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A TEXTBOOK OF

Physical Education

• CHAUDHRY • KHAN • CHAUDHRY
SUPPLEMENTARY RELEASE

Important Note

This is for information to all the students/teachers that CBSE has made some changes in the syllabus for the examination 2018. For the convenience of our students we have published a **supplementary edition** containing the related changes along with change in unit no's. This will be exclusively **free of cost** for all those students who have already purchased our books before the release of new syllabus for the session 2017-18.



XI
CBSE

FREE

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SYLLABUS

PHYSICAL EDUCATION

(As per the latest syllabus issued by CBSE for the session 2017–18)

Class – XI (Theory)

Max. Marks: 70

Unit-I : Changing Trends & Career In Physical Education

- Meaning & definition of Physical Education
- Aims & objectives of Physical Education
- Changing trends in Physical Education
- Various Physical Education courses available in India
- Career options in Physical Education
- Soft skills required for different careers

Unit-II: Olympic Movement

- Ancient & Modern Olympics (Summer & Winter)
- Olympic Symbols, Ideals, Objectives & Values
- International Olympic Committee
- Indian Olympic Association
- Dronacharya Award, Arjuna Award & Rajiv Gandhi Khel Ratna Award
- Organisational set-up of CBSE Sports & Chacha Nehru Sports Award

Unit-III : Physical Fitness, Wellness & Lifestyle

- Meaning & Importance of Physical Fitness, Wellness & Lifestyle
- Components of physical fitness
- Components of Health related fitness
- Components of wellness
- Preventing Health Threats Through Lifestyle Change
- Concept of Positive Lifestyle

Unit-IV : Physical Education & Sports for Differently Abled

- Aims & objectives of Adaptive Physical Education
- Organization promoting Adaptive Sports (Special Olympics Bharat; Paralympics; Deaflympics)
- Concept and need of Integrated Physical Education
- Concept of Inclusion, its need and Implementation
- Role of various professionals for children with special needs (Counsellor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist & Special Educator)

Unit-V : Yoga

- Meaning & Importance of Yoga
- Elements of Yoga
- Introduction-Asanas, Pranayam, Meditation & Yogic Kriyas
- Yoga for concentration & related Asanas (Sukhasana; Tadasana; Padmasana & Shashankasana)
- Relaxation Techniques for improving concentration-Yog-nidra

Unit-VI : Physical Activity & Leadership Training

- Introduction to physical activity & leadership
- Qualities & role of a Leader
- Behaviour change stages for physical activity (Pre-contemplation; Contemplation; Planning; Active; Maintenance)

- Creating leaders through Physical Education
- Meaning, objectives & types of Adventure Sports (Rock Climbing, Tracking, River Rafting, Mountaineering, Surfing and Para Gliding)
- Safety measures during physical activity and adventure sports

Unit-VII : Test, Measurement & Evaluation

- Define Test, Measurement & Evaluation
- Importance of Test, Measurement & Evaluation In Sports
- Calculation of BMI & Waist-Hip Ratio
- Somato Types (Endomorphy, Mesomorphy & Ectomorphy)
- Procedures of Anthropometric Measurement-Height, Weight, Arm & Leg Length

Unit-VIII : Fundamentals Of Anatomy & Physiology

- Define Anatomy, Physiology & Its Importance
- Function of Skeleton System, Classification of Bones & Types of Joints
- Properties of Muscles
- Function & Structure of Muscles
- Function & Structure of Respiratory System, Mechanism of Respiration
- Structure of Heart & Introduction To Circulatory System
- Oxygen debt, second-wind

Unit-IX: Kinesiology, Biomechanics & Sports

- Meaning & Importance of Kinesiology & Biomechanics in Physical Education & Sports
- Levers & its Types and its application in sports
- Equilibrium-Dynamic & Static and Centre of Gravity and its application in sports
- Force-Centrifugal & Centripetal and its application in sports
- Introduction to Buoyancy Force

Unit-X: Psychology & Sports

- Definition & Importance of Psychology In Physical Education & Sports
- Define & Differentiate Between Growth & Development
- Developmental characteristics at different stage of development
- Adolescent Problems & their Management
- Define Learning, Laws of Learning (Law of Readiness; Law of Effect & Law of Exercise) & Transfer of Learning
- Plateau & causes of plateau
- Emotion: Concept, Type & Controlling of emotion

Unit-XI : Training In Sports

- Meaning & Concept of Sports Training
- Principles of Sports Training
- Warming up & limbering down
- Load, Symptoms of over-load, Adaptation & Recovery
- Skill, Technique & Style
- Role of Free-play in the development of Motor Component

Unit-XII: Doping

- Concept & classification of doping
- Prohibited Substances & Methods
- Athletes Responsibilities
- Side Effects of Prohibited Substances
- Ergogenic aids & doping in sports
- Doping control procedure

