"> • In order to gain proficiency in any of the two games played in the previous standard, the game should be practiced using advanced techniques. The practice should include warm up exercise, sportsmanship and tactics. Relaxation after doing practice.
4	<p>Yog</p> <ul style="list-style-type: none"> • In addition to the ‘Asanas’ provided in the textbook, at least five ‘Asanas’ should be practiced in sitting position, standing position, supine and prone position. • Pranayama : Practice Anulom vilom Pranayama. • The Kapalbhathi postures given in textbook should be practiced.
5	<p>Activities (At least one of the given activities should be completed in each session.)</p> <ul style="list-style-type: none"> • Bicycle trip • Keeping records of physical activity with the help of a fitness app. (At least seven days) • Exhibition of sports equipment (in picture format, replica or actual sports equipment, etc.) • List the various exercise equipment. Try new exercises using different equipments. • Conducting a sports quiz. • Visit a sports complex and record the sports facilities available there. • Conduct inter class competitions of any one sport at school on the basis of the Premier League. (e.g. player auctions, team owners, team managers, coaches, etc.) • Set and achieve a goal of performing mass level ‘Suryanamaskar’
<p>IMPORTANT NOTE : The practice of any sports skill, physical activity, or field play etc. should be done only under the guidance of experts.</p>	

Below is a list of some sports websites, to help which you explore more by visiting your favorite sports websites.

1. Various competition web sites

www.olympic.org
www.thecgf.com
www.olympic.ind.in/national-games
www.kheloindia.gov.in
www.sgfibharat.com

2. Websites for various sports league events

www.prokabaddi.com
www.prowrestlingleague.com
www.pbl-india.com
www.indiansuperleague.com
www.provolleyball.in
www.iplt20.com

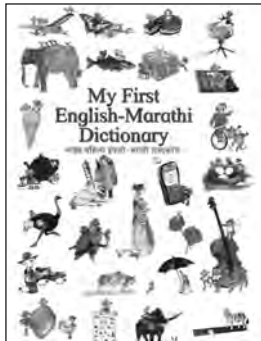
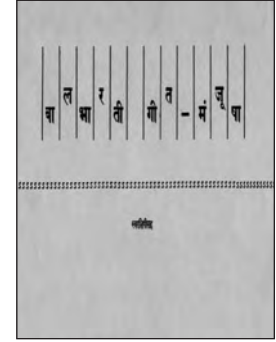
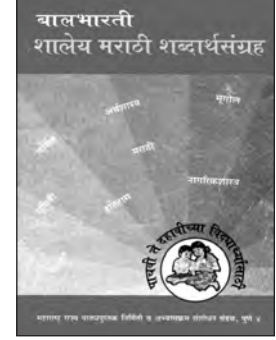
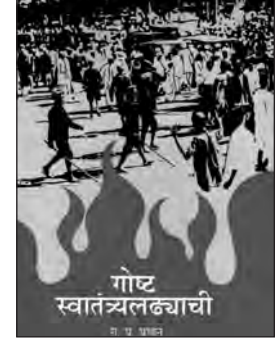
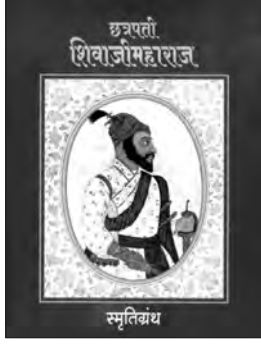
3. Various sports websites

www.basketballfederationofindia.org	www.boxingfedertion.in
www.handballindia.in	www.indiaboxing.in
www.the-aiff.com	www.BCCL.tv
www.hockeyindia.org	www.ballbadmintonindia.com
www.volleyballindia.com	www.indianarchery.info
www.badmintonindia.org	www.aitatennis.com
www.swimming.org.in	www.thenrai.in
www.indiangymnastics.com	www.fencingassociationofindia.com
www.khokhofederation.in	www.indiankabaddi.org
www.indiaskate.com	www.rollball.org
www.ttfi.org	www.wrestlingfederationofindia.com
www.ipa.co.in	www.indiancarrom.com
www.onlinejfi.org	www.indiasquash.com
www.indianathletics.in	

Doping : www.nadaindia.org www.wada-ama.org

Obesity : www.who.int/news-room/fact-sheets/detail/obesity-and-overweight





- पाठ्यपुस्तक मंडळाची वैशिष्ट्यपूर्ण पाठ्येत्तर प्रकाशने.
- नामवंत लेखक, कवी, विचारवंत यांच्या साहित्याचा समावेश.
- शालेय स्तरावर पूरक वाचनासाठी उपयुक्त.



पुस्तक मागणीसाठी www.ebalbharati.in, www.balbharati.in संकेत स्थळावर भेट द्या.

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