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YOGA, HEALTH AND PHYSICAL EDUCATION

Standard 9



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 respect my parents, teachers and all my elders and
treat everyone with courtesy.
I pledge my devotion to my country and its people.
My happiness lies in their well-being and prosperity.

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Authors	PREFACE
<p>Dr. G. T. Sarvaiya (Convener) Shri Kantibhai R. Patel (Convener) Dr. Divyanshu Dave (Convener) Dr. Kamlesh Rajgor Shri Atmaram Patel Shri H. J. Sherasiya Shri Sunil Parmar Shri Keshubhai Morasania Shri Varjangbhai Vala</p>	<p>Gujarat State Board of School Textbooks has prepared new textbooks as per the new curricula developed by the Gujarat State Secondary and Higher Secondary Board and which has been sanctioned by the Education Department of the Government of Gujarat. A panel of experts from Universities/Colleges, Teachers Training Colleges and Schools have put lot's of efforts in preparing the manuscript of the subject. It is then reviewed by another panel of experts to suggest changes and filter out the mistakes, if any. The suggestions of the reviewers are considered thoroughly and necessary changes are made in the manuscript. Thus, the Textbook Board takes sufficient care in preparing an error free manuscript. The Board is vigilant even while printing the textbooks.</p>
Translators	
<p>Dr. G. T. Sarvaiya Shri Kantibhai R. Patel Shri Vinayak K. Dhotre Dr. N. J. Chaniyara</p>	<p>The Board expresses the pleasure to publish the Textbook of Yoga, Health and Physical Education, Std. 9 which is a translated version of Gujarati. The Textbook Board is thankful to all those who have helped us in preparing this textbook. However, we welcome suggestions to enhance the quality of the textbook.</p>
Reviewers of Translation	
<p>Dr. Jatin Mehta Dr. Neeraj Silavat Dr. Nilesh Sathwara</p>	
Co-ordinator	
<p>Shri Ashish H. Borisagar (Subject Co-ordinator : Maths.)</p>	
Preparation and Planning	
<p>Shri Haresh S. Limbachiya (Deputy Director : Academic)</p>	
Lay-out and Planning	
<p>Shri Haresh S. Limbachiya (Deputy Director : Production)</p>	<p>H. N. Chavda Dr. Nitin Pethani Director Executive President Date : 30-03-2016 Gandhinagar</p>

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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) to provide opportunities for education by the parent or the gurdian, to his child or a ward between the age of 6 and 14 years as the case may be.

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About This Textbook...

It is stated in National Curriculum Frame Work 2005 that Yoga, health and Physical Education is essential for development of child. The problems occurred in the school can be solved with the help of this subject. The child's development at school depends on nutrition and well-planned physical activity programmes. This subject is important for all-round development of a child and for the development of intellectually responsible citizen. This curriculum area adopts a holistic definition of health within which physical education and yoga contribute to the physical, social and mental development of child. So, the teacher should take proper care to teach and organise suitable activities.

With reference to Nation Curriculum Frame Work 2005, the subject matter of syllabus of all subjects has been framed afresh keeping various stages in mind.

In this book, a well co-ordinated approach based on new syllabus has been adopted for the first time. It mainly consists of subject matters of various sciences of Yoga, Health and Physical Education. Yoga is an immortal valuable heritage of Indian Culture. As per NCF 2005, 'The need-based approach could guide the dimensions of the Physical, Psychological and Mental aspects that need to be included at different levels of schooling. A basic understanding of the concerns is necessary; but the more important dimension is that of experience and development of health, skills and physical well-being through practical engagement with play, exercise, sports and practices of personal and community hygiene. These demands of children are tried to integrate into the book. Sports and games of the local areas are included in the book. Moreover, games of other countries are also included in the book. An attempt has been made to reduce the load of subject matter and hypothesis. Three different books on Yoga, Health and Physical Education have been incorporated in a single text book as an independent subject of study.

Unit - 1 : Yoga education : In this unit meaning of yoga, Ashtang Yoga, Asanas, Suryanamaskar are included. In Yoga, meaning of yoga, benefits of Yoga and Bahirang (External) Yoga are included.

In Asanas, meaning, basic position, method, to take care and benefits of Asanas are given. Padmasana, Gomukhasana, Dhanurasana, Tadasana, Padhastasan, Bhadrasana, Shavasana, Uttanpadasana, Poorna Titli Asana are included in this unit. Twelve positions of Suryanamaskar and their benefits are mentioned.

The necessary pictures and figures are given to help the understanding of an unit. Yoga Science is an immortal valuable heritage of Indian Culture. Yoga has a capacity to put on spiritual approach of life, not only that but it is useful in practice also. Yoga is a perfect method for skillful work, freedom from stress, concentration of mind, original creation and development of personality.

Unit - 2 : Health Education :

In this unit, there are four chapters, in which important subject matters for maintaining child development are given : (1) Health (2) Accidents occurred during games and their first aid treatment (3) First-aid (4) Effects of exercises on respiring and blood circulation systems are included in this unit.

Unit - 3 : Physical Education : Athletics and games are included In this unit.

In athletics running (Sprints), Jumping(Long jump) and throwing(Shot-put) are included. In games ground, equipment, skills and rules of Kabaddi, Volleyball, Cricket and Kho-Kho are included. This unit is important for the development of sportsman spirit and education for responsible citizen for students.

The instructions of NCF - 2005 for Textbook should be carried out. It is mentioned that the unit is recent addition to the curriculum of Yoga. The entire group must be taken together as a comprehensive health and Physical Education Curriculum, replacing the fragmetary approach current in schools to-day. As a core part of the curriculum, time allocated for games and Yoga must not be reduced or taken away under any circumstances.

We hope that this book assists in the Herculean Task of development and national building. It shall also effectively contribute in making the students knowledgeable and intelligent along with moulding them as responsible citizens.



Introduction

We all are very much familiar with the word "Yoga". Nowadays this word has reached to each and every house through media like news papers and television. Yoga is an excellent gift presented to the world by the ancient India. It is an ever new science. Yoga is much more useful in the present times than it was in the ancient times. It is not that, yoga encourages only individual development. Hence, due to its important universal acceptance the United Nations Organization (U.N.O.) has declared the 21st June as an "International Yoga Day".

There is a description of Yoga in many volumes of the oldest (ancient) literature like vedas, upanishads etc. In fact, we can see six darshan (systems of philosophy) traditions in the vedas. e.g. (1) Sankhya (2) Yoga (3) Nyay (4) Vaisheshik (5) Poorva Meemansa (6) Uttar Meemansa. By compiling all these excellent and natural thoughts Maharshi Patanjali has written a great volume "Yogasootra". Maharshi Patanjali was the Principal of the Takshashila University. He was expert also in grammar and Ayurveda over and above Yoga. A shloka has been said in his sincere praise.

योगेन चित्तस्य वदेन वाचां मलं शरीरस्य च वैद्यके न ।

याऽवाकरोत्त्वं प्रवरं मुनिनां पतंजलिमानतोऽस्मि ॥

This volume of his is sootratmak (aphoristic). He has discussed at length the yoga through clear and unerring sootras (maxims) aphorisms in spite of its being so deep. He has divided all the 195 aphorisms in four chapters.

Yoga is not a shashtra but it is a Science of transforming life by knowing truth of life. In other words, yoga is a system of living life in which there is no place for insistence on one's own opinions. Yoga is unerring medicine for complete all-round development of all the aspects of human personality. Application and practice of yoga in the Yoga classroom makes any student physically strong, mentally peaceful, intellectually brilliant, heartily delighted and sincere and honest in his day-to-day life dealings. As a result, the Yoga is such a potential activity so as to bring welfare of the society, nation and the entire humanity.

Different terminologies and meaning of Yoga

The form of Yoga is so vast that it is difficult to bind it in any single definition.

The word "Yoga" is derived from the root Yuj in Sanskrit. Its meaning is to join, to meet or to amalgamate. Yoga is to join the soul (Atma) with the worldly great soul (Paramatma).

Swami Vivekanand has said, "Every individual has the potential to attain divinity." Yoga makes our union with the concealed divinity possible i.e. it manifests that divinity.

Maharshi Patanjali, defines Yoga in the second sootra of the first chapter of his first volume. "योगः चित्तवृत्तिनिरोधः" i.e. yoga is the ending of uncontrolled thoughts arising in our mind. Thus, the compiler author considers it 'mental (psychological) rather than physical. In reality Yoga is also psychology. The aim of Yoga is to make such thoughts still and firm that are useful in one's own development by removing useless thoughts through control of tendencies of mind.

Different approaches of Yoga

In our volumes the word "Yoga" has been used differently. The original meaning of Yoga is to attain unity with the great soul Paramatma. There are different approaches to attain unity and their names are according to the approaches. e.g. to attain unity through worship (भक्ति) means **Bhaktiyoga**. This world is manifested form of God. Accordingly effort to attain unity through service of the world is **Karmayoga**. Effort to attain unity through the path of knowledge by getting understanding of the universe and its creator by intellect means Gnyanyoga. Effort to attain unity by controlling body, pran and mind means **Rajyoga**. The same is called Patanjali Yoga or simply "Yoga".

Illusions regarding Yoga

There prevail many misunderstandings and illusions about Yoga even though yoga is a very important and obliging subject e.g.

- Yoga is not for common people but only for sadhu(saints)
- Yoga is a superhuman-divine subject
- Yoga means only Aasan, Pranayam
- Yoga means one type of exercise.
- Yoga means only medical diagnosis and treatment method.
- Yoga is a religious, communal subject
- Yoga is a subject of reading discourse
- Yoga is for beauty
- Yoga is a type of miracle.

Due to this type of many illusions we were deprived of the benefits of yoga for a pretty long duration. Now again there is awakening. Yoga-shibirs are frequently arranged. They organise everyday yogabhyas (practice) of yoga at certain places. People are seen performing Aasan-Pranayam in public gardens also. But in fact yoga is a science to understand mind and body. Such a pure scientific approach is needed to be aroused instead of the narrow approach, Yoga is merely a physical exercise by making more comprehensive and deep efforts even now.

Thus Yoga is such a joyful psycho-physical arrangement that gives our body sound health without any disease and strength as well as peace and calmness to mind and thereby prepares the individual for spiritual development.

Benefits of Yoga

Yoga is a science of both body and mind. Hence, it has achieved welcome and scientific acceptance all over the world. World Health Organization (WHO) has emphasized yoga training as an important link of physical-mental health. Intelligence is naturally developed through ever practice of yoga (i.e. yogabhyas). Physical cleanliness, health and peace are achieved naturally by practising yoga constantly with continuity alongwith studies. Science is an understood through experiments. In the same way Yoga is an internal experiment i.e. it is a subject of experience (अनुभूति).

Qualities like faith, politeness, discipline, sadhana, service, simplicity, will-power etc. are very essential for achieving knowledge. These qualities get developed in us naturally by observing yama-niyama through practice of yoga. Our Pranas (breath) should be strong enough alongwith enthusiasm and desire for achieving knowledge. Pranayam makes pran strong. Hence, Pranayam should be performed daily.

The nervous system is a very important medium for achieving knowledge. Efficiency of a nervous system depends on the flexibility of the spine. The spine becomes flexible by performing Aasans.

We have to study with one mind-complete concentration for achieving knowledge i.e. we have to make unsteady mind calm and concentrated. Meditation should be practised daily for concentration of mind. Spiritual joy is also experienced through meditation. In present times manifestations have made physical comforts and conveniences available. Even then physical illnesses, mental stress and strain have also increased due to hurrying and hastening after physical things without any understanding. The royal road to get release from all this disorder situation is yoga. Perform yoga and keep fit.

Yoga is a very important and useful subject. Even then if it is accepted without any understanding unfavourable result may occur. It, then, harms, rather than it benefits. Yoga is a subject of direct experience instead of reading and lecturing. Hence, initially Yoga should be practised under the guidance of expert.

EXERCISE

1. Answer the following questions in two to three sentences :

- (1) Who was the author (compiler) of yogadarshan ? Which volume did he write ?
- (2) Who was the Pracharya (Principal) at the Takshashila University ? In which subjects was he expert ?
- (3) What is yoga ?
- (4) What are the benefits of performing practice of yoga daily ?

2. Answer in detail :

- (1) Clarify the meaning of yoga.
- (2) What are illusions prevailing about yoga ?
- (3) What you do to remove these illusions ?
- (4) What are the benefits of the practice of yoga ?

3. Select the correct choice :

- (1) Which day is celebrated as the International Yoga Day ?
(a) 21 March (b) 21 June (c) 21 July (d) 21 May
- (2) Which is the basic root of the word Yoga ?
(a) भुज् (b) योग (c) युज् (d) None of the above
- (3) Yoga means to restrain
- (a) Feelings (b) Senses (c) Thoughts of mind (d) Mental abilities
- (4) On what does efficiency of the nervous system depend ?
(a) Efficiency of the brain (b) Flexibility of the spine
(c) Thoughts of the mind (d) Mental abilities



Introduction

Yoga is an ancient knowledge (vidya) gained through sages and saints of India. It is our responsibility to protect such a valuable hereditary wealth. Yoga is an art of living. In the Indian culture six darshanas have very much importance. Yogashastra is one of them. Maharshi Patanjali studied Yogavidya scientifically and wrote Patanjali Yogasootra. Since then yoga is called effective tool of purification of mind.

We have born as human beings. Do we know what is the specific objective of human life ? What is the end target of our life ? Generally it is understood that the objective of human life is to get wealth to raise up progeny or to attain fame and reputation. But if we think of specific goal, it is emancipation from bindings, realization of God of one's faith or to achieve perfect eternal joy in life. There is a description of many ways to attain the determined aim in human life in Indian ancient shashtras, one among them is Yogadarshan. In the terminology of Yoga many types of ways have been shown e.g. Karmayoga, Bhaktiyoga, Gnyanyoga, Hathyoga and Ashtangayoga etc. The method and direction of each way may be different but the end target of all of them is the same. Indian culture is very vast and hence every one gets the way according to one's convenience. Every one can choose the suitable way according to one's variety of likings and individual ability Traditional clarification of Yoga has been done differently through ancient book, like Hathyoga, Pradeepika, Gharand Sanhita, Shiv Sanhita and Patanjali Yogasootra. But if it is considered through clear scientific point of the modern science, Ashtang Yoga as shown by Maharshi Patanjali is very brilliant vidhya for today's man.

In Patanjali's Yogasootra Maharshi Patanjali has shown eight angas of Yoga which can be understood easily and accordingly Yoga is known as Ashtang yoga. It is known as Ashtang yoga as it contains a collection of different eight Angas. The said eight Angas are shown below.

External (Bahirang) Yoga

Maharshi Patanjali has described Ashtang yoga from 29th sootra of Sadhanpad to third sootra of Vibhootipad, in which first five angas are called as Bahirang yoga, while the rest three angas are known as Internal yoga. Five angas included in Bahirang yoga are : (1) Yama (2) Niyam (3) Asana (4) Pranayam (5) Pratyahara Many a yogacharyas describe Pratyahara as Antarang yoga. First four angas, Yama, Niyam, Asana and Pranayam relate to external actions of the body. So it is called Bahirang yoga. The last three angas, Dharana Meditation and Samadhi relate only to the soul. Hence it is called internal yoga. Pratyahara relates to both the actions outside the body and the soul. Hence in the beginning Pratyahara is an external yoga but it result in an Internal yoga while practising .

Now we will study all the five angas included in Bahirang yoga, viz. Yama, Niyam, Asana, Pranayam and Pratyahar.

Maharshi Patanjali has given a sootra in the terminology of Ashtang yoga as follows.

यमनियमासन प्राणायाम प्रत्याहार धारणा ध्यान समाधियोऽष्टांगानि।

Yama, Niyam, Asan, Pranayam, Pratyahar, Dharana, Dhyan (meditation) and Samadhi are eight angas of yoga.

Meaning

यम Yama

नियम Niyam

आसन Aasan

प्राणायाम Pranayam

प्रत्याहार Pratyahar

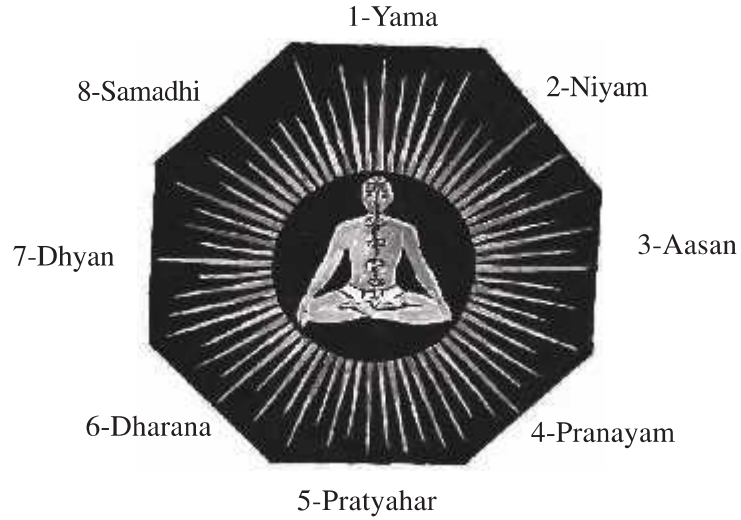
धारणा Dharana

ध्यान Dhyan

समाधि Samadhi

अष्ट eight

अंगानि Angas



If we think in general terminology yoga is a well-arranged scientific method of long life given by the ancient sages. Ashtang yoga as given by Maharshi Patanjali is a master-key to develop internal abilities of the individual personality. This holy scientific method develops personality. There by human improvement is possible. Maharshi Patanjali has shown a path to get the end-achievement through a sequential way by emancipating man from total bondage. In Yogadarshan man experiences physical (bodily) steadiness, mental peace, intellectual maturity and spiritual joy through Ashtang yoga for development of the human body, mind and internal consciousness (चेतन). The eight angas of yoga are inter connected. According to Ashtang yoga all the eight angas are complementary to one another.

Yama

Yama is the first step of Ashtang yoga. Maharshi Patanjali has described in all five types of yama, as follows. To attain control over senses and mind is the motive of yama.

(1) Non-violence (2) Truth (3) Non-stealing (4) Brahmacharya (celibacy) (5) Non-possession

(1) Non-violence :

Generally not to hurt others or oneself is called Non-violence. Violence in the yoga terminology has been thought of as materially and minutely. Non-violence means not to cause any pain and unhappiness bodily (physically) through speech and mentally to any life. Bodily means not to cause physical pain. Though speech means not to hurt through bitter word and mentally means not to wish bad (evil). By practising such non-violence, we can progress speedily in the path of yoga. According to Maharshi Patanjali a person coming in contact with such a person practising such type of non-violence gets relieved from enmity and feeling of hatred.

In shashtras अहिंसा परमो धर्मः i.e. Non-violence is the greatest religion. It vanishes evils, like attachment (temptation) anger greed. In Bhagvadgeeta Non-violence is meant as : to change into (become) devoid of enmity and hatred. The objective of work is equally important.

To cause unhappiness to an innocent person for own self-interest is violence. To kill any life of nature is violence. But when a Doctor makes a patient hale and healthy by giving unavoidable pain to his body is not violence. It is essential to practise non-violence by mind, speech and action.

(2) Truth :

Truth means to speak true (truthful). But acceptance of true values of life and total abundance of speaking false is called Truth. It is a general terminology of Truth to tell the thing in the same form as what we have heard. But this definition of Truth is incomplete. It is essential to understand the extensive (vast) form of Truth.

In psychological remedies many a times a patient is recovered by speaking what is not true, but then it is not untruth. Thus the concept of truth is to be properly understood. One who practises path of yoga is required to make effort to become veracious along with the spirit of adventure and honesty. Mind engrossed in untruth experiences constant unrest and remains always delighted with practice of Truth.

(3) Non stealing :

Non stealing means not to steal. To seize anything belonging to others considering it as one's own or to capture right over it is nothing but theft. The meaning of Non-stealing should be thought of in minute form and not in material form. Stealing of one's duty is the biggest latent stealing. Stealing of time is also stealing as stealing of thoughts is also considered as stealing. To take away somebody's thing without asking for it is also one type of stealing. Thus one who desires to progress on the path of yoga should protect one self from stealing.

(4) Brahmacharya :

Brahmacharya means "no" contact with woman as is understood generally, but the meaning of Brahmacharya is very vast i.e. practising Brahma is essential conduct for attaining Brahma. Brahmacharya means control of senses i.e. each and every sense should be used in limit and judiciously. If body is in control but not the mind, then also it is of no meaning. Hence practice of Brahmacharya should be done with mind, speech and action. Semen e.g. strength or valour (vigour) as shown in shastras should be seen not as physical only but as in the form of psycho-physical form. Practising Brahmacharya helps accumulating internal light and energy and thereby spiritual progress can be attained speedily.

(5) Non-possession :

Non-possession means not to hoard, not to hoard anything over and above one's own necessities. Anything useful in life if not needed even then to hoard it is possession. Hence sadhak who practises non-possession should keep minimum and essential necessities and that too with perfect satisfaction. Non-possession should not be on simply material layer but on mental layer. The Stronger the feeling of non-possession, the greater the experience of true joy.

Maharshi Patanjali has instructed these five yamas to get control over senses and mind.

In fact these five yamas guide a person how to behave with other people in society. If more and more persons in society practice them in their day to day life there would be, greater would be happiness, wealth, peace and harmony in society.

Niyam

The second step of Ashtang yoga of Maharshi patanjali is Niyam . He has laid five Niyams just like Yuna as follows : A person desiring to have development of life has to practise these Niyamas.

(1) Purity (2) Satisfaction (3) Penance (4) Swadhyaya (Regular studies) (5) Contemplation of God.

(1) Purity :

Purity generally means cleanliness or holiness. This purity can be of two types :

(1) External purity (2) Internal purity. Activities like bathing etc. is external purity. Internal purity is also necessary over and above external exposition of personality. Purity of mind alongwith purity of body means to remove all evils like pride and vanity, jealousy, attachment, hatred and unhappiness. Internal purity is indeed first Niyam of yoga.

(2) Satisfaction (Contentment) :

Satisfaction means satisfied with what is and as it is. Contentment is a very useful thing for sustaining body. Satisfaction is a root of happiness and desire is a root of unhappiness. Hence if one has to be completely happy one must be satisfied with mind, speech and action. Simple living and high thinking is the characteristic of contentment. Contented man lives with delight and joy. To keep sustaining in this delight in any situation is the second Niyam of Yoga.

(3) Penance (तप) :

The word तप is formed from the Sanskrit root तप which means to be heated. Impurities in gold get removed by heating much. It is necessary to perform this penance physically and mentally without any expectation of fruit. Penance performed with mind, speech and action without any self-interest leads to achievement. One meaning of penance is : To labour physically and mentally for achievement of high aims determined in life (by us). In present times this meaning seems (more) proper.

(4) Swadhyaya :

Swadhyaya means self-learning. Learning of one's own life so that one can recognise oneself is called Swadhyaya. It can be understood in three ways. :

- Reading of veda-shashtras
- Contemplation of the subject read
- Not only that, Japa of God's name to observe own's nature and antahkaran is also the very swadhaya. Swadhaya makes mind introvert. Swadhayoga is the fourth Niyam for progress in yoga.

(5) Contemplation of God :

Contemplation means to contemplate. Contemplation of God means to contemplate God but according to yoga contemplation of God means surrender to God completely more over whatever the fruit or the desired things achieved should be offered to feet (चरण) of God. Faith in God makes practice of yoga (yogabhyasa) easy. It helps achieving liberation. Thus contemplation of God means to accept complete surrender.

Importance of Yama-Niyam :

In today's complicated times it is very difficult to observe yama-Niyam. But it is not that impossible through gradual sequential study (Abhyasa). Internal character of a person develops through yama and Niyama. True darshan (seeing) of merits and demerits in a person can be known through yama and Niyama. The end-target at yoga is happiness and peace or completeness. Hence a person is required to practise yama and Niyam by mind, speech and action in his behaviour and conduct. That is the basis of Ashtanga yoga. Sadhaka can proceed further through these first two steps. By observing five yamas and five Niyamas, the person becomes mature for the further steps of yoga like Asana and Pranayam. Practice of yama creates the best social environment while personal qualities blossom through Niyama.

Asana

Maharshi patanjali has shown Asana as the third step in yoga. Asana is a Sanskrit word. The base is the root असि. Its general meaning is seat, to sit or to attain some specific type of position but its true meaning does not reveal through the meaning of the word only. Maharshi Patanjali explained the specific terminology of Asana and described it as : 'स्थिरसुखमासनम्' i.e. Asana means comfortable position with stillness (stability). Maharshi Patanjali has said in that position of the body, there is no unsteadiness and comfortable position with stability means Asana. This steadiness and comfortable position should be in both body and mind. Maharshi Patanjali did not talk of performing Asanas with bodily exertion. Control of body with physical and mental steadiness without bodily exertion for long time is the basic requirement of Asana.

Generally if we try to sit peacefully in one position our body is not able to sit even for a short time i.e. that we can see is material body. What we call our body as ours does not remain in our control for more time our body creates our existence. Even then to what extent it remains in our control is known through direct experience of practice of Asanas. At the time, of practice of Asanas initially some trouble, stress and physical exertion are experienced but gradually steadiness and peace are experienced through Asanas, even in hard and unfavorable situation. Through Yogasootra of Maharshi Patanjali. Reality of Asanas and experience of the vast darshan can be understood.

In modern times labour has decreased in life. Man running after physical amenities and comforts loses day-by-day physical and mental health. Then this third step of Ashtang yoga as shown by Maharshi Patanjali is invaluable.

Types of Asanas :

Asanas have effects on body and mind. Accordingly there are three types Asanas :

(1) Meditation Asanas (2) Health Asanas (3) Relaxation Asanas

(1) Meditation Asanas (Meditation) :

Some Asanas are performed for pranayam and meditation for long time. These asanas are done with steadiness and happiness without fatigue. They are called Meditation Asanas. Mind becomes calm and quiet. Mental unsteadiness and stress decrease. The main symbol of meditation Asanas is pyramid. Its main aim is spiritual upliftment. They are mainly Padmasana, Vajrasana, Bhadrasana and Swastikasana etc.

(2) Health Asanas (culture) :

The main objective of these Asanas is to promote health and hygiene. Most of the Asanas are included to this type. In these asanas, the spine and internal organs of stomach one given more importance. The spine gives support to body and to sustain its flexibility for long time. These asanas are inevitable. This includes mainly Uttanpadasana, Bhujangasana, Halasana, Dhanurasana, Gomukhasana Pavanmuktasana etc.

(3) Relaxation Asanas :

These asanas relieve physical and mental fatigue, providing a condition of complete laxity. Such asanas are called Relaxation Asanas. Especially these asanas are performed inbetween two health asanas. This removes physical stress and fatigue produced due to the asanas done before. These relaxation asanas when done in the beginning or in between while practising asanas can make the body free of stress. The main among them is Shavasana in the position of sleeping on the back. Moreover Makarasana, Balakasan etc. are all included in them.

Complementary Asanas

It is necessary to practise complementary Asanas before or after any asana done. It brings balance in arterial system and glands, Gradually through practice of both physical, pranik or psycho-physical completeness are achieved.

Complementary Asanas :

- (1) Sarvangasana - Matsyasana
- (2) Halasana - Supta Vajrasana

- (3) Bhujangasana - Shalabhasana
- Paschimottanasana
(4) Paschimottanasana - Ushtrasana

Asanas to be performed on both left and right sides are complementary to one another. It removes obstructions to practice.

Keeping in view the condition of the body Asanas are of the following types :

(1) Asanas to be performed in sleeping on the back position :

Uttanpadasana , Pavanmuktasana, Halasana, Matsyasana

(2) Asanas to be performed in the position sleeping on the stomach (sleeping inverted i.e. sleeping on the chest) :

Bhujangasana, Shalabhasana, Dhanurasana

(3) Asanas to be performed in sitting position :

Padmasana, Gomukhasana, Sukhasana, Vajrasana

(4) Asanas to be performed in standing position :

- Standing on feet : Ardhakati Chakrasana
- Standing on knees : Ushtrasana, Mayurasana

Pranayama

Pranayama is the fourth and very important anga (step) in Ashtanga yoga. Pranayama means Aayam of prana. Pranayama is a word made by joining two words. Prana + Aayam = Pranayama. Prana means breath and aayam means to prolong it, or Aayam also means control. According to Yogadarshana of Maharshi Patanjali, Pranayama tells to control speed of Prana alongwith its prolongation. According to Yogadarshana of Maharshi Patanjali the definition of Pranayama is as follow :

“तस्मिन् सति श्वासप्रश्वासयोर्गतिविच्छेदः प्राणायामः” i.e. Pranayama means to interrupt the speed of breathing (in and out). Materially Prana means process of breathing in and breathing out and interruption means, to control its speed specially. That is Pranayama i.e. the process of breathing in and breathing out is detained according to one's desire, and one has authority over breathing. It is the original form of Pranayama. Pranayama is considered the greatest penance (परम तप) in shashtras.

“प्राणायामः परं तपः” Pranayama is called atma at yoga.

In view of Yogashashtra breath is a bridge joining mind and body. Mind is reached through breath. Hence the process of pranayama is very essential for purification of mind. It is said in Hathyoga Pradeepika चले वाते चले चितं निश्चले निश्चलं भवेत् । According to Hathyoga Pradeepika the definition of Pranayama is as follows :

“पवनो बध्यते येन मनस्तेनैव बध्यते ।” i.e. one who has bound breathing has bound mind also.

It is said in ancient shashtras that one who has known life tatva has also known vedas. It is shown in Vedantsootra. Breathing (in and out) is called Brahma. In every shashtra prana and pranayama have been given the highest place. चले वाते चले चितं निश्चले निश्चलं भवेत् । i.e. when breath is unsteady, mind is also unsteady and when speed of breath becomes steady, mind also becomes steady. Man gets his need of prana through breath from life-element residing in Brahmand and getting control over that pran

tatva through pranayam body can be built up more and more strong. It is required to get control over energy produced in body and over moving of Prana flowing in body and how to use it is shown through Pranayam. In short Pranayam is a process of controlling mind. The never failing (Ramabana) medicine as bringing pranas in self-control lovingly means pranayama.

Form of Pranayama : Pranayama can be distributed in three parts stage wise :

(1) Pooraka : Inhaling the Air (2) Kumbhaka : Retention of breath in body (3) Rechaka : Exhalation or Releasing Breath

Pranayama is in complete form by a group of these three processes. In shashtras kumbhaka itself is shown as original pranayama i.e. retention of breath in pranayama is very important. There are two types of Kumbhaka. (1) Internal Kumbhaka - to retain breath in the body. (2) External Kumbhaka - to retain breath outside the body. The general meaning of Pranayam is just like to retain breath but it is the best key to get control over Antahkaran (अंतःकरण)(mind)

Hence it can be said that Pranayam awakens not only physical strength but also the latent strengths hidden in the depth of the unconscious mind. Practice of pranayam can bring miraculous results but if it is not practised properly, then it is very harmful.

प्राणायामेन युक्ते न सर्वरोग क्षयो भवेत् ।

अयुञ्जताञ्जयासयोगेन सर्वरोग समुद्भवः ॥

All the diseases are recovered by practising pranayam properly and its improper practice may cause diseases. There is also a mention in ancient shashtras that a lion can also be controlled through pranayam. But its wrong practice without any skill is just like riding on a mad elephant.

Swami Satyanand Saraswati has explained pranayam that due to practice of pranayam obstructions in Pranayam Kosha (प्राणायाम-कोष) (second of these five sheaths of the son) which is made up at five pranas namely Prana, Apana, Samana, Udana and Vyana are removed. Healthy body is built up. Competency to hold Pranatataua and to express it is achieved.

In modern times pranayam is believed simply as a method of breathing in and breathing out, but is not simply an exercise of breath.

Types of Pranayama :

Maharshi Patanjali has not mentioned anywhere names for pranayama in Ashtang yoga but according to standard granthas mainly there are standard Eight Types of pranayam

(1) Suryabhedan Pranayam (2) Ujjayi Pranayam (3) Sheetkari Pranayam (4) Sheetali Pranayam (5) Bhastrika Pranayam (6) Bhramari Pranayam (7) Moorchha Pranayam (8) Plavavini Pranayam. In Hathayoga Pradeepika only these eight types of Kumbhaks are shown.

For an ordinary person practice of (1) Anuloma-Viloma Pranayam (2) Suryabhedan Pranayam (3) Bhastrika Pranayam and (4) Bhramari Pranayam are essential.

Minute practice of pranayam where in steadiness of body, breath and mind is very necessary. Hence Pranayam can be practiced in certain special asanas. There is a description of mainly four asanas in shashtra. They are called meditation asanas.

(1) Padmasan (2) Siddhasan (3) Shavasan (4) Swastikasana

Moreover pranayam can be practised even in other asanas like Vajrasan, Bhadrasan or Sukhasana.

Useful Mudra (Movement of body in yogic practice) in pranayam :

In pranayam certain hand, Mudras are used. Mainly a hand mudra namely Pranav mudra, is used to open or close both the nostrils of nose with the help of hand.

Benefits of Pranayam :

- Pranayam makes body healthy and comfortable, but mind also becomes comfortable and delighted
- External and internal, all the impurities of body get removed.
- Longevity is achieved through pranayam
- It increases concentration, memory, decision power or expression power
- Pranayam brings strength of body, purity in arteries and concentration of mind
- The greatness of pranayam has been explained in shashtra as : pranayam destructs all sinful acts.
- All physical and mental diseases are removed through pranayam but its constant practice helps to attain spiritual strength and delight i.e. sat-chit-anand form
- Maharshi Patanjali says “ततः क्षीयते प्रकशावरणम्” i.e. Pranayam removes obstacle to light and of attachment to knowledge and achievement of knowledge becomes natural and easy.

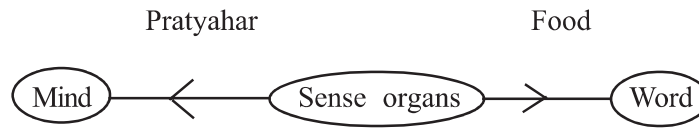
Pratyahara

Pratyahara (प्रत्याहार) is the fifth limb of Ashtangyoga. It is called the gateway of internal yoga. In Pratyahara there are two words joined : Prati means in the opposite direction e.g. Pratim-aaghat means pratyaghat i.e. is the opposite direction of aaghat, Aahar means food but in a broad sense aahara means to take in beats through senses. Our five senses of perception and their food (aahar) are as follows :

Aid	Sense-organs	Food
Eyes	Seeing	Visuals
Ears	Hearing	Words
Nose	Smelling	Smell
Tongue	Tasting	Taste
Skin	Touching	Touch

Thus all the five sense organs are inclined towards one's own aahara (food). Pratyahara means to help them inclined towards the opposite direction i.e. mind. Pratyahar is in the beginning, psychophysical and then mental process only. Its practice helps the mind to turn back from external events of the world and worldly subjects to internal consciousness (Antah chetana) (अंतः चेतना).

This process is called Pratyahar. A tortoise is the best illustration of Pratyahar. As the tortoise contracts its organs towards inside, in the same way the sadhaka of pratyahar turns back his sense organs toward



inside i. e. internal consciousness. This way purity, steadiness and peace of mind are achieved. Then the sadhak becomes eligible for internal yoga (अंतरंग योग) i.e. Dharana, Dhyana (Meditation) and Samadhi.

EXERCISE

1. Answer the following questions in detail :

- (1) Mention the steps which are included in Ashtang Yoga Describe each step in brief.
- (2) Which steps are included in external yoga ? Why are they called external yoga ?
- (3) What are Yam- Niyam ? Describe Yam-Niyam in detail.
- (4) Explain the meaning of asana. Give its specification and types of Asanas.
- (5) Give the definition of Pranayam as stated by Maharshi Patanjali. Give the detail of Pranayam and types of Pranayam.
- (6) Describe the importance of Pranayam and its benefit.
- (7) What is Pratyahar ? Describe in detail the importance of it in recent life ?

2. Write short notes on :

- (1) Benefits of Asanas
- (2) Importance of Ashtang Yoga
- (3) Yam
- (4) Niyam
- (5) Pratyahar
- (6) Types of Pranayam.

3. Answer the following questions in short (in one or two sentences) :

- (1) Who is writer of Ashtang Yoga ? Which experience do you feel from it ?
- (2) What is external yoga ?
- (3) Why Pratyahar is called a door of internal yoga ?
- (4) How many types of yama ? Which are they ?
- (5) How many types of Niyam ?
- (6) Describe the importance of Yama - Niyama.
- (7) स्थिरसुखमासनम् explain motto.
- (8) Give the types of Asanas and the name of them.
- (9) Describe the types of Asanas.
- (10) Describe the benefits of Asanas.
- (11) Explain प्राणायाम परं तपः।

(12) Describe types of Pranayam.