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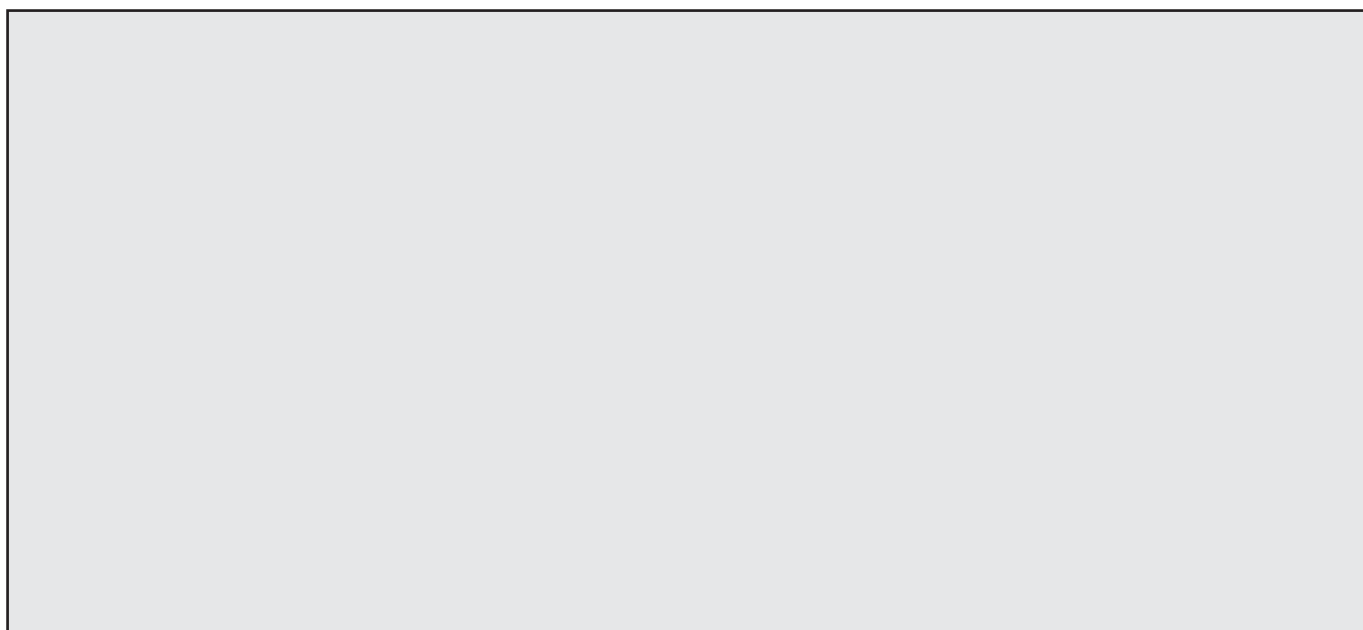
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- 11.5 Skill, Technics and Style
- 11.6 Role of Free-play in the Development of Motor Component

Curriculum 2016-17 : Changes and Deletions



Read as :

1.1 Meaning and definition of Physical Education on page no. 1 to 3 of the book.

1.2 Aim & Objectives of Physical Education on page no 3 to 5 of the book.

1.3 Changing trends in Physical Education on page no 5 to 8 of the book.

1.4 Various Physical Education Courses available in India

Since there is vast field of Physical Education, it has many educational institutions which impart training of Physical Education. These institutions provide following courses :

- (i) Certificate course in Physical Education
- (ii) Bachelor of Physical Education
- (iii) Bachelor of Science in Sports
- (iv) Diploma in Physical Education
- (v) Master's degree in Physical Education
- (vi) M. Phil in Physical Education
- (vii) Doctorate in Physical Education
- (viii) Diploma in Coaching
- (ix) Master of Sports
- (x) Bachelor's degree in Physiotherapy
- (xi) Master's degree in Physiotherapy

LNIFE, Gwalior : The biggest Physical Education Institute Laxmibai National Institute of Physical Education (LNIFE), Gwalior, is a deemed university and a leading academic centre in the field of physical education. The Institute was established by Government of India as National College of Physical Education on August 17, 1957.

The Institute has been named after Rani Lakshmibai of Jhansi, a brave heroine of the War of Independence.

The LNIFE started Bachelor's degree program in 1957. Then this Institute introduced a two-year Master's Degree course in 1963.

In 1980 it became the first institution in India to offer one-year degree program of Master of Philosophy in Physical Education.

NSNIS, Patiala : Netaji Subhash National Institute of Sports, Patiala was established by the Government of India on 7th May, 1961. The aim of this institute is the preparation of the national teams for various International competitions. The most important aim is to train the coaches in different sports disciplines. The Institute was renamed as Netaji Subhash National Institute of Sports (NSNIS) on 23rd January, 1973. This institute runs the following courses :

1. Diploma in Sports Coaching : This course is run at Patiala, Bangalore and Kolkata. Its duration is one year. The eligibility is as given ahead :

- (a) Minimum Bachelor's Degree (3 years) in Arts/Science/Commerce of any other faculty from any recognized Indian or foreign university.

OR

10+2 level of education for medal winners in Asian Games/ Championships/ Commonwealth Games Championships/World Championships (Senior Sections only)/Olympic Games.

OR

10+2 level of education for candidates from North East Region/Andaman & Nicobar only.

- (b) At least two times participation in Inter-University Competitions

OR

At least two times participation in Senior National Championships/National Games.

OR

At least two times participation in Inter Railways/Inter Police Competitions

OR

Gold or Silver Medal in All India Inter University/Junior or Senior National Championships.

2. M.Sc. in Sports Coaching : To provide opportunity for higher studies in sports coaching and to develop research aptitude of the coaches the Institute started two years Master of Sports Coaching. Master of Sports Coaching is conducted in Athletics, Basketball, Football, Gymnastics, Hockey, Swimming, Volleyball, Weightlifting and Wrestling. The eligibility is as given below :

- (a) Graduate in any subject from any recognized Indian/Foreign university.
- (b) Diploma course in Sports Coaching from S.A.I., N.S.N.I.S.

3. Postgraduate Diploma in Sports Medicine : This Institute offers two years Postgraduate Diploma in Sports Medicine for MBBS Doctors. The eligibility is MBBS.

4. Six week certificate courses in sports coaching : This course is meant for Physical education teachers only.

1.5 Career Options in Physical Education. *Read as 1.5 in place of 1.6 from page no. 14, 15 & 16 of the book.*

1.6 Soft skills required for different careers

Soft skills are known as the personal character traits which vary from individual to individual. They represent person's attitudes, attributes and habits which play an important role for the interaction with other people. The development of sports skills are learnt from educational environment, work and life experiences.

Soft skills in context to career explain that how effectively and efficiently a person uses technical skills and knowledge. They improve the way we interact with coaches, seniors, co-workers and athletes. They help us to complete a task on time. They influence how we feel about our jobs and how others perceive us.

Every single occupation has its own specific character traits. A coach needs to be an excellent communicator in order to convey information to his or her trainees. In sports there is variety of careers. So each career requires better soft skills to be efficient. The various careers in sports are like physical education teachers, coaches, fitness experts, sports management officials, team managers, sports administrators, health related instructors and sports marketers. The various soft skills which can be helpful in the field of sports are explained below:

- (a) **Verbal Communication :** A person with good verbal communication skills has the ability to convey information to others by speaking. A coach possessing good verbal communication can convey the right technique of soft skills to the trainees. Better communication skills always yield good results. During the time-outs in matches a good verbal communication can be the best to guide the players.
- (b) **Interpersonal Skills:** Interpersonal skills refer not only to the ability to communicate with others, but ability to listen to people. One way communication often leads to poor results. Sports psychologist need to listen to the problems of sportsmen in a polite and sympathetic way so that they can help them to come out of those problems.
- (c) **Organizational Skills :** Strong organizational skills know how to take a systematic approach to every task. To conduct tournaments and even bigger games, the success largely depends upon organizational skills. Sports managers must possess organizational skills to conduct sports meets in a systematic and efficient manner.
- (d) **Problem Solving and Critical Thinking Skills:** The ability of problem solving and ability to identify a problem is very important to reach to the fruitful conclusion. Sports lead to many problems during the training programs. Sports administrators often face problems in training camps organized for sports person. This ability helps in smooth functioning of training camps. Critical thinking skills allow assessing each possible answer, by means of logic and reasoning, to resolve which one is most likely to be successful.
- (e) **Time Management Skills:** Long term training programs needs proper time management. These skills help in managing training programs in a better way. Training schedule is best prepared if time management is taken into account.
- (f) **Professionalism :** Professionalism skills depict many characteristics which are known as being polite, usually agreeable and supportive. Always professionalism yields better results in completing a task.
- (g) **Flexibility and Adaptability:** It is observed that people who are flexible and adaptable always lead to a favorable environment. Adamant attitude is not liked by everyone. Training experts with positive attitude, flexibility and adaptability skills can help in getting better results.
- (h) **Conducive Relationships:** The skills that helps in building and maintaining strong working relationships often leads to better results. In a group athletes attending training camp having cooperative and conducive relationship among themselves make a less stressful and work environment for everyone.

EXERCISE

1. Enlist various Physical Education courses available in India. (1 mark)
2. What do you mean by soft skills ? (1 mark)
3. Explain time management skills. (3 marks)
4. Write in detail about the Physical Education courses available in India. (5 marks)
5. Describe the soft skills required for different careers. (5 marks)

UNIT 2

OLYMPIC MOVEMENT

Unit no. changed-Read as unit 2 in place of unit 3 of the book.

Read 2.1 Ancient Olympic (Summer & Winter) from page no. 31 & 32 of the book.

WINTER OLYMPICS

The first Winter Olympics were started on January 25, 1924 at Chamonix in the French Alps. Spectators were thrilled to witness the ski jump. In 1928 the International Olympic Committee officially designated the Winter Games, staged in St. Moritz, Switzerland, as the second Winter Olympics.

Five years after the birth of the modern Olympics in 1896, the first organized international competition involving winter sports was staged in Sweden. It was known as Nordic Games and only Scandinavian countries competed.

Winter Olympics are held after every four years. The details of years and venues are given below :



Chamonix, France	1924	Sapporo, Japan	1972
St. Moritz, Switzerland	1928	Innsbruck, Austria	1976
Lake Placid, N.Y., United States	1932	Lake Placid, New York, United States	1980
Garmisch-Partenkirchen, Germany	1936	Sarajevo, Yugoslavia (now	
Scheduled for Sapporo, Japan*	1940	Bosnia and Herzegovina)	1984
Scheduled for Cortina		Calgary, Alberta, Canada	1988
d'Ampezzo, Italy*	1944	Albertville, France**	1992
St. Moritz, Switzerland	1948	Lillehammer, Norway**	1994
Oslo, Norway	1952	Nagano, Japan	1998
Cortina d'Ampezzo, Italy	1956	Salt Lake City, Utah, United States	2002
Squaw Valley, California		Torino (Turin), Italy	2006
United States	1960	Vancouver, Canada	2010
Innsbruck, Austria	1964	Sochi, Russia	2014
Grenoble, France	1968	Pyeongchang, South Korea	2018
		Beijing, China	2022

Note: *Due to World War II, Winter Olympic Games were not held in 1940 and 1944. **The 1992 and 1994 Winter Games are two years apart due to the transition of the Winter Games to alternating even-numbered years with regard to the Summer Games.

Paralympic Movement under Art. 3.7 of the book (Deleted)

EXERCISE

1. What are the objectives of summer olympics? (1 mark)
2. When did winter olympics started? (2 mark)
3. Explain about the inaugural winter olympics. (3 marks)

UNIT 3

PHYSICAL FITNESS, WELLNESS & LIFESTYLE

Unit no. changed- Read as unit 3 in place of unit 2 of the book

3.1 Meaning & Importance of Physical Fitness, Wellness & Lifestyle (Read from pg no. 18 to 22 of the book)

3.2 Component of Physical Fitness (Read from page no. 22 to 25 of the book)

3.3 Component of Health Related Fitness

Health related fitness components are explained below:

(a) Cardiovascular Fitness

Cardio respiratory system fitness has great impact on health of an individual. This type of fitness has vast benefits to our lifestyle. This helps an individual to remain active throughout the day. Efficiency of cardiovascular fitness helps in improved delivery of oxygen, faster removal of waste products and decreased levels of stress.

(b) Strength

Strength is also considered as health related fitness component as it is required to carry out certain tasks, such as lifting heavy bags or using our legs to stand up from a chair. Strength helps in avoiding injuries and maintains good body posture.