(13) Give the types of Pranayam.

(14) Why Tortoise is given the symbol of Pratyahara ?

4. Write answer to the following questions by selecting correct option from the options given below :

(1) In how many steps Maharshi Patanjali had shown yoga and there by shown utility of Yoga ?

- (A) Five (B) Three
(C) Four (D) Eight

(2) By which name the first five steps of Ashtang Yoga are known ?

- (A) External (B) Extrovert
(C) Internal (D) Conscience

(3) How many types of Asanas are there according to their benefits ?

- (A) Five (B) Three
(C) Four (D) Eight

(4) What do internal organs of the body get naturally through yogasanas ?

- (A) Massage (B) Stability
(C) Peace (D) Tension

(5) Which step is not Niyam ?

- (A) God Pranidhan (B) Purity
(C) Non-violence (D) Austerity

(6) Which step is not Yam ?

- (A) Celibacy (B) Without possession
(C) Exercise (D) Non-violence

(7) Which one step of Ashtang Yoga is Pranayam ?

- (A) Second (B) Fourth
(C) Third (D) Fifth

(8) How many stages of Pranayam are to be distributed ?

- (A) Three (B) Five
(C) Two (D) Eight

(9) What is action of exhale ?

- (A) Poorak (B) Internal Kumbhak
(C) External Kumbhak (D) Rechak

(10) Which Mudra is used in Pranayam ?

- (A) Shoonya Mudra (B) Gnan Mudra
(C) Pranav Mudra (D) Viprit Karani Mudra

(11) When vat (वायु) is wavering, what is another thing that is also wavering ?

- (A) Mind (B) Chit
(C) Breathing (D) Thought

(12) What is removed by Asanas ?

- (A) Tamogun (B) Rajogun
(C) Sattvagun (D) Chanchal (wavering) gun

(13) Which Asana can not be done while sleeping on belly ?

- (A) Bhujangasana (B) Dhanurasana
(C) Shalabhasana (D) Ushtrasana

(14) Which Asana can be done in seating position ?

- (A) Halasana (B) Pawanmuktasana
(C) Vajrasana (D) Mayurasana

(15) What is the meaning of ASTEYA (Theft) ?

- (A) Do not to much hoard (B) Do not theft
(C) Do not speak truth (D) Obey with others

(16) What is the best example of Pratyahar ?

- (A) A mad elephant (B) Lion
(C) Fish (D) Tortoise



Suryanamaskar is a scientific exercise (yogic activities). It gives freedom from many diseases. Our ancient sages and saints have given this very precious gift- a gift of well organised scientific method to live life. It is our custom to worship the sun with charm (mantra) early in the morning.

It is said in our scripture 'सूर्य अत्मा जगत्सत्स्थुषश्च।' (Rugved)). It means the sun is soul of all the creatures on the earth. Suryanamaskar is an oneness form of VISHNU.

- The sun removes material darkness by its Adhibhautik (material) form.
- It created creatures and nourishes by its Adhidaivik form.
- It removes our ignorance and clears reality by its Adhyatmik (SPIRITUAL) form.

In short Surya is a main source of all the powers. Our ancient sages and saints have realised the power of sun-rays like an ocean in the pot and have bestowed upon us an invaluable present of the developed method of suryanamaskar for the health, in which they have completely co-ordinated their mental power of the culture of body, mind and pran. The harmoniously related development of mind and pran, makes a man complete one. This harmonious development of suryanamaskar provides yogic vyayam (exercise) to all the organs of the body in the form of health and several other benefits. It provides self confidence and also physical and mental development. Suryanamaskar is a combined process of yogasana and pranayam hence is said to be the complete vyayam.

Suryanamaskar has twelve names. We utter these names in the form of mantra (charm) with twelve positions. Each Namskar position takes half a minute.

Basic position of suryanamaskar :

One should start performing suryanamaskar early in the morning at the time of sun-rise keeping the face towards the rising sun in the east over the spreaded carpet (asan), standing with calmness and keeping both the feet together with normal respiration.

(1) Position 1 : (First position)

Mantra : ॐ मित्राय नमः। (Om Mitraya Namaha)

Method

Stand straight, keep both the feet together keeping both the hands closed and bending from the elbows, bring them in front of the chest. Stand straight in a namaskar position. Keep the body in a tension free position. This position is called PRANAM ASANA. There is no stable position in Suryanamaskar, so theoretically it is not Yogasana, but is one of the best exercises depending upon Yogasana.

Benefits : Physical and mental balance is increased. Self confidence is increased. Internal Vitality is strengthen.



(2) **Position 2 : (Second position)**

Mantra: ॐ रवये नमः। (Om Ravaye Namaha)

Method :

Keeping both the palms closely joined and pointed towards the sun, raise both the hands over the head without bending from the elbows, in a straight position. Lean both the hands and head on the back side and bend the body from the waist as possible as you can. At the bending action, breath in slowly and deeply and then retain it. Keep both the legs straight without bending from the knees. This position is called **hastuttan** asana.

Benefits : Spine becomes elastic and strong. Food pipe (oesophagus) shoulders and chest are nourished and strenthen.



(3) **Position 3 : (Third position)**

Mantra : ॐ सूर्याय नमः। (Om Suryaya Namaha)

Method :

While breathing out slowly with the nose, bring the hands downward in slow motion. Bend the body on front towards the toes of the legs. Keeping both the legs straight from the knees, touch the forehead to the knees. Keep both the hands touched with the ground in such a way that the fingers remain touched with one another and the thumbs of the hands remain in line with the thumbs of the legs. This position called **Padhasthasana**.

Benefits : Spine, chest, shoulders and the back muscles of legs become strong. The digestive power is increased. Spine becomes flexible.



(4) **Position 4 : (Fourth position)**

Mantra : ॐ भानवे नमः। (Om Bhanave Namaha)

Method :

Extend the right leg on the backside in such a way that it's knee and the fingers of the toes remain in touch with the ground. Without removing the left leg and both the hands, keep them in such a way that the knee of the left leg remains in between the hands and near the arm pit of the left hand and close to the chest. Keep both hands straight from the elbows. Keep the toes (fingers) of the left leg and the fingers of both the hands in one line. Pull the chest forward. Raise the head upward and look at the sky. In this position extend right and left legs backward alternately in every suryanamaskar. Going to this position breath in slowly and deeply with a nose and retain it. This position is called **Ashvasanchalan Asana** or **Ekpadprasan Asana Prasarasana**.



Benefits : Chest becomes strong and shapely. Gives relief in the diseases pertaining to constipation and digestion. Stops spondylitis (भ्रूशक्ति-ने सोजे) being formed .

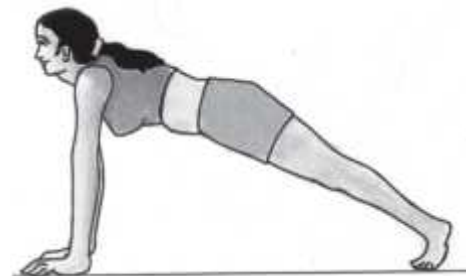
(5) **Position 5 : (Fifth position)**

Mantra: ॐ खगाय नमः। (Om Khagaya Namaha)

Method :

Take the left leg on the back side and put it near the right leg. Lean the head in between two hands. The eye sight shall be one foot away from the hands. In the final position keep the legs and the hands straight. Come in this final position while exhaling. This position called **Dandasana** or **Dvipad-prasarasana**.

Benefits : The muscles on the back side become strong. The diseases like constipation and those of the abdomen get rid- of.



(6) Position 6 : (Sixth position)

Mantra: ॐ पूष्णे नमः। (Om Pushne Namaha)

Method :

Bend the knees and touch the ground. In the final position the fingers of the legs, both the knees, chest, the palm of hands and the chin, should touch the ground. Keep the buttocks and the waist little upward from the ground and hold the breath outside in this position. This position is called **Ashtang Namaskar Asana**.



Benefits : The muscles of the hands and shoulders become strong. The lower part of the waist becomes strong. The diseases of the throat get rid- of.

(7) Position 7 : (Seventh position)

Mantra: ॐ हिरण्यगर्भाय नमः।(Om Hiranyagarbhaya Namaha)

Method :

Without moving the toes of the legs and the palms, raise the chest and the head upward. While making the hands straight, make the position of the body like a bow from the waist. The eye sight shall remain upward. While raising the body upward and making the position of the body like a bow from the waist keep on inhaling slowly. This position is called **Bhujangasana** or **Sarpasana**.



Benefits : The waist becomes strong. Helps in removing the diseases pertaining to thyroid gland.

(8) Position 8 : (Eighth position)

Mantra : ॐ मरीचये नमः (Om Marichaye Namaha)

Method :

Raise the buttocks slowly upward. The head shall remain in between the hands leaned downward. The soles of the legs and the palms of the hands shall remain in touch with the ground. While coming in this position keep on exhaling. This position is called **Parvatasana**.



Benefits : The muscles of the hands, shoulders and the legs become strong. Mental stability increases.

(9) Position 9 : (Ninth Position)

Mantra : ॐ आदित्याय नमः। (Om Adityaya Namaha)

Method :

This position is the same as fourth position. Take the left leg in front and keep its toes in between the hands. Right knee shall remain in touch with the ground. Lean the body from the waist on the back side forming the shape of bow. The eye sight shall be toward the sky. While coming in this position inhale. This position is called **Ashvachanchalanasana** or **Ek Pad Prasarasana**.



Benefits : The buttocks and the shoulders become strong. Helps in removing the disease of the throat.

(10) Position 10 : (Tenth position)

Mantra : ॐ सवित्रे नमः। (Om Savitra Namaha)

Method :

This position is the same as third position. Bring the right leg beside the left leg. Keeping the legs straight from the knees, bend the body in front from the waist. Try to take the head near the knees. While coming in this position keep on exhaling. This position is called **Padhastasana**.

Benefits : It increases the flow of blood circulation toward the head: so, it increases the efficiency of the brain.



(11) Position 11 : (Eleventh position)

Mantra : ॐ अर्कयि नमः। (Om Arkaya Namaha)

Method :

This position is the same as second position. Taking the hands from over the head, lean the body on the back side from the waist. The eye sight shall be toward the fingers of the hands. While coming in this position go on inhaling. This position is called **Hasta-Uttan Asana**.

Benefits : The balancing power increases. The liver, pancreas and the intestines become strong.



(12) Position 12 : (Twelfth position)

Mantra : ॐ भास्कराय नमः। (Om Bhaskaray Namaha)

Method :

This position is the same as first position. Stand straight in Namaskar Mudra keeping the hands in front of the chest, loosen the whole body. While coming in the position keep on exhaling. This position is called **Pranam Asana**.

Benefits : Helps in the development of self moral strength, self awakening and the all round personality.



- Now breath deeply and come in a basic position. All the organs of the body are contracted and extended alternatively in the performance of Suryanamaskar. Suryanamaskar has twelve positions. In these twelve positions the following positions are the same.

- First position is the same as position twelve
- Second position is the same as position eleventh
- Third position is the same as position tenth
- Fourth position is the same as position ninth.

It means first four and last four position are the same. There is minor change in fifth and eighth and sixth and seventh positions. After completion of twelve positions, one circle of Suryanamaskar is completed.

- Points of the kept in mind before performing Suryanamaskar.

- (1) The acute diseased persons, pregnant women and women in menstruation period should not perform suryanamaskar
- (2) Before starting suryanamaskar one should do minute yogic actions and after Suryanamaskar one should do shavasana.
- (3) Suryanamaskar should be performed rhythmically, slowly without bearing more effort on any part of the body and should try to reach the completion of it with the passing of time.

- (4) One should take care that no part of the body should feel the jerks and should not breath forcefully.
- (5) At the time of Suryanamaskar, when one bends the body forward, he should inhale and when bends to the back side, he should exhale.
- (6) While performing suryanamaskar one should do inhaling or exhaling with the nose. Keep the mouth shut. Suryanamaskar should be performed in morning or evening with empty stomach.
- (7) While performing suryanamaskar if one has started with the left leg he should start the second suryanamaskar with the right leg. Thus, at every suryanamaskar alternate changing of the legs should be done. The leg which is extended on the back side, the same leg should be forwarded in position 9.
- (8) `After completion the age of 8 years, one can perform suryanamaskar.
- (9) Initially perform two suryanamaskars then, either everyday or after every two days increase performing two more Suryanamaskars in serial order according to the strength and suitability.

The Mass benefits of Suryanamaskar :

- Due to Suryanamaskar a body of the person become fit for performing complicated asanas..
- Student's intelligence increases. A character is developed and a life becomes aimful.
- Suryanamaskar has the power to make individual to reach the apex of all-round development. It also gives firmness and power.
- It produces a minute animate power. Organs of body become healthy.
- There is no need of equipment for Suryanamaskar and it needs no money, so any one can do it easily.
- Sun provides us vitamin-D through the sun rays which is good to strengthen the bones.

- The sun-rays of rising sun have power of immunity, they increase immunity Power.
- It is said नमस्क र प्रियोभानु।The sun loves Namaskar (salutation). It has bestowed upon us the great mercy, for our health and longevity.
- It provides physical stability, mental stability, intellectual maturity and spiritual pleasure.

EXERCISE

1. Questions of Suryanamaskar :

- (1) Explain in details, the importance of Suryanamaskar.
- (2) Give the name of twelve positions, twelve mantras (charms) and twelve asanas.
- (3) Explain the general benefits of suryanamaskar.
- (4) Explain the points to be kept in mind while performing suryanamaskar.

2. Answer the following questions in short :

- (1) What does the sun suggest by its three forms ?
- (2) Why suryanamaskar is called complete vyayam ?
- (3) What is the process of breathing, during suryanamaskar position ?
- (4) Generally, what is importance of the sun ?



Performing "Asana" only for the healthiness of the body, is an insufficient thought. Basic aim of asana is to have "steadiness, concentration and sacredness of the mind." This is possible when an individual performs the asanas regularly. For the results, of the asanas, saint Patanjali says that ततो द्वन्द्वनेभिधान means it frees from the dualism of illusion.

Performing of asanas destrongs our रजोगुण (the second of the three fundament qualities of the nature) and develops our सत्त्वगुण (the first of the three fundamental qualities of the nature). In doing asanas the individual purifies himself from the view point of physical mental and emotional qualities. Over and above it develops spiritually which is more important.

Asana is not only an exercise but the mental action is more important than physical in it.

Generally speaking the people study it in the exercise form. Even though asan and exercise look alike to some extent; but thinking deeply, the difference between the asana and exercise can easily be understood.

Names and numbers of Asanas :

In Yogsutra, Maharshi Patanjali has not narrated the name of any asana. He has discussed only the terminology of the asanas and its advantages. But, other ancient Rishies have shown different asanas in view of their natural observation. Keeping in view the minute observations of animals, birds, insects, greenary and their shapes and qualities different asanas have been named, e.g. Mayurasana from mor (peacock), Matsyasan from matsya (fish), Bhujangasana form bhujang (Cobra) etc. It means the asanas have been named from the shapes of the body.

Useful suggestions for Asanas :

- The best time to have asanas is morning or evening
- Asanas should be practiced in the morning after discharge of excreta and with empty stomach. Asanas can be had after half an hour after taking the drink and after four hours after taking the food.
- Before doing asanas, bodily yogic movements should be done as pre-practice. After that, Shavasan should be done for five minutes and try to make the mind calm.
- For the practice of asanas a carpet covered with smooth cotton cloth should be used.
- If the carpet is woolen, it would be better The land below the carpet should be levelled and static.
- For the practice of asanas, the cloths should be comfartable, cotten preferably. The injurious things should be removed like wrist watch, ring, chain, gloves, bandage etc.)
- The numbers of asanas and the time to practice should be increased slowly according to once capability.
- Asanas should be performed slowly, rhythmically, without jerks, without bodily pressures and with positive attitude and regularly as per capability.
- While performing asanas, importance should be given for pooraka (deep breathing), Kumbhaka withholding the breath) and Rechaka (exhaling). This should be kept in mind.
- After doing an asana shavasan or Makarasan should be performed for two minutes for the purpose of rest.
- After doing asanas, avoid breakfast for 10 minutes and avoid food for 30 minutes.
- Do not do heavy exercise after doing asanas..
- It is more advantageous to perform purak (similar) type of asana after having any type of asana.
- Asana is a subject of abhyas (practice), hence it is important to have practice.

- Instead of making yoga a subject of demonstration, make it a part of life style.
- Asana should be performed after wearing under-wear (Langot or Jangiya).
- Ladies should take rest for four to six days during menstruation. After four months of pregnancy and up to three months after a child's birth, no asanas should be performed.
- Do not do asana where there is strong wind-blow.
- For the calmness and the pleasure of the mind use smelling flowers and an incense-stick.
- Always start with simple asanas. Slowly, go for harder asanas in progression.

PADMASAN

This asana is to be done in sitting position. Since the position of the body resembles like a padma in this asana, it is called Padmasan.

Basic position :

While sitting keep both the legs straight. The heels and the toes of the legs to be kept closed. Keeping both the hands straight from the elbows, put them on the sides of the legs having the palms in touch with the ground. The fingers will remain straight. Keep the body above the waist straight and relaxed.

Method :

- Holding the toe of the left leg with right hand, bend it from the knee and put its palm on the thigh of the right-leg.
- Then, holding the toe of the right leg with left hand, bend it from the knee and put its palm on the thigh of the left leg. Keep the back sides of both the heels in such a way that they remain in touch with the nearer parts of the navel.
- Keep the tips of the first fingers and the toes of both the hands in touch with each other. Rest of the three fingers will remain straight forming gyanmudra. Put both the hands on the respective knees.
- Slowly keep the eyes closed. This is the complete position of the asana.



Lopa-mudra :

In padmasan the second position is called lopamudra.

- Keeping the Padmasan position, leave both the hands from above the knees and put the palms of both the hands on one another in front of the navel making Lopa-mudra position. Keep the head neck and the back in a straight line.
- Remain in this position for some time and to come in basic position ;
 - Open the eyes slowly.
 - Keep the hands free from their positions.
 - Make the right leg straight.
 - Make the left leg straight.



Points to be kept in mind :

- Asana should be performed with peace of mind.
- The sitting time in this asana should be increased slowly (from one minute to half an hour)
- Do the asana with empty stomach in the morning or evening.

Benefits :

- Concentration increases. It is useful in celibacy.
- The flow of animate power becomes elevated.
- The thighs and the waists become strong.
- Mind becomes peaceful which is useful for meditation.

GOMUKHASAN

This asana is to be done in the sitting position. Since the shape of both the knees of the legs resemble like the mouth of the cow, it is called gomukhasan

Basic Position :

While sitting keep both legs straight. The heels and the toes of the legs to be kept closed. Keeping both the bands straight from the elbows, put them on the sides of the legs, having the palms in touch with the ground. The fingers will remain straight. Keep the body above the waist straight and relaxed.

Method :

- While breathing in, bend the left leg from the knee. Keep it in such a way that its heel remains pressed under the buttock of the right leg.
- Then, bend the right leg from the knee in such a way that its knee remains adjusted under the knee of the left leg. The heel of the right leg remains pressed under the buttock of the left leg.
- Taking the right hand on the back, keep it in such a way that its palm remains outward having the wrist downward and the fingers upward.
- Then, take the left hand from above the shoulder on the back side, bend it from the elbow and grasp the fingers of the right hand. The bended position of the elbow of the left hand should remain in touch with the back side of the head. This is the complete position of the asana.
- Remain in the above position for a while and then to come in the basic position :
 - Bring the left hand from above the back side to the front.
 - Bring the right hand from below the back side to the front.
 - Make the left leg straight.
 - Make the right leg straight.
- **Points to be kept in mind :**
- This asana should be performed either in the morning or in the evening having empty stomach.
- After performing this asana, remain in shavasan for a while.
- Do not do this asana if one is having swelling in small or large intestines and also if there is swelling on the spleen or in the kidney.

Benefits :

- The pains in the back shoulders and the neck get reduced.
- It is useful in reducing swelling on the testicles and also in hernia disease.
- Prostate and diabetes patients get ease.
- Chest gets developed.
- It gives care in rheumatism disease.
- It increases resistance power.
- Asthma disease gets rid-of. Stomach and lungs diseases get rid-of.
- High blood pressure and low blood pressure are controlled.



DHANURASAN

This asana is done in a prone position. Since the position of the body resembles like the stretched string of the bow, it is said dhanurasan

Basic Position :

Sleeping in prone position, the hands to be kept on the sides of the body. The palms of the hands should remain facing the ground. The legs should be straight from the knees.

Method :

- Bend both the legs from the knees in such a way that the heels of the legs will touch to the buttocks..
- Then catch both the legs from the ankles with both the hands.
- Pull the legs with the hands. The weight of the body should remain rested on the navel. Then pull the trunk of the body. Take the head on the back side as far as possible. Keep the eye sight in the front. This is the complete position of the asana.
- Remain in this position for a while. Then come in the basic position :
 - Leave the pulling of the body. Simply keep both the legs caught with the hands.
 - Put both the hands on the sides of the body.
 - Straighten the right leg from the knee and put on the ground.
 - Then, straighten the left leg from the knee and put on the ground.



Points to be kept in mind :

- An individual having hernia, ulcer, prostate, heart trouble or high blood pressure should not do this asana.
- Pregnant woman should not do this asana.

Benefits :

- Fat on the stomach decreases. There is an ease in gas or constipation troubles.
- Beneficial for the diabetic patients.
- The muscles of hands, legs and the chest become strong.
- Beneficial for the stoop shoulders without any deformity.
- Nerves get nourished.
- Spinal column is strengthened. It becomes flexible. The pain in the waist gets rid-of.
- Blood circulation becomes proper. One gets good health.

TADASANA

This asana is to be performed in the standing position. Since, the position of the body resembles like the palm tree, it is named as tadasana.

Basic position :

Keep the palms of both the legs together. Keep both the hands straight and the fingers in touch with the body. Keep the eye sight in front.

Method :

- Take both the hand upward from the front in slow motion. The palms of the hands will face each other. Hands will remain in touch with the ears.
- Raise the body up on the palms of the legs. Keep the heels up the ground. This is the complete position of Tadasana.
- Remain in this position for a while. Then come in basic position :
 - Place the heels on the ground.
 - Bring both the hands slowly from front to downward.

Points to be kept in mind :

- Perform this asana either in morning or in evening with empty stomach.



Benefits :

- Height increases. Idleness gets rid-of.
- The muscles of the legs, hands and shoulders become strong.
- Running speed increases. Body feels lightness.
- Health of the body gets suitable (positive) impression.

PADHASTASAN

This asana is performed in the standing position. Since, the legs and the hands get together, it is called Padhastasan

Basic Position :

Both the legs together. Both the hands straight and in touch with the body. The fingers of the hands also in touch with the body. Eye sight in front.

Method :

- With breathing, take both the hands upward. Keep them straight and in touch with the ears.
- Then bend in front from the waist. Keep upper body parallel to the ground. Keep the palms of the hands facing towards the ground.
- Bring both the hands downward and then keep the palms of the hands on the ground nearer to the respective legs, Keep the legs straight from the knees.
- Keep the forehead in touch with the knees. The chin should remain in touch with the chest. This is the complete position of Padhastasan.
- Remain in this position for a while. Then come in basic position :
 - Take the forehead little away from the knees.
 - Bring both the hands upward slowly. Keep the upper body parallel to the ground. Keep the palms of the hands facing the ground.
 - Bring both the hands upward and in touch with the ears.
 - Bring both the hands downward.



Points to be kept in mind :

- Those having troubles of stomach and heart should act as per the guidance of experts.
- Do not bend the legs from the knees. While taking a particular position, do not give jerks to the body.

Benefits :

- Body will be in good shape.
- The muscles of the stomach, back and the waist become efficient.
- The veins and the muscles of the stomach become strong
- Weight increases. Body gets freshness.
- The efficiency of the nerves increases.
- Digestive system becomes effective, hence indigestion, stomach troubles like gas and constipation gets rid of.

BHADRASAN

Bhadra means prosperity. Hence this asan is understood as prosperity giving, it is called Bhadrasan.



Method :

Sit keeping the legs straight. Bring the palms of both the legs together like namaskar position of the hands. The legs shall remain in bending position from the knees. Fixing the fingers of the hands in one another, hold the palms of the legs from below strongly. Now bring both the legs nearer to the body with the help of the hands. If possible bring the legs near the Sivanthana (A position between the anus and urine passage). Keep the body straight and bring the chest up. Press both the knees on the ground. Let the breathing be normal.

Points to be kept in mind :

- Do not perform this asana when you are suffering from any disease.
- Perform this asana without jerks.
- Slowly improve the respective positions, and then try to get the complete position.

Benefits :

- The joints of the legs and the muscles become strong.
- Reproductive organ and the digestive system become efficient.
- The fat on the inner part of the thigh decreases.
- Determination power increases Intellect becomes sharp.
- Effective for the treatment of piles.
- Advantageous in curing the diseases like tuberculosis, heart disease, insomnia etc.

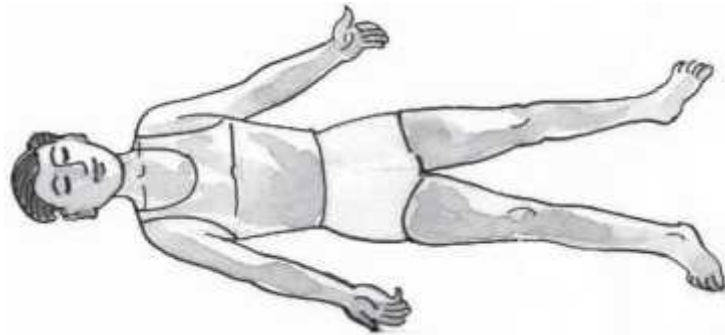
SHAVASAN

Shav means like a dead body. Since in this asana the position of the body resembles like a dead body it is called shavasana. It is also known as Vishramasana or Shithilasan .

Basic position :

Sleep on the back keeping the face toward the sky. Keep the hands beside the body. The palms shall face the sky. The legs shall remain little apart and straight from the knees. Keep the body relaxed.

Method :



- Keep 30 cm to 45 cm distance between the legs and let the palms of the legs be inclined sideways.
- Keep the hands 10 to 15 cm away from the body.
- Keep the palms of the hands facing toward the sky. Keep the fists of the hand half open.
- Keep the head in the steady position either on the right side or the left side. Close the eyes slowly.
- Breathe deeply and inhale slowly.
- Remove the tension from all the muscles, veins and the organs of the body. Make whole body relaxed. No part of the body should be harsh.

- Close the eyes, Loosen all the parts of the body from the toe to the head and observe the breathing, think with peace of mind that the tension and fatigue of all the parts are decreasing. Feel that the whole body is relaxed. Be an eyewitness of the things, that happen in the body and mind.

Forget the presence of the body and try to experience thoughtlessness. Concentrate your mind between two eye-brows. This is the complete position of Shavasan. After completing Shavasan pray God.

Points to be kept in mind :

Different methods of performing shavasan are as follow. :

- Experience breathing with mind.
- Method of heaviness against lightness.
- Method of experiencing tension and looseness.
- Method of experiencing positive thoughts.
- There is no sleeping in shavasan but there should be alertness from inside.
- Shavasan seems to be an easy asana, but to get perfection, it requires more practice and special vision or exclusive vision which is difficult to get but it is the most beneficial asana. In Yoga. Shavasan is the method to get more rest in less time.
- Have less movement while performing shavasan.
- Do not perform shavasan immediately after taking food.

Benefits :

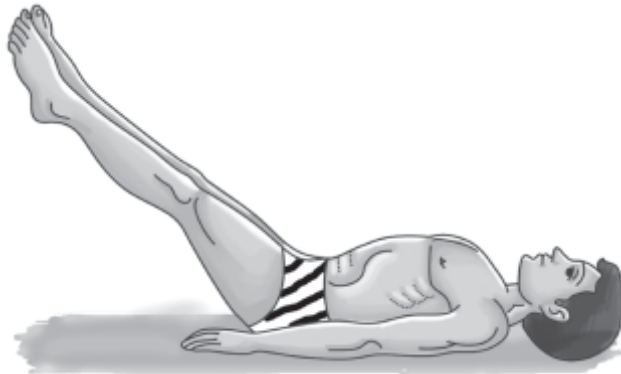
- The tension on nerves decreases and one can get good sleep.
- The anger becomes quiet. Blood circulation in whole of the body becomes effective which helps in getting new energy and enthusiasm.
- The joints of the legs and the muscles become strong.
- One gets efficiency in doing the works.
- The weakness of all the veins and muscles gets rid-of. Fatigue, tension and negative thoughts also get rid-of. The energy increases.
- Body gets new life and mind gets energy, freshness, peace and enthusiasm.
- After performing any asana shavasan should be performed. This gives rest to all parts of the body. If shavasan is performed before doing any asana it prepares the mind for the practice of yoga.
- If shavasan is performed for 10 minutes, it gives the advantage of taking sleep for 6 hours.
- Shavasan develops the position for Dhyana - meditation.
- Remaining the complete position for a while and coming to the basic position :
- Bring the legs together.
- Bring the hands nearer to the body.
- Bend the right leg from the knee and put the palm near the knee of the left leg.
- Turn to the left side. Place right hand on the side.
- Get up with the help of the hands.
- Put both the hands on the side.

UTTANPADASAN

This asana is to be performed while sleeping on the back

Basic position :

Sleep on the back and keep both the hands near the knees. Keep both the legs nearer to each other and make them straight from the knees. Let the palms of the hands be facing the ground



Method :

- While breathing in, lift both the legs upward up to 30° keeping them together and straight from the knees. Then withhold the breath and keep this position for the time you can hold it comfortably. While taking the legs upward, take the hands from front to back side. Put them on the ground. . This is the complete position of asana at 30°.
- While exhaling put the legs on the ground. Bring the hands from the back to upward and put them on the ground near the legs.
- In the same position take the legs upward at 60° and hold breath. Take the hands from the front to back side and put them on the ground. Then withhold the breath and keep this position for the time you can hold it comfortably. This is the complete position of the asana at 60°.
- While exhaling put the legs on the ground. Bring the hands from the back to upward and put them on the ground near the legs.

Points to be kept in mind :

- Do not take the legs upward with a jerk. While bringing the legs down, see that the heels do not collide with the ground.
- Those who are having pain in the back and a slip-disc problem should perform this asan under expert guidance.

Benefits :

- Digestion power improves.
- The tissues of the legs become strong.
- This asana is useful for the trouble in the neval.
- Saman pran becomes steady.

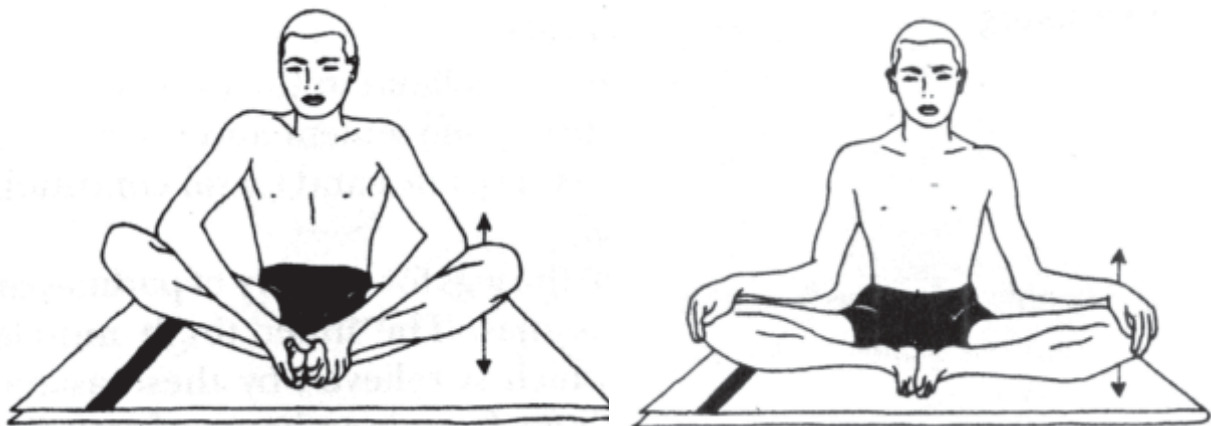
POORNA TITLI ASANA

Basic Postion : This is one of the asanas to be done from sitting position.

Method :

- Sit keeping boh the legs straight.
- Slowly bend both the legs from the knees and adjust in such a way that the soles of both the legs remain in touch with one another.

- Keeping the heels of both the legs in touch with one another, bring them nearer to the body as possible as you can.
- Keep inner muscles of the thighs completely relaxed.
- Hold the palms of both the legs gently with the palms of both the hands.
- Give up and down motion to the legs with little push from the elbows. Try to make the touch of the knees with the ground.
- Thus, give motion to the legs like the wings of a butter fly. Have 30 to 50 such repetitions.
- Keep normal breathing action.
- Bend both the hands from elbows and put the palms of the hands on the knees.
- Give up and down motion to the knees with gentle pressures by the palms of the hands.
- Do 20 to 30 such repetitions.
- Extend the legs and make them relaxed.



Points to be kept in mind :

- Do not do this asana in the disease like sciatica, testicles and uretus.

Benefits :

- To sit for longer time steadily in the meditation asanas like Padmasan, Sidhdhasana or Vajrasan, the muscles of the legs become efficient.
- The inner muscles of the thighs get more rest. The tension created by standing or walking for longer time gets rid-of.

Breathing efficiently increases. Fat of stomach decreases. Muscles of the stomach become strong. Spine and waist become flexible. Constipation and indigestion is removed.

EXERCISE

1. Explain the methods of the following asanas :

- (1) Padmasan (2) Gomukhasan (3) Dhanurasan (4) Tadasan (5) Padhastasan
(6) Bhadrasan (7) Uttanpadasan (8) Shavasana (9) Poornna Titli Asana

2. Explain the benefits of the following asanas :

- (1) Padmasan (2) Gomukhasan (3) Dhanurasan (4) Tadasan (5) Padhastasan
(6) Bhadrasan (7) Uttanbpadasan (8) Shavasana

3. Write answer to the following questions by selecting correct option from the options given below :

- (1) In which asana, the position of the body resembles like lotus?
(a) Bhadrasan (b) Shavasan (c) Padmasan (d) Gomukhasan
- (2) In which asana, the position of the body resembles like bow ?
(a) Tadasan (b) Dhanurasan (c) Bhadrasan (d) Uttanbpadasan
- (3) Where the shape of "Gomukha" happens in Gomukhasan ?
(a) On the back (b) Near the shoulder (c) Near both the knees (d) Near the waist
- (4) Which asana is done lying on the back?
(a) Makarasan (b) Shavasan (c) Dhanurasan (d) Gomukhasan
- (5) Which asana is to be done in standing position?
(a) Tadasan (b) Bhadrasan (c) Gomukhasan (d) Makarasan
- (6) Which asan is to be done in sitting position ?
(a) Shavasan (b) Makarasan (c) Tadasan (d) Padmasan
- (7) Which asan is to be done in prone position ?
(a) Gomukhasan (b) Dhanurasan (c) Tadasan (d) Padmasan
- (8) In which asana the position of the body resembles like a butterfly ?
(a) Padahastasam (b) Poorma Titli asana (c) Shovasana (d) Padamasana



National School Games Yogasana Competition

The National school Games Yogasana Competition is organised every year. More and more students take part in this, so the rules of the competition are given as under.

- This competition is organised for boys and girls. There are three age groups in both the sections, Total groups will be six as under :

Boys	Girls
under 14 years	under 14 years
under 17 years	under 17 years
under 19 years	under 19 years

- A team must consist of a maximum of five competitors (including one reserve). A team consisting of less than four competitors will not be eligible for team championship, but their performance will be considered for individual position. For championship, marks of only best four players will be counted.
- The Yogasana competition will include the following three Asanas group.

Group A : 1. Paschimottanasana (elbow must touch the floor) 2. Sarvangasana 3. Matsyasana
4. Dhanurasana (Competitor can perform purna Dhanurasana) 5. Ardha Matsyendrasana
6. Uttanpadasana

Group B : 1. Chakrasana 2. Kakutasana 3. Shirsasana 4. Bakasana 5. Bhumasana
6. Purna Shalabhasana

Group C : 1. Sankhyasana (Elbow should not touch the floor) 2. Vyaghrasana
3. Urdhva Kukutasana 4. Utith Titibhasana 5. Padama Mayurasana
6. Utith Padhastasana

- The time limit for the asanas of group A to be performed and retained :
For age group below 14 years : 1 minute
For age group below 17 years and 19 years: 2 minutes
- The Time limit for the asanas of group B to be performed and retained :
For age group below 14 years : 15 seconds
For age group below 17 years and 19 years: 30 seconds
- The Time limit for the asanas of group C to be performed and retained - ten seconds for all the age groups.
- At the time of competition, asanas from group 'A' and group 'B' will be assigned by draw system on the spot. While in group 'C' any one asana can be selected by the player. Every participant has to perform three asanas. Separate draws will be made for boys and girls sections.
- Three compulsory asanas are to be performed from the given list of eighteen asanas in Group 'A', 'B' and 'C'. In addition to this, two other asanas of the player's choice are also to be performed excluding compulsory asanas. Thus a total 5 asanas are to be performed by all the competitors. Each asana will contain 10 marks and then a competitor will be given marks out of a total of 50 marks.