(c) Flexibility

Flexibility is another component of health fitness as it prevents injuries, improves body posture, maintains healthy joints and reduces lower back pain.

(d) Muscular Endurance

Activities of day-to-day life require good endurance to perform long and repeated activities. Accumulation of fatigue occurs early in person who lives sedentary life style. So person having better endurance can lead fruitful healthy life.

(e) Body Composition

Body composition characterized as the amount of muscle, fat, bone, cartilage, etc., that makes up the bodies. Excessive body fat can be a reason for the occurrence of a number of health problems such as heart disease and diabetes.

3.4 Component of Wellness-Read from page 25 of the book.

3.5 Preventing Health threats through Lifestyle change-Read from pg. no. 26 & 27 of the book.

3.6 Concept Components of Positive Lifestyle-Read from pg. no. 27 & 28 of the book.

UNIT

4

PHYSICAL EDUCATION & SPORTS FOR DIFFERENTLY ABLED

New

4.1 Aim & Objectives of Adaptive Physical Education

The physical education program designed for individuals with disabilities is called Adapted Physical Education. The program is designed in a way so that it can meet the needs of each disabled student.

Adapted Physical Education is kind of a service. It is very important to distinguish those students with disabilities who need service to lead fruitful life. Adapted physical education is concerned with designing the physical education programs for individual who have disabilities.

AIM

The aim of the Adapted Physical Education is to ensure that physical education for children with disabilities be delivered by a qualified Adapted Physical Educator.

OBJECTIVES

The adapted physical education has following objectives:

(A) Human Development

Keeping in mind the disabilities, the adapted physical education must understand the human development. In spite of handicaps the individual are trained for human development.

(B) Motor Learning

The emphasis is given to teach the motor skills to the students with disabilities. The principles of motor learning are used while teaching of physical education to individuals with disabilities.

(C) Exercise Physiology

While teaching physical education to individuals with disabilities, the modifications must be done on the basis of scientific principles. The exercise is done keeping in mind their disabilities.

(D) Measurement and Evaluation of Disabled

The measurement and evaluation of the individual with disabilities is done keeping in mind their limitations. The purpose of this

examination is to check whether progress is taking place or not. Measurement provides information regarding the achievement. It also predicts the future performance of an individual with disabilities.

(E) Curriculum

To teach physical education to students with disabilities, certain curriculum should be developed in a view of their handicaps. The theory must be made as per the capabilities of the individuals with disabilities.

(F) Teaching

The major part of any Adapted physical education is teaching of motor skills. A special care is given to make teaching effective for the individuals with disabilities.

(G) Ethics

Ethics are certain values which play vital role in life. The adapted physical education teachers will concentrate to adhere to the high ethical standards in providing programs and services for individual with disabilities.

4.2 Adaptive Sports (Special Olympics Bharat; Paralympics; Deaflympics)

SPECIAL OLYMPIC BHARAT

Eunice Kennedy Shriver, sister of former President of the United States of America, John F Kennedy introduced Special Olympics at World level. She took this initiative after witnessing ignorance of people with intellectual disabilities. She realized that people with intellectual disabilities could be extraordinary athletes. She also found that participation to sports they can appreciate their potential for growth.



In 2001 Special Olympics Bharat came into existence. This National Sports Federation got registered under the Indian Trust Act 1882. Later in 2006, Government of India gave recognition to this Federation with an aim to develop sports among persons with Intellectual Disabilities. Special Olympics Bharat is also recognized by Special Olympics International to conduct Special Olympics Programs in India.

VISION

The vision of Special Olympics Bharat is to transform communities by inspiring people throughout the world to open their minds, accept and include people with intellectual disabilities and thereby celebrate the similarities common to all.

MISSION

The mission of Special Olympics Bharat is to give sports training and athletics competition for children and adults with an intellectual disability. It has a aim to develop Physical fitness, demonstrate courage, experience joy and participate in the sharing of gifts, skills and friendship with their families, other Special Olympics athletes and the community.

SPECIAL OLYMPIC OATH

Let me win. But if I cannot win, let me be brave in the attempt.

The following are the activities of Special Olympics Bharat:

A. TRAINING IN SPORTS

Special Olympics Bharat imparts training. The trained athletes take part in various competitions. The competitions are held at District, State and National and International levels. The selected athletes at the National Level are also given coaching camps supported by the Sports Authority of India to prepare for International Competition events.

B. BUILDING LEADERSHIP

Special Olympics Bharat organizes Athlete Leadership Building Programmes. These leadership building programmes also helps in developing athletes into coaches, officials, team captains, spokespersons and board and committee members. This opportunity leads to a greater involvement in the movement. The significance is given to develop communication skills through interactions with the media.

C. PROMOTING HEALTHY ATHLETES

To obtain overall health and fitness of athletes is major work of Special Olympics Bharat. The aim of this programme is to improve health fitness by providing basic health check-ups, preventive treatment, educational information, and referrals for follow-up care.

D. BUILDING COMMUNITIES

Sports for all brings together among the athletes with intellectual disabilities. This helps athletes in developing physical fitness. Unified Sports helps athletes in learning new sports. It provides enjoyment and also develops skills. It gives opportunity to have positive social interaction between teammates.

E. TORCH RUN

The Special Olympics Bharat organizes Torch Run annually. This educates special Olympics movement to people with intellectual disabilities. It has encouraged Special Olympics athletes to lead integration and awareness by educating the community about their capabilities and special needs. Over the years, it has become symbolic not just to the sporting tradition but to the Special Olympics cause.

PARALYMPICS

The word Paralympic is derived from Greek word which means other than or parallel to Olympics.

The existence of sports for physically impaired people is traced for more than hundred years. The first sports club for deaf came into existence in 1860 in Berlin. Basically the purpose of these clubs was to assist war veterans and civilians who got injured during world war.