9. If required, the authority may reduce the time limit for the asanas, for example, the time limit of an asana may be reduced from two minutes to one minute. In any case, the time limit will not be extended. Such change, if made will be applicable to all participants.
10. A competitor will be allowed a maximum of three attempts for optional asanas, no further attempt will be granted for compulsory asanas.
11. No asana will be changed or altered once fixed or obtained by the competitor.
12. Marking scheme will include the construction, the holding and the lasting of an asana. Expression of tension and trembling will also be noted. The final pose will be accepted with smiling face and pleasant expression.
13. Each asana will be of 10 marks. The detail distribution of these 10 marks will be given by the judges as under :
 - Way of performance to reach the final stage of the asana - 1 mark
 - Perfect posture of the asana - 4 marks
 - Exhibition of the asana without tension and trembling - 2 marks
 - Stay in asana for a fixed time - 2 marks
 - Returning to original position - 1 marks
14. For option of voluntary asanas, categories will be clarified as 'A', 'B' and 'C' grade.

'A' grade will include asanas, which has balance factor and flexibility of torso and waist. It will also include risk factor. For example, the standing vruschikasana.

Asanas with only flexibility (without balance) will be in 'B' grade. For example, Dimbasana Deepasana and vruschikasana. Other asanas are in 'C' grade.

For the 'A' grade marking will be out of 10 marks, for 'B' grade, out of 8 marks and for 'C' grade marking will be out of 6 marks. The category of the asanas will be decided by the penal of judges on their discretion.
15. One chief judge, plus four judges, a scorer and a timekeeper will - form a panel of judges. There will be two panels of judges - one for boys and one for girls sections.
16. A judge will write the marks of every asanas in their scoring sheet and display the mark card so that the spectators may see and scorer can note down the points and announce it.

The judges will award marks out of 10 to each competitor for each asana separately.

The maximum and minimum marks will be deleted (highest and lowest) and the average of other remaining two will constitute the final score.
17. The judges are free to observe the candidate on the carpet and if needed, can order the competitor to perform the asana again.
18. DRESS : Track suits will not be allowed while performing asanas. Slacks, shorts or swimming costumes are compulsory during the asanas. Participants are strictly instructed to put on light underwear with an elastic.
19. The marking system for a tie :
 - In case of equal marks a performer's total marks given by all judges will decide the winner.
 - If a tie still remains then a performer who has obtained more marks in optional asanas will be declared as the winner.
 - If a tie still remains then marks obtained in group 'C' asanas will decide the winner.

- Still, if there are more than one competitors with equal marks, they will be declared as joint winner. But if the tie is for the first place then the winner will be decided by a toss of a coin.
20. (1) If there are more than fifteen teams, best 6 teams will be selected for the final round after the completion.
- (2) If there are ten or more, teams, four best teams will be selected for the final round.
- (3) If there are less than ten teams, final will be conducted directly and rules of the final competition will be applied.
21. The rules for the final competition for individual and teams :
- Competitors will have to perform five asanas from groups 'A', 'B' and 'C' as per judges instruction but there should not be more than two asanas from one group. Asanas performed in preliminary round should not be repeated.
 - Competitors will perform two asanas of their choice, excluding compulsory 18 asanas.
 - Surya Namaskar is a compulsory asana for the final competition. The marking will be as under :
- A total of 10 marks as per following divisions
- | | | |
|---------------|---|---------|
| Body posture | - | 3 marks |
| Forward bend | - | 3 marks |
| Backward bend | - | 3 marks |
| Dress | - | 1 marks |
- Individual championship will be conducted separately and the best performer from the preliminary round will be selected for the final championship.
22. For individuals the winner will get 5 marks, the runner up will get 3 marks and 2nd runner up will get 2 marks.
23. The rules for the date of birth, eligibility and protest note will be according to be SGFI rules and norms.



Introduction

It is essential to have body and mind healthy for physical and mental development of a person. Food and exercise are very important for healthy body. Knowledge, desireless action and devotion are essential for peace of mind and upliftment (rise) of soul. Health of body and mind affects each other.

Human resource is a valuable resource of the nation. The progress of the Nation depends on health of citizens. Hence it is said that "Fit people, fit nation, healthy man, healthy society and healthy nation" live as a link.

Teachers can do basic work for building health of students. Hence they should have proper concept of health. Steps should be taken to fulfil the target of health for all. Necessary good habits should be formed in students. For that awareness of teachers is inevitable. If a student has a proper concept of health, he would be aware of his health.

Ayurvedacharya Sushruta has clearly shown that those who are suffering from disease should be aware of it and maintain their health.

Meaning of Health

It is a general understanding that a person is said to be healthy when all the systems of his body are healthy and his body is in the best condition to carry out work. This matter relates to physical health only. Hence it is one-sided.

A person is said to be healthy when he is healthy physically, mentally, socially and spiritually. He may be healthy physically but if he is mentally unhealthy he is not healthy.

We know health depends on hygiene. Hygiene is the practice of keeping the self and surrounding clean to promote health. Absence of disease is not health. According to the meaning of the word the condition of non-disease cannot be considered as healthy. Being comfortable and peaceful is a different thing as compared to being in good health or being without disease. A person having strong and stout body cannot be called peaceful and calm. One who can keep all interior systems and organs of one's body working properly and externally he can establish beautiful co-ordination with own environment can be considered peaceful.

Definitions :

Definitions about health are as follows :

(1) Health is perfect physical, mental and social wellbeing and not merely absence of any disease or infirmity. – **World Health Organization (WHO)**

(2) Health is to be well-equipped as a physical, mental and social person. – **National Education policy (1988)**

(3) Health is a quality of life of a person. It makes him capable to live more happy life and to serve the best. – **J.F.William**

It can be said from above definitions that healthy person does day to day activities with vigour and strength smartly without experiencing unnecessary fatigue. He has enough capacity to enjoy his leisure time. He is fit to cope up with critical situations as they arise.

Health Education

Education pertaining to health is called Health Education. Health Education is a part of Education. If it is followed, it enables us to maintain health. Health Education is a process of total life and education. It enables us to acquire knowledge and train good habits and healthy attitudes and to protect and develop them.

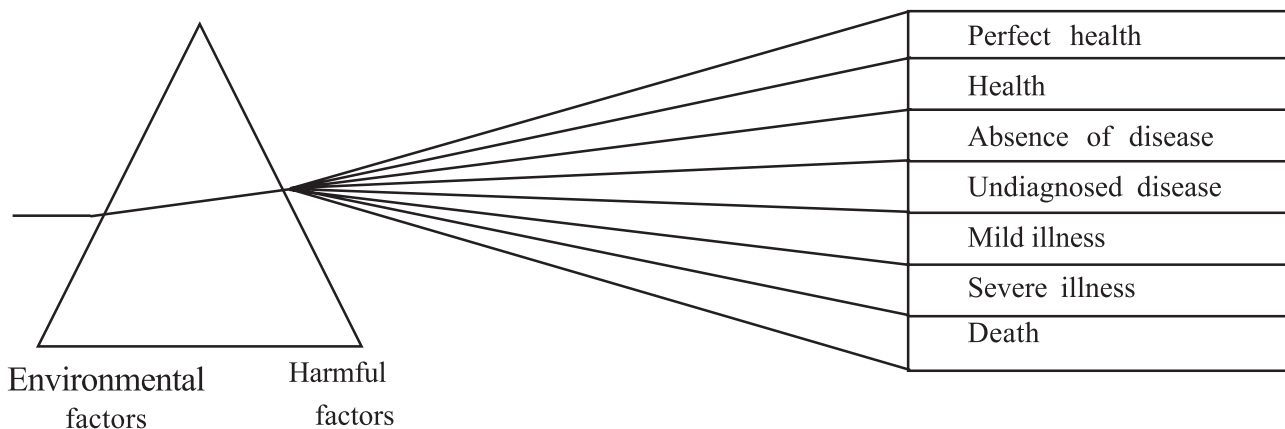
The aim of health education is to obtain such life qualities that it enables a person to live longer life and to serve the best. Health education is a process that affects the affairs bringing change in duties regarding health of people and thereby knowledge and attitudes regarding such changes. Health education is an art of living. This knowledge enables people to understand the principles of Health science and to apply them to day to day life.

Effect of health

Health does not always remain at the same level. Its level always keeps on changing. Therefore, never be careless that if you have attained good health once, it would be the same forever. To keep up good health you have to be vigilant and active constantly for ever. It is similar to when one jumps into water and comes back to surface but thereafter he has constantly to move arms and legs lest he may drown. He has constantly to remain on the surface. In the same way efforts to sustain good health, when attained should be made for ever.

Like a rainbow health has also seven levels (colours)

Levels of Health



Health Spectrum :

On the basis of health spectrum you can determine the level of health. Physical, mental and social health you stand and how much improvement is necessary to attain good health.

Aspects of health :

There are three types of aspects of health

- (1) Physical health (2) Mental health and (3) Social health

(1) Physical Health :

Physical health is much more than merely absence of disease. Absence of disease means there is no disease in the body. Physical health means your body - its each and every organ system and cells are working at their maximum efficiency. Thus in physical health importance is given to total (perfect) efficiency of the body rather than merely absence of disease.

Essential activities for physical health in daily life business (routine) :

- While getting up in the morning and before going to bed at night to cleanse mouth, teeth and tongue with a toothbrush or datan (small thin fresh stick used as tooth brush).

- Bear in mind particularly that eyes, teeth, ears, throat, hands-feet, skin, hair, nails should be clean.
- To keep body clean by taking bath with flowing and fresh water.
- Regular habit of bowel motions.
- It is essential to wash hands with soap after using toilet.

Sound sleep refreshes brain and muscles. A bed-room should be clean. The habit of going to bed early and getting up early is healthful.

Form a habit to do regular exercise. Exercise makes the body strong. The body becomes active, Mind becomes full of joy and deight. Exercise should not be performed immediately before or after meals.

(2) Mental Health :

Maintenance of mental health is equally important as the maintenance of physical health. Physical health renders physical efficiency while mental health gives mental steadiness, peace and happiness. Mentally sound person can carry out his work efficiently. He is mentally prepared to cope up with any critical situation

A person's daily transactions and behaviour with family members, personal relatives, neighbours, friend-circle etc. Coming in daily contact in the society play a very important role in maintaining his mental health. Sometimes if a person due to his nature and behaviour speaks out harsh word and behaves such that other men's ego is hurt, then many evil results are possible. Due to all those things, mind becomes unrest, he experiences stress and lack of enough sleep, different types of thoughts creep in his mind. Thus mental health is affected.

For mental Health :

- A person should behave well speaking tender and soft words with courtesy.
- A person should experience identity with his every competency and shortcoming.
- A person may live keeping with every situation arising in his life.
- Yoga can play a very important role in maintaining mental health. Yoga may be practised regularly. More over, mountaineering and travelling etc. also promote mental health.
- Leisure time may be properly used. Vicinity to nature brings joy, peace, good thinking and good conduct.

(3) Social Health :

A healthy person is also socially healthy. He shares his happiness with others and remains sympathetic to unhappiness of others. He is competent to establish good human relations.

Man is a social animal. Home, School etc. make a miniature society to maintain social health. Weakness of health is not a responsibility of any one person. Some acuses that weak health is due to social condition. Steps are to be taken in certain part of the society or the while society in order to remove them. Hence one of the aims of health education is : People may get together in a group and may put in collective efforts for good of all. This insight is to be developed. More over consciousness is to be developed for their own responsibilities as a citizen.

For Social health :

- To prepare students as a talent to set an example of desired and ideal social health for others.
- To enable students to take proper decisive steps to protect, maintain and develop health on the basis of the scientific information as a person, as a family and as a member of the society.
- To achieve rhythmic agreement with other persons, groups, communities and institutions.

Importance of health development through Exercise :

Importance of health development through exercise is as follows :

- (1) Immunity to fight against diseases and illness increases.
- (2) It gives relief in heart disease, diabetes high blood pressure etc.
- (3) Digestion improves. It protects from diseases like indigestion, intestinal, diseases and constipation.
- (4) Mind becomes joyful and delightful. It gives relieves in worry, sleeplessness (insomnia), feeling uneasy.
- (5) Skin becomes healthy.

(6) It maintains visual activity of the eyes and hearing capability of ears.

(7) Efficiency of various systems of body is promoted through exercise. Hence it can work well with the highest quality.

(8) A person becomes healthy physically, mentally and socially through exercise.

(9) A healthy person can carry out his work efficiently as compared to an ordinary person.

Health Test Programme

Physical efficiency of students is measured through Health Test programme. Certain motor quality test is prescribed so as to select children for proper game and to place them in the proper game accordingly under N.S.T.C. test programme of the Indian government. We can arrange such test for students and place them in proper games according to the guidance of this test.

Motor Quality Test :

1. 6 ~ 10 metres shuttle run :

Objective of the Test : Measurement of motor capability of students

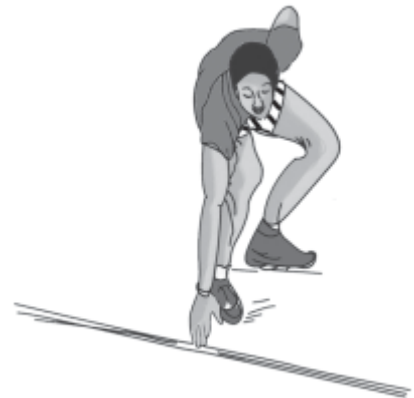
Equipment : A Stopwatch, lime powder.

Ground : Two lines of 10 metres length and 5 cms breadth are drawn on the ground.

Method : Students will stand behind the line. They will run on getting signal (sign) and will touch the line drawn six times.

Chance : Only one chance would be provided.

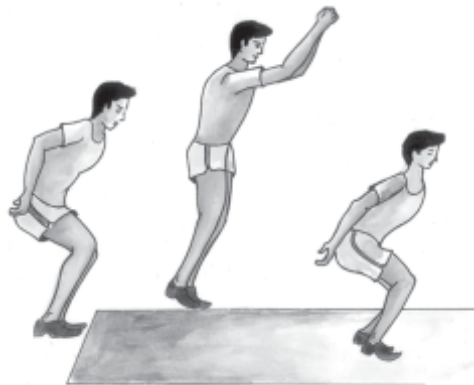
Marking : Marking according to time.



2. Standing Broad Jump :

Objective of the Test : Measurement of jumping ability.

Equipment : Measure tape, lime powder.



Ground : Pit for long jump.

Chance : A player shall stand behind the line drawn near the pit on his toes and with the swing of the hands shall try to jump maximum distance.

Chance : Three chances would be given.

Marking : Good points would be considered for marking.

3. 800 Metres Runing :

Objective of the test : Competency to sustain.

Equipment : Stopwatch, lime powder.

Ground : 400 metres track. In absence of track running can be done on the road.

Method : Players on getting signal, will have to complete two rounds of 400 metres track, from the starting line.

Chance : One chance would be given to the player.

Marking : Marking according to time.

4. High jump in upward direction :

Objective of the test : Measurement of explosive ability.

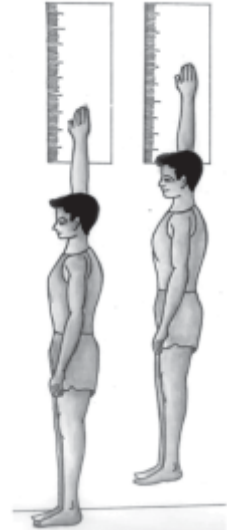
Equipment : Duster, chalk powder, measure tape.

Ground : One measurement tape on a wall.

Method : The player will stand near the wall and will make a small mark on the wall with the chalk, on raising his hand. Then he will keep his right or left shoulder towards the wall, and will bend from waist. He would give swing to both the hands and take a high jump and would mark, with a chalk, of the highest jump.

Chance : The players would be given three chances.

Marking : Distance between the initial marking and the final marking would be measured in cm.



5. Throw ball :

Objective of the test : Strength of the shoulder and speed balance of the trunk

Equipment : Measure tape, small basket ball, lime powder.



Ground : Ground for the throw ball.

Method : The player keeps both of his legs wide. Sits on the ground and takes the ball backside of head with two hands and then throws the ball with all his strength.

Chance : The player would be given three chances.

Marking : Good points would be considered for marking of student.

Health testing of students would be done through above tests and thereby physical efficiency can be measured. The student can be placed in the proper game. Keep record of health testing programme of students so that improvement can be seen.

EXERCISE

1. Answer the following questions by selecting correct choice from the options given below :

- (1) What is required to be healthy for physical and mental health of a person ?
(a) Body (b) mind
(c) Body and mind (d) None of the above
- (2) How many are the levels of health ?
(a) Four (b) Five (c) Six (d) Seven
- (3) To be happy with others happiness, and to be unhappy with others unhappiness is dependent on which type of health?
(a) Social (b) Mental
(c) Physical (d) None of the above
- (4) Which test measures the tossing ability of the player ?
(a) Standing broad jump (b) upward high jump (c) shuttle run (d) 800 metres run
- (5) Which test measures explosive ability of the player's legs ?
(a) 800 metres run (b) Standing broad jump (c) throw ball (d) upward high jump

2. Answer the following questions in short :

- (1) When is a person called healthy ?
- (2) State the definition of health as given by the World Health Organization (WHO).
- (3) What is health education ?
- (4) State the aspects of health.
- (5) What is mental health?

3. Write short notes on :

- (1) Levels of health
- (2) Social health
- (3) Important of health development through exercise
- (4) Test : 6 ~ 10 metres shuttle run

Activity

- To organize health fair, exhibition rally, slide show.
- To celebrate days regarding Health in school.
- To arrange visit to a clinic and organise addresses of doctors.



**BATTERY OF TESTS AND NORMS FOR SCOUTING
TALENT IN SPORTS BOYS**

Years	Height (cm)	Weight (kg)	Standing broad jump (cm)	Ball throw (cm)	6×10 Shuttle Run (Second)	Vertical Jump (cm)	800 metres Run (Second)	
8 years :	satisfactory	127-133	24-28	164-183	372-442	18.3-17.5	30-32	3.40-3.24
	good	134-139	29-32	184-193	443-513	17.4-16.5	33-35	3.23-3.07
	very good	140 & above	33 & above	194 & above	514 & above	16.4 & less	36 & above	3.06 & less
9 years :	satisfactory	130-138	26-30	170-181	413-499	18.0-17.2	33-35	3.32-3.17
	good	139-147	31-34	182-201	500-584	17.1-16.3	36-38	3.16-3.01
	very good	148 & above	33 & above	202 & above	58.5 & above	16.2 & less	39 & above	3.0 & less
10 years :	satisfactory	135-142	28-32	180-194	462-548	17.5-16.5	36-38	3.26-3.00
	good	143-150	34-38	195-216	519-633	16.4-15.5	39-41	3.07-2.51
	very good	151 & above	39 & above	217 & above	634 & above	15.4 & less	42 & above	2.56 & less
11 years :	satisfactory	140-149	31-36	189-204	502-596	17.1-16.2	39-41	3.20-3.05
	good	150-157	37-41	205-225	598-691	16.1-15.4	42-44	3.04-2.46
	very good	158 & above	42 & above	226 & above	692 & above	15.3 & less	45 & above	2.45 & less
12 years :	satisfactory	146-153	35-40	195-213	530-610	16.8-16.3	42-45	3.05-2.55
	good	154-160	41-46	214-236	611-710	15.9-15.0	46-50	2.54-2.42
	very good	161 & above	47 & above	237 & above	711 & above	15.1 & less	5.1 & above	2.41 & less
13 years :	satisfactory	148-155	33-42	206-211	608-700	16.5-15.9	44-47	2.57-2.43
	good	156-167	43-51	222-241	701-794	15.8-15.1	48-53	2.42-2.79
	very good	168 & above	54 & above	242 & above	795 & above	15.0 & less	54 & above	2.28 & less
14 years :	satisfactory	154-160	42-47	210-255	671-758	16.3-15.8	46-50	2.50-2.36
	good	161-171	48-58	226-245	759-846	15.7-15.0	51-56	7.35-7.25
	very good	172 & above	59 & above	146 & above	847 & above	14.9 & less	57 & above	7.24 & less

Marking :
satisfactory : 1 Mark
good : 2 Marks
very good : 3 Marks

**BATTERY OF TESTS AND NORMS FOR SCOUTING
TALENT IN SPORTS GIRLS**

Years	Height (cm)	Weight (kg)	Standing broad jump (cm)	Ball Throw (cm)	6×10 Shuttle Run (Second)	Vertical Jump (cm)	800 metres Run (Second)
8 years :							
satisfaction	124/130	23/26	150/170	340/405	19.3/18.3	26/29	4.03/3.40
good	131/141	27/30	171/180	406/470	18.2/17.2	30/33	3.39/3.20
very good	142 & above	31 & above	181 & above	471 & above	17.1 & less	34 & above	3.1 & less
9 years :							
satisfaction	129/136	25/30	164/180	358/444	19.0/18.0	29/32	3.55/3.30
good	137/144	31/34	181/191	445/529	17.9/16.8	33/36	3.29/3.15
very good	145 & above	35 & above	192 & above	530 & above	168 & less	37 & above	3.14 & less
10 years :							
satisfaction	133/144	26/32	169/185	413/487	18.5/17.2	32/35	3.41/3.16
good	145/158	33/38	196/200	488/563	17.1/16.2	36/39	3.15/3.02
very good	159 & above	39 & above	201 & above	564 & above	16.1 & less	40 & above	3.01 & less
11 years :							
satisfaction	144/153	33/39	180/195	472/551	18.0/17.0	35/38	3.29/3.10
good	154/161	40/45	196/210	552/630	16.9/16.0	39/43	3.09/2.53
very good	162 & above	46 & above	211 & above	631 & above	15.9 & less	44 & above	2.52 & less
12 years :							
satisfaction	150/157	36/42	185/195	491/570	17.2/16.6	39/42	3.10/3.00
good	158/168	43/48	196/210	571/650	16.7/16.3	43/47	2.59/2.49
very good	164 & above	49 & above	211 & above	651 & above	16.2 & less	48 & above	2.48 & less
13 years :							
satisfaction	158/163	43/48	190/200	571/650	16.8/16.4	43/46	3.00/2.50
good	164/170	49/54	210/215	651/670	16.2/15.9	47/50	2.49/2.41
very good	171 & above	55 & above	216 & above	671 & above	15.8 & less	51 & above	2.40 & less
14 years :							
satisfaction	164/170	49/55	200/210	651/670	16.4/16.0	46/49	2.55/2.45
good	171/174	56/61	211/224	671/699	15.9/15.5	50/53	2.44/2.36
very good	175 & above	62 & above	225 & above	700 & above	15.4 & less	54 & above	2.35 & less

Marking :
satisfaction 1 Mark
good 2 Marks
very good 3 Marks

6

ACCIDENT OCCURING DURING GAMES AND FIRST AID

Introduction

In ancient times people used to take part in sports and games to use leisure time and enjoy entertainment. The member was also meagre. Gradually people become conscious for physical strength and health., importance of competitions of games played at the world level went on increasing. Hence sports and games became a part of daily life and consequently the member of players went on increasing. Scientific principles and methods of training became useful in games. It also increases craze to become victorious in competitions of games. Along with it the proportion of small and big accidents games also increased. Not a single game is safe in this respect.

Accidents occurring during games :

Sudden unimagined event occurring is called an accident. Here we would talk about accidents occurring in gaming activities.

Accidents of falling or colliding occur in open play-ground or gymnasium -hall, long distance running (Marathon race) on running track or road. There is a sure probability of accident of drowning in a swimming pool or any injury during driving. Accidents are common such as push on over-taking during running, colliding of legs with the obstacle while running, falling in case of the cross bar being broken suddenly in the cross bar jump and high jump, in games like foot-ball and hockey, leg falling in the pit in the play-ground or collision with one-another, hitting of the hockey-stick or the ball, hitting of the cricket-ball, collision or falling of fielders (in the play-ground) falling from roman-ring, horizontal bar, parallel bars, uneven bars volting horse etc. in activities of gymnastics.

Causes of Accidents :

If we know causes of accidents prevention of likely accidents is mostly possible. Not only that, but it becomes easier in treatment of injuries occurring in accidents. Let us know about causes of accidents occurring during games.

(1) Preparation of ground :

If the surface of the play-ground is not even or is rough having pits and pot-holes, the player loses balance and due to his leg may fall in the pit. For marking in the ground permanent symbols like bricks, pieces of iron-pipe etc. buried under the ground. If edges of these signals are open, players stumble and injuries occur. If the surface of the ground is glossy and slippery it makes the players slip and fall. When there are hedge of wire, wall, pillar or trees then also accident are likely to happen.

(2) Equipments used in games :

When equipments of games are not properly prepared and are not durable, then they break and accidents occur. If leg guard, arm guard, chest guard, helmet, boots etc. are not of proper make then accidental injuries may occur. If equipments for gymnastics are not strong enough and not prepared from proper material, they are not flexible enough, mats for wrestling or judo are not of proper density then also accidents occur.

(3) Uniform of players :

When uniform of players are not according to games or they are not of proper size then they create hindrance to free movement and cause accidents.

(4) Physical contact :

In games like football, hockey opponent players may run in different direction to get control over the ball then there is likelihood of colliding with one-another.

(5) Perfect knowledge of skills and rules, in players :

When new players are unknown of skills of the game and also do not have enough knowledge of rules and regulations of the game then their game becomes rather risky. Many a times even old players also do not have knowledge about changed new rules, then also they may make mistakes or may play in a wrong way. In activities like disc throw, hammer throw if the skill is not under control then there is a possibility of falling down. In games like Judo-wrestling when the player tries his turn inconsistent to rules then also accident is likely to happen.

(6) Excessive activities :

Accident is likely possible on doing excessive laborious physical activities e.g. if the runner having capability to run 5 km takes in 10 km competition, then he gets tired on putting efforts more than his ability for winning or completing the competition he loses his balance and fall, down due to weakness.

(7) Weather :

If the weather is not convenient to the game, then also accidents are likely to occur, e.g. There is a risk of falling down in running with speed while it is raining There is a fear of dehydration and sunstroke in playing under sunlight during noon or in humid atmosphere.

(8) Sensational Unbalance :

When the player during his game cannot control his feeling or sensations accident is likely to happen, e.g. during competition if the plan of victory is changed to that of defeat, players get frustration and they become angry and then excited. Then they with a feeling of revenge adopt reflected reactions or good and bad measures with the opponent players and collision take place. Sometimes in overenthusiasm they play games inconsistent with rules without any understanding.

Universally acknowledged remedies of control of accidents :

If accidents go on happening while playing games and efforts are not made to prevent them, players may have injuries during games and game may become uninteresting. He won't, show his best in the game Due to injuring some permanent physical defect may turn out or even death if the injury is rather fatal. Hence remedies to prevent accidents causing injuries should be thought of. If players connected with various kinds of games, coach planners etc. may be having knowledge of prevention of accidents then it would reduce accidents on the play-ground. Intensity of injuries can be reduced to minimum.

If we remove the causes of accidents, chances of accidents would be reduced. We have information regarding causes of accident before we may apply that to prevent accidents.

(1) Preparation and maintenance of play-grounds :

Prepare the surface of play-grounds even, without pits and pots, not rough, without pebbles and stones not glossy or slippers even when wet, water may be sprinkled if needed. Roller may be turned and moved. There may not be fence of wire, wall, pillars or trees etc. near to the limit-line of the play-ground. Grass straw of the play-ground should be kept properly cut. Use of less water should be avoided. Observe minutely and make the surface even by filling in the pits small or big, if any. Permanent signs like bricks, stones, pipe of iron etc. should be buried in the ground properly so that stumbling is avoided. Maintain the play-ground properly. See that animals may not come on the play-ground. If all these is taken care of probable accidents on the play-ground can be prevented.

(2) Use of proper equipments :

Particular equipments used for particular games should be of standard size, strong and durable and of high quality. Strength and shape (surface) of the equipments of sports and games or gymnastics should be tested before use. To select mats of proper density for Judo and wrestling and see that mat is open enough outside the area without hindrance. Ordinary cheap equipments may look good economically, but for a player it becomes a cause for serious accident. If we use standard and strong equipments, then only accidents occurred due to equipments can be prevented.

(3) Kit of the player :

Kit of the player is an important factor for every game. Dress should be of proper cloth, proper size and make so that it may not create any hindrance in adopting skills and various kinds of devices of games. Dresses are of different types as suited for games. Button, belt, buckles etc. if needed in making dress, should be made from such a material that they may not cause any injury. Dress for games like cricket, boxing, wrestling judo, karate, skating gymnastics etc. should be prepared specially for protection.

(4) Knowledge of skills and rules of games :

If the player gets proficiency over the skills of the game, develop physical competency and take part in the game maintaining his mental balance, then he can take proper decision according to situation. As a result, accidents would be prevented. If rules of the game are strictly observed and the game would not be hazardous. While running fast if the skill of stopping suddenly and the skill of suddenly changing the direction would have been developed, then accidents could be prevented.

(5) Work according to ability :

The player should put in labour in limit of his ability, so that he is not tired much and that muscles are not stretched. If his ability to work is increased gradually more and more through training, accidental injuries can be prevented.

(6) Proper time for playing games :

Result of a game of competition is expected good in pleasant atmosphere Avoid playing in heavy rains and in severe sun-heat. Take care that body is not too much cool, while playing in chilly cold. Thus on selecting proper climate for playing games likely accidents can be prevented.

(7) Proper guidance :

Having consciousness for knowledge of probable accidents and remedies to prevent them accidents would be prevented. Frequent guidance as well as during games the teacher or coach would be useful in preventing probable accidents.

Remedies of self-defence :

If each and every player individually is seriously and aware to prevent accidents likely during games or competitions then the proportion of accidents during games would be meagre. Here some remedies for self-defence are stated:

(1) Consciousness :

While doing any activity in public life or on the play-ground if one is conscious about activity remedies for self-defence can be effective.

(2) Physical capability and mental health :

By being physically ready and developing mental health one can be saved from likely accident by taking immediate and proper decision in any accidental situation.

(3) By developing mastery over skill of the game and proficiency of applying it properly, self-defence from the accident is possible.

(4) Keeping eye-sight moving all around during activities and thereby becoming convenient to constant changing situation in game, self-defence is possible.

(5) Activities may be performed according to proper guidance through the teacher or the coach.

(6) Have your own accident insurance.

First Aid :

Immediate treatment as a relief given before the medical treatment is given to a person injured accidentally or suddenly attacked with illness is called the first aid. In other words first aid is a treatment given by any person on the location to the sufferer in situations like accidental illness or accidental injuries like would, fracture, bleeding, drowning, burn, haemorrhage, becoming unconscious etc. before taking the sufferer to the Doctor.

The main objective of the first aid is : to save life, to give relief in pain, not to allow the pain of the sufferer to increase and to provide immediate medical help.

EXERCISE

1. Answer in detail the following questions :

- (1) How accidents occur due to the equipments used in games ?
- (2) State how the kit of a player prevents accident ?
- (3) State the things to bear in mind while preparing the play-ground.
- (4) Explain the meaning of the first aid.

2. Answer the following question in one or two sentences :

- (1) If the leg falls in a pit while running which type of injury is likely to happen?
- (2) Which type of equipments should a player use ?
- (3) In game how rains become a cause for accident?
- (4) Which things in vicinity of limit-line of the play-ground become a cause for accident?

3. Fill in the blanks on the basis of the text-book :

- (1) The incident happening suddenly is called
- (2) Running on a wet surface causes
- (3) Players running from the opposite direction to play ball in the game football suffer accident

Activity

- Arrange a visit to the nearby various games-complex and give information to students about play-grounds equipments and their maintenance.



7

FIRST AID

Nowadays in this hasty and active life possibility of accidents has tremendously increased. The advisory group of the World Health Organization (WHO) recognizes accident as an unexpected event causing injury that is clearly understandable. The number of deaths due to accidents is more than that due to cancer or heart-attack. Sometimes some persons suffer lifelong physical disabilities due to accident.

Accident is not merely accidental. It is not unexpected. Accidents do not happen, but they are rather made to happen. There is a chain of incidents behind every accident. Most of these are such as could be avoided. In a chain of incidents accident is such an incident which causes unexpected injury, death or harm to the property.

Immediate treatment given prior to (before) the medical treatment is given to a person injured accidentally is called the First Aid. If such a treatment is not possible then sometimes the patient dies or suffers permanent physical disability. Knowledge of first aid becomes useful to a person suffering accident. Hence in some of the ordinary accidents, the information regarding how to provide the first aid is essential for a student, teacher or any person.

"Immediate treatment (as a relief) given before the medical treatment is available to a person injured accidentally or suddenly attacked with illness is called the First Aid."

Thus when the body is injured due to sudden unexpected incident then in order that the injury may not result more harmful and his life could be saved the treatment rendered before a doctor comes for medical treatment is first aid.

Primary treatment rendered at the critical times is called First Aid. First aids Treatment expects merely immediate treatment nothing much more (nothing else).

A person providing First Aid should be properly trained. His observation power should be good enough. He may be able to take proper decisions frequently according to the situation. During the First Aid treatment, he should keep patience, perseverance and courage.

When an accident occurs, first give first aid. Then arrange to call a doctor. If the patient is required to be shifted to the hospital, arrange for that. Make an arrangement for the government ambulance of 108 number. First of all take care that the trouble to the injured in the accident does not increase. If the injury is due to some machine, then switch off the machine. In case of electric shock, first of all switch off the electric current. If a person is pressed under some load, remove that load. Afterward know the proportion and types of injuries the patient suffers and give him treatment accordingly. If the patient is still unconscious, try to bring him to consciousness. In case of bleeding apply remedy to stop it. In case of bone-fracture or joint - fracture apply necessary bandages accordingly.

If a person becomes unconscious due to accident, at first loosen his clothes. Keep doors and windows open. Change clothes, if wet. If the patient's body becomes very cold, use available conveniences like shawl, blankets etc and cover the patient. Apply rubbing dry ginger or balm to bottom of feet or ferment with hot water bag. When a person is unconscious no medicine or liquid be given keep by mouth keeping

in mind the above points, attendant giving treatment can do much for the patient suffered with the accident. We should get the information as to how to render first aid in case of accident. First Aid depends on the type of injury.

Cuts :

Cuts are caused to body with thin-edged tools like knife, sword. Bleeding starts. Clean the cut with antiseptic solution and apply a bandage. Inject tetanus toxoid unflinching.

Wounds :

A wound is caused by sharp edged weapon, tool, or by falling down, collision etc. Skin, muscles and blood vessels are cut due to wound. Hence bleeding starts, wound can be shallow or deep. Bacteria, harmful dust-sand particles etc. enter inside through the wound. Types of wounds are as follows :

(1) Wound due to cut of blood vessels :

Sharp-edged tools like knife, sword etc. cause wound and blood vessels are cut.

(2) Wound caused due to cutting of skin :

In this type of wound skin is broken irregularly. These types of wounds are caused due to any organ of the body. Sharp-edged tool or by bomb or shell. In such a wound, blood vessels are also cut. Bleeding starts. sometimes bleeding starts after some time.

(3) Wound caused due to crushing and pressing :

Such a wound is caused due to lathi (thick stick), hammer, stone, circle, discus, or any heavy and blunt tool other than sharp-edged tools. Skin and muscles on the part that is injured gets crushed or pressed.

(4) Wound due to piercing :

Sharp-edged tools cause such a wound. Injury is caused due to piercing of spear, lance, knife, gupti (blade of sword concealed in a stick), small and big nails, needle etc. Wounds of such injuries are deep and narrow. Their area is externally limited.

First Aid :

- Make the patient sit or sleep according to the injury caused and give him relief - convenience.
- Clean the skin around the wound by medicated cotton dipped in antiseptic solution. Remove dust, sand particles adhered to it and wash the wound with clean water.
- Keep in mind that skin around the wound may be cleaned with only antiseptic solution, water and soap. Cleaning of the wound is not sufficient, but clean slowly and gently the edge of the wound with medicated cotton or clean handkerchief. Change it frequently. The blood coagulated on the wound may be kept as it is, so that germs of disease may not enter inside.
- The wound and the cleaned skin around should be covered with porous cloth.
- Stop immediately the bleeding by applying pressure directly on the wound and through tourniquet on the pressure point.
- Apply cotton as necessary to cover porous cloth.
- Take care that the bandage is not loose and the wound is not open.
- The hand when wounded should be kept in jholi (improvised sling). If leg is wounded keep the patient sleeping and the wounded part should be kept higher as compared to heart by putting cushion.