In 1944 Dr. Ludwig Guttmann opened a spinal injuries centre with an aim to rehabilitate the people and to help them to participate in competitive sports. He organized the first competition for wheel chair athletes during the opening ceremony of 1948 London Olympics. Later these games were given name as Paralympic Games and took place in 1960 Rome Olympics. In this 400 athletes from 23 countries participated. Since then the games have taken place every four years in the same year as the Olympic Games.

International Paralympic Committee and International Olympic Committee had an agreement that these games will be held in the same city and venue as the Olympics is held. Ever since the Seoul 1988 and Albertville 1992, the Games have also taken place in the same venues as the Olympics.

Finally, on 22 September 1989, the International Paralympic Committee was founded. In 2008, Beijing Paralympic Games 3,951 athletes from 146 countries participated in various 20 sports. The London 2012 Paralympic Games broke all records with more than 4,250 athletes from 164 countries taking part in 20 sports.

IPC is governing body that is responsible to run Paralympic Movement. Mainly its purpose is to organise the summer and winter

Paralympic Games. It is International Federation for nine sports. It supervises and coordinates World Championships and other competitions.

The ultimate goal of IPC is to increase the number of people with an impairment participating in sport at not only world level but also from the grassroots. Athletes are the essence of the Paralympic Movement and it is the goal to empower Para athletes at all levels to enjoy the opportunity to practice sports.

The following are the IPC's developmental initiatives:

A. Organizational Development

Main task is to develop and organise learning and training opportunities for National Paralympic Committees and International Federation staff.

B. Athlete Pathway

Programmes are developed to improve the skills from the grass root level to the elite level. Mainly it encourages athletes for participation and career development.

C. Elite Competitions

IPC organizes local, regional and international sporting competitions for para-athletes.

D. Respect Fair Play

IPC ensures that sports are practiced in a manner that protects the health of athletes. It also promotes for respect fair play. The ethics including compliance with the World Anti-doping Code and the IPC Classification Code must be adhered.

E. Support International Federations

IPC supports International Federations to ensure the credibility and consistent standards for their sport.

F. Minimum Standards

To keep the minimum standards, IPC reinforces minimum eligibility, organisational standards and common services to all IPC members. This enables to reach compliance and commonly acknowledged service levels.

G. Develop Strategies

IPC develops strategies to maintain the effective promotion of sports activities for Para-athletes at all levels.



The following events are held in Summer Paralympics:

- | | | | |
|---------------------------|------------------------|------------------------|-----------------------|
| (a) Archery | (b) Para athletics | (c) Badminton | (d) Boccia |
| (e) Canoe | (f) Cycling | (g) Equestrian | (h) Football 5-a-side |
| (i) Goalball | (j) Judo | (k) Para Power Lifting | (l) Rowing |
| (m) Shooting Para sport | (n) Sitting volleyball | (o) Para Swimming | |
| (p) Table Tennis | (q) Taekwondo | (r) Triathlon | |
| (s) Wheelchair basketball | (t) Para dance sport | | |
| (u) Wheelchair fencing | (v) Wheelchair rugby | | |

The following events are held in Winter Paralympics:

- | | | |
|-------------------------------|------------------------|--|
| (a) Para Alpine Skiing | (b) Para Biathlon | |
| (c) Para Cross Country Skiing | (d) Para Ice Hockey | |
| (e) Para Snow Board | (f) Wheelchair Curling | |

DEAFLYMPICS

The Deaflympics were originally known as International Silent Games before they became the World Games for the Deaf. Finally in 2001, these games were named as Deaflympics.

Deaflympics and other World Deaf Championships are organized by International Committee of Sports for the Deaf (ICSD). This committee was founded in 1924. ICSD is behind the building, evolving and fortifying the tradition of inviting deaf/hard of hearing elite athletes from the entire world to come together not only to compete in their respective sports, but to also develop comradeships between their countries.

The Deaflympics are different from all other IOC sanctioned games by the fact that they are organized and run exclusively by members of the community they serve. Only deaf people are eligible to serve on the ICSD board and executive bodies. Today, the number of national federations in the ICSD membership has reached 108.

Motto of Deaflympics: It is *Per Ludos Aequalitas* which means equality through sports.

Eligible Athlete: A sports person is eligible to participate in Deaflympics who is having a hearing loss of 55 dB or greater in the better ear.

The following are the events held in Summer Deaflympics:

- | | | | |
|----------------------------|------------------|----------------|---------------------------|
| (a) Athletics | (b) Badminton | (c) Basketball | (d) Beach Volleyball |
| (e) Bowling | (f) Cycling Road | (g) Football | (h) Golf |
| (i) Handball | (j) Judo | (k) Karate | (l) Mountain Bike |
| (m) Orienteering | (n) Shooting | (o) Swimming | (p) Table Tennis |
| (q) Taekwondo | (r) Tennis | (s) Volleyball | (t) Wrestling- Free Style |
| (u) Wrestling- Greco Style | | | |

The following are the events organized during the Winter Deaflympics:

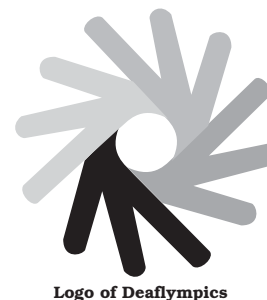
- | | | | |
|-------------------|--------------------------|-------------|----------------|
| (a) Alpine Skiing | (b) Cross Country Skiing | (c) Curling | (d) Ice Hockey |
| (e) Snow Board | | | |

4.3 Concept and need of Integrated Physical Education

Physical education is considered essential part of education because it helps in achieving the aim of general education. Physical education helps in developing certain qualities in an individual which makes him efficient for any kind of learning.

According to National plan of Physical education and recreation, “The aim of Physical education must be to make every child physically, mentally and emotionally fit and also to develop in him such personal and social qualities as will help him to live happily with others and build him up as a good citizen.”

Physical education is an integral part of school curriculum. It instructs the students about body movements and physical activities. It includes variety of skills and exercises which promote physical fitness of the body. It helps in building speed, strength, endurance, agility and flexibility. Physical education develops and understands the basic movements of the body. It develops human performance. Physical Education plays a vital role in educating the students to develop overall personality. Through Physical Education the students learn various motor skills, develop fitness and know the importance of physical activity. Physical Education helps the students to develop knowledge, confidence, skills, healthy lifestyle, etc. The benefits of physical education can also enhance the academic learning. The ultimate goal of physical education will always be participation in health-enhancing physical activity for a lifetime. Physical Education leads to the overall development of an individual and it has become the integral part of total education process.



Physical Education has following principles:

(A) Biological Principles

Biology is science of life and of living organisms, including their structure, function, growth, origin, evolution, and distribution.

Principle of growth and development: Harmonious growth and development is the most important objective of physical education. All living things grow. A tiny seed can grow into a huge tree. Adult elephants are 60 times heavier than baby elephants. Every living organism consists of cells. The cells can multiply and divide to form other cells. Physical education also has relation with growth and development. Exercise may promote muscle strength. The regular physical training can improve various organs.

Physical education deals with human body so it has many principles related with human body. Since active participation also promotes growth and development so the principles of growth and development are also important which are explained below:

(i) Rate of Growth: Every individual has different growth rate. Some have early growth and some grow later. This depends on an individual.

(ii) Continuous Process: After the child is born the process of growth is continuous and gradual. It is found more till the adulthood.

(iii) Training and Maturation: The complex skills are learnt only when an individual is matured. During immature age difficult sports cannot be learnt.

Principle of use, disuse and overload: It is widely assumed that a person who exercises regularly is healthier and less prone to diseases than one who does not. There are scientific facts that support the view that those who exercise are healthier than those who do not.

Principle of use and disuse: It is evident from experiments that a muscle grows in size, shape and strength after doing long term training. On the other side a person remain weak if he does not perform physical exercises. Anthropocentrically it is found that the girth around the biceps muscle is more in right arm of right hander. Another example of disuse is observed in case of injury. When injured part is given rest it loses strength on account of remaining idle due to disuse.

(iv) Principle of Overload: To increase the performance of an athlete, progressive overloading is required but sometime unsystematic overloading can be harmful to an athlete. This may lead to deterioration of his performance. The principle of overloading states that overloading is must but it should be given with suitable adaptations.

(B) Psychological Principles

Psychology is known as science of behaviour. It is the most important part of total education process. Psychological principles consist of the following:

Psycho-physical unity of man: Human mechanism is made of mind and body. Mind directs the body and body executes the work. If mind is not ready to do any thing, the body also seems to be unwilling. So mind and body are simultaneous aspects of a man.

Learning: Learning is defined as modification of behaviour through experience. *According to Henry smith, "Learning is the acquisition of new behaviour or the strengthening or weakening of old behaviour as the result of experience".*

NEED OF INTEGRATED PHYSICAL EDUCATION

Physical Education does not mean physical fitness alone but it has its own effect on an individual. Moreover, it is all-round development of personality. Today's lifestyle has entirely changed, we purely depend on machines and gadgets. Physical exertion is hardly a part of our lifestyle and we do our daily task with the help of machines. Due to these helpful gadgets our health related risk factors have increased. Therefore, for making an individual busy and for constructive utilization of his spare time, physical Education programme is very useful. Some important points of view about the need of physical education are:

Shri Ramkrishna Paramhans, *"A person with weak intelligence is like rice soaked in milk, 'soft and swollen'; he is of no use and cannot achieve anything. A strong and well built 'He-man' is called valiant. He can do anything in life and achieve everything."*

Probel, *"If we want complete development of an individual, we necessarily have to give physical exercise to each part of body."*

Russo: *"Mind in a healthy body has easy and well pronounced working pattern."*

Herbert Spencer, *"For complete manifestation of an individual, physical, moral and mental activities are necessary."*

H.C. Buck says that, *"feelings for health splendour, capability and feeling of strong character are generated by well planned physical education"*. Physical education programme has been considered necessary because of the following factors :

- (a) Natural life of an individual has changed because of scientific progress.
- (b) Individuals during earlier days used to produce all their daily need items through their own physical labour, but their work today is being done by machines.
- (c) An individual has more spare time because all his or her work is being done by machines.

- (d) Because less physical labour is distancing a person from good habits.
- (e) Physical exercise therefore has become necessary to keep the body parts, in regular use, and saving them from developing weakness.
- (f) Physical exercises increase the capability of body and protect it from diseases.
- (g) Physical education for youth is the most important to make the country strong and powerful.
- (h) Physical exercises are needed to correct the physical deformities.
- (i) Physical education is essential for physical and mental growth.
- (j) Physical education develop qualities like, courage, bravery, discipline and tolerance.
- (k) Physical education is essential to develop leadership qualities.
- (l) Physical education is essential for developing social integration.

4.4 Concept of Inclusion, its Need and Implementation

CONCEPT OF INCLUSIVE EDUCATION

Inclusive education happens when children with and without disabilities participate and learn together in the same classes. It is a well established fact that when children with disabilities attend classes with children who do not have disabilities always get good results. In the past children with disabilities were given education separately. Even they were educated in separate schools. Principles of Inclusive Education are explained below :

- (a) **All children belong:** First principle of inclusive education is based on the easy idea that every child and family is respected equally and deserves the same opportunities and experiences. Inclusive education is about children with disabilities irrespective of degree of disability. It is just about building friendships and having opportunities just like everyone else.
- (b) **Learning in different ways:** Inclusion is about providing the help to children who need the help to learn and participate in meaningful and different ways. Sometimes help from friends or teachers works best. Specially designed materials or technology can help to a great extent.
- (c) **Right to be included:** Inclusive education is a child's right, not a privilege. All children with disabilities should be educated with non-disabled children.