- Don't apply antiseptic inside the wound.
- Don't put cotton on the surface above the wound. Cotton fibres harm the wound.
- Don't try at all to stretch out the thing, if any entangled inside the wound. This may cause blood-vessels, arteries and veins cut, which can result in much harm.

Muscle's Strain :

- On giving excessive labour or activity to muscles, they get stretched more than their limit of flexibility. Hence it produces a situation of muscle's strain or muscles get excessively stretched. During activities in which actions are performed very fast, possibility of stretch in muscle, is much more.

First Aid :

- Muscle at the point having pain should be given rest.
- Rub ice on the injured muscle or pour cold water. Tie a wet bandage, soaked in cold water.
- Keep the injured part higher as compared to the heart.
- Take bed rest for at least two days (48 hours). Rub ice for 20 to 30 minutes for three or four times a day. Keep the injured muscle under bandage.
- Continue the remedial treatment of cold and hot water according to convenience of the patient.
- Give light exercises to the muscle and then heavy exercises.

Sprain :

When a person does excessive movement as compared to his working ability or out of limit of his movement or he does reverse action during his normal working then in that case the injury that is caused is called sprain, Causes of sprain are :

- Excessive pushing.
- Unknowingly the leg falls in some pit being dashed. Then causes a sprain in various joints of hands or feet.

First Aid :

- Give rest to the injured organ.
- Tie a simple bandage to control movement of the part suffering sprain. Elastocrepe bandage is more beneficial.
- Apply ice on the injured organ or bandage of cold water.
- Keep the injured part higher as compared to the heart.
- After applying ice, tie the injured part with a bandage.

Constant Bleeding :

When blood starts coming out from the blood vessel from any part of the body, it is called bleeding. Bleeding occurs from artery, vein or capillary tube. Blood coming out of artery is of bright red colour. It showers like a fountain intermittently and it comes out from the cut of artery, that is towards heart. Blood coming out from the vein is of dark red colour. It does not shower like a fountain. Its flow is even like tap-water.

First Aid :

- Injured organ constantly bleeding may be kept higher as compared to the level of heart.
- The blood flowing from an artery comes toward the wound from the heart. In order to stop it, give pressure with thumb on just upper part of the wound, and that too in between the heart and the wound.
- If bleeding is from the artery of the part near to temples, forehead or skull, apply pressure with thumb near the ears below temples.
- For the part behind the skull, apply pressure with thumb or finger behind ear, where throbbing is felt.
- If bleeding is from the artery of the throat, apply pressure to the nearby bone of the throat so that breathing is not obstructed.
- In order to stop bleeding from the artery of hand, apply pressure with thumb near biceps muscle.
- Bleeding is controlled by tying a bandage of clean cloth on the part that is bleeding.
- If bleeding is from some vein, tie a bandage by applying pressure away from the heart. If bleeding is from some capillary tube then tie bandage of clean cloth with pressure.
- Until bleeding stops, the patient should not be given stimulating drinks like tea, coffee. Little cold water or piece of ice for sucking can be given.
- If bleeding is from nose let the patient be seated in open air or near window so that his head is kept backside, and loosen clothes that are on the chest or neck. Apply strip of cold water or ice on the backside of neck, on the forehead or nose. If bleeding is fast, put a pellet of clean cotton or a ball made of a piece of clean cloth in the nostril.

Fracture :

- Apply splint and tie bandage, so that the injured part may not move slightly and then take the patient immediately to a doctor.
- If long bones have broken then tie hard board to stop movement. Hence, ends of bones broken do not work out and harm is reduced. Severe pain is also avoided thereby.
- Support the broken organ by tying proper elastic bandage.
- Take care that broken bones are in the rest position.
- If a bone of hand is broken keep the hand in Zoli (Sling).
- If vertebra of a waist or that of spinal column has broken, take the help of a trained person, because if any brain - nerve is pressed, the patient may suffer attack of paralysis or even death. and sometimes that part loses sensation.

The following points to be borne in mind in case of fracture :

- The part that has fractured should be made fixed and motionless and then the patient should be moved.
- Don't make the patient stand or let him not stand so that there is no load on the injured part.
- If you think vertebra has been broken, shift him to the hospital in the same position.
- In case of fracture, or bone-breaking, do not try to tackle with it and it is very essential to carry the patient to the primary health centre or the hospital.

When animals bite :

Animals like the dog, the cat, the horse, the camel etc. and wild animals can become rabid. When the rabid animal bites, virus of rabies enter human body through its saliva. In such cases give the following first aid treatment, even though the animal that has bitten may not be rabid.

First Aid :

- When any animal bites, first clean the wound by any antiseptic medicine. Take care that the animal's saliva does not enter inside the wound.

When the serpent bites :

When the serpent bites, the patient should be made to lie down in a cot or a bed. Keep the bitten part at lower level. In order that the blood may not flow from the part stung to other the parts of the body, tie a tight bandage toward the side of the heart.

Take care that the patient may not feel (experience) any mental shock.

Arrange that the patient gets immediate medical treatment.

If the scorpion has bitten :

Clean the stung part with antiseptic medicine.

Dissolve some salt in hot water. The patient feels relief by dipping the stung part in that solution.

When a honey-bee or a wasp bites :

The sting of a honey-bee or a wasp is such a strong and painful that it makes the patient even unconscious. If a honey-bee bites remove its sting. It gives relief in pain by rubbing ice on the stung part. Make a paste of baking soda in a little water and apply it to the wound. It gives relief in pain.

Drowning :

Give the following First Aid to a person drowned, after pulling him out of water.

First remove his wet clothes and cleanse him with cloth. Then wrap him with a woolen blanket.

Arrange for removing mud etc. if any from his nose or mouth.

Put a pillow below his stomach and make him lie down or sleep such that his head bends down.

Apply pressure on the back of the patient forcibly with both hands then withdraw your hands immediately. Repeat this for a minute or two. This will remove all water entered in his stomach and the breathing (respiration) system will be open.

Then make the patient lie down on his back and start the process of the artificial respiration. Continue this process till respiration starts naturally.

The processes of respiration and circulation of blood start again on giving treatment of artificial breathing in and out (respiration) to the person drowned and the patient regains consciousness.

Unconsciousness :

There may be many causes of fainting or unconsciousness. First Aid treatment depends on these causes.

(1) If unconsciousness is due to some injury on the head, then arrange to admit the patient to the hospital immediately. Until an ambulance arrives, the patient's head is turned to one side to be kept higher by putting some bricks or something below the legs of the cot towards his head-side. Don't put a pillow below his head because the vertebra of cervical region might have broken. It may harm him. If the patient is suffering from diabetes and has taken tablets or injection for diabetes but eating (or dining)

thereafter is missed any how, then also he becomes unconscious due to lowering proportion of sugar in blood. That is rather dangerous. If in few minutes supply of sugar is missed, then there is probability even of death of the patient. In such a case if the patient can drink, then give him glucose or sugar water immediately and shift him to the hospital urgently.

(2) If a patient is suffering from high blood pressure, then first he will feel giddiness and then will be unconscious. Make the patient lie down in a quiet place. Call the doctor and get his B. P. measured and checked. If B. P. is high, the doctor will prescribe him medicines. Get the patient admitted to the hospital.

If there is clotting or coagulation of blood in the brain-artery, then attack of paralysis alongwith unconsciousness is also possible. Shift the patient immediately to the hospital and take doctor's treatment.

(5) Burning unconsciousness : There are two causes of unconsciousness due to being burnt : (1) Because of unbearable pain on being burnt. (2) Due to being burnt, liquid of the body decreases and the circulation of blood falls short. The brain does not get enough oxygen and glucose. Take such a patient immediately to the hospital and get him medical treatment. Till then pouring cold water on the burn would give him relief. Sending the patient to the hospital may be given priority. If a doctor is in vicinity get him treatment immediately.

Sometimes other causes like weakness of heart, too much fatigue, tight clothing, feeling very hungry. severe pain, experiencing fear, sudden shock to mind etc. also can cause unconsciousness.

First Aid : Such an unconscious patient requires open and fresh air (breeze). Hence any crowd should not gather around. His clothes particularly clothes on neck and chest should be loosened and try splash of cold water on his face. Unconscious patient should get much blood to his brain. Hence make him lie down on his back and keep his head in lower position. Keep his legs high. When the patient regains consciousness, give him stimulating drink like tea or coffee.

First Aid treatment in case of Heart Attack :

On coagulation of blood in blood vessels carrying blood to the heart, the blood-flow is hindered and hence heart-attack is caused. Hence such a patient is given intravenous injection of enzyme and coagulated blood is dissolved. But only an expert doctor can do this. In such a situation the patient should be admitted to the hospital.

If the heart-attack is severe, the patient can be unconscious. In such a situation the functioning of the heart and lungs is required to be re-established. For this, arrange for the doctor immediately.

Some times it is found that at the time of heart-attack people crowd together and tumultuous noise increases. In such circumstances the patient should be shifted to a separate restful and peaceful place. Keep him in noiseless free atmosphere.

In case of heart-attack, if need be, the patient should be given mouth-to-mouth breathing. The details of this method are as follows :

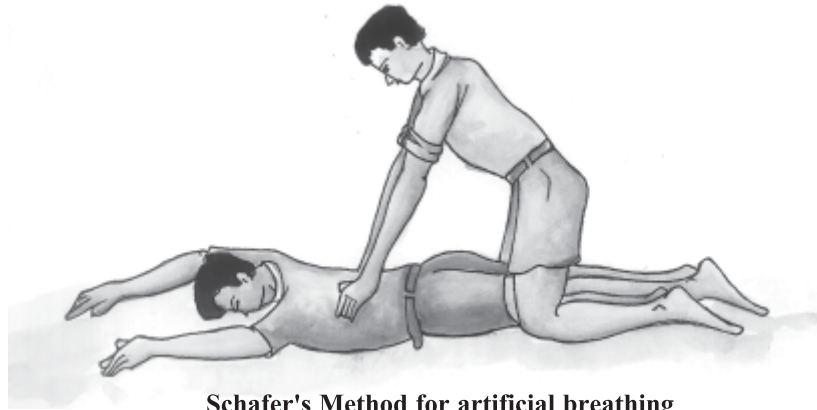
Artificial respiration :

Artificial respiration means : when the organs taking part in respiration and muscles of the chest are paralysed then the treatment given for making them active again is called artificial breathing. By performing artificial breathing the respiration and blood-circulation processes get reactivated and the unconscious patient is recovered to consciousness.

Methods of artificial breathing (respiration) are as follows :

Schafer's Method :

In this process, first the patient should be made to lie prone (on his belly). The head of the patient be kept on one side. Straighten both the hands in the direction of the head. Make sure that there is nothing in his mouth and neck. Then the nursing person would sit near his hip or on the upside of his head.



Schafer's Method for artificial breathing

Put organ-palm and fingers of your both the hands on lower ribs of the patient on both the sides of the spine. Sit straight applying pressure on your hand. Go on giving pressure evenly from downside to upside upto back. So, the air inside the patient's chest would go out. Thus the patient would start artificial breathing out. Repeat this activity of giving pressure for about two second.



Schafer's Method for artificial respiration

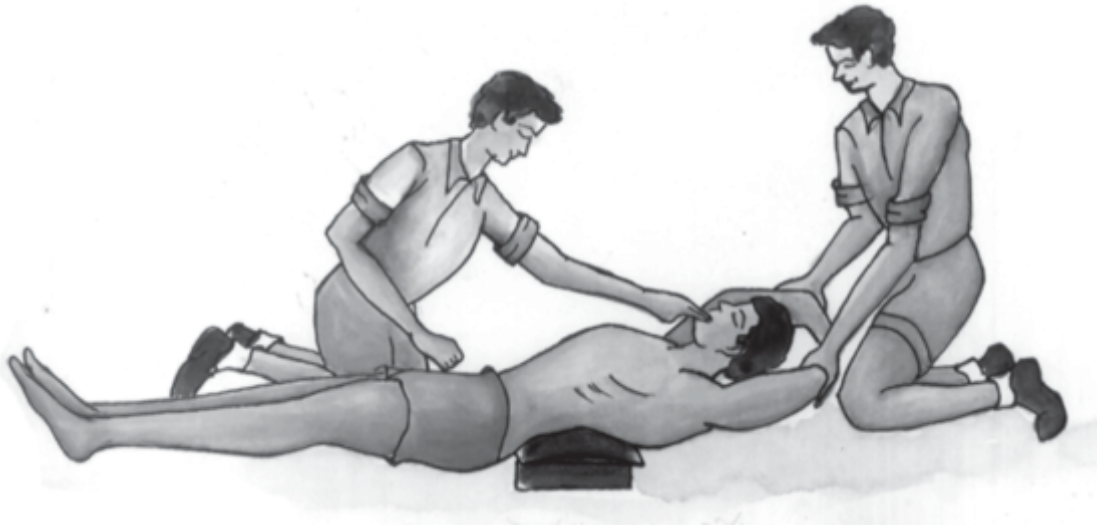
Then go on reducing load on his back. Sit again in a position of bent knees but let your hands be in the same position as before. On load being reduced hollowness of the chest would increase (i.e. the chest would expand) and the lungs also would expand and air would enter in. This is called artificial breathing in. Continue this activity for two seconds.

The activity as stated above, may be repeated generally fifteen to sixteen times per minute.

This method is not suitable for pregnant women and small children.

Dr. Silvester's Method :

- Make the patient lie on his back. Put a pillow below his back towards upside. Keep his neck straight and make his head carefully slanting back. Then open the patient's mouth. Hold his tongue slightly out. The nursing person for artificial respiration should sit on his knees backside to his mouth. Hold his hand at the knees and take them toward his head. So his ribs would expand upside and the chest would expand. Due to this air outside would enter in the lungs through his mouth and nose. This is called artificial breathing (in).



Dr. Silvester's Method

- Then bring his hands down and let lean his hand on his chest. Apply pressure in this position. As a result, the chest would contract. Air inside the lungs would go out. This is called breathing out. Repeat this process about sixteen to eighteen times per minute. Continue this process till the patient breathes in and out on his own naturally.

Mouth to Mouth Breathing :

- The method of filling in air through mouth is good in cases like drowning, suffocation, strangulation, serpent-bite, electric shock and heart attack.
- Make the patient lie on the back.
- Keep the patient's head leaning backward. The nursing person may close his nose with one hand and hold his chin with the other hand and then open his mouth. Then the nursing person would arrange his mouth tight with the mouth of the patient. He would then breath out air from his mouth into the mouth of the patient.
- By filling air thus in the patient's mouth, the chest of the patient would expand.
- When the patient's chest comes upward, you may move your mouth and let the patient's chest go down.
- Continue and repeat this process ever, five to six seconds until the patient breaths in and breaths out of his own or till the doctor comes.
- Breathing air can be supplied to the patient through his nose rather than mouth.

Method of Cardiac Massage :

- Heart is an organ made up of very flexible involuntary muscles. It is made up of soft bag of flesh. It is situated between two lungs behind the bone named sternum (उरोस्थि). It is arranged oblique and inclined from right to left. Coronary artery supplies blood to the heart. If there is some hindrance in any branch of coronary artery, supply of blood in certain part of the heart is cut off and contraction and expansion of muscles of the heart become irregular and hence it stops functioning. It is called heart attack. In such a situation necessity of giving pressure from outside to the heart arises.
- The nursing person giving pressure should have complete knowledge, otherwise instead of any benefit, harm is possible.
- Nails of the nursing person should be trimmed (cut). The nursing person should, not have ring in his hand or circular rod ring (झुं) on wrist or elbow otherwise there is danger of injury to the patient.
- Method of giving pressure should be harmonious in middle of the chest in vertical direction, and it should be atleast 100 compression.
- During the process of giving pressure, don't indulge in unnecessary delay.
- Keeping constant contact on the surface of the skin, do the process of vertical compression. Generally after 30 compression, give two mouth to mouth respiration.

First Aid in acute Diarrhoea :

- Due to impure water or food, the intestine gets infected and the person suffers from loose motion and vomiting. In the disease of cholera also much water is lost due to loose motion. In vomiting also water is thrown out. As a result the patient suffers a condition of dehydration. Hence the patient feels weakness. He feels giddy. Slowly the condition worsens. Hence the following first aid should be treated so that the situation may not be out of control.
- Immediately give the patient ORS (Oral Rehydration Solution) Water to be taken orally. ORS powder is easily available in the market. It is also available at the primary health centres or hospital. If it is not handy then prepare it like this : Take a glass of water. Add two spoonful salt and one spoonful sugar in it. Then add little lemon-juice and keep giving this solution to the patient to drink at every five minutes. Moong water, water taken out of cooked rice, butter-milk etc. can also be given to the patient instead of water. Anyhow the body should get enough necessary water. Hence intake amount of liquid should be much more than that going out.
- Boil water and milk and then let it be cold and then give.
- Take care that proper proportion of water and energy is maintained in the patient's body.
- Don't allow the patient to remain hungry with empty stomach.
- Arrange for immediate medical treatment to the patient.
- Try to control over loose-motion and vomiting so that the intestine would not be weakened.
- Keep the patient in fresh air and well-lit place.
- To prevent vomiting give the patient a mixture of baking soda, lemon juice and water as domestic remedy.
- When there is no surety purity of water available in the bazaar, then insist on boiled drinking water.

General remedies :

- (1) Keep dilute solution of antiseptic medicines handy and easily available. It will be very much useful. In case of small-big stretches and cuts the wound can be cleansed and then a bandage should be tied. If there is pain in throat, gargle with warm salty water gives relief. In case of crupt (pimples) or small boils, bath with solution prepared by boiling nimb leaves gives relief.
- (2) Tincture iodine and tincture benzoin liquid also can be applied to small and big injuries. Cotton dipped in tincture benzoin may be stuck to the wound. Once it is stuck, then cotton would get detached only after the wound is healed completely from inside in few days. No other process is required to do.
- (3) Cold is a troublesome disease known to all. In cold throat and tonsils get infected. This infection spreads in ears also. There is swelling on trachea, coughing increases. For this, take turmeric, bishop's seeds (carum copticum) and ginger etc. A doctor may be consulted. Get the tonsils operated if needed. Remedies have been shown in different methods like, Aayurved, Homoeopathy and Naturopathy for in the form of first aid.

EXERCISE

1. Answer the following questions in detail :

- (1) Which precautions should be taken while giving First Aid treatment ?
- (2) Which First Aid would you give in case of the wound ?
- (3) Which things would you bear in mind in case of fracture ?
- (4) Give information regarding Schafer's method in artificial respiration.

2. Write short notes :

- (1) First Aid in sprain
- (2) Dr. Silvester method in artificial respiration
- (3) First Aid when a dog bites
- (4) First Aid in case of serpant-bite
- (5) First Aid in case of muscles - strain.

3. Write answers to the following questions in one or two sentences :

- (1) What is the cause of muscles strain ?
- (2) In constant bleeding in which position the injured organ is to be kept ?
- (3) What is 'fracture' ?
- (4) In case of scorpion-bite how to cleanse the stinged part ?
- (5) In case of constant loose motion and vomitting which liquid is required to be given frequently ?

4. Answer the following questions by selecting a correct choice from the choices given below :

- (1) In order to prevent bleeding from artery of hand, where should pressure be applied ?
(a) Near triceps (muscle) (b) Near bones of neck
(c) Near biceps (muscle) (d) On the upside of the injury
- (2) Which solution is required to start in case of dehydration ?
(a) Salt (b) Sugar (c) Lemon (d) ORS
- (3) In case of the honey-bee bite, what is to be rubbed on the stinged part ?
(a) Ice (b) (b) Tincture Iodine
(c) Hot water soaked piece of cloth (d) Tincture Benzoin
- (4) In case of fracture what should be applied while tying a bandage ?
(a) Solution (b) Splint (c) Antiseptic (d) Thick cloth
- (5) What care would you take in case of serpent-bite ?
(a) To give rest to the patient
(b) Let the patient sleep
(c) The patient should not be allowed to sleep
(d) Make arrangement for medical treatment
- (6) In Schafer method of artificial respiration how the patient is required to lie down ?
(a) On the back (b) Inverted (c) On the side (d) Not to sleep
- (7) In Dr. Silvester method of artificial respiration how the patient is required to lie down ?
(a) On the back (b) Inverted (c) On the side (d) Not to sleep

Activity

- Activities of artificial respiration to be performed.
- Make them draw the figure of organs of the respiratory system.

8

EFFECTS OF EXERCISES

Before knowing about the effects of exercises on respiratory and circulatory systems, we shall know, what is Vyayam. In Gujarati and Hindi Dictionaries the meaning of "Vyayam" is 'Exercise'. Presently, the word Exercise become is more prevalent instead of Vyayam. In simple language, Vyayam or exercise means the physical movements or we can say, physical movements being done by physical activities. In these physical activities walking, jogging, swimming, play any game and doing exercises for different parts of the body, like the exercises of neck, shoulders, elbows, wrists, waist, knees, hands, legs, the fingers of hands and legs etc. are included.

The games and the exercises can be individual, in pairs or in a group. There also exercises with and without equipments.

Exercise is an important mean to know the effects on various systems of the body. Over and above, the effects of exercise is a result oriented component of "Exercise physiology".

(1) Effects of light exercises

In light exercises slow walking; the exercises of hands, legs, neck, shoulders, waist, knees, ankles and the fingers of hands and legs in medium speed and counts (8 to 16); cycling with medium speed, swimming with less speed etc. can be included generally. In such exercises the effects are seen as follows :

- (1) An increase in the counts of respiration in resting position.
- (2) The efficiency of taking the oxygen in lungs increases, i.e. there is an increase in the general efficiency of 250 ml/min in one minute.
- (3) The efficiency of the lungs', throwing out the carbon dioxide increases i.e. there is an increase in the general efficiency of 215 ml/min in one minute.
- (4) The efficiency of the diaphragm of, lower pulling while inhaling and upper pressure while exhaling increases.

(2) Effects of heavy exercises :

In heavy exercises brisk walking, speedy cycling, cycling on cycle-ergometer with different work-loads and different speeds, speedy swimming and playing of all the games are included. In doing such exercises generally, the following effects are seen.

- (1) The chemical reactions in the muscles of various parts of the body become speedy. To cope up with this speedy reaction, the necessity of oxygen, is arises. This necessary oxygen is provided to the muscles through blood circulation.
- (2) To provide necessary oxygen for speedy chemical reactions, the heart and the lungs have to react speedily.
- (3) The energy produced in the presence of oxygen is called aerobic energy and the energy produced in the absence of oxygen is called anaerobic energy. Taking into consideration the respiratory system only, an individual who practise the exercise for longer period, gets approximately 38% more aerobic energy and approximately 18% more anaerobic energy.
- (4) In the resting position, the requirement of oxygen per minute is 15 to 20 litres, which increases to 100 litres per minute in heavy exercise.
- (5) In the resting position, the proportion of breathing rate is normally 14 to 16 per minute, which increases upto 30 during the exercise.

(6) In the resting position the required volume of air in every breathing is 0.4 to 0.6 litre normally, which increases upto 3.5 litres during the exercise.

(7) The vital capacity of an individual increases because of heavy exercise.

(3) The oxygen debt produced during heavy exercise:

During heavy types of exercises, if the muscles do not get the required oxygen and deficiency of oxygen is created is called "oxygen debt". This debt is cleared during the recovery period of few minute after the completion of the exercise.

During the light exercise no oxygen debt is created.

(4) "Second wind" condition created during heavy exercises :

During the offensive actions like sprints, rowing etc. the distress is created in the body, which results into breathlessness. There is throbbing in the head and one feels that a particular activity can not be done. The experience of removal or disappearance of such distress or throbbing is called "Second wind". During the condition of second wind or before, no other physiological differences either are seen or the reasons of removal of such distress are experienced. Because of this condition, symptoms of neither improvement in the actions nor the decrease in fatigue are seen. But there is a belief that the early distress happens because of accumulation of the metabolics in the muscles and the blood, which is mostly because of creation of the deficiency of the oxygen in the muscles. After few seconds when one experiences relief, is because of the reach of the oxygen. This time, one experiences relief in breathing, the efficiency of pumping the blood by the heart increases and the capillaries become efficient in providing the blood.

Now, we shall get the information regarding the temporary and permanent effects of light exercises and heavy exercises on circulatory system.

Temporary effects :

Temporary effects are as under :

(1) Chemical reaction:

While doing the exercise, the chemical reaction in the muscles becomes speedy. This reaction happens in the presence of the oxygen carried by the hemoglobin in the blood.

(2) Speed in the action of circulation :

Because of the speedy chemical reaction by doing the exercise, the requirement of oxygen increases, as a result there is an increase in the speed of circulation. This is because of the circulation of the pure blood being emptied in the left auricle through pulmonary veins and the impure blood being emptied in the right auricle and then in the right ventricle, through the superior vena cava and inferior vena cava of the circulatory system.

(3) Pumping action of the heart :

In the resting position, about 5 litres of the blood is being pumped in one minute, by the heart. In comparison of the untrained individual, the heart of a trained individual pumps double the blood in one minute.

(4) Quantity of blood :

During an exercise, the quantity of blood of an untrained individual, in one heart beat happens to be 70 ml. where as, the quantity of blood of a trained individual in one heart beat becomes 175 ml.

(5) Heart beats :

In comparison with the heart beats of an untrained individual in the resting position in one minute, those of a trained individual are half in number in one minute.

The increase or decrease of number of heart beats are not dependent only on the exercise, but the matters which play an important role are the posture's position of an individual, sex difference, age, feeling, outer atmosphere, type of exercise and the intensity of an exercise. The information of these matters is as under.

Posture :

Various positions of the body like, in sleeping, sitting, standing etc. are included in posture. The positions of the body have the effects on the heart beats. While sleeping the centre of gravity of the body remains nearer to the ground, hence the heart beats are less comparatively. In comparison with the sleeping position, in standing position about 10 to 12 heart beats are more in number.

Sex difference :

In the resting position, the heart beats of an adult woman are 5 to 10 more in one minute in comparison of an adult man. The heart beats of a woman in one minute happen to be 84 where as those of a man happen to be 78.

Age :

At the age of 10 years, the average heart beats in one minute are maximum. With the increase of age, the heart beats go on becoming less.

Feeling (Emotion) :

The heart beats of an emotional individual in resting position and while doing the exercise are more in comparison with other other individuals.

Atmosphere :

In higher temperature and at the higher altitude place, any individual's heart beats are comparatively more than the generalised heart beats. At higher altitude places the air is thin and the measure of oxygen is always less, hence to get required oxygen the heart beats increase in numbers over and above, if the air is steady and if the humidity in the air is more, the heart beats increase in numbers.

Type of Exercise :

In sprints the heart beats are very speedy. But the exercise like weight lifting in which more strength is required, here the heart beats are less, i.e. there is less increase in heart beats. But in endurance type of exercise like long distance running, the heart beats are less in comparison with sprints and are more in comparison with weight lifting exercise.

(6) Circulation of blood in kidneys :

While doing an exercise, the circulation of blood toward the kidneys decreases, so that it may circulate more toward other muscles. This decrease in blood circulation toward kidneys remains for one hour after completing the exercise. So, the patients whose kidneys are defective, should take care while doing any labour work.

Permanent effects of exercise

(1) Haemoglobin :

During training, increased proportion of haemoglobin is seen.

(2) Capacity to endure lactic acid;

When anaerobic energy is created, lactic acid is produced. At the end of long period training, an individual gets more efficiency to endure lactic acid.

(3) Blood pressure :

The upper pressure of blood, is called systolic blood pressure and that of lower is called diastolic blood pressure. During long period of training systolic pressure becomes 180 millimetre and the diastolic pressure becomes 110 millimetre.

A healthy young individual is having 120 mm systolic pressure and 80 mm diastolic pressure in normal circumstances.

(4) Blood pumping capacity of the heart and heart beats :

By long period training, the blood pumping capacity of heart increases i.e. heart pumps more blood in less time. Because of long period training, there is less increase in the heart beats.

(5) Strength of Heart :

By means of long period training, the strength of heart increases, as a result the volume of the pumped blood also increases. Heart also being a muscle, becomes strong. Its contraction strength also increases.

(6) Aerobic and Anaerobic capacity :

By means of long period training the aerobic capacity increases upto 18% and the anaerobic capacity increases upto 38%. Aerobic capacity is the maximum measurement of the oxygen taken in use by the active muscles in one minute, where as anaerobic capacity is the working capacity of an individual in the absence of oxygen.

(7) Fat and cholesterol :

During the long period training and after the training programme, the proportion of fat and cholesterol in body seems to be reduced.

Before, during and after doing the light and heavy exercises, certain matters are necessary to keep in mind. For achieving the health of the body and for its protection, it is necessary to keep in mind these matters. Now, we shall get information regarding these matters as follows :

A. Matters to keep in mind before doing exercises :

(1) It shall be proper for an individual to complete the morning physical cleanliness action before starting any type of exercise.

(2) To do an exercise with empty stomach is not considered beneficial.

(3) Even in walking or doing light exercises we should put on clothes according to the seasons, like half-pant, T-shirt, pant, shirt, track-suit etc.

(4) The shoes on should be of special quality, so that both the legs can be protected properly. See the figure.

Qualities :

- The portion above the heel should be supporting type and comfort giving.
- The portion giving the support to an arch of a leg should be firm.
- The sole toward the toes and fingers should be massive and flexible.
- If one has to walk on solid surface, then the bottom soles should be solid.
- The portion of the heel should not be light. As a matter of fact the whole sole should be in level.



(5) Since, walking and light exercises are like the warm up exercises, there is no necessity of doing warm-up exercises separately.

(6) If the exercises are of heavy type or if any of the game is to be played, the following matters should be added in warm-up exercises :

- Jogging should be done on the spot for 5 minutes.
- The stretching exercises, for the back and the trunk, should be done.
- Do exercises for hands.
- Do sit-ups.
- Stretching exercises for the thighs and the buttocks should be done.
- Stretching exercises for hamstring muscles (on the back side of the thigh) and quadriceps muscles (on the front side of the thigh) should be done.
- Stretching exercises for calf muscles should be done.

(7) After doing the above warm-up exercises, the specific exercises for the skills of the game should be done.

B. Matters to keep in mind during the performance of exercises:

(1) Mostly, before doing heavy types of exercises, it shall be beneficial to have physical check-up by a doctor.

(2) If a player is having hereditary disease or disease like tuberculosis, inactiveness of pancreas, defects in kidneys or liver, he should take the advise of a doctor and then do the exercise.

(3) Before doing the heavy exercises, keep in mind that the stomach is not full of food and water. Generally the exercises should be done after three hours of taking the food.

(4) If the surface, on which the exercises are to be done or the games are to be played, should be levelled. Surface should neither be more smooth nor rough (especially the surfaces of cemented play grounds).

(5) It should be checked whether the equipment of the game to be played are according to the rules.

(6) It is dangerous to use the broken equipment.

(7) Avoid doing heavy exercises or playing the games in the atmospheres having more wind, more heat, cold or rain.

C. Matters to keep in mind after doing the exercises :

(1) Immediately after doing heavy exercises do the cool down actions.

(2) In cooling down activities one should do walking or slow jogging. The cooling down actions should be done till the beats of the heart and veins become normal.

(3) In cooling down action, slow stretching exercises can also be done.

(4) In the actions of cooling down the mind becomes peaceful and the tension over the muscles of the neck and the back becomes less.

(5) After doing heavy exercises there shall be shortage of water in the body, but one should not drink the water till the beats of the heart and the veins do not be normal.

(6) After heavy exercises do not keep the body exposed. For this, one should put on the track suit so that he may not have to suffer from the cold.

(7) When the condition of the body becomes normal, one can take tea, coffee or cold drink and also light break fast can be done.

EXERCISE

1. Answer the following questions in detail :

- (1) Show the effects of light exercises on the respiratory system.
- (2) Show the effects of heavy type of exercises on the respiratory system.
- (3) Explain the temporary effects of exercises on the circulatory system.
- (4) Show the permanent effects of exercises on the circulatory system.
- (5) Show the matters to keep in mind before doing the exercises.

2. Answer the following questions in brief :

- (1) "In simple language exercise means physical movements or physical activities". Explain this statement.
- (2) Explain the condition of "second wind" created in heavy type of exercises.
- (3) Show the matters to keep in mind while doing the exercises.
- (4) Show the matters to keep in mind after doing the exercises.

3. Write answer to the following questions by selecting correct option from the options given below :

- (1) While doing heavy type of exercises, the "oxygen debt" is created. When it is cleared ?
 - (a) Immediately after completing the exercise
 - (b) Within 30 minutes after completing the exercises
 - (c) Within few minutes after completing the exercises
 - (d) When the heart beats and the veins become normal
- (2) In which position of the body, the heart beats are comparatively less ?
 - (a) Sitting position
 - (b) Standing position
 - (c) Sleeping position
 - (d) Walking position



9

RUNNING

Introductory

Walking, Running, jumping, throwing, climbing, descending, sliding etc. are the natural activities of human beings. All these activities are woven around human beings in one or another form. In different spans of time, among these activities, Running, jumping, throwing, etc., activities were given the forms of competitions. In sports science it is known as Athletics.

Regarding athletics activities, we shall get detailed information of running.

100 metres, 200 metres and 400 metres running are included in short distance and sprints, running.

Skills of sprints or short Distance Running :

There are four main stages of short distance running. These are also known as skills.

They are :

(1) Start (2) Running strides (3) Coasting or Relaxed Running (4) Finish

(1) The Start :

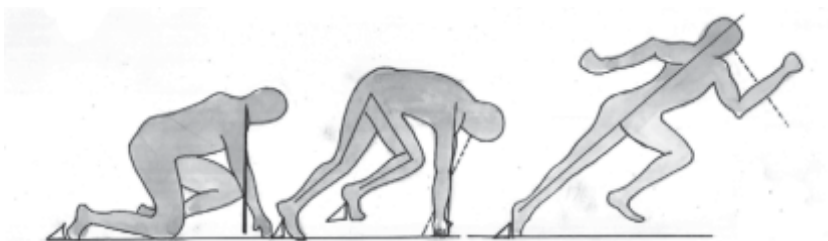
Start means the beginning of the running race. To get victory in the running race start plays a very important role. In the beginning of sprints, the standing start was commonly used by the runners. But due to development of the scientific theories in sports, a crouch start is started.

The crouch start : The name crouch start has been used, since two hands and two legs remain in touch with the ground. Using a crouch start, a competitor gets the speed from the very beginning of the start. Depending on the physical stature, constitution of the bodies, and the length of the legs of runner the crouch start is divided into three types.

(A) Bunch or Bullet Start (B) Medium Start (C) Elongated Start

Let us take the information about the above three types of starts.

(A) Bunch or Bullet Start : In short distance runs or sprints competitors generally prefer the crouch start in the world.



In Bunch start on your marks', Set, Go - Positions

In crouch start 'on your marks', 'set' and 'Go' positions are as in the above figure. Yet, some runners like to take medium start. The runner has to take three positions of (i) on your marks (ii) Set and (iii) Go in all the crouch starts, and follow the instruction of a starter.

(i) On your marks : In the Bullet or Buch start, as soon as the command 'on your marks' is heard, each runner places the toes of his strong leg on the starting block at a distance of 30 to 45 cm behind the starting line in his own lane. Then he places the toes of his 'free' leg in such a way that the toes touch the ground, keeping a distance of 5 to 10 cm between the heel and the front part of the toes of his leg. In this position the knee of the free leg is placed on the ground near the stronger leg in such a way that it is slightly ahead of the toes of the stronger leg. The soles of both the feet

should touch firmly on the starting blocks as shown in the figures.

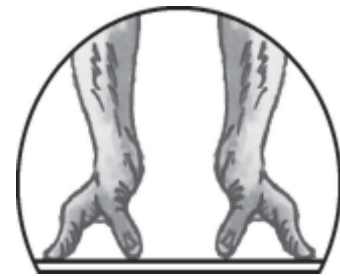
A position of the fingers in crouch start



Front view position



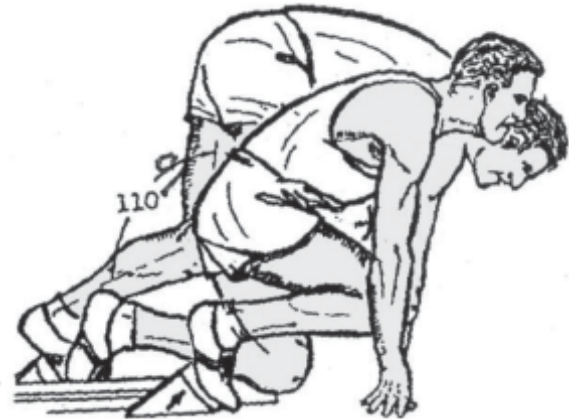
Side view position



A position of hand's fingers on the starting line in crouch start

After taking the sitting position as shown in the above figures, the runner places the fingers of both his hands 1 to 2 cm behind the starting line. He will place his fingers at a distance equal to the width of his shoulders. The weight of his body will be on his fingers. The fingers should not touch each other. The neck and the eyes sight should be in the direction of his lane in natural looking position.