NEED AND IMPORTANCE OF INCLUSIVE EDUCATION

Need of Inclusive education is very much required for the children disabilities because they can grow like children who do not have disabilities. They need extra and special care. The following are the points which support why Inclusive education is needed:

- (a) All parents want their children to be accepted by their peers in spite of their disabilities. This helps in developing confidence in children with special disabilities.
- (b) When children attend classes together that reflect the similarities and differences of people in the real world. They learn to appreciate diversity.
- (c) Inclusive education is important for children with disabilities to develop friendships and learn social skills. Children with and without disabilities learn with and from each other in inclusive classes.
- (d) In inclusive classrooms, children with and without disabilities are expected to learn together. Effective inclusive education imparted to children with disabilities helps in learning good academic skills.

IMPLEMENTATION

While implementing inclusive education in the schools the following points are taken care to make inclusive education a reality:

- (a) Ensure that teachers have the training, flexibility and resources to teach students with diverse needs and learning styles.
- (b) The schools receive adequate and sustainable financial support so that all activities and services are fully implemented.
- (c) Parents must be involved and they must assert that their children have right to get education.
- (d) The entire community especially teachers, social workers, parents, and students must work together and participate in the programs of inclusive education.
- (e) Governments must work for implementing anti-discrimination legislation, legal mandates for inclusion, and policies to remove barriers for the children with disabilities.

- (f) Special equipment for the children with disabilities especially for their safety must be made available for the implementation of inclusive education.

UNICEF made following recommendations for the better implementation of inclusive education in India :

- (a) The attitude that inclusive education is not an alternative but an inevitability, if the dream of providing basic education to all children is to ever become a reality needs to be cultivated among all concerned professionals, grassroots workers, teachers and community members, especially in rural and remote areas.
- (b) Links and bridges need to be built between special schools and inclusive education practices. Linkages also need to be established between community-based rehabilitation programmes and inclusive education.
- (c) Public policies, supportive legislation and budgetary allocations should not be based on incidence, but on prevalence of special education needs, and take into consideration the backlog created as a result of decades of neglect.
- (d) The existing dual ministry responsibilities should be changed. Education of children with disabilities should be the responsibility of the Department of Education. The Ministry of Welfare should confine itself to support activities only.
- (e) Inclusion without 'adequate' preparation of general schools will not yield satisfactory results. It is essential that issues related to infrastructural facilities, curriculum modification and educational materials should be addressed.
- (f) Regular evaluation should be based on performance indicators specified in the implementation programme, and accountability for effective implementation at all levels should be ensured.
- (g) There should be emphasis on bottom-up, school-based interventions as part of regular education programmes following inclusive strategies. The programme should be based on stakeholder participation, community mobilization, and mobilization of NGO, private and government resources. The training of general teachers at pre-service and in-service levels should address the issue of education of children with disabilities, so that teachers are better equipped to work in an inclusive environment. Some of the issues in training that need to be addressed include the methodology to be adopted for identifying children with disabilities; classroom management; use of appropriate teaching methodologies; skills for adapting the curriculum; development of teaching-learning materials that are multi-sensory in nature; evaluation of learning; etc. The time has come to scale up successful experiments on teacher training such as the Multi-site Action Research Project and the Indian adaptation of the UNESCO Teacher Education Resource Pack, since these experiences are lying dormant.
- (h) Orientation training of policy-makers and education department officials, both at the state and block level, is essential. In addition, there is a need to develop on-site support systems for teachers. Grassroots workers, parents, special school teachers, para-teachers and other individuals can be shown how to provide the required support.
- (i) The existing handful of teacher trainers cannot reach the vast number of teachers working with children with disabilities in rural/remote areas. There is a need to explore alternatives such as training para-teachers, investing in pilot studies to develop tele-rehabilitation programmes, and exploring strategies for distance education.
- (j) The preparation of children in the form of early childhood intervention before enrolment is required. This would ensure that they do not drop out, are retained in schools, and compete equally with other children.
- (k) In order to strengthen inclusive practices, networking between existing practitioners (i.e., IEDC, DPEP, SSA, etc.) would be useful. Simultaneous implementation, and consistent monitoring, reinforcement and coordination between government departments and NGOs at national and state levels will promote inclusive practices.

4.5 Role of Various Professionals for Children with Special Needs (Counsellor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist & Special Educator)

The children with special needs often make learning or other activities difficult. These children may have mental retardation, speech and language impairment, physical disability, learning disabilities, emotional disabilities, etc. These children need various professionals for their better upbringing. Role of various professionals for children with special needs is explained below:

COUNSELLOR

Counsellor for children with special needs is a trained person. Disability counselling in particular can provide support to people with disabilities, as well as their partners and family. The children with special needs live with a disability for long span of life. Even family members too may find it difficult to come to terms with the condition, as



well as adapting to a lifestyle that involves new challenges. Disability counselling is beneficial to children with special needs from time to time.

Some time children with special needs may develop inferiority complexes that may lead to mental health problems, such as depression and anxiety. The role of counsellor for resolving this issue is very important. Counselling can help to address these issues, as well as helping the children with special needs to cope better with the disability. The aim of disability counselling is to provide a safe and supportive help.

OCCUPATIONAL THERAPIST

The role of Occupational Therapist is to address a child's ability to perform activities of daily living such as walking, eating, drinking, dressing, toileting and bathing in spite of their disabilities. The primary aim of Occupational Therapist is to maximise the child's potential to participate in activities of everyday life by minimising the impact of their disability. The occupational therapist is trained both in physical and mental health and can help with adaptations to changes in everyday life in order to overcome practical problems.