(ii) **Set** : When the starter gives the command 'set' the runner leans a little forward and raises his buttocks. He keeps both his arms straight and leans forward. In short, he performs the forward and upward leaning action as shown in the figure. At this time his bottom part will be raised higher than his shoulders. The weight of the major part of his body, will be on the front foot toe and on the both the hands. The eyes should be in the direction of his lane in natural looking position.



(iii) **Go (A sound of clapper, gun or Pistol)** : For this action, instead of giving oral command starter gives the order by using one of the above mentioned equipments.



The various movements of the body during the change from 'Set' to 'Go' Position in the bullet start

As soon as a runner hears the sound, he pushes his rear leg and brings it forward. He places it 45 to 60 cm away in front of the starting line. Along with the forward movement of his leg, he naturally, brings his opposite arm forward and the other arm backward. Both his arms are bent at the elbow and his fists loosely closed. The figure shows the various motions of the runner's body when he moves from the 'set' position to the 'Go' position.

(B) Medium Start :

Some runners prefer to take the medium start in short distance running, while most of them prefer to take it in middle distance running races. Some times, if after the completion of the action in the 'set' position, the sound of the clapper, gun or pistol is delayed, the runners find it difficult to maintain the balance of their body. Competitors having a medium height and legs with medium length generally find the medium start more suitable. This (medium) start is also suitable for maintaining the balance of the body after taking the 'set' position. Let us take the information of on your marks, set and go position in medium start.

(i) On your Marks : In the medium start as soon as the command 'on your marks' is heard, each runner places the toes of his strong leg on the starting block at a distance of 30 to 45 cm behind the starting line in his own lane. Then they arrange the other (free) leg in such a way that the knee of the free leg is placed 10 cm away from the arch made by the toes of the stronger leg. The knee of the free leg should touch the ground. After taking this sitting position, they place both their hands behind the starting line as in the bullet start at a shoulder wide distance forming an inverted 'V' with his thumbs and the fingers.

(ii) Set : As soon as the starter gives the command 'set' the runner performs the forward, upward and leaning actions as described in the bullet start.

(iii) Go : In the 'Go' action also, as in the bullet start, after hearing the sound of the clapper, gun or pistol, the runner quickly moves his rear foot forward and begins the running action. His first step is smaller compared to the steps which he takes later.

(C) Elongated Start :

This start is particularly used by runners with long legs. But because the runner gets lesser mechanical advantage from the elongated start than the "bullet start" or the 'medium start', most runners prefer to start their run with one of the two (Bullet or medium) starts. The three positions of the 'elongated start' have been described below.

(i) On your Marks : When the starter gives the command 'on your marks' each runner places his stronger foot at a distance of 30 to 45 cm from the starting line of his own lane. Then he places his free leg in such a way that the knee of that leg is placed on the ground 10 cm away from the heel of his stronger foot and the thigh of the free leg makes a right angle with the ground. The position of the hand is the same as in the bullet start or the medium start.

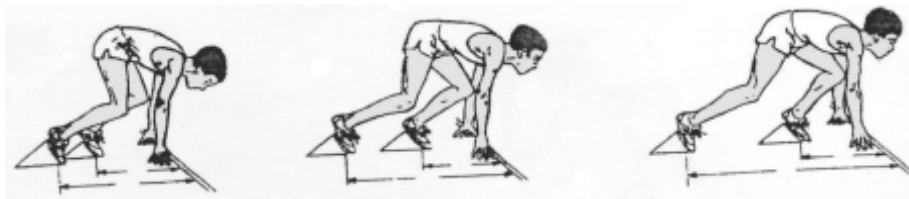
(ii) Set : The set position of the elongated start is also to a large extent similar to that in the medium start. As soon as the starter gives the command 'set', the runner performs the forward, upward and leaning action as described in the bullet and the medium starts. In the 'set' position, the hips and the shoulders are placed almost at the same height. The figures on the next page show the position of the body in the 'set' position in all the three types of start.

(iii) Go : Immediately after hearing the sound of the clapper or the gun or the Pistol, the runner will speedily bring forward his free leg and place it 45 to 60 cm away in front of the starting line. The first step is relatively smaller than the rest of the steps or strides. The movements of the rest of the parts of the body will be similar to those in the Bullet and the medium starts.

(2) Running strides :

The running strides are divided into three parts :

- (i) Starting strides (ii) Transitional strides (iii) Top Speed strides



Bullet start

Medium start

Elongated start

The set position in all the three types of 'starts'

(i) Starting strides : The first two strides after taking the start are called the starting strides. These strides are shorter than the other strides. The first step is needed to be short so that the runner can get the maximum advantage of the push back force from the starting block, which is with his rear leg. It also helps him to keep the balance of his body.

(ii) Transitional strides : Three to nine strides after the first two strides are called the transitional strides. Each of these strides are successively longer. The distance between each stride and the previous ones goes on increasing. Similarly by stages, the body which is leaning forward goes on becoming erect.

(iii) Top Speed strides : The strides after the transitional strides until the end of the run are known as the Top-speed strides. The distance between the two strides is almost the same and the body is inclined forward at an angle of about 25°.

(3) Coasting or Relaxed Running :

It is necessary to give rest to the muscles during the middle part of running competitions of 200 m or more than 200 m running. This action is called 'coasting' or 'Relaxed Running'. During the action of coasting there should be no change in the style of running, nor should be change in the speed. As the runner takes deep breaths, he gets benefit from the change. A learner finds it difficult in the beginning to bring about this change in his running speed, but training and long practice makes it possible for him to give rest to his muscles without actually losing speed. In a 200 m running race, the relaxed running is at 9/10 of the normal speed and it is only for about a distance of 10 metres, as shown in the figure.

← 95 m →	10 m	← 95 m →
← Full speed →	9/10 speed	← Full speed →

4. Crossing the Finish Line :

The athlete should cross the 'finish line' with full speed in order to derive the maximum advantage of his speed. In order to cross the finish line at full speed it is necessary for the athlete to keep running at full speed for 5 to 10 metres even after crossing the finish line. While crossing the finish line, the part of the athlete's body between the shoulder and the waist, known in the sports language as 'torso' should cross the finish line first. If he take a jump or takes a long strike or tries to lunge forward, there is the risk of his losing the balance of his body.

A runner may cross the finish line by whichever of the three methods described below, he finds suitable for gaining the maximum advantage



(i) Crossing the finishing line at the maximum speed



(ii) Crossing the finishing line with the Trunk leaning forward



(iii) Turn Finish

(i) **Crossing the Finishing Line at the Maximum Speed** : In this method, a competitor has to cross the finishing line with top speed. This is known as the Run Through Technique.

(ii) **Crossing the Finishing line With the Trunk Leaning Forward** : In this method, the runner arrives near the finish line at the top speed. He leans his trunk in the forward direction shown in the darkened position of the figure. In this 'position, he cross the finish line at full speed. This method is known as the Lunge Finish Technique.

(iii) **Turn Finish** : In this method, a competitor turns his trunk either on the right side or on the left side, when he comes near the finishing line. Thus, he crosses the finishing line with top speed.

The short Distance Runner has to keep in mind the following points :

(1) At the time of start, the attention should be concentrated to the sound of clapper or the gun or the Pistol.

(2) In the start, the speed of the starting strides should be increased and maximum speed should be gained in ten strides.

(3) In the start, the runner keeps leaning position. His trides are rhythmic and of equal length. The speed is also uniform. The body is leaning forward at an angle of 25 degrees.

(4) The movement of hands and feet should be rhythmic.

(5) The respiration movement should be done with open mouth.

(6) Keeps both his arms bent at the elbow at 90° and keeps them forward.

(7) Strides should be in a straight line and knees should be lifted ahead forward.

(8) Strides should be speedy, push the leg on track for acquiring more speed, increase the speed.

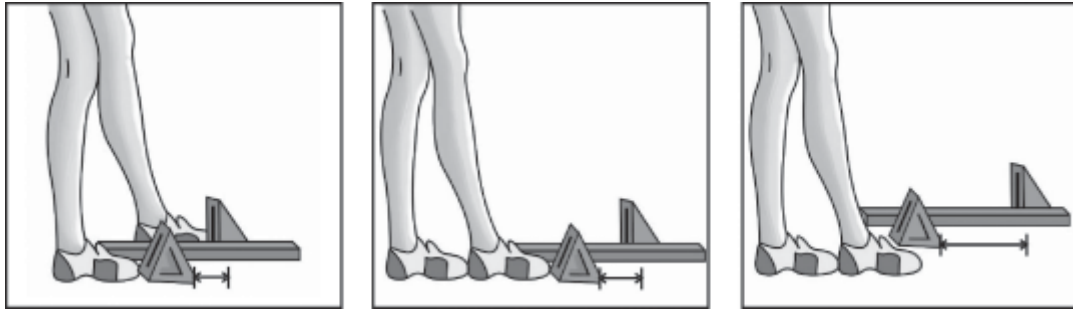
(9) Running should be in a straight direction while in curve, running should be nearer to the lift side marking line.

(10) During running, attention should be concentratied in running.

(11) Do not look at the runner who is running in his side lane or behind runner. One has to run in his own lane of the track with straight eye sight.

Starting Block

The use of starting blocks is compulsory for all the runnings upto 400 m. In sprints, the crouch start is compulsory.



Starting Blocks

Charls Sherin had used the crouch start first time in 1887. At that time the strating blocks were not available. Compers made pit on the track, fixed their feet and benefit of pushing were acquired. Due to pit the track is damaged. After that time competitors started the use of starting blocks.

Using starting Block, Runner gets the following benefits :

- Structure of the starting block should be strong. A competitor should not get any mechanical benefit or help for using the starting block.
- Starting block should be fixed on the track in such a way that there is no damage to the track. After using it, it should be removed form the track.
- In structuring the starting block, there are two foot plates. A runner puts his feet pushing in versus direction. Plates are strong and fixed in such a way that there will not be any obstacle to the runner.
- Foot plates will be inclining, flat or concave There will be soft surface on the plates or holes so that starter puts his pegs of boot on it easily.
- Foot plates should move to and fro as necessary. Starting block is tightly fixed in such a way that it will not move.

Fixing the starting block :

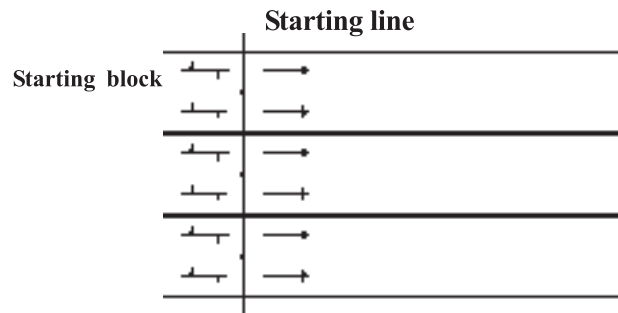
A starting block should be fixed behind the starting line. The starting block should not touch the starting line or interior part of track or any competitor's lane.

In crouch start, the starting blocks are fixed according to the type of the start, a competitor takes/selects.

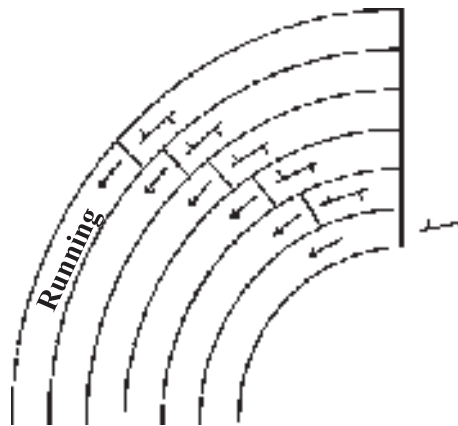
Starting block is used in short distance running (upto 400 m runnings). In this running the crouch start is compulsory. By mean of the use of a starting block, a competitor gets the speed from the very beginning. After arranging the starting blocks at a necessary distance behind one's starting line, it should be checked, whether the blocks are arranged in a straight line in one's lane. Then the pegs should be fixed. The blocks fixing screw keys also should be checked and after that, one should practice to take one or two starts trials form the blocks so that difficulty is faced can be found out.

Fixing the starting block :

For 100 m start :



Arrangement of starting blocks for the staggered starts for 200 m and 400 m runs



EXERCISE

1. Answer the following questions in detail :

- (1) State the types of the crouch start ? Which start is the best. Give reason.
- (2) State the different positions in Bunch or Bullet start.
- (3) What is coasting or Relax Running ?
- (4) State the "on your marks" position in the medium start.
- (5) State the techniques or methods of crossing the finish line. Give the details of any one.

2. Write short notes on :

- (1) Starting block
- (2) The transitional strides
- (3) The crouch start
- (4) The Turn Finish
- (5) The Lunge Finish

3. Answer the following questions in one or two sentences :

- (1) Which Running are included in short distance running or sprint running ?
- (2) Which parts of the body are touching with the ground in the crouch start ?

- (3) What is the position of fingers and thumb of both the hands in "on your mark" position of the medium start ?
- (4) Which actions does the competitor take in the crouch start ?
- (5) When there are Top-Speed strides in sprint running ?

4. Fill in the blanks with suitable words (your answer should be based on the Text-book):

- (1) 100 m running is including in _____ running.
- (2) _____ are the main skills of the sprint running.
- (3) When runner receives the command 'set' he performs the forward, upward and _____ actions.
- (4) In the sprint running, there are _____ strides after starting (initial) strides.
- (5) A Runner has to cross the finishing line at the _____ speed.

5. Write answers to the following questions by selecting correct option from the options given below :

- (1) Which running is not included in the sprint running ?
 - (a) 100 m running
 - (b) 200 m running
 - (c) 1500 m running
 - (d) 400 m running
- (2) How many types of crossing the Finish Line are there ?
 - (a) One
 - (b) Two
 - (c) Three
 - (d) Four
- (3) Which type of start is wrong in the crouch start ?
 - (a) A bullet or Bunch start
 - (b) The Medium start
 - (c) The Elongated start
 - (d) The standing start
- (4) Where is the starting block fixed ?
 - (a) On the starting line
 - (b) Behind starting line
 - (c) Touching the starting line
 - (d) Beyond the starting line in his lane
- (5) What is the name of part of the athlete's body between the shoulder and the waist, except hands ?
 - (a) Trunk
 - (b) Torso
 - (c) Stomach
 - (d) Abdomen
- (6) How many running strides are divided in the sprint running ?
 - (a) Two
 - (b) Three
 - (c) Four
 - (d) Five
- (7) Which type of sprint running stride is wrong ?
 - (a) The starting strides
 - (b) The Medium strides
 - (c) The transitional strides
 - (d) The Top speed strides
- (8) Which one method is wrong in crossing the Finish Line
 - (a) Run through
 - (b) Lunge Finish
 - (c) Turn Finish
 - (d) Jump Finish
- (9) Where does the runner keep his eye-sight ?
 - (a) On spectators
 - (b) On his competitor
 - (c) Behind
 - (d) Straight eye sight in his lane

- (10) In which shape does the competitor fix his fingers and thumb behind his starting line in medium start ?
(a) U (b) Λ (c) V (d) Ω
- (11) Which position is not true in the crouch position ?
(a) on the mark (b) set (c) vertical (d) Go
- (12) What is the name of action which gives rest to the muscles during the middle part of running competitions of 200 m or more than 200 m running ?
(a) The Coasting Running (b) The speedy Running
(c) The Slow Running (d) The Resting Running

Activity

- Fixing the starting block and removing



10

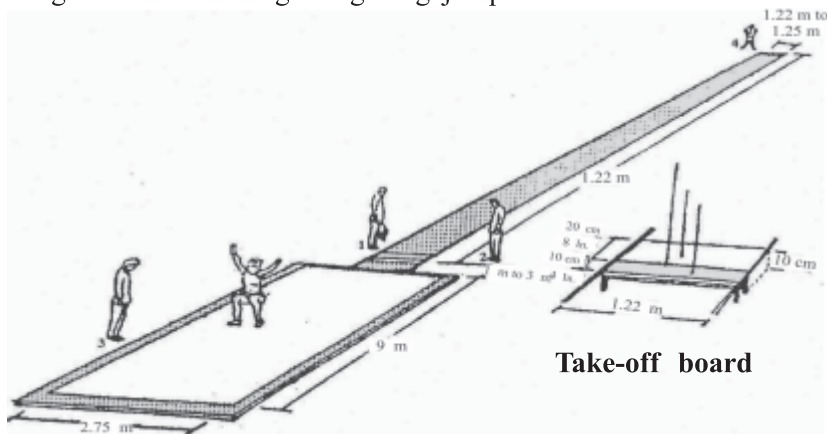
LONG JUMP

Since the ancient period, the activities like running, jumping, throwing and walking are being done from the youngest to the oldest person. They will continue doing these activities, because they are natural and are done by birth. Our ancients i.e. ancient human beings used to do these activities in search of food, for their protection and also for pleasure. They were doing these activities for the maintenance of their lives. With the passing of years and with the modernisation in the lives of human beings, the natural activities also got affected. Modern people thought that the natural activities are not meant only for the maintenance of the life. They thought of making some change. After thoughtful exchange of the views or opinions it was decided that in order to measure, evaluate and develop the capabilities of the people in such activities, it was decided to organise the competitions for these activities. It was also decided that organisation of such activities will give great pleasure and also will develop the quality of the sportsman spirit. Thus, we know how the competitions of these activities were started.

Now, we shall get information regarding long jump.

Long Jump :

Play ground :



Play ground of Long Jump

Figure 1

The measurements of the approach run way and the pit along with the preparation of the pit are as follows

Approach Runway :

Approach runway should be minimum 45 metres long from the take-off board and 1.22 metres in width. It should be levelled.

Jumping pit :

The jumping pit should be minimum 2.75 metres wide and 9 metres in length. The distance between the edge of the take off board nearer to the pit and the edge of the pit far away should be 10 metres. The distance between the edge of the take-off board nearer to the pit and the edge of the pit nearer to the take-off board can be kept 1 to 3 metres.

A jumping pit prepared for the competition should be dug at least 50 cm. deep and it should be filled with the river's clean sand passed through the holes of the sieve. The sand should be filled up to the level of the ground outside the pit. The sand filled in also should be kept leveled.

Equipment :

Take-off Board : It should be prepared from the wood. Its length and the width should be 1.22 mts and 20 cm respectively. Its thickness should be 10 cm. According to the rule it should be painted with white colour.

Skills of Long Jump :

Taking into consideration the whole action of long jump, it is divided into four parts

(A) Fore running or an approach run (B) Take-off (C) Floating in the air (D) Landing

(A) Fore running or Approach run :

All the running steps should be rhythmic. A runner, when he takes the take-off from the take-off board, he should have full speed. Generally, the step-plans of a runner are as follows :

(i) $2 + 4 + 6 = 12$ steps

(ii) $2 + 4 + 8 = 14$ steps

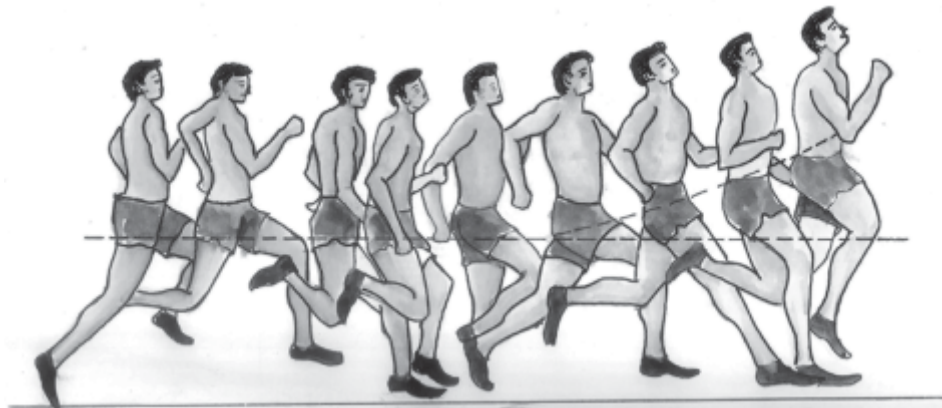
(iii) $2 + 4 + 10 = 16$ steps

In all the three step-plans, the initial two steps remain shorter. The next 4 steps are seen having increased speed. The last steps i.e. 6, 8 and 10 steps should be with full speed.

(B) Take-off :

For fore running a runner selects one of the suitable step-plans. A runner has to take the take-off from the take-off board with his strong leg. After take-off a runner has to toss his body upward and forward at the angle of 45° , with speed. While taking the take-off, Newton's third law of motion i.e. "Action and Reaction are equal and opposite" is being applied. Here, take-off is action and tossing of the body upward and forward is reaction. Here, according to the law of projectile the speed power is converted into the tossing power.

The approach run and the take-off actions are generally seen as per the following figure no.2



Approach run and take off Fig. 2

For effective take-off, the last step should be little shorter, so that the centre of gravity of the body lifted upward and forward remains in motion.

After the take-off, the action of lifting the body at an angle of 45° upward and forward is called floating in the air. At the completion of floating action in the air, generally, the heels of both the legs shall touch the sand in the pit and immediately with the forward swing of the hands, the body shall be pushed forward and shall land in the pit. From the take-off to landing actions, it shall be necessary to keep the balance of the body, which will help the body being pushed in the forward direction with longer distance jump. The continuous actions of take-off, floating in the air and landing are seen in the figure no.3

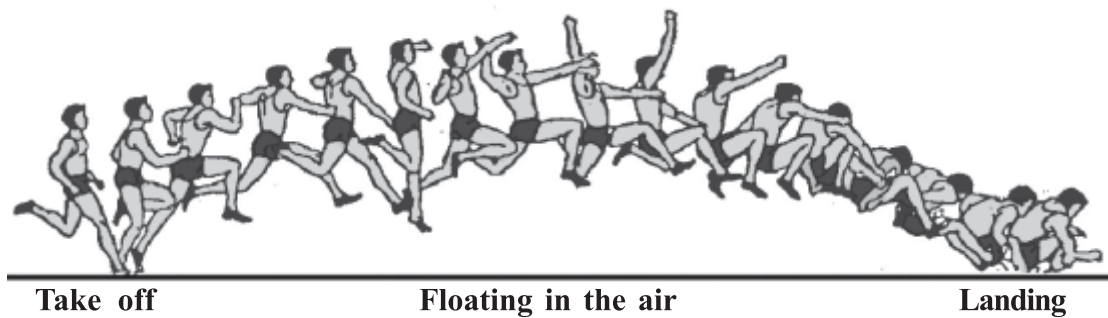


Fig. No. 3

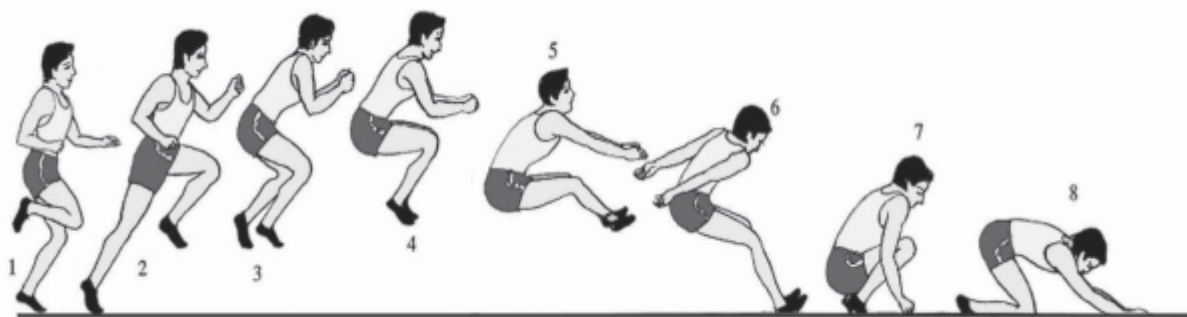
(C) Methods of floating in the air :

Immediately after the take-off, the body is being pushed forward because of different actions of the body in the air. The methods of pushing the body forward effectively are as follows :

- (1) Sailing in the air method
- (2) Walking in the air method
- (3) Hanging in the air method
- (4) Mixed method

(1) Sailing in the air method :

In sailing in the air method, while taking the take-off with a strong leg, the free leg is swung on the front side, which helps the body to lift upward. In the action of the free leg, it makes an angle of 70° with the trunk. After that, when the body is in the air in the upward direction , the strong leg comes in forward direction from the back side. Thus, when the free leg come nearer to the strong leg, the knees of both the legs are pulled in the sitting position. From the maximum upward height when the body starts coming down, both the hands are made straight in front of the shoulders and the acting of landing is being done. This action of sailing in the air shall be understood clearly from the following figure no.4.



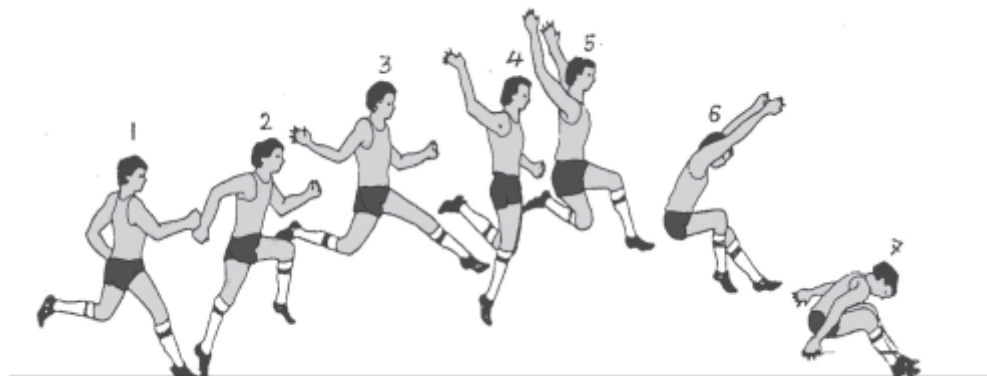
Sailing in the air

Figure no. 4

(2) Walking in the air method :

In this method the free leg is moved forward and backward twice. The take-off leg is moved forward from the back side and to the back side from the front and again forward from the back side. The movement of both the legs, one by one forward and backward gives an impression as if the runner

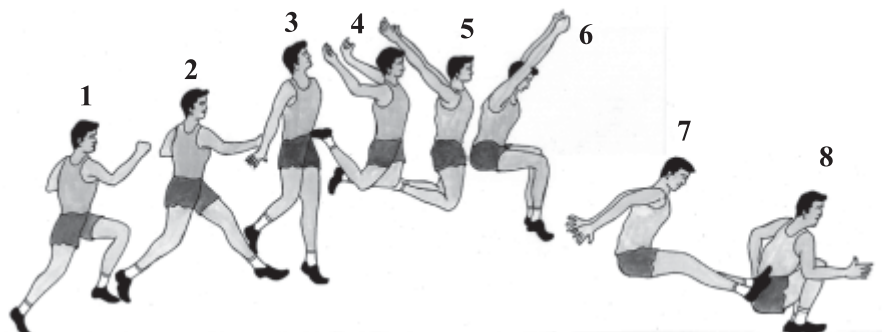
is walking in the air. When the body comes downward, both the legs get together and thus, the action of landing starts. This movement of walking in the air shall be understood clearly from the following figure no. 5.



walking in the air **Figure 5**

(3) Hanging in the air method :

In this method, the free leg comes forward with a swing after the take-off. After the take-off, when the take-off leg meets with the free leg, both the hands are to be raised upward and the head is leaned a little on the back side. While taking the hands on the back side the chest is pulled upward. Side by side the legs are also pulled on the back side. This position brings the body in the bow position in hanging condition. After the hanging position, a jumper brings both the hands and the legs forward with a push. When both the hands and the legs come forward, the body comes downward. Thus, the action of landing starts there after. This action of hanging in the air shall be understood clearly from the following figure no.6



Hanging in the air
Figure 6

(4) Mixed method :

When any two or three methods of floating in the air are mixed and floating is done, it is called mixed method. Mostly this method is used to achieve the best record in the competition.

(D) Landing :

With the completion of floating in the air, when the body comes nearer to the jumping pit, the action of landing starts. In this action, when the heels of the legs come nearer to the surface of the sand in the pit, both the hands are swung forward. As soon as the heels touch the sand, the body is pushed forward with the swing of the hands. See this action in the figure no. 7.

A jumper has to take care that no part of the body touches the sand, behind the touch of the heels, toward the take-off board. In being done so, the measurement of the jump is done from the nearest

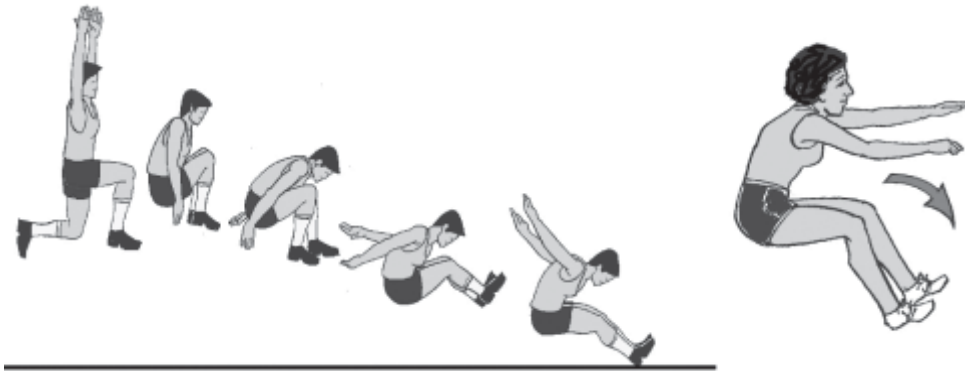


Figure 7

point of the touch to the take-off board as per the rule.

EXERCISE

1. Answer the following questions in detail :

- (1) Draw the figure of the play ground of long jump and give information regarding the approach run way and jumping pit.
- (2) Explain the sailing in the air method of floating, in long jump.
- (3) Explain the walking in the air method of floating, in long jump.
- (4) Explain the hanging in the air method of floating, in long jump.

2. Answer the following questions in short :

- (1) Explain approach run or fore running in long jump.
- (2) Give information regarding landing in long jump.
- (3) Explain the landing angle, centre of gravity of the body and balance in the action of landing in long jump.
- (4) Explain the law of "action and reaction" being applied in the take-off action in long jump.

3. Write answers to the following questions by selecting correct option from the options given below :

- (1) What our ancients or our fore fathers were doing for the search of food, pleasure and self protection ?
 - (a) Eating, staying and sleeping activities
 - (b) Running, jumping and throwing activities
 - (c) Dancing, jumping and enjoying activities
 - (d) Climbing on the tree, coming down from the tree and eating the fruits
- (2) How many metres long the approach run way is kept in long jump ?

(a) 30 mtr.	(b) 40 mtr.	(c) 45 mtr.	(d) 55 mtr.
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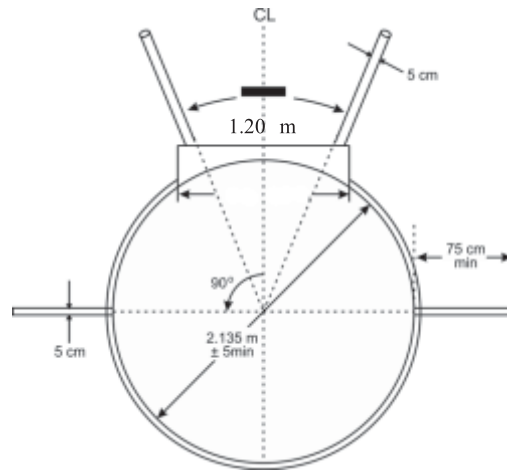
- (3) What is the width of the approach run way ?
 (a) 2.22 mtr. (b) 1.22 mtr. (c) 2.00 mtr. (d) 3.00 mtr.
- (4) What is the width of the long jump pit ?
 (a) 2.25 mtr. (b) 2.50 mtr. (c) 2.75 mtr. (d) 3.00 mtr.
- (5) What is the length of the take-off board ?
 (a) 1.12 mtr. (b) 1.22 mtr. (c) 1.32 mtr. (d) 1.42 mtr.
- (6) What is the width of a take-off board ?
 (a) 15 cm (b) 20 cm (c) 25 cm (d) 30 cm
- (7) What is the thickness of a take-off board ?
 (a) 5 cm (b) 7.5 cm (c) 10 cm (d) 12.5 cm
- (8) What distance is to be kept between the edge of the take-off board toward the pit and the edge of the pit toward the take-off board ?
 (a) 1.25 mtr. (b) 1.00 mtr. (c) 1.20 mtr. (d) 1.10 mtr.
- (9) How is the take-off board buried in the ground ?
 (a) Below the surface of the ground (b) Above the surface of the ground
 (c) Parallel to the surface of the ground (d) At right angle to the surface of ground
- (10) In how many parts the whole action of long jump is divided ?
 (a) one (b) two (c) three (d) four
- (11) How a jumper has to run on the approach run way ?
 (a) While jumping or leaping (b) In zigzag motion
 (c) In straight line with speed (d) In straight line with slow motion
- (12) At what angle is the body is to be lifted after the take-off in long jump ?
 (a) 40° (b) 45° (c) 50° (d) 35°
- (13) What type of last step should be taken in an approach run ?
 (a) Little longer (b) Little shorter (c) Long (d) Short
- (14) After take-off in long jump, which one of the action (method) of floating in the air is wrong, out of the following
 (a) Walking in the air method (b) Straddle method
 (c) Sailing in the air method (d) Hanging in the air method
- (15) What should be the colour of the take-off board according to the rule ?
 (a) Red (b) Yellow (c) White (d) Blue
- (16) Which method is used in long jump to get the best record ?
 (a) Good method (b) Top method (c) Mixed method (d) Medium method
- (17) How is the jumping distance measured in long jump ?
 (a) In between the middle part of the take-off board and the touch of the body in the pit
 (b) In between the middle part of the take-off board and the touch of the body in the pit nearer to the take-off board
 (c) In between the edge of the take-off board toward the pit and the touch of the heels in the pit toward the take-off board.
 (d) From take-off board to the touch in the pit

11

SHOT PUT

Play field

Play field of shot put is a circle with diameter of 2.135 mts. The rim of the circle shall be made of band iron, steel or other suitable material. The ground surrounding the circle may be concrete, synthetic or any suitable material. Angle of throwing sector is 34.92° . To draw an angle there is a specific method. Which is as follows :

**Shot Put Ground****Figure 1**

First mark a straight line from the centre of the circle towards throwing area. This line will make a 90° angle with diameter line of the circle. From both side of this line towards throwing area draw two straight lines of 20 mts from the center of the circle. If distance between end point of this two lines is 12 mts, then angle would be 34.92° . To verify this angle draw an arc with radius of 1 mt from the centre of the circle, which touches both the throwing lines at a distance of 60 cm. If with radius of two metres arc is drawn then distance will be 1.20 mts. Lastly with the radius of 20 mts if arc is drawn the distance should be 12 mts.

To draw an angle of 34.92° there is another method. According to this method, from the center of the circle mark 20 mts long straight line towards throwing area. From the end of this line draw an arc of 12 mts and then from the centre of the circle draw a arc of 20 mts. Where this arc crosses the arc of 12 mts line, draw 20 mts line towards centre point. This angle will be of 34.92° .

Equipments**(1) Iron Rim :**

Inside diameter of the rim should be 2.135 mts. Rim should be at least 6 mm thick & 7.6 cm high & shall be white. Inside part of rim should be concrete, synthetic or other suitable material, the top of which shall be flush with the ground outside. The surface of this interior part shall be leveled 1.4 cm to 2.6 cm. lower than the upper edge of the rim of the circle.

(2) Stop Board :

It shall be placed so that its centre coincides with the centre line of the landing sector (see figure - 1). The stop board shall be 11.2 cm wide and 1.20 mts long & 10 cm high in relation to the level of the inside of the circle.

Techniques (Skills) of Shot Put

(1) Grip, (2) Stance, (3) Action before throw : (i) 'T' Position of Crouch (ii) Glide., (4) Throw & release (5) Reverse (Balance).

(1) Grip (Hand Held) :

The shot should be placed on the roots of the fingers of strong hand. The grip largely depends on the width of palm and the length and the spread of the fingers. The thumb and little finger provide lateral support while remaining fingers spread slightly to support the weight of the shot from behind.

(i) First type : In this type first, second and third fingers are spread across the shot and the little finger remaining slightly bent. The thumb provides support to the shot.

(ii) Second type : In this type all fingers of strong hand remain spread across the shot. The thumb provides support to the shot from opposite side.

(iii) Third type : In this type all fingers of strong hand are spread. The shot is kept on the base of fingers. If fingers are short, this method is more advantageous.

After taking any one of above grips the shot is rested on the collar bone.



Grips

Figure 2

All the three types are shown in the figure no. 2.

(2) Stance :

Athlete grips the shot with his strong hand and stands in that position in the throwing circle for putting the shot is called the 'Stance'.

While taking the stance the athlete stands in the rear half circle with the right leg just behind the circle at 180° and keeps that leg slightly bent from the knee. Left leg should be approximately 25 to 30 cm away from the right leg. Plants the toe at shoulders length distance. Keeps the left hand loose and slightly bent from the elbow and keeps it raised from the shoulder.



Figure 3

(3) Action before throw :

Action before throw is divided into two parts - (i) 'T' position and Crouch (ii) Glide.

(i) 'T' Position and Crouch : The athlete swings the left leg and make a 'T' position and then comes to the crouch position to gain the momentum. The athlete takes the left leg backward and forward to make a 'T' position. From there he brings the body into the crouch position.

(ii) Glide : Bring the left leg backward to forward. Contact of the right leg is with the ground, Glide is performed in the direction of throwing area. While taking glide there should not be any change in body position. With the glide right leg will reach to the centre of the circle then action of throw begins.

(4) Throw and Release :

At the end of gliding the right leg is straightened from the knee through the push of the right toe in the

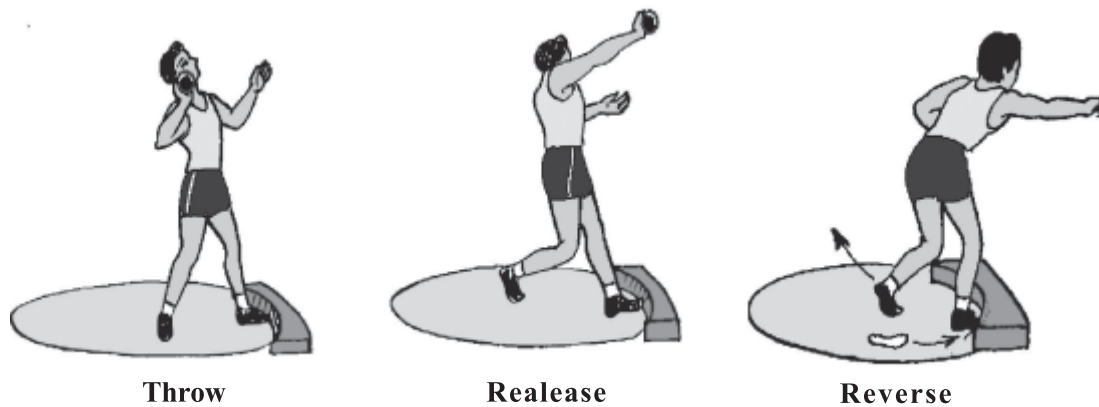


Figure 4

same momentum which brings the torso into motion. The torso is brought forward the left hand is bent from the elbow and then brought behind with a swing. This gives extra momentum to the right shoulder and using this momentum the shot is thrown with the right hand at an angle of 40° to 45°. While throwing the shot, the ultimate push is provided by the fingers and the wrist.

Throw and Release in shown in figure no. 4.

(5) Reverse (Balance) :

At the time of throw and release the body gains so much momentum that it becomes necessary to change the leg in order to keep the balance of the moving body. While changing the leg, the right leg is placed within the circle and near the stop-board and the left leg is brought behind on the right side with a swing. At this stage the entire body weight remains on the right leg and therefore the body slightly bends from the right knee.



Figure 5

Disco Put Method :

It is a combination of discuss throw and shot put that is why it is called Disco Put method. Instead of T Position and glide the turning (rotation) is made. After the turning action in shot put athlete gains more momentum. So this method is called Disco Put Method.

In this method right leg should be kept in the centre of the circle and left leg is kept in the right direction, of right leg at the suitable distance.

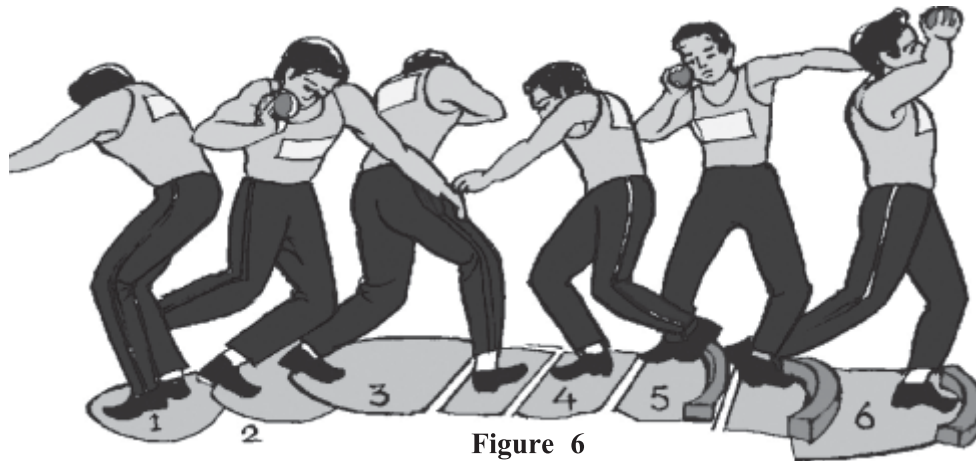


Figure 6

The shot will be caught slightly under the chin and elbow should in upward direction. This is the stance of Disco Put technique.

For the turning bend both the legs from the knees. Take body weight on the right leg to take a rotation. The right foot will come into the centre of the circle and left foot will be towards the stop board.

In this rotational action body performs a rotational motion. Best players will take turning two times in this technique.

In two time rotations, athlete gets the double rotational motion.

For transferring rotation a motion to throw and release, all actions of turning, throw & release should be done continuously.

EXERCISE

1. Answer the following questions in details :

- (1) Explain the significance of three types of grips in shot put.
- (2) Discuss 'T' Position and Stance in shot put.
- (3) Explain Disco Put method in shot put.
- (4) Describe the method of marking 34.92° angle.

2. Answer the following questions in short :

- (1) Explain Throw and Release in shot put.
- (2) Explain Reverse or Balance in shot put.

- (3) Explain how Disco Put technique in shot put came into existant.
- (4) How rotation is taken in Disco Put ?

3. Answer the following questions by selecting correct choice from the options given below :

- (1) What is the diameter of the circle in shot put ?
(a) 2.145 mts (b) 2.135 mts (c) 2.145 mts (d) 2.155 mts
- (2) What is the measurement of 'Throwing angle' in shot put ?
(a) 33.92° (b) 34.92° (c) 35.92° (d) 36.92°
- (3) What is the length of stop board in shot put ?
(a) 1.15 mts (b) 2.22 mts (c) 2.00 mts (d) 3.00 mts
- (4) Where the shot is kept cleaning the stance in shot put ?
(a) Away from the shoulder in palm
(b) Away from the shoulder on fingers & thumb
(c) With the help of fingers & thumb near the neck on collar bone
(d) In palm & under the shoulder
- (5) Why 'T' Position and Crouch action is taken in shot put ?
(a) Producting energy in legs (b) For Balance of the body
(c) To gain motion in throwing action (d) Producting energy in hands & legs
- (6) In which hand is the shot held ?
(a) Right hand (b) Left hand (c) Stronger hand (d) Free hand
- (7) At what angle is a shot being put ?
(a) 30° to 44° (b) 40° to 45° (c) 45° to 50° (d) 50° to 55°
- (8) What is the height of rim in shot put ?
(a) 56 mm (b) 66 mm (c) 76 mm (d) 86 mm
- (9) What is the thickness of rim in shot put ?
(a) 4 mm (b) 5 mm (c) 6 mm (d) 7 mm
- (10) Which colour is used to paint a iron rim in shot put ?
(a) Orange colour (b) Green colour (c) Purple colour (d) White colour
- (11) What is the height of stop board in shot put ?
(a) 8 cm (b) 90 cm (c) 10 cm (d) 11 cm

Kabaddi is an Indian game. It is being played in a small and open ground without any equipment. This game is simple and competitive. It being the game of bravery it has become popular in remote villages of India. It has also become prevalent in the Asian countries like Pakistan, Bangladesh, Nepal, Bhutan, China, Japan, Malesiya, Shrilanka etc.

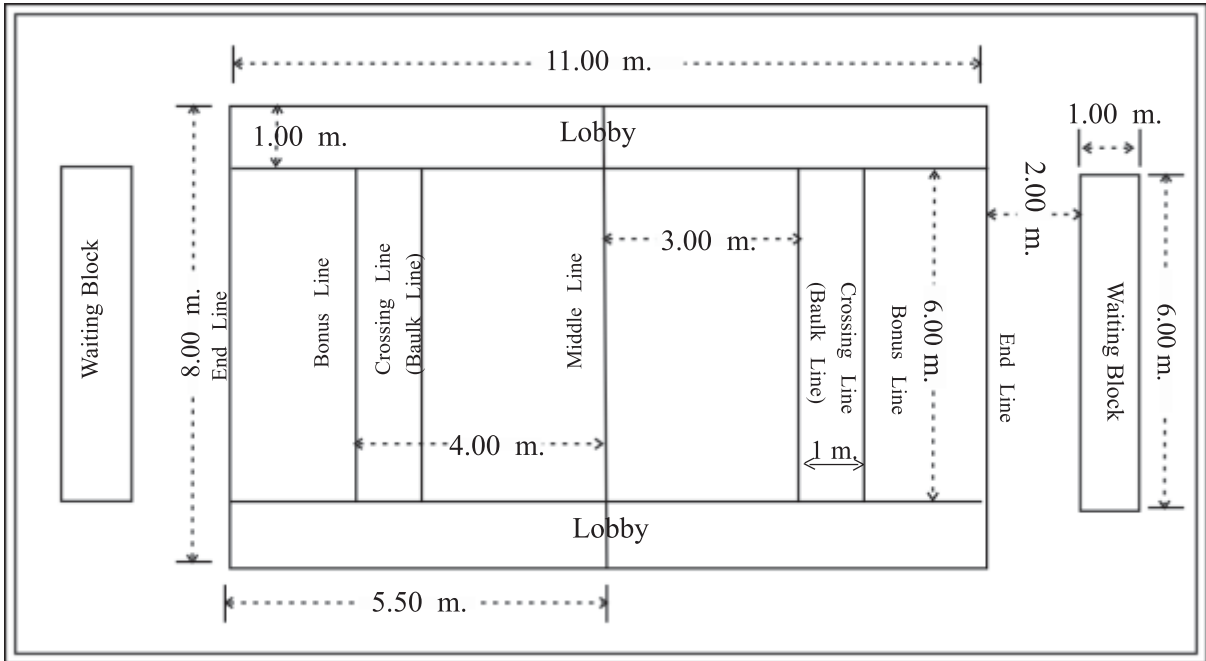
Before so many years the game of Kabaddi was played in India under various names and forms. In Western India as "Hu-tu, tu", in Eastern India as "Hu-du-du", in South India as "Chedu-gudu" and in North India as "Kaun Bada:". Presently it is played as "Kabaddi" in India and other Asian countries. In the initial stage Kabaddi game was played in three forms; (i) Dead method, (ii) Immortal method and (iii) Live method. In the dead method a player who becomes out was not revived. In immortal method a player becoming out was remaining in the game, but the raiding side was given the point against the player becoming out. Where as in live method a player becoming out has to go out of the game and has to sit in the waiting block. Such a player has to wait till the opponent side's player becomes out. In this method being out and reviving continues till the end of the game.

Maharashtra State has played important role to make this game popular at the national level. In 1923 the "Hind Vijay Gymkhana" of Baroda and in 1934 "Maharashtra Sharirik Shikshan Mandal - Pune" had formalated the rules of competition and had organised the compitions. In 1936 "Hanuman Vyayam Pracharak Mandal - Amaravati (Maharashtra) had given the demonstration of Kabaddi game, in the World Olympic Organised in Berlin of Japan and propagated the game. In 1938 the Indian Olympic games were organised in Kolkata in which the game of Kabaddi was introduced. In 1950 "All India Kabaddi Federation" was established. From 1952 National Kabaddi Competitions were started. From 1955-56 the organisation of National Kabaddi competitions for women were started. In 1972 "Amateur Kabaddi Federation of India" came into exhistance, which is now known as "Kabaddi Federation of India". This federation controls the complete game. In 1978. "Asian Amateur Kabaddi Federation" was established and in 1980 the first Asian Kabaddi Championship was organised in Kolkata. In 1990 the 11th Asian game were organised in Beiging in China in which the game of Kabaddi was included with formality. In these games India had achieved the only gold medal. Since the beginning of Asian games, India has won the gold medals every year till now.

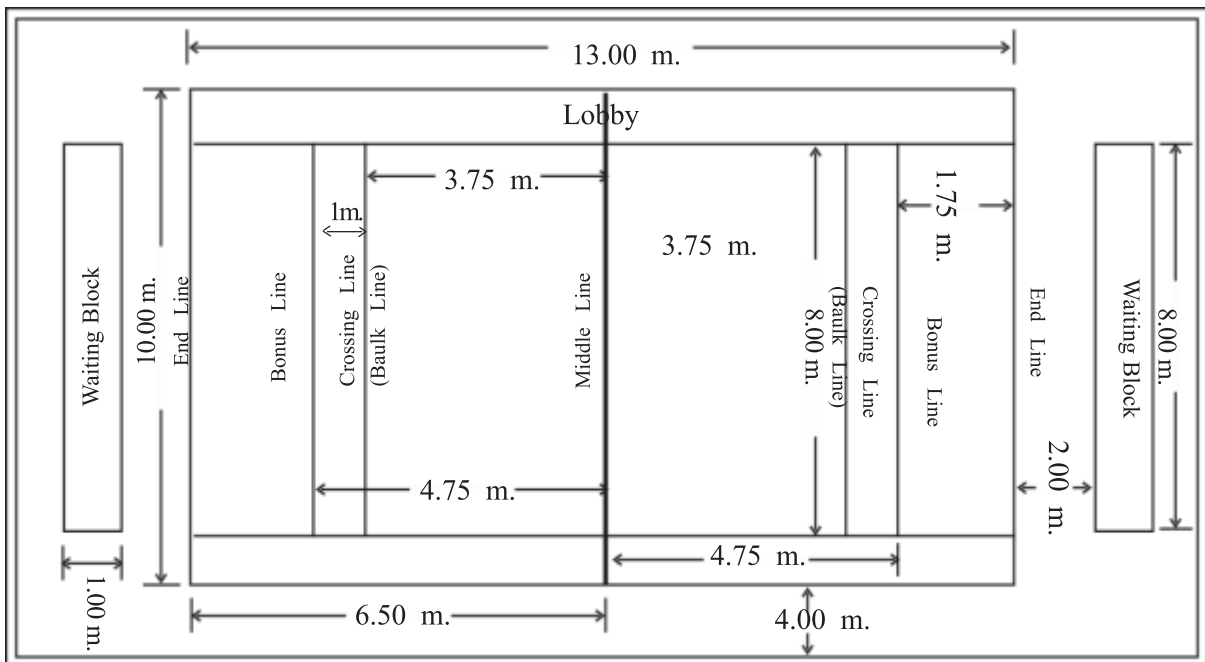
Ground of Kabaddi

The ground of Kabaddi should be levelled and should be made from soft clay. For school boys and girls the ground of Kabaddi is 11.00 mts × 8.00 mts. It's shape is rectangular. For senior boys (above 19 years) the measurement of the ground is 13.00 mts × 10.00 mts. The space of 4.00 mts on all the sides of the playground should be levelled without any obstruction.

Kabaddi playground for junior boys and girls below 19 years :



Kabaddi playground for senior boys and girls above 19 years :



(1) Middle line :

Middle line divides the playground into two halves. For school boys and girls the middle line is of 8 mts length. This line also is named as attack line. The width of all the lines of the ground is 5 cm.

(2) Court :

The parts of the playground equally divided by the middle line are called courts.

(3) Baulk line (or cross line) :

The lines drawn parallel to the middle line in both the courts are called baulk lines. The distances from the middle line to the baulk lines are 3.00 mts and 3.75 mts respectively for junior and senior players.

(4) Bonus line :

The lines drawn parallel to the middle lines toward the end lines, at the distance of 1 mt are called bonus lines.

(5) Lobby :

The part, made by drawing the lines inside the side lines at the distances of 1 mt are called Lobbies. The measurement of the Lobby, thus becomes 11×1 mts and 13×1 mts respectively for junior and senior players.

(6) Waiting Block :

The blocks drawn parallel to the end lines at the distance of 2 mts, having the width of 1 mt are called waiting blocks. Their measurements are $6.00 \text{ mts} \times 1 \text{ mt}$ and $8 \text{ mts} \times 1 \text{ mt}$ respectively for junior and senior players.

Equipment :

For the game of Kabaddi there is no specific equipment, but the equipment required for marking of the playground are measure-tape, thread, nails, white lime powder, line drawing machine etc. For competition whistle, stop watch, score-sheets, weighing machine; green, yellow and red cards, running score board, first-aid box, tables, chairs etc. are required.

Skills of the game :

The skills are divided into two parts as follows :

(A) Skills for Raiders :

- (1) Crossing the baulk line
- (2) Touching with the foot
- (3) Kicking
- (4) To break the cover
- (5) To chase or attack behind the raider

(B) Skills for Anti-Raiders :

- (1) Catching the leg
- (2) Catching the hand
- (3) Individual cover
- (4) Chain cover
- (5) Half moon cover

1. Skills for Raiders :

(1) Crossing the baulk line :

When a raider raids and comes back in his court without making any of the anti-raiders out, it is compulsory for him to cross the baulk line. To cross the baulk line, a raider has to put his one of the legs inbetween the baulk line and the end line having no touch of any part of this body, with the ground in between the baulk line and the middle line, keeping the cant continuous.

(2) Touching with a foot :

During the raiding, when an anti-raider player happens to be nearer to the raider, he (raider) shall try to dodge to anti-raider and straighten his leg from the knee speedily and try to touch the foot of an anti-raider to make him out. While extending his leg, he shall bend his rear leg from the knee and keep the balance. This time his eye-right should be at the anti-raider. This action can be performed with the support of on leg and two hands.



Touching with a foot

(3) Kicking :

During the raiding, a raider shall bend his one leg from the knee and extend in the air and try to touch the anti-raider inbetween the portion of the anti-raider's body form above this knees. This action is called kicking. According to different positions of the body, a player can be made out by three types of kicks. (a) Front Kick (b) Back Kick (c) Side or Oblique Kick.

(a) Front Kick : In front kick, a raider shall bend his leg from the knee and speedily extend it in the front to make an anti-raider out, by the touch of the kick. While performing this kick, a raider shall raise his body a little from the palm of the other leg and shall lean a little on his back side to keep the balance. His both the hands shall remain extended toward the sides.

(b) Back Kick : A raider shall turn toward the side of the leg, with which he shall have to kick and shall turn his back toward the anti-raider and then with a speed he shall extend his leg toward the anti-raider and shall try to touch him. This time, a raider shall lean downward and shall extend his both the hands sideward, to keep the balance of the body. This whole action he shall do speedily and shall keep his eye-right toward the anti-raiders, so that he may not be caught.



Back Kick

(c) Side or Oblique Kick : To kick on the side or obliquely, a raider shall bend his leg a little from the knee, and shall raise it speedily on the side or obliquely and shall try to make the anti-raider out. To keep the balance, he shall lean in the opposite direction of the raised leg and shall keep the hands extended toward the sides.



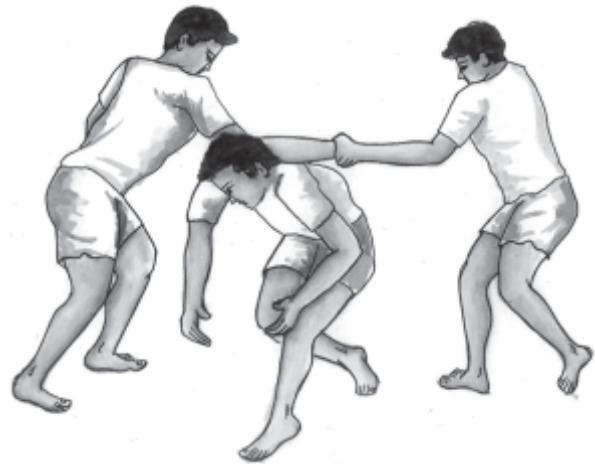
Side or Oblique Kick

(4) To Break the cover :

To make the raider out, the anti-raiders get together and form the cover joining their hands in different formations. A raider, according to the situations, shall speedily move one or two steps or shall run extending his hands or legs and shall make the anti-raiders helpless to go on back side. But the anti-raiders shall try to cover the raider to trap him. The raider shall try to escape from the trap of the anti-raiders either from the sides or slipping through the legs or from below or above the hands' chain or breaking the chain. Below the figures are given. One figure is of breaking the cover from above and the other one is slipping through the legs.



To break the cover from above the cover



To break the cover slipping through the legs

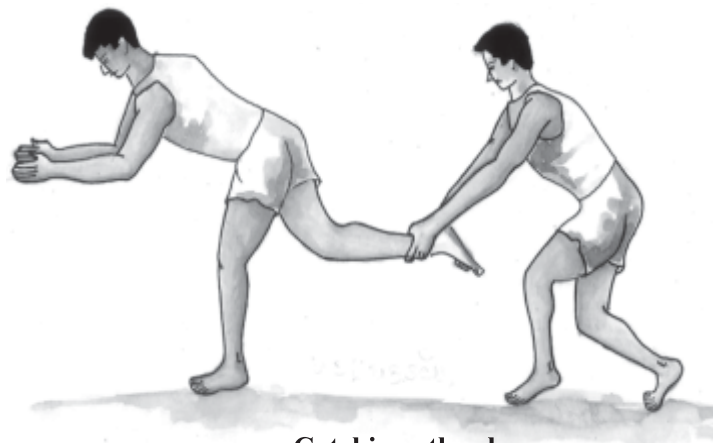
(5) To chaise or attack behind the Raider :

A raider, when returns back to his court carelessly without getting any point, an anti-raider speedily chaises him in his (raider's) court and extends his hand or leg to touch him and comes back to his court. This action is called chaising or attacking behind the raider. Here, the chaser requires speed, ability to stop the speed suddenly, tossing ability etc. which requires much importance.

2. Skills for Anti-Raiders :

(1) Catching the leg :

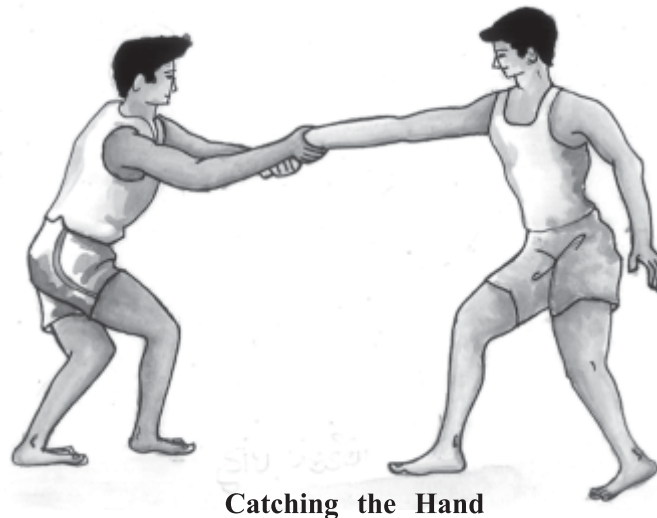
Generally, a raider tries to cross the baulk line first, and for that mostly he goes of the corner and



Catching the leg

does the action of crossing the baulk line. When he crosses the baulk line at the corner, the anti-raider at the corner shall try to catch the leg at his ankle with both his hands and shall lift it upwards and draw the leg toward himself. So that, the raider does not drag the anti-raider he (anti-raider) shall take his rear leg little more on the back side and shall try to move the weight of the body on the rear leg and keeping the front leg straight from the knee, shall take the support of the ground with the palm of that leg.

(2) Catching the Hand :



Generally a raider keeps his one hand in the front. In this position, when of a raider makes his movement less or if he becomes static or keeps his concentration on the other players; at the same time the anti-raider with both his hands, shall catch, the hand extended in the front from the wrist and shall pull it toward himself. If a raider has extended both his hands in the front, the anti-raider shall catch them with his hands at the wrists separately at the same time.

(3) Individual Cover :

To stop the raider from crossing the baulk line or when he (raider) rushes deep in the court of anti-raiders, one of the anti-raiders shall try to cover (catch) him from the front or going on the back side shall try to catch him. At this time, other anti-raiders shall help him to catch the raider.

(4) Chain Cover :

To catch a raider, two or more anti-raiders shall catch each others' hands and cover the raider. There are three types of covers.

(a) One Chain Cover : The anti-raiders standing at the third and fourth number position shall catch their hands and make the cover at the corner at which the raider raids. When an anti-raider at the corner catches the raider, the anti-raiders making the chain shall help him by means of using chain cover.

(b) Two Chains' Cover : In this cover, the anti-raiders shall make two chains of two-two plays in each chain and shall cover the raider. The players standing at third and fourth positions shall make one chain cover and the players at the fifth and sixth positions shall make the second chain cover. Both the chains' players shall help in catching the raider.

(c) Three Chains' Cover : In three Chains' Cover, the players standing at second and third positions shall make one chain cover, the fourth and fifth position players shall make second chain cover and the sixth and seventh position players shall make the third chain cover, at the corner at which the raider shall raid. All the three chains' players shall stand in the chain forms one behind the other, and shall cover the raider to catch him. When a raider comes to the other corner, the anti-raiders shall move toward the second cover with backward stepping and shall go on the back side of the baulk line leaving their hands. At this corner again they shall form three chain-covers in the method they had formed the chains at the first corner, in the reverse sequence positions, and shall cover the raider. In three chains' cover, a raider hardly escapes, either from over the covers or slipping from below the covers.

(5) Half Moon Cover :

When a raider tries to cross the baulk line from the middle side of it, instead of from any corner, the anti-raiders shall cover the raider from both the sides in half moon formation and when the player standing at the central position, tries to catch the raider's hand or a leg, both the cover side players shall help in catching the raider.

In the game of Kabaddi these officials as follows shall perform their duties :

- (1) One Referee
- (2) Two Assistant Umpires
- (3) One Scorer
- (4) Two Assistant Scorers
- (5) One Score Board Operator.

Rules of the game of Kabaddi and its competition :

(1) Number of Players, Weight and Uniform :

Number of Players : There shall be 12 players in each team, out of which 7 players shall enter the court to play the game. Rest of the players (five) shall sit out side the ground at a fixed place. To start the competition of the game there should be at least 7 players in every team.

Sr. No.	Age-Group	Maximum Weight	
		Boys	Girls
1.	Below 14 years	51 kg	48 kg
2.	Below 17 years	53 kg	53 kg
3.	Below 19 years	65 kg	59 kg

Uniform :

(1) Players shall have to put on banyan or T-shirt and shorts. On banyan or T-shirts clearly readable numbers of the competitor should be written. Soft shoes without heels can be put on. They should be non-injurious. The nails of the fingers should be properly cut. The ornaments which may be injurious, like buttons, wrist watch, a thick circular rod, ring etc. shall not have to be put on. No oily substance can be applied on the body. Girl-players should properly tie-up their hairs.

(2) **Duration of the game :** Duration of the games for boys and girls shall be $15+5+15=35$ minutes i.e. There shall be two halves of 15 minutes each having 5 minutes rest inbetween two halves.

(3) Game shall be started with the tossing of the coin. The Winner in tossing of the coin shall have the choice to choose either a court or the raiding.

(4) The teams shall change the courts after the completion of first half, during the rest period. The team which might not have raided first in the first half, shall raid first in the second half, i.e. the opposit team shall raid first in the second half.

(5) At the end of the first half, which of the players shall be in the play; the same players shall start the game in the second half.

(6) A player who has gone out side the limit of the ground, if helps in catching the raider, the raider shall not be declared out and he shall be allowed to go in his court safely, even though he might have been caught.

(7) During the game if any of the players goes outside the limits of the ground, shall be declared out. An umpire shall send such player immediately outside.

(8) The lobby can be made use of only after the raider touches the anti-raider player. Before the touch or the collision, if any of the player of both the teams, touches the lobby, he shall be made out.

(9) If any part of the body of the player touches the ground beyond the limit of the play-ground, shall be declared out.

(10) When there is a collision, the lobby is included in the play ground. After the collision, the players included in it, can make use of the lobby to go in their courts.

(11) During the collision, if the body of a player is on the outside but any part of his body is in touch with the play ground, the player shall be considered as if he is in the play ground, he shall not be considered out. Before the collision the limits of the play ground or the side lines can not be crossed. If he crosses, he is out. A player making the mistake of crossing, helps in catching the raider, he and other players helping in catching the raider, shall be considered out and the raider shall be not out.

(12) A raider has to start uttering Kabaddi....Kabaddi from his court and has to continue it in one breathe only till he comes in his own court. If he makes mistake in doing this action, the shall be considered out.

(13) The players of both the teams shall raid one by one. When a raider returns in his own court or is made out in the anti-raiders' court, the anti-raiders shall have to send their raider to raid within five seconds. If their raider takes more than five seconds time their turn to raid shall be considered being completed.

(14) In the turn of raiding the raider side shall send only one raider. If more than one raider raid at a time, an umpire shall call them back and shall tell the other side team to raid. The called back raiders, when entering in their court, the opposite team can not chase. When a player touches the opposite side player and returns back, he can not be chased. But when a raider is caught by the anti-raiders and if the raider releases himself from the catch, he can be chased.

(15) When more than one players raid at a time and touch the anti-raiders, they (anti-raiders) shall not be considered out. In this case the turn of raider shall be over.

(16) If a referee or an umpire feels that a team deliberately sends more than one raiders, he shall give a warning to the team. Even after the warning if the same team continues committing such mistake, the umpire shall declare other than the first raider out.

(17) If a player raides out of turn, an assistant umpire or a referee shall call him back and shall give a warning to the team. Even after the warning a team commits again the mistake, the assistant umpire or a referee shall award one technical point to an opponent team.

(18) Till the raider is in the opposite court, no player of the anti-raider team can cross the middle line and enter the court of the raider. If only part of such a raider's body touches the ground of the opposite court, he shall be considered out.

(19) While a raider is in the opposite court and his cant discontinues, he (raider) shall be considered out.

(20) If any player of the anti-raiders tries to stop the cant of a raider or tries to push him out the play ground; umpire shall consider this act out of rule and declare an opponent player out who might have tried to stop the cant or pushed the raider. In such circumstances if a referee considers this act a serious one, he (referee) can dismiss such player from the competition and shall give warning to his team.

(21) During the game, when a player of one team is made out, the player of opposite team, who might have been made out before, shall be revived and join the play. The made out players shall revive in the order of being out, and join the play. The made out players shall sit in the waiting block drawn on the back side of their court, while reviving, they shall enter the play-ground in the order of their turns.

(22) When one team makes all the players of the opposite team out, that team gets a loan. For the loan they get two additional points.

(23) After getting the loan, the game shall continue. The players of both the teams shall enter their courts. A team having the turn of raiding shall send their player for the raid. Till the decided time the game shall continue.

(24) A captain of a team can declare one or more players being made out, or can declare all the players out. Thus, the opposite team shall get the points for the declared out players and two more points for a loan.

(25) If the players of the opposite team make some dangerous gestures or obstructions against the raider, they shall be considered malpractices and for that an umpire shall give one technical point to the team of the raider.

(26) During the game if any instruction or coaching is given to a raider by his team, the opposite team shall be given one technical point, by an umpire.

(27) When one player of a team is made out, the opposite team gets one point; at the same time the made out player of the opposite team shall revive in the turn of being out.

(28) Even after being given the warning by an umpire, if any team deliberately commits the mistake, the opposite team shall be given one technical point.

(29) Against a technical point, no player shall get revived.

(30) When a raider, completely comes in contact with the ground between the baulk line and the end line, uttering Kabaddi.....Kabaddi in one breathe only, then it is called "Crossing the baulk line". but it shall be a successful raid when a raider comes in his court without breaking the cant.

(31) When a raider completely comes in contact with the ground between the bonus line and the end line, it is called "Crossing the bonus line". While crossing the bonus line, if minimum six players are in the play, a raider shall get one bonus point; the sign of which shall be shown by an umpire, showing the thumb of his hand raising his hand upward, after the successful raid.

(32) When any player is dismissed from the play or considered unfit, no other player can be substituted against him. In this situation the team shall continue playing without the dismissed player i.e. with less number of players. For such dismissed or unfit player one bonus point or one loan point shall be given to the opposite team.

(33) All the teams can avail two time outs of the duration 30 seconds each.. A captain on a coach can demand for such time outs.

(34) During the time out, the players can not leave the play ground. In the case of the disobey of any rule, when is noted against the opposite team as a technical point, the time out taken in such a case shall be over and above the time of the play.

(35) In the case of an injury to any player during the game, an umpire shall give the time out, which shall be the official time out. It should not be more than two minutes.

(36) The players can drink the water during the time out or during the rest period after the first half.

(37) The substitution can be done, from out of the five substitutes, during the time out period with the permission of an umpire, Maximum two players can be substituted in one half. No substitution can be done again for a substituted player.

(38) The noting of the time outs given to both the teams shall be done in the score-sheet by a scorer. Accordingly, the noting of the time of the play and the times of the time outs also shall be done in the score sheet.

(39) A referee or an assistant umpire can show different colours' cards to indicate the warning, temperory dismissal, for half time dismissal, for the whole competition etc as follows :

(a) Green card : for warning, (b) Yellow card : for temporary dismissal (2 minutes), (c) Red card : for the game period or for the whole competition dismissal.

(40) At the end of the game's period, which ever team scores more points, shall be considered the winner.

(41) At the end of the decided time, if both the teams score equal points, the winner shall be decided according to the rule for a tie.

EXERCISE**1. Explain in detail :**

- (1) Draw the play ground for the girls and show the measurements.
- (2) Give an understanding of "Catching the leg" skill.
- (3) Explain "Half-moon Cover" skill.
- (4) Explain, when and how the substitution is done in Kabaddi competition ?
- (5) Give the list of the officials alongwith the names and numbers.

2. Reply in one or two sentences :

- (1) Who can talk or present with the officialy, during the game or competition ?
- (2) In the turn of the raid, two players of a team raid at a time, what will be your decision ?
- (3) The leg of a player of anti-raider team touches the ground outside the end line. What will be your decision ?
- (4) To take part in the competition, what should be maximum weights of the boys and girls of below 17 years' age-group ?
- (5) When a lobby can be used in the game of Kabaddi ?

3. Fill in the blanks :

- (1) For junior girls the length of Kabaddi ground is _____ mts and the width is _____ mts.
- (2) In the Kabaddi ground for junior boys, the baulk line is drawn at a distance of _____ mts from the middle line and the witing block is drawn at a distance of _____ mts from the end line.
- (3) For the age-group below 17 years the length of the lobby of the ground is _____ mts and the width is _____ mts.
- (4) In a team of Kabaddi the number of players are _____ and the number of substitutes are _____.

4. Write the serial letter of the option selected as an answer, in the box against the question :

- (1) What is the total number of players in a team ?
(a) 5 (b) 7 (c) 10 (d) 12
- (2) What should be the maximum weight of the players of the boys' team in the age-group below 17 years ?
(a) 57 kg. (b) 53 kg. (c) 51 kg. (d) 48 kg.
- (3) How many points are given for a loan in Kabaddi game ?
(a) 1 (b) 2 (c) 3 (d) 0 (zero)
- (4) How many time outs can be taken in one half time in Kabaddi game ?
(a) 4 (b) 3 (c) 2 (d) 1

Activity

- A teacher should make the students to do the following activities :
- Breathing run relay, Cord Kabaddi, Ram-Ravan, Rope pulling activilves etc.

13

KHO-KHO

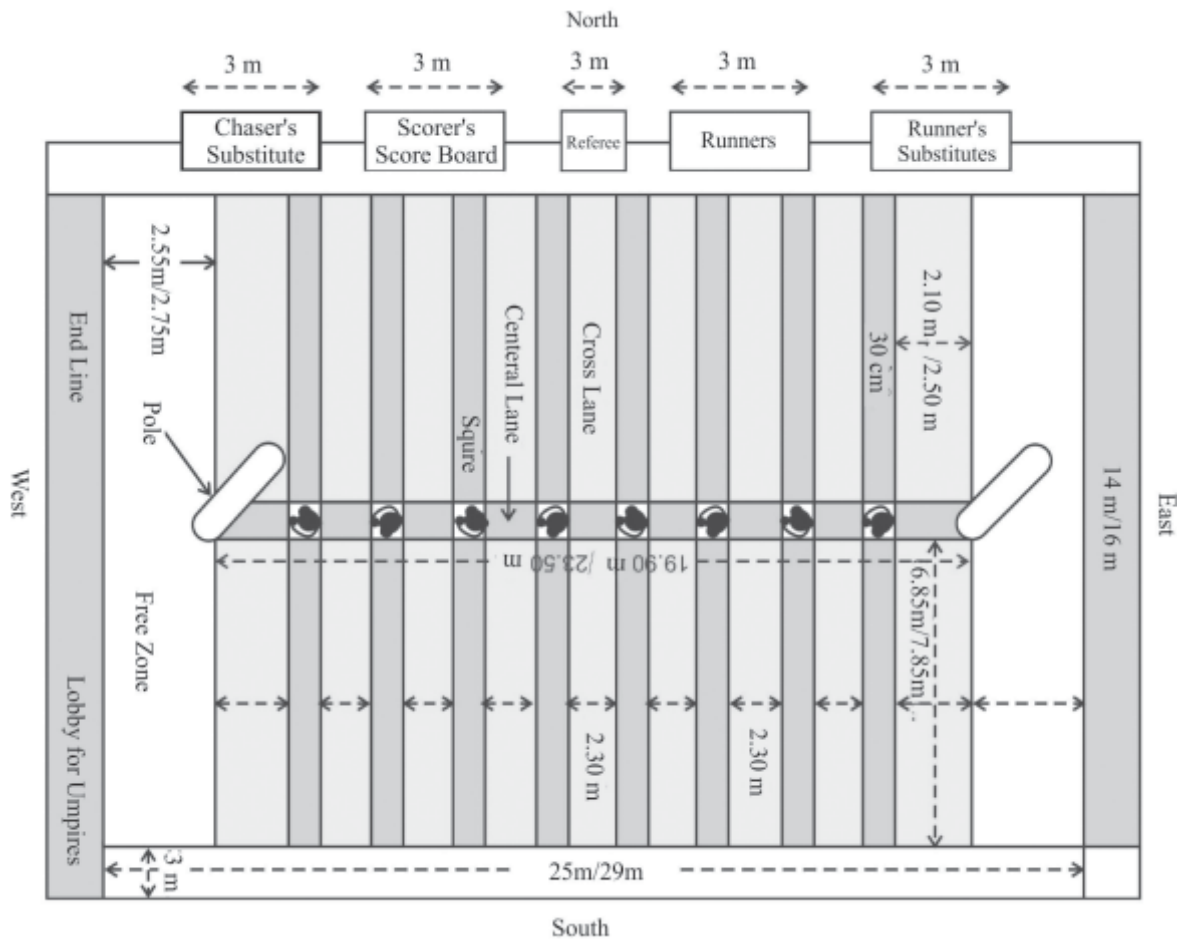
Kho-Kho is an Indian popular game. It is played in major part of India and especially in rural area. In this game, two teams, try to out the other team with touching. In this, a player of one team tries to touch a player of another team, both the teams do such action alternatively.

It is economically affordable, it is played with less expense and less equipments. It is played with the help of two wooden posts. It is easy, for players and organisers. As we see in past, we did not find any investor of this game, It is presumed that it is originated from running and holding activities. There is no any historic evidence of this game. In past, this game was popular in Maharashtra area. It was known as "RATHA' or 'CHIROID'.

It is popular in Maharashtra and Gujarat, Madhyapradesh. South Gymnasium, Pune had organised the competition and framed rules of games in 1914. There were further changes in the rules and published in 1919 and 1928. In Gujarat, Kheda, Punchmahal and Kuchchha districts have supremacy on this game.

SAF had organised the game for the first time at Kolkata in 1987. Now All India Kho-Kho Federation Controls the game.

The Play Ground for Seniors :



The measurements of Kho-Kho ground :

	Boys-Girls	Sub-junior Boys-Girls
End-line	16 metres	14 metres
Side-line	27 metres	23 metres
Free-Zone	1.50 metres	1.50 metres
Distance from the post line to first lane	2.55 metres	2.15 metres
Distance between two posts	24 metres	20.00 metres
Distance between two squares	2.30 metres	1.90 metres
Diameter of the post	9 to 10 cm	9 to 10 cm
The height of the post from the ground	1.20 to 1.25 metres	1.20 to 1.25 metres
Time for both the teams	TWO Innings 9+3+9+5+9+3+9 minutes	TWO innings 7+3+7+5+7+3+7 minutes
Rest period	5 minutes	3 minutes

Skills of Kho-Kho :

There are two sets of skills : Those are

(1) The skills for the chasers and (2) The skills for the runners.

(1) The skills for the chasers :

To give a Kho, Judgement Kho, Tap at an Angle of 45°, Dook Marvi, The Dive.

(2) The skills for the Runners :

Single chain, Double chain, Round play, The turn (i) Front Face Turn (ii) Back Turn.

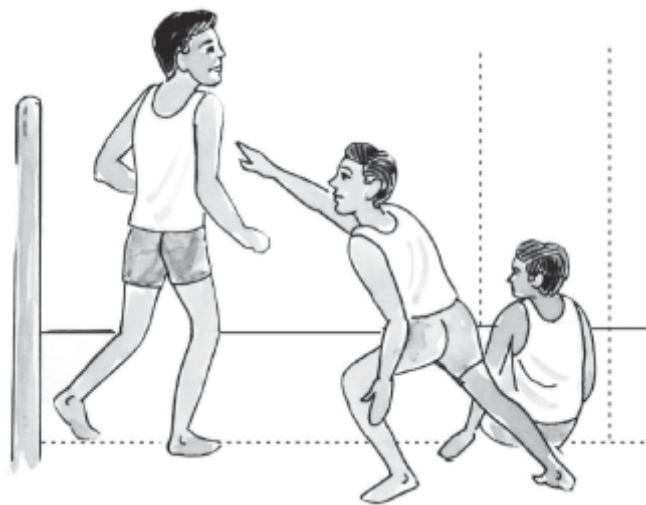
(1) The skills for the chasers :

(i) To give a Kho :

A chaser while running after a runner touches the back of the sitting chaser and simultaneously uttering the word 'Kho'. This Kho is known as **True Kho**.

(ii) Judgement Kho :

The Kho given to the chaser sitting in the square near the post, with a view to forcing the runner to leave the post is called a Judgement Kho. In this method, the active chaser's body-posture and movement are such that when he gives the 'Kho' the runner has to leave the post to save himself from being 'out'.



Judgement Kho

(iii) Tap at an angle of 45° :

The fruitfulness of this skill is depending upon the Judgement Kho. The chaser, instead of going toward the post, shall give the Kho to the player sitting in the square near the post. The Kho taking chaser in turn shall run almost at an angle of 45°, where he shall meet and touch the runner. Thus a runner shall be made out.

(iv) Dook Marvi :

To Try one's Hand at the Post : This skill is very important in Kho-Kho game. It is frequently used in this game. The chaser, to perform this skill, comes fast towards the post. Places his leg near the post and holds the post with the arm on the opposite side. The upper part of his body crosses over the central lane and extends it in that direction. He extends his free arm as far as he can and tries to tap / touch the runner. During this action, he presses his thigh, which is near the post, one the post.

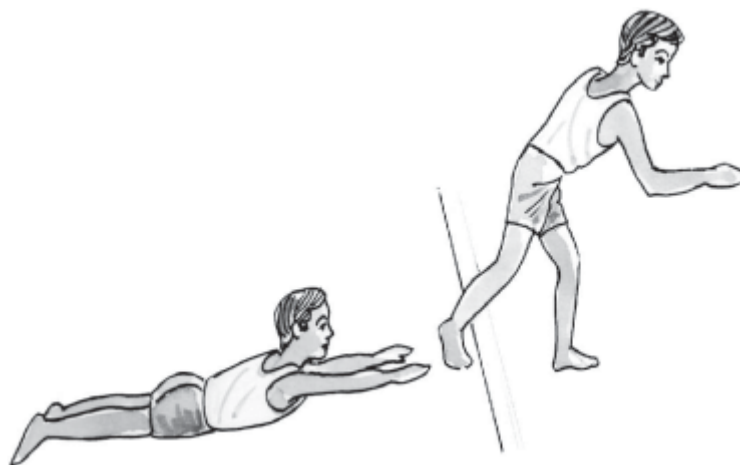


Dook Marvi

After completing the 'Dook' or the tapping action, while returning to the ground, he has to cross the post-line.

(v) Diving :

This skill demands the power of making quick decisions, fearlessness and ability on the part of the chaser.



The Dive

Diving is of two types :

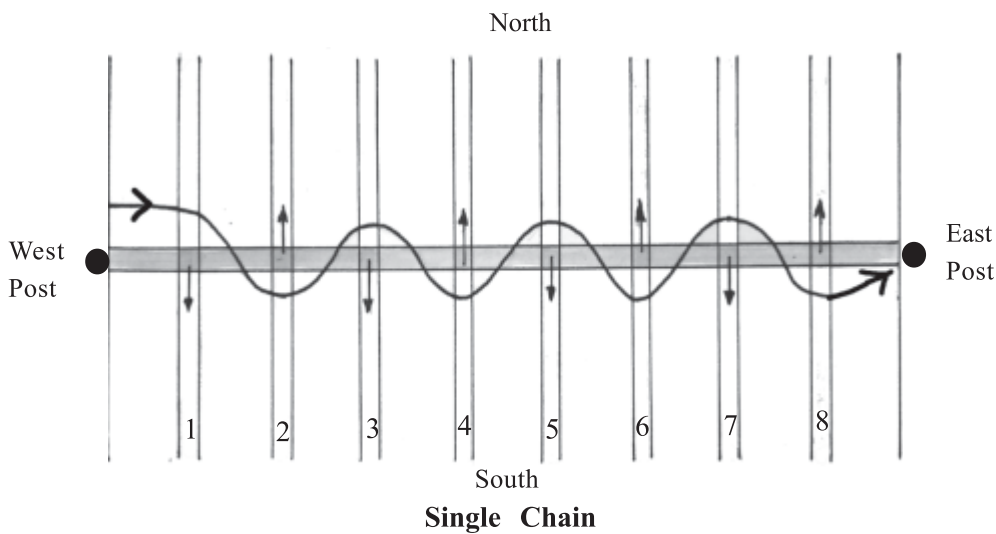
(A) Ground diving (B) Diving from the square.

(A) **Ground Diving :** During the play, when the distance between the runner and the active chaser is very short, the chaser extends both his arms and dives in the direction of the runner and tries to touch his foot.

(B) **Diving from the square :** Some times if a sitting chaser receives a Kho while the runner is passing by him, the chaser quickly takes a dive from his sitting position and tries to touch the runner to get him 'out'.

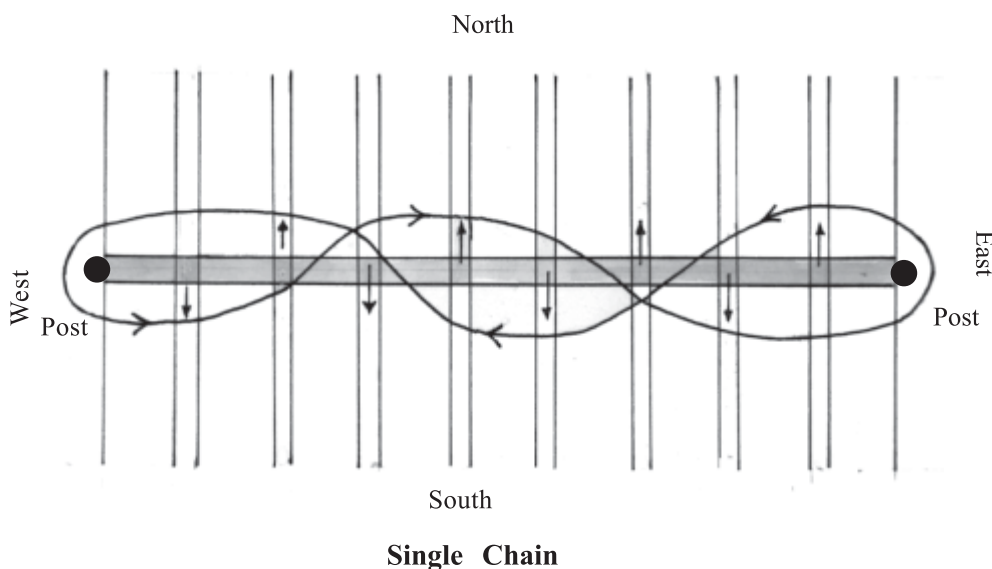
(2) Skills for the 'Runners' :

(i) **Single Chain**



When the runner runs from one post to the other while watching the back of the sitting chasers and moves in a zig-zag movement, this skill is known as the 'Single chain skill'. In this type of play the runner keeps himself one square ahead of the chaser. He stays a little away from the central lane, so that a chaser cannot get him out by extending his arm from the opposite side.

(ii) **Double Chain :**



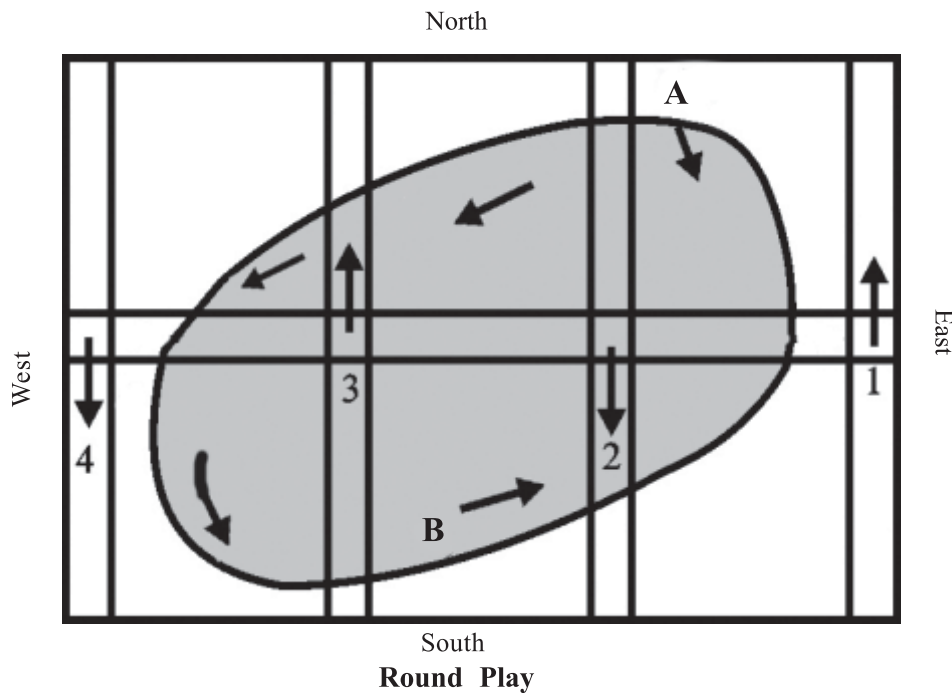
In this skill the runner goes towards the post halting at the back of every third sitting chaser, leaving two of them. In this skill also he has to pass from behind the back of the sitting player and he can cross the central lane only after a Kho has been given at the previous cross-lane.

This is a good and useful and safer skill for runner. Good players of the team use this skill maximum.

(iii) Round Play :

There are three types of round play : (i) Small round play (ii) Medium round play and (iii) Wider round play.

In all the three types, the actions are the same. The only difference to the size of the round.



In the round play, the runner shall stand at point A as shown in the figure, facing No. 1 cross lane. When a player sitting at point No. 1 cross lane gets a Kho, he (chaser) shall run toward the runner, standing at Point A. At this moment, the runner shall run with backward footing, dodging an active chaser, upto the cross have No. 4 in the round formation. While reaching upto cross lane No. 4, the direction of his (runner) face shall go on changing. While crossing the cross No. 3, he shall keep looking toward lane No. 4. When an active chaser gives Kho to the player sitting at cross lane No. 4, the runner shall reach at Point B. After that the runner shall reach at Point A, with backward footing, crossing the lane No. 3 and No. 2 he shall slowly change the direction of his face, toward cross lane No. 1. Thus one round shall be completed at Point A, where from he had started playing the round play.

(iv) The Turn :

When an active chaser is just close to the runner, he (runner) abruptly and actively turns in an opposite direction and escapes from being touched by an active chaser. There are two types of turns.

(A) Front Face Turn and (B) Back Turn.

(A) Front Face Turn :

In this skill, the runner is always facing an active chaser, when an active chaser is changing in the right direction, the runner abruptly gives pressure on his foot and escapes in an opposite direction. In this skill, vigour and alertness of the player are required.

(B) Back Turn :

When the back of a runner is on the side of an active chaser, the runner gives pressure on the foot, opposite to the direction in which he wants to turn and escapes from an active chaser. This action is called 'Back Turn'. This skill is mostly used, while playing the double chain skill.

Rules of the Game :

(1) Whether a team will 'run' or 'chase' is decided by tossing a coin. Eight players of the chasers, team will sit in the squares on the central lane with their faces in alternate directions. The ninth player will stand near one of the posts waiting for the game to begin. Nine players of runner's team will sit outside the ground in lots of three players.

(2) The active chaser can give a 'Kho' to the sitting chaser only from the latter's back side. For a kho he touches the back of the sitting chaser with his hand, he must utter the word 'Kho' loudly. He does not give 'Kho' from a distance. A sitting player, sitting in the square does not ask 'Kho' with extending his hand or foot and a chaser cannot give 'Kho' in such away. A sitting player will not stand before receiving Kho.

(3) After crossing the square, where his team player is sitting, a chaser cannot give Kho. The action of speaking Kho and touching the player be done simultaneously.

(4) An active chaser shall neither touch the antral line nor he shall touch the ground beyond the central lane with any part of his body.

(5) When an active chaser commits a foul, an umpire blows a short noise whistle, which declares the foul and shall indicate him to go in opposite direction.

(6) A chaser should sit immediately on the place of Kho receiving player after giving a 'Kho'.

(7) The chaser receiving the Kho while going from his sitting square in the direction of one of the posts, must go in the same direction as he has turn to go.

(8) The chasers have to sit in the squares in such a way that they do not create difficulties to the runner.

(9) A runner cannot intentionally touch a chaser. If he does so, an umpire gives him warning, if he continues to do so, he will be given out.

(10) Any part of chaser's player touches the square, it will not consider as leaving the square.

(11) The rule about not changing direction will not be applicable to the chaser in the 'Rectangle' or the free zone.

(12) If runner goes outside of the ground, he will be declared out. But if a chaser goes out, the rules of taking direction will be applicable.

(13) A chaser will make out the runner only by touching him.

(14) An active chaser shall have to run on one side of the central lane. He will not change the direction. He can change the direction of the face i.e. the shoulder line, till it remains parallel to the central lane. Turning beyond the central lane shall be a foul.

(15) If a runner's feet are out side the ground, he shall be declared out, even though his body is in the ground.

(16) Every Kho-Kho team shall comprise of 15 players. Out of 15 players, 12 players shall be noted for competition, out of which 9 players shall enter the ground for the play.

(17) A runner team will play two innings of 9 minutes. A runner team will send its players in a group of threes : The time duration for both the teams will be shown as 9-3-9-5-9-3-9.

First team will play for 9 minutes, then there will be rest period for 3 minutes. Then Second team will play for 9 minutes and there will be rest period of 5 minutes. Again First team will come for play of 9 minutes and there will be rest period for 3 minutes. Second team will come for play for 9 minutes.

(18) At the end of the competition the team which scores more points during that time period will be declared the 'winner'.

The game of volley ball was invented in America in 1895 A.D. by the lecturer of Y.M.C.A. college William. A Morgan by name 'Mintonet'. After the advice from his colleague A.D. Helstard the name was kept volley ball. This game is played keeping ball in air all the time. In English, playing ball in air is called 'Volley' so that volley ball is a suitable name for the game. This is an international game. This game can be played in open air and gymnasium both.

The volley ball game was started in India by Y.M.C.A. Madras. Due to less space, equipment and less expenditure this game became very popular in India.

The volley ball federation of India was formed in 1951 to coordinate the game at national level. First women National Championship was held in 1953. Today different competitions of this game are held at Taluka, District, National & International levels. In 1939 volley ball game was included in world university sports festival. International volley ball federation was established in 1947 and prepared the rules of the game.

The first volley ball championship at world level for men was held at Czecho-slovakia in 1949, where as for women it was held at Moscow in 1952. In which Russia became champion. Asian volley ball federation was established in 1954. First Asian volley ball championship was held in Tokyo (Japan) in 1955 and India won this championship. Presently Brazil, U.S.A., Russia, Bulgaria, Cuba, Japan and China are very famous in men section, where as in women section U.S.A., Brazil, Bulgaria, Poland, China, Japan and Russia are very famous in this game.

Volley ball is also very much popular among Boys and Girls in Gujarat state. Various competitions are organised in cities and villages. Many teams of women in Gujarat have continuously won many medals.

Ground Measurement & Equipment :

The surface of the ground must be flat horizontal, uniform and without any hurdle. Court should be 18 mts in length and 9 mts in breadth.

Net :

Net should be 9.50 mts long and 1 mt wide made of 10 cm squares black mesh.

Side-Bands :

Two white bands are fastened vertically to the net and placed directly above each sideline. They are 5 cm wide and 1 mt long, and are considered as part of the net.

Antenna :

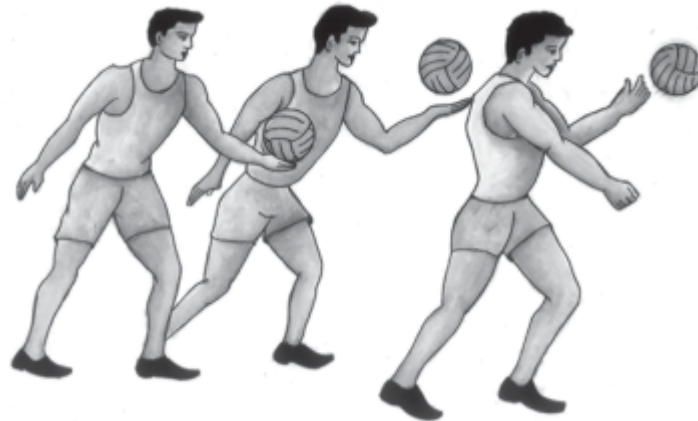
An antenna is a flexible rod, 1.80 mts long and 10 mm in a diameter, made of fibreglass or similar material. The top 80 cm of each antenna extends above the net.

Skills :

(1) Service :

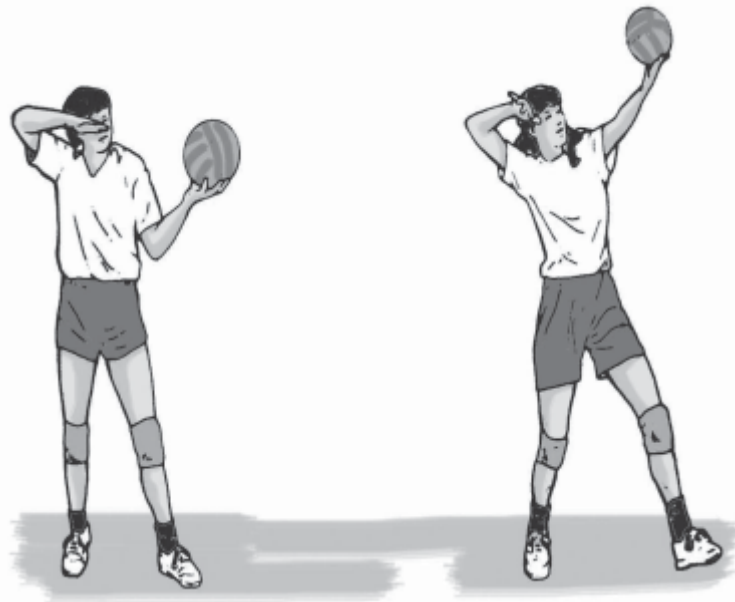
From the end line of one's own court a player tosses the ball up with one hand & sends it over the net to the opposite court by hitting the ball with fist or any part of hand. There are four types of services which are as follows :

(i) Simple Service : In this service the player stands facing the net and putting one foot forward tosses the ball up and with the swing of the other hand hits the ball with the base of the palm of that hand & sends it over the net to the opposite side. This service is also called 'under hand service'.



Simple Service

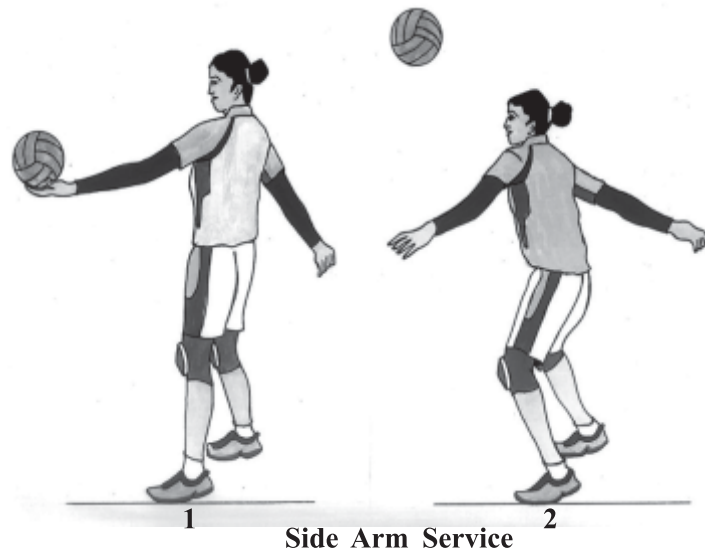
(ii) Tennis Service : In Tennis service, the player tosses the ball up, higher than the level of his head. Then he extends his hand up ward and behind his head and as the ball comes down to his head level, he quickly smashes with the right hand forward with the palm to send it over the net to the opposite side.



Tennis Service

(iii) Side Arm Service : In this service, the player keeps his body sideward, which means while serving the ball, his left foot and left shoulder should be in the direction of the net & in this position he tosses the ball up to his head level and as the ball comes down he abducts right hand sideward &

hits the ball to send it over the net to the other side.



Side Arm Service

(iv) Round Arm Service : In this service player stands in service area with opposite shoulder towards the net, then player tosses the ball up higher than the head. Other hand is rotated from the back with full swing to hit the ball forcefully with open palm to send it over the net to the opposite court. To make action effectively players can take little jump with forward leg & complete the action.

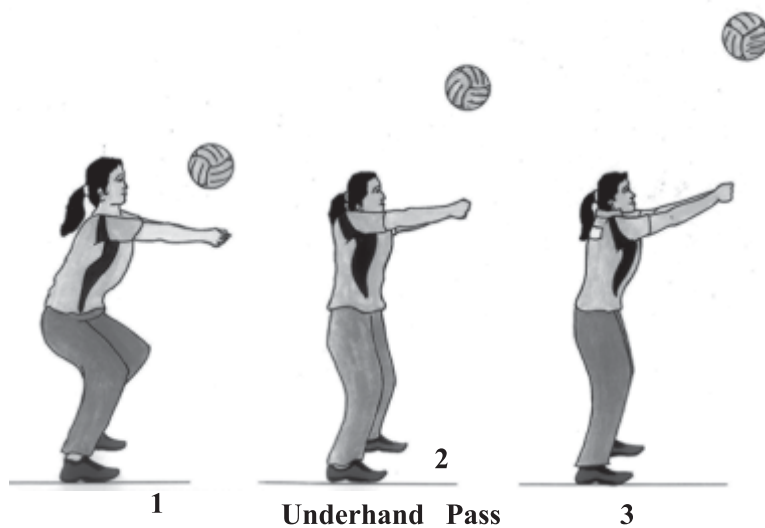
Note : Players also perform jump & service & floating service at National & Internationa level.

(2) Passing :

Normally, after receiving the ball from the opposite side a player passes it to other player of his own team. This is called passing. A ball can be passed in two different ways -

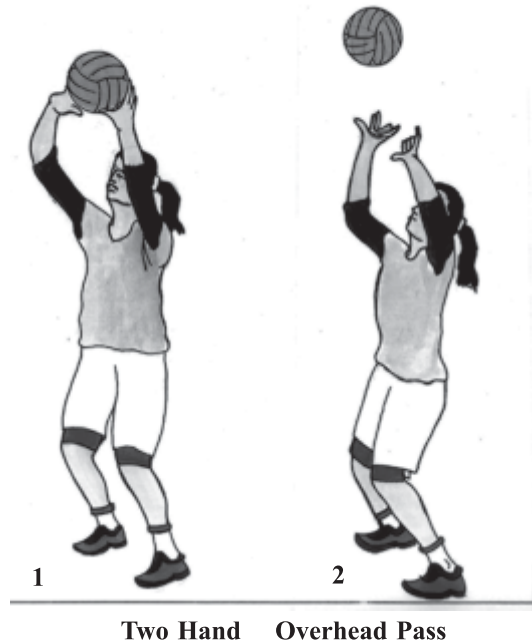
- (i) Two Hand Underhand Pass
- (ii) Two Hand Overhead Pass.

(i) Two Hand Underhand Pass : During the play, if the volley ball is received from the opposite side below the waist level it is passed using this skill. In this pass the player keeps his legs slightly open and bent from the knees & covers the fist of one hand with the palm of the other hand. Keeping both the hands together and straight, he/she passes the ball by taking it on his/her forearms.



Underhand Pass

(ii) **Two Hand Overhead Pass** : During the play, when the ball comes from the opposite side at the level of head, the skill to play it near the forehead with the fingers of both the hands is called 'Two Hand Overhead Pass'.



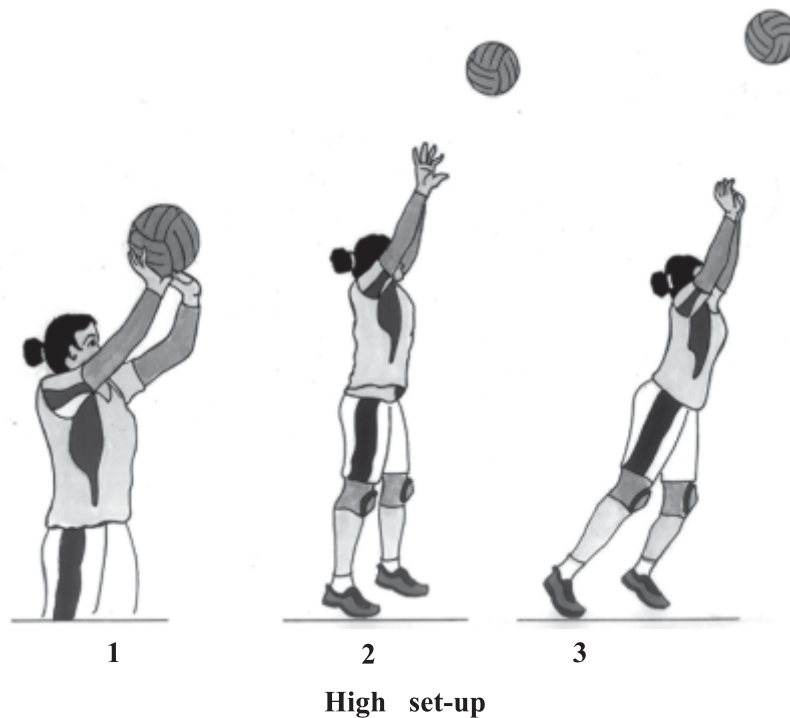
(3) Setting :

In volley ball game ball is passed fairly high and close to the net for the attacker to smash downwards in the opponents court is called setting.

There are two types of settings :

(i) High set-up (ii) Low set-up.

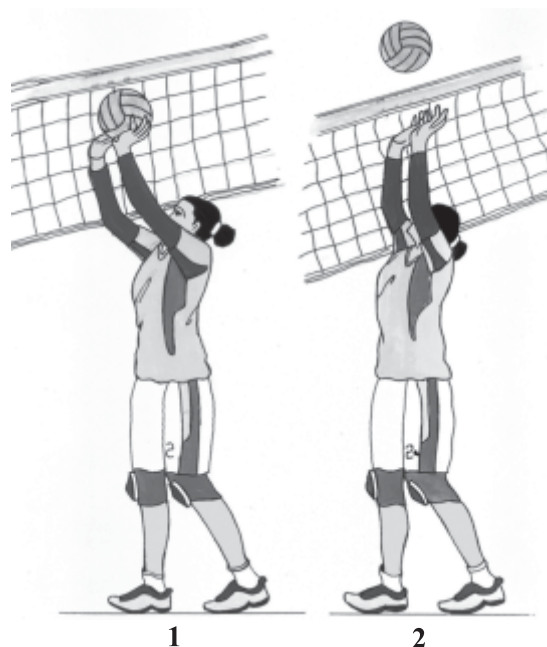
(i) **High set-up :**



The setter lifts the ball high over his own head near the net it is called high set-up. In this set-up the player lifts the ball above his head over the net approximately 1.25 to 1.50 mts high.

(ii) Low set-up :

The setter lifts the ball about 15 to 30 cm over the net.

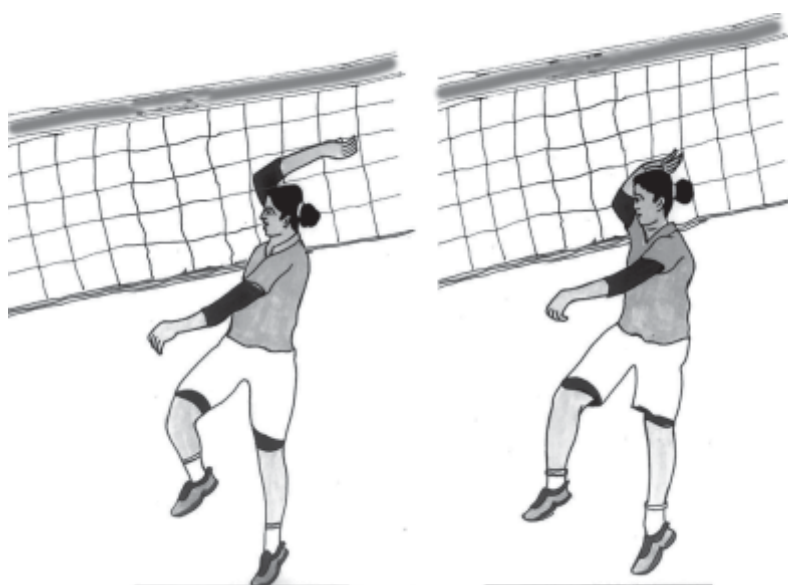


Low set-up

(4) Smashing or Spiking :

Spiking means playing (hitting) the ball over the net in the opponents' court forcefully by the smasher is called smashing. There are two types of spiking -

- (i) One Leg Take-off
- (ii) Two Leg Take-off.



One Leg Take-off

(i) **One Leg Take-off** : Player takes two or three steps and takes jump with one leg to hit the ball which is set over the net, ball should be hit with open palm by the strong hand. While performing this skill player should not violate any centre line or Net foul. This skill is mostly used in zone 2 or 3.



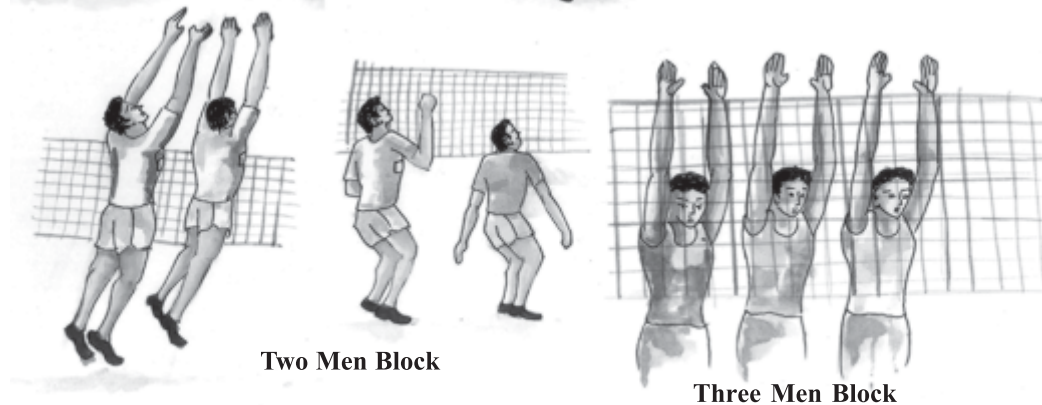
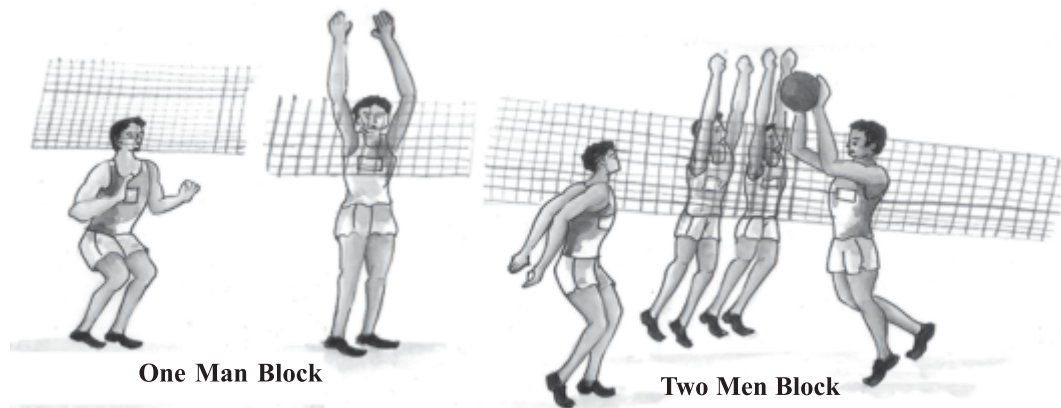
One Leg Take-off

(ii) **Two Leg Take-off** : In this skill the spiker comes running and spikes the ball over the net by taking two leg Take-off. To score more points this skill is important.

(5) Blocking :

Blocking is an action of players close to the net to intercept the spiked ball coming from the opponents by reaching higher than the top of the net. Only front new players are permitted to complete a block. This technique can be performed by three types :

- (i) One man block
- (ii) Two men block
- (iii) Three men block.



To stop the ball over the net by one man block, two men block and three men block skills are in use. Players who have quick reaction time, proper time and jumping ability are able to maintain balance in the air can do very well in blocking. In blocking players try to stop the spiked ball by open palms of both the hands. This is the best defensive skill of volley ball.

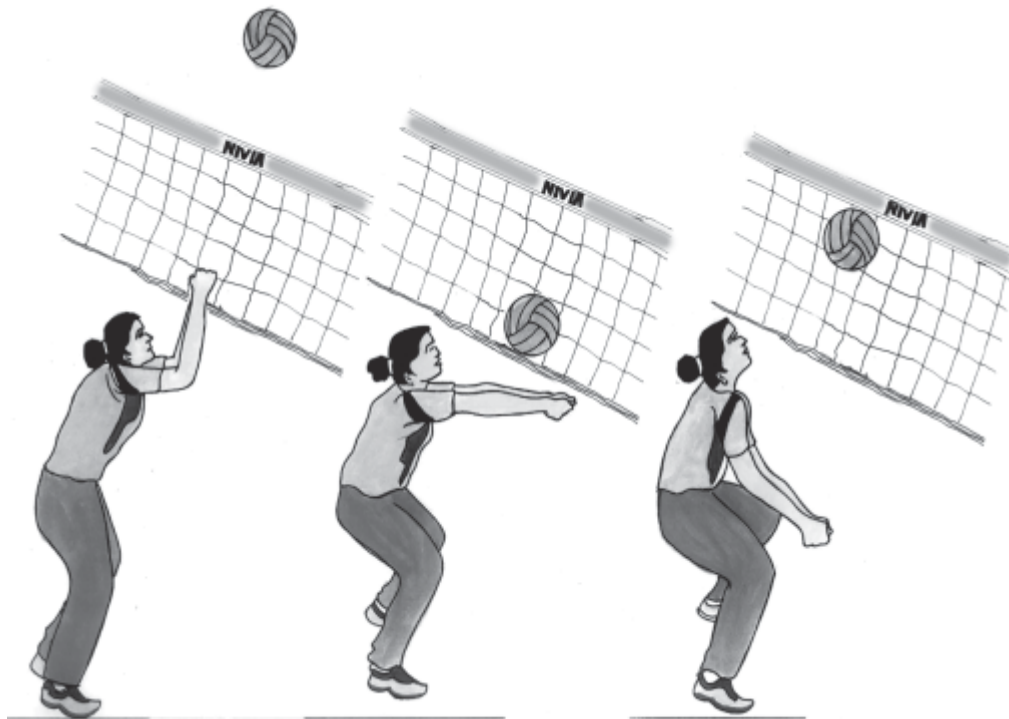
(i) One Men Block : One player from the front line blocks the ball which is spiked by the opposite team.

(ii) Two Men Block : Two front line players block the ball which is smashed by the opposite team. In this block there are more chances to block the ball.

(iii) Three Men Block : All the three front line players block the ball simultaneously which is smashed by the opposite team. In this technique chances to block are more.

(6) Net Recovery :

During game, recovering the ball after it rebounds off the net and successfully made ball in play is called recovery. Front line players should be ready to play the rebounded ball off the net. As soon the ball rebounds off the net and it falls down it should be lifted high or should be passed to the opponent court.



Net Recovery

Rules of Volley Ball Game :

- (1) Measurement of Volley ball court : The length is 18 mts and width is 9 mts. Attack line is 3 mts away from the centre line.
- (2) Height of net for men is 2.43 mts and for women it is 2.24 mts.
- (3) Each team consists of maximum 12 players in which 6 are substitutes.
- (4) The game starts with toss of coin.

(5) At the National & International levels a five sets match is played and the team that wins three sets is declared as the winner. Normally people play a three-set match in which the team winning two sets is declared as the winner.

(6) At the end of each set, the players change the side of ground. In the deciding set side of ground is changed at 8 points.

(7) Each set consists of 25 points. The team that scores 25 points first will be declared winner. If the scores are equal at 24-24 points, the game continues till the lead of 2 points is achieved by any one team.

(8) If both teams win 2-2 sets then 5th set will be deciding set. Which will be of 15 points.

(9) Each team is allowed maximum 6 substitutes. One or more players may be substituted at the same time.

(10) During the play a team is allowed to play the ball maximum three times to send it over the net to the opposite side.

(11) A player may not hit the ball two times consecutively. But blocker can play the ball immediately after the block.

(12) Each team is entitled to a maximum of two time-outs. All time outs are of 30 seconds. Interval between two sets is of 7 minutes. During deciding set interval is of 10 minutes.

(13) The server must hit the ball within 7 seconds after the first referee whistles for service.

Libero :

Libero is a special defensive player in the team. He can not do service, smashing or blocking. He wears coloured T-shirt different from other players. He can not act as a captain.

- When ball is dead he can replace any one of the back line players.
- A libero can be changed any number of times.
- The libero must be recorded on the scoresheet before the match in the special line reserved for it.

EXERCISE

1. Answer the following questions in details :

- (1) Write the types of services and explain simple service in detail.
- (2) List the different types of set-ups and explain any one type in detail.
- (3) Write the type of blockings and explain any one type in detail.

2. Answer the following questions in one-two sentences :

- (1) How volley ball game is started ?
- (2) Write any two types of services.
- (3) What are the lengths and widths of the volley ball ground ?
- (4) Mention different types of blocking.
- (5) What is the weight of ball in volley ball game ?

3. Fill in the Blanks :

- (1) The length of net is _____ mts.
- (2) The volley ball team consists of _____ playing players.
- (3) Ball in volley ball is _____ number.
- (4) Width of Net is _____ mts.
- (5) The height of the net for men is _____ mts.

4. Answer the following questions by selecting correct choice from the options given below :

- (1) What is the name of special defensive player in volley ball ?
(a) Smasher (b) Blocker (c) Libero (d) Captain
- (2) What is the distance of attack line from the centre line in volley ball ?
(a) 5 mts (b) 6 mts (c) 3 mts (d) 8 mts
- (3) How many substitute players are there in volley ball ?
(a) 5 (b) 6 (c) 3 (d) 4
- (4) How many times any team can play the ball to send to the opposite side ?
(a) 5 (b) 2 (c) 3 (d) 1
- (5) What is the height of net for women in volley ball ?
(a) 2.42 mts (b) 1.24 mts (c) 2.24 mts (d) 2.30 mts



Origin of the Game :

England's sport loving people have given many sports to the world like Foot ball, Hockey, Tennis, Water Polo etc. Similarly the game of Cricket has also been gifted to the world by England. The British not only started but also made this game popular in whole world.

The exact year when the game of cricket started is not available, but according to a hand written article obtained from Bodleian Library in Oxford, the priests used to play the game named cricket. More over in 16th Century the information got from other places indicate that the students of Guilder grammar school also used to play this game. The school has specific arrangements and separate ground for the game. But the technical game begin in an around approximately 1700 AD.

The rules and laws of cricket were drawn in 1744 AD and were accepted by all the cricket playing institutions. After 1787 AD the popularity of this game increased immensely. And "Marylebone Cricket Club (MCC)" and Lord's Ground was established in England.

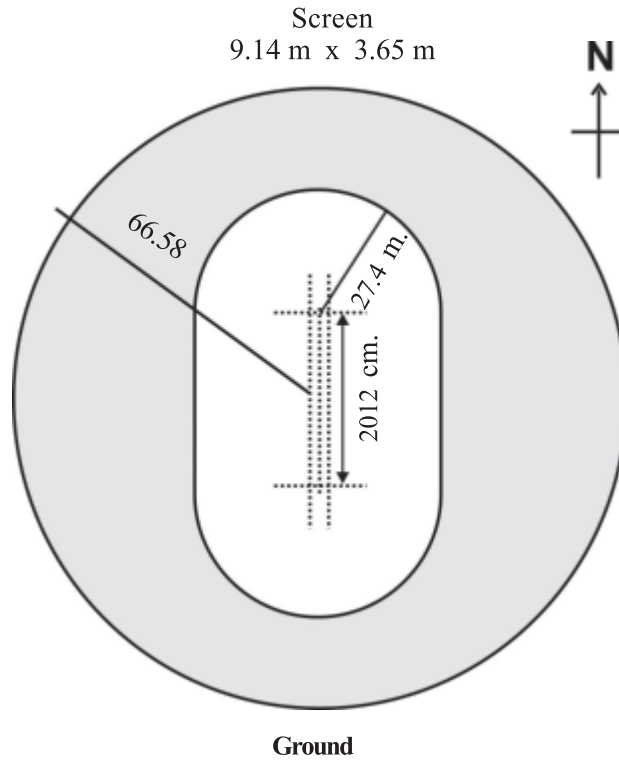
Seeing the popularity of the game in year 1909 AD, Imperial Cricket Council was established and which was then transformed into International Cricket Conference and recognized as International Council and known as ICC in short form. Every year the members of ICC meet and discuss the rules and norms of the game. The suggestions and amendments are made. The Test Series, One Day Series and 20-20 Series tournaments and schedules are finalized. This is the supreme institution of cricket at the International level.

The Zoroastrian community has played an important role in the history of Indian cricket. The Parsees (Parsi) founded the first Indian cricket club – The Oriental Cricket Club in Bombay in 1848. Bombay Union Hindu Club was established in 1866 AD. Mohammedan Cricket Club was founded in year 1883 AD. Parsees team toured England in 1866 AD. England team toured India in year 1889-90 AD. Thus cricket was popularized in India. In India the first authorized cricket match was played between Bombay Gymkhana and Pune Gymkhana. Jamnagar's Maharaja Lt. Ranjitsinhji and Lt. Duleepsinhji gained lot of fame through this game. Under their names, today Ranji Trophy and Duleep Trophy tournaments are organized at the National Level.

Though cricket is played in very less countries then also it is considered to be the world's popular game. Today, One Day International and T-20 cricket are more popular than Test matches. over the whole year various tournaments are also organized. Today even women cricket tournaments are also organized at National and International levels.

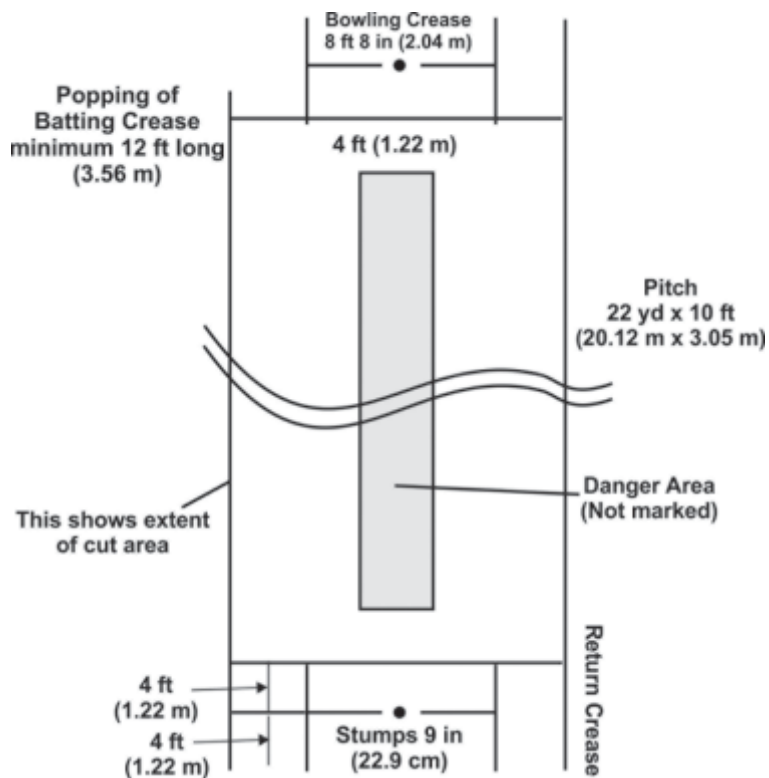
Ground :

The cricket ground is 180 yard long and 145 yards wide, so that 60 to 75 yards boundary can be made.



Pitch :

The ground between both bowling creases is called as pitch. Pitch should be 5 feet wide from the centre of the wicket.

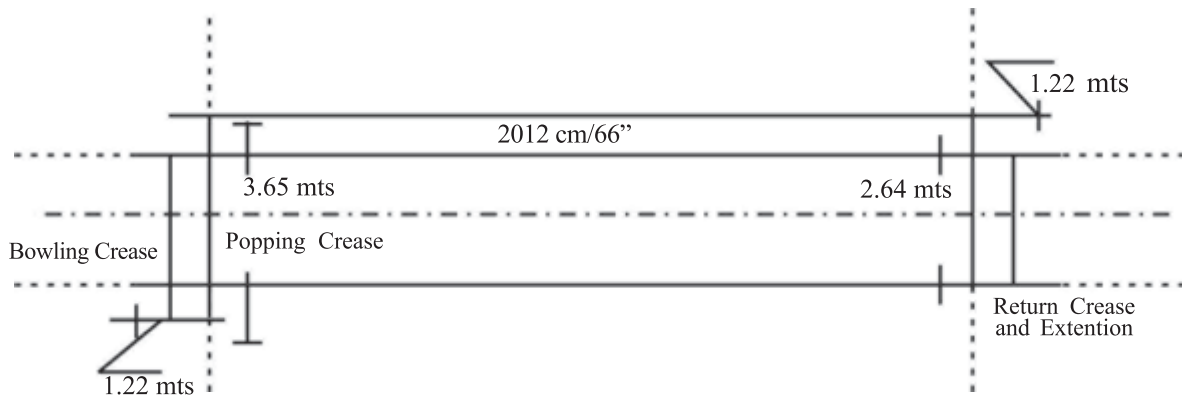


Wickets :

There should be distance of 22 yards (20.12 mts) between the stumps both sides. The two stumps should be erected exactly opposite to each other.

Bowling Crease :

Four creases (one popping crease, one bowling crease, and two return creases) are drawn at each end of the pitch, around the two sets of stumps. The batsmen generally play in and run between the areas defined by the creases at each end of the pitch. The bowling creases lie 22 yards (66ft or 20.12m) away, and marks the other end of the pitch.



Bowling Crease

Popping Crease :

One popping crease is drawn at each end of the pitch in front of each set of stumps. The popping crease is 4ft (1.22 m) in front of and parallel to the bowling crease.

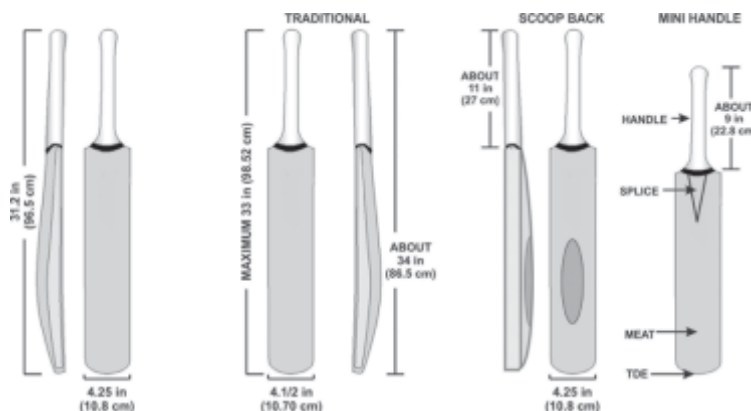
Equipments

(1) Ball :

The cricket ball is spherical in shape. The weight of the ball is limited between $5\frac{1}{2}$ to $5\frac{3}{4}$ ounces and its circumference should not be less than $8\frac{13}{15}$ inches and not more than 9 inches.

(2) Bat :

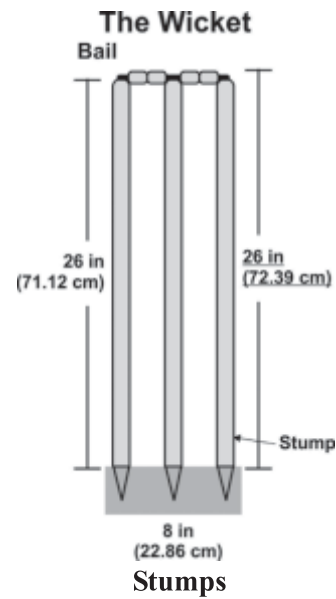
The bat should be maximum 96.5 cm long and 10.8 cm wide.



Different Sizes of Cricket Bats

(3) Stump :

There should be two sets of stumps of equal measurement and size. The length of the stumps should be 71.12 cm from the ground surface. The stump's cylindrical diameter should not be less than 3.49 cm and not more than 3.81 cm. On the top end two bails are kept between three stumps. Each bail should be $4\frac{3}{4}$ inch long. The bail should not be out by more than $\frac{1}{2}$ inches after putting it on stumps. Moreover, in this game, the batsman and the wicket keeper requires the equipment like — pads, hand gloves, wicket keeping gloves, helmet, abdominal guard, leg guards, kit bag, shin guards, etc.



(4) Players :

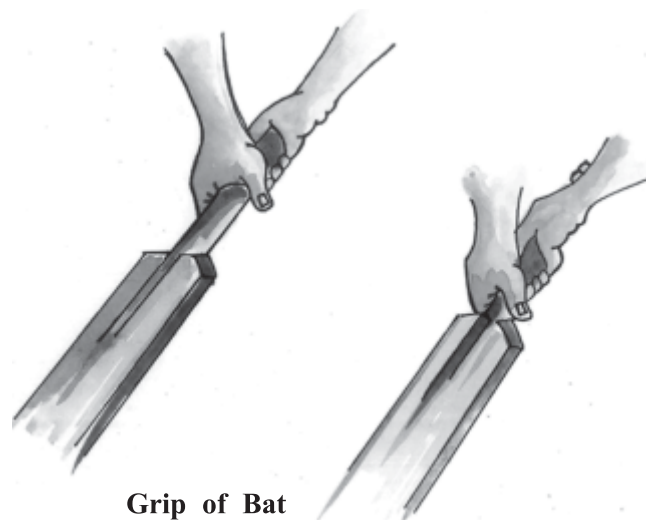
In this game, each team selects 16 players from which 12 players' team is selected, finalized and declared before the game starts. From them 11 players bat ball on the field in the match. While one player is known as the 12th man. If any one of the player gets hurt or dives to another reason he goes to the pavilion, the 12th man comes as a substitute on the ground. The 12th man cannot do batting, bowling or the wicket keeping.

(5) Dress Code :

During test match all the players of the team wear white shirt or t-shirt and white pants. While in one-day test matches or 20-20, each team wears the decided coloured dress skills of cricket game.

(6) Batting (Grip of a Bat) :

The bat is held in such a way that the left hand is in the upper part of the handle and right hand is below it. The fingers and thumbs of both the hands are bent and the bat remains between both the legs and in line of middle stump. The bat should be gripped tightly but not too hard.



(7) Stance :

The position or posture of standing in front of wicket with properly gripped bat is called stance. The right-handed batsman keeps his right leg inside the popping crease and left leg will be kept outside. Both the legs should be 15 cms apart. Both the toes should touch the leg stump line. The body weight



Stance

should be equal on both the legs. The lower part of the bat is kept near the inner toe and the handle of bat is a bit supported by the thighs. The left shoulder will come exactly towards the opposite wicket. After holding the bat the head will be straight and the eyes will be on the bowler.

(8) Back Lift :

The skill of technically lifting the bat from backside for playing the ball bowled is called back lifting. When the bat is taken back the bat's blade's lower edge should be parallel to the ground. The bat is



Back Lift

moved ahead when the ball is to be hit. Both the elbows should be close to the body so that the bat passes near from the body.

(9) Front Foot Drive :

It is usually played to a full length delivery on or outside off stump. It is hit on an offside overpitch ball turned on the leg stump line, and overpitch ball. The body weight is on the front foot so it is called a front foot drive. The front leg, head, eyes, front shoulder, elbow, and knee remains towards the ball. The front foot toe is kept towards the side in which the ball is to be hit. The front foot drive includes the front foot on drive, front foot straight drive, and front foot off drive.

(10) Back Foot Drive :

When the ball is short length and on the stump line or a bit offside or on left stump or towards outside the leg stump, the batsman keeps the body weight on the back foot and hits the ball. This is a back foot drive. In the back foot drive, the batsman moves his back foot towards the stump, keeps his body and the foot in the line of the ball. The front foot is brought towards the back foot and hence the body moves near the stump. The head is kept steady, the eyes on the ball, and the body weight on the back foot. The bat is brought on the ball and a back foot drive is played but one should be careful when playing the back foot drive to get hit wicket.

(11) Hook Shot :

This kind of shot is played during a fast ball is delivered a short pitch. In this hook shot the back lift of the follow through makes the shape like a hook so it will be called a hook shot. This shot gives



Hook Shot

plenty of runs and with high fault one loses a wicket. In this shot the timing of bat and ball contact is very important. If the timing is incorrect one could get caught out.

(12) Bowling :

For getting the batsman out the bowling is very basic effective skill. A good bowler always bowls such a way that the batsman is confused. The line and the length are very important in bowling. The whole process of run up, gripping the ball and delivering it successfully to the batsman is called bowling.

(13) Off Spin Bowling :

Off Spin Bowling is also called off break. In this the ball, after bouncing, goes towards the batsman. In short the ball moves from off stump towards leg stump. For this, the ball's seam is kept at the bottom base tip of the first finger and the second and third fingers are spread around. For the seam grip, the thumb is kept bent at the lower part of the seam.



Grip of Ball



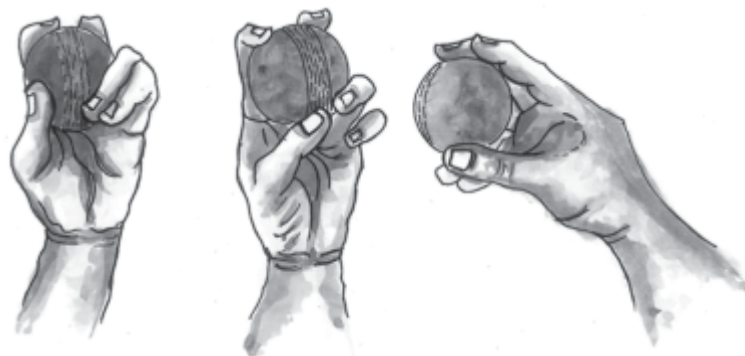
Grip of Ball

(14) Leg Spin :

Leg Spin Bowling is also known as leg break. In leg spin, the ball after bouncing goes away from the batsman. The ball is gripped in the first, second, third fingers on seam. The wrist is kept bent and back part of the hand is kept up. In this type of bowling, the wrist jerk and the spinning speed through the finger plays important while releasing the ball.

(15) Fast Bowling :

When the ball is thrown with more speed it is called fast bowling. This type of bowling is mainly done in the beginning or start of the match. If a fast bowler bowls with proper length, speed and line then he succeeds in getting wicket. Consistent run, a speedy run up near crease proper and wrist movement, maintaining balance of the whole body push. While delivering the ball is all that makes the fast bowling worth watching.



Grip of Ball

In fast bowling, the first and second fingers are kept on either sides of the seam; third and little finger are spread around the ball for grip. The thumb is kept on seam. It is necessary that fast bowler should have physical strength, endurance, tolerance, accuracy, intelligence, confidence and total control over body. A fast bowler can bring variety by bowling Yorker, trimmer, bouncer, beamer, inswing and outswing.

(16) Throwing :

The skill of properly stopping the ball hit by batsman and quickly and accurately releasing it is called throwing. If the ball is stopped quickly, cleanly, and carefully and then thrown accurately, then the run making can be controlled and even throwing is useful to get the batsman run out.

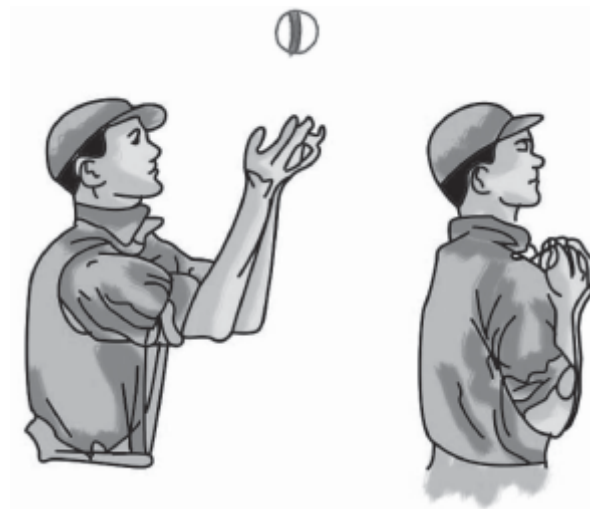


Throwing

There should be good coordination of wrist, elbow and shoulder for good throwing. Taking a good body position, maintaining a body balance, the ball is to be thrown to the wicket keeper or stumps speedily and accurately.

(17) Catching :

The catching skill is very important for winning the match. The skill of holding the ball raised by the batsman's bat or fielder is called catching. For catching, one has to reach the place where the ball is going to fall on the bound. The head should be steady, the eyes on ball. Both the hands should be joined together in a cup shape so that the ball can be caught easily. Catching can be with both hands, style land and by diving also. A good fielder has to be a good catcher also. This skill brings one to a best fielder.



Catching

(18) Wicket Keeping :

In cricket, wicket keeping is very important. To stop the ball going behind the stumps, to catch a tapped ball which has touched the bat or his body part to stump out the batsman who has left his crease, or to run out the batsman while taking run.

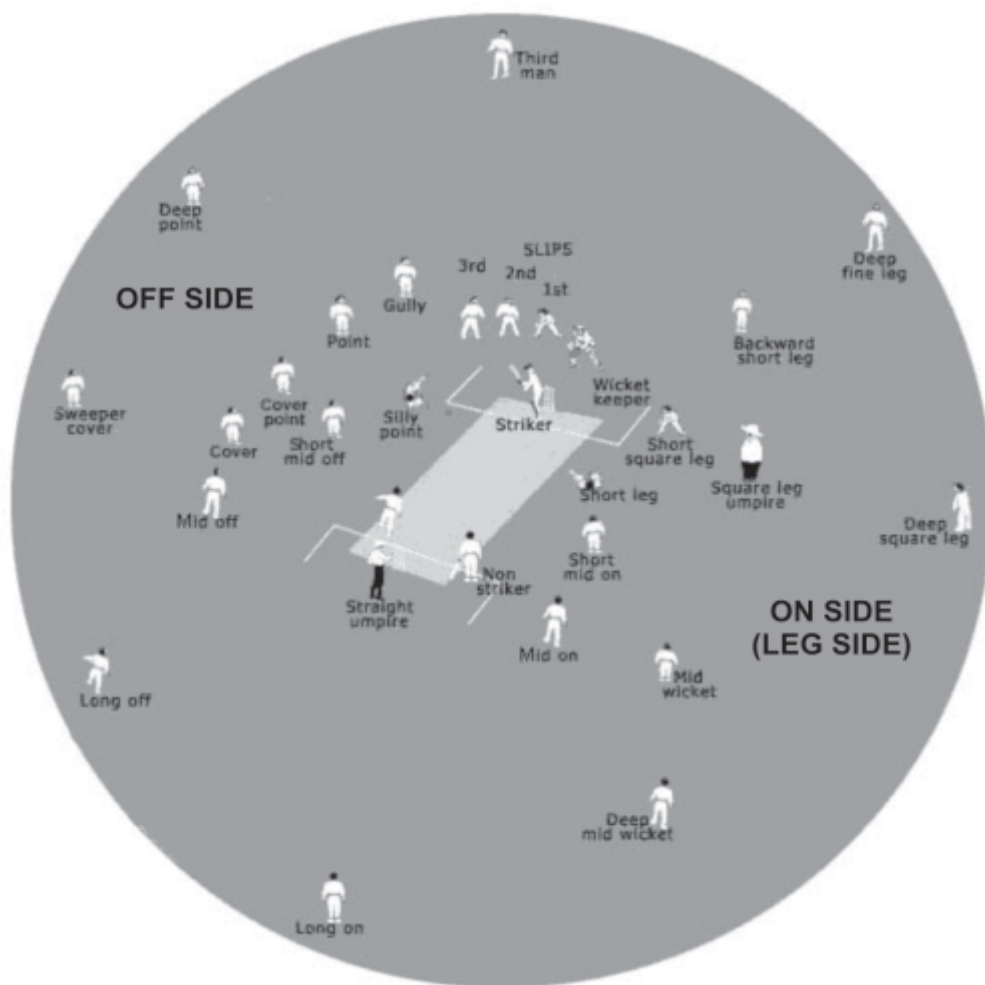


Wicket Keeping

A wicketkeeper's position is behind the batsman. During fast bowling the wicket keeper should be placed at proper place a bit far away from the stumps while during spin bowling he can be near the stumps.

– **Arrangement of Players :**

Arrangement of Players on the Cricket Field



The arrangement of players or field sets during the game :

(1) Bowler (2) Wicketkeeper (3) First Slip (4) Second Slip (5) Third Slip (6) Leg Slip (7) Gully (8) Backward Shorts (9) Short Leg (10) Short Mid-On (11) Silly Mid-Off (12) Short Third Man (13) Cover Point (14) Extra Cover (15) Mid-Off (16) Mid-On (17) Mid-Wicket (18) Square Leg (19) Deep Mid-Wicket (20) Long On (21) Long-Off (22) Deep Extra Cover (23) Deep Third Man.

Rules of The Game :

(1) **Players :** Each team has 11 players and one substitute. Before the toss each team captain has to announce the players' name.

(2) **Substitute :** During illness or injury the substitute can be made to play. A substitute cannot bat, bowl, or do the wicket keeping. A substitute is only allowed to field.

(3) **Umpire :** In a match, 2 umpires are appointed for both the ends. The third umpire's help is taken for the controversial decisions. Moreover, a match referee is also appointed who gives the decision regarding the complaint against the umpires or the team.

(4) **Start, End, and Break :** The game begins or starts with the umpire's word "PLAY", and ends with the word "TIME". According to the rules, lunch break, tea break, and drinks time period is given.

(5) **Innings :** In test match, each team is given the two-two innings turn by turn, such one turn is called innings. In one day each team gets an inning of 50 overs, while in 20-20 cricket match, each team gets an inning of 20 overs.

(6) **Follow On :** When the first batting team has a lead, according to the rules they can keep their turn of playing reserved and compel the other team to take the second inning. This situation is called follow on. In a Five Day Match — the difference should be 200 runs, while in a Three or Four Day Match — the lead should be 150 runs and in a Two Day Match — the lead should be of 75 runs.

(7) **Declaration :** In a test match a batting team can declare its inning at any point of time.

(8) **Scoring :** A scorer records the runs, wickets, balls, details etc according to the umpires' indication in the scoring book.

(9) **Boundary :** If a ball goes out of the decided boundary after pitching, the batsman gets a boundary but if the ball crosses the line without pitching, then the batsman gets six or 6 runs.

(10) **Result :** In a test match, at the end of two innings of both teams, the team scoring more runs is declared winner. If both the innings of both the teams do not get over then the match is declared draw. If at end of the both the innings the scores are level or equal then it is a tie, both are declared equal winners. In one-day cricket, each team plays an inning of 50 overs. The highest scorer or more scorers is declared winner but if the scores are equal at the end of 50 overs then it's adjourned as a tie. While in twenty-twenty, each team plays an inning of 20 overs. Who scores more is declared winner but if the scores are equal or level then each team gets a super over. The team to score more runs in the super over is adjourned winner.

(11) **Over :** A bowler bowls 6 balls to the batsman from one end that is known as over. No ball and wide ball are not counted in one over.

(12) **No Over :** If the bowler does not deliver the ball according to the rule abided ball then the umpire calls it as no ball. In this batsman can play the shot or stroke, he can get runs also on that ball but is not given out even if he is caught or bowled out. Only the run out is given out. Even if no run is scored on a no ball then the batting team gets one run for the no ball and the ball is not counted in the over.

(13) **Wide Ball** : When the ball is out of reach of the batsman or passes away from too far then the umpire calls such ball a wide ball. Wide ball gives the batting team an extra run and the ball is not counted in the over. Only the stumped out is given out !

(14) **Dead Ball** : When the ball is in the wicketkeepers hand or batsman is out then this called off or dead ball.

(15) **Bye and Leg Bye** : When the ball goes behind the wicket without the touching the batsman bat, the number of runs that the batsman runs is the bye runs. When the ball touches any other part of the batsman except the palm or hand and ball goes away the number of runs the batsman runs are called leg-bye runs.

(16) **Bold Out** : When the ball after touching the bat or batsman body or directly falls on the stumps then the batsman is considered bolded out.

(17) **Catch Out** : If the ball bounces after touching the batsman bat or wrist and is held by the fielder before it falls on the ground then batsman is considered catch out.

(18) **Leg Before Wicket (LBW)** : When the batsman is before the wicket and before the ball touches the bat then if umpire feels if the ball had not been defended then it might have directly hit the wicket. Then the umpire can give him leg before wicket out.

(19) **Run Out** : When the batsman is out of the popping crease while taking a run and if the wicket keeper or fielder put the stumps and bales come off then the batsman is said be run out.

(20) **Stump Out** : When the batsman while going to play for the ball and if wicket keeper or the fielder puts down the wicket throw ball the batsman is called off stumped out.

(21) **Hit Wicket** : If the batsman while going to hit the ball hits the stump and it falls off the player it is given hit wicket.

(22) **Hit the Ball Twice** : If the batsman stops the ball from the going to the stump after once playing the stroke the batsman is given out for hitting twice.

(23) **Handle The Ball Out** : Without the permission of the opposite team batsman of any end touches the ball and if the opponent team appeals then the batsman of striker or nonstriker is given out as handle the ball out.

(24) **Obstructing The Field** : If the batsman obstructs the field in his work then the umpire gives the batsman out for obstructing the field.

(25) **Appeal** : The opponent team's player is out by the other team this kind of appeal is necessary. The umpire gives his decision only offer the appeal.

EXERCISE

1. Answer the following questions in brief :

- (1) Which rights are not given to the 12th player ?
- (2) What is leg spin bowling ?
- (3) What is follow on ?
- (4) In cricket which run is called leg bye run ?
- (5) How does a batsman get LBW in cricket ?

2. Write short note on :

- (1) Back lift (2) Hook shot (3) Fast bowling (4) Catching.

3. Select the correct option for the following questions from the given options :

- (1) The game of cricket began in which country ?
(a) India (b) New Zealand (c) England (d) Australia
- (2) What is the distance between two wickets in the game of cricket ?
(a) 20.12 metres (b) 21.12 metres (c) 22.12 metres (d) 23.12 metres
- (3) What is the maximum length of bat in the game of cricket ?
(a) 90.5 cms (b) 92.5 cms (c) 94.5 cms (d) 96.5 cms
- (4) In game of cricket, what should be the height of stumps from the ground ?
(a) 70.12 cms (b) 71.12 cms (c) 72.12 cms (d) 73.12 cms
- (5) In the game of cricket, how many balls are included in 1 over ?
(a) 4 balls (b) 5 balls (c) 6 balls (d) 7 balls
- (6) How many overs does each team play in a one-day International Cricket Match ?
(a) 20 overs (b) 30 overs (c) 40 overs (d) 50 overs

Activity

- Make the student do the exercise with medicine ball.
- Make the children play the raw traditional games like Dodge Ball, Catch Ball, Relay, Nagolchu, hitting the stumps by using the skills obtained in the game of cricket.
- Make the students practice regularly and coach them the skills of cricket game.