Occupational therapist also design or make special equipment needed at home or at work for the children with special needs. They often give children a series of daily activities to do at home, at school or both. The other important role of the occupational therapist is to improve fine motor skills of the children with special needs. This can help children to learn to seize and release toys and other objects. Therapists also work on hand-eye coordination to improve skills such as hitting a ball, or copying from a blackboard.

PHYSIOTHERAPIST

The most important role of Physiotherapist is to maximise a child's ability to move and control pain in the joints, muscles and bones. It also helps to improve a child's range of movement in order to promote health and well-being. Physiotherapy is non-invasive and does not involve the use of medication. Physiotherapists are trained to evaluate and improve movement and function of the body, with particular attention to physical mobility, balance, posture, fatigue and pain. The physiotherapist educates the child about the physical problems caused by their disability. They design individualized exercise program to address the problems that enhance mobility and energy conservation through the use of a variety of mobility aids and adaptive equipment. Physiotherapists use a range of techniques including massage and manipulation, exercise and movement, electro-therapy and hydrotherapy in case it is required to child with special needs.



PHYSICAL EDUCATION TEACHER

Due to many misconceptions parents are apprehensive about allowing their children with disabilities or Children with special needs to participate in physical education activities. This can be a reason that sedentary life style of children with special needs and children with disabilities are more at risk of developing childhood obesity. Physical education teachers generally determine the abilities of students with special needs, and the procedures that may need implementing to support their participation in sports and fitness. These children need the support and encouragement from physical education teachers to participate in regular physical education activities.

It is well known that the children with special needs or disability who actively participate in the physical education programs get improved levels of well-being and physical health.

Physical education teachers work for improvements in everything from their hand-eye coordination and flexibility, to their muscle strength, endurance, and even cardiovascular efficiency. All this leads to development of better motor skills and enhanced physical health.

Providing a physical education programs may help students to reduce anxiety, stress and depression.

The regular fitness programs lead to improvements in self-esteem, social awareness, and self-confidence.

SPEECH THERAPIST

Speech therapist plays an important role in the treatment for speech and language disorders. A speech disorder involves a problem producing words and sounds that makes the child difficult to express. Speech therapists might use play or books to arouse communication and increase chances to develop language skills. Speech therapy helps the children with special needs to gain the ability to converse through speech and language.

Speech therapists might use repetitive exercises and training as well as assistive devices for communication to assist with what is speech therapy.



Speech therapists perform to correct following speech disorders:

- (a) Articulation disorders which is responsible for difficulty in producing sounds saying words correctly.
- (b) Fluency disorders that include problems like stuttering, which is characterized by abnormal stoppages, repetitions, or prolonging sounds in words.
- (c) Dysphagia or feeding disorders are characterized by difficulties with eating and swallowing.
- (d) Receptive or expressive communication disorders consist of difficulties in understanding and processing language. It may lead to a trouble that create hindrance in expressing or communicating in a socially acceptable way.
- (e) Complications from birth defects surgery such as cleft palate surgery-Children might have difficulty in speech.

SPECIAL EDUCATOR

Special educator deals with children with intellectual disabilities. The children may face problems in oral expression, listening comprehension, written expression, basic reading skills, reading comprehension, mathematical calculation, mathematics reasoning, or spelling, etc. These children have many problems like poor memory, low tolerance level, high frustration level, easily distractible, easily confused, etc.

The special educator plays an important role which is explained below:

- (a) Provides oral instructions for students with reading disabilities.
- (b) Regular evaluation of children with special needs and let them know how well they are progressing towards an individual or class goal.
- (c) Gives instant feedback to learning children with special needs. They need to see quickly the relationship between what was taught and what was learned.
- (d) To make activities brief and short as long activities are particularly frustrating for learning children with special needs.
- (e) The instructions should be repeated if required by the children with special needs. Both written and verbal formats of instructions should be provided.
- (f) Encourage cooperative learning activities as students of varying abilities like to work together on a specific project or towards a common goal.
- (g) Setting of challenging but realistic expectations that allow students to strive for their best.
- (h) Working intimately with families to achieve the best educational outcome for students with special needs.
- (i) To ensure a safe environment for students.

EXERCISE

QUESTIONS CARRYING 01 MARK

- 1. Define adaptive Physical Education.
- 2. What is the aim of Adaptive Physical Education?
- 3. Write about the vision of Special Olympics Bharat.
- 4. Write Special Olympics Bharat oath.
- 5. What is Paralympics?
- 6. What is Deaflympics?
- 7. What do you mean by integrated Physical Education?
- 8. What is inclusion?
- 9. Explain the role of counsellor for children with special needs.
- 10. Who are speech therapists?
- 11. What is the role of special educator?

QUESTIONS CARRYING 03 MARKS

- 12. Write about the objectives of adaptive Physical Education.
- 13. Explain the vision and mission of Special Bharat Olympics.

- 14. Write any three activities performed by Special Bharat Olympics.
- 15. What is the motto of Deaflympics?
- 16. Write any three principles of Integrated Physical Education.
- 17. Explain the concept of inclusion.
- 18. What is the need of inclusive education?
- 19. Explain the role of Occupational Therapists for children with special needs.
- 20. Explain the role of Physiotherapists for children with special needs.

QUESTIONS CARRYING 05 MARKS

- 21. Explain the aim and objectives of adaptive Physical Education.
- 22. Elaborate Special Olympics Bharat.
- 23. Describe Paralympics.
- 24. Write in details about Deaflympics.
- 25. Explain the need of integrated Physical Education.
- 26. Write about the concept of inclusive education.
- 27. Elaborate the need and importance of inclusive education.
- 28. Explain the role of various professionals for children with special needs.

Unit no. changed-(Read unit 5 in place of unit 4 of the book)

5.1 Meaning & Importance of Yoga-Read from page no. 55 to 56 of the book

5.2 Elements of Yoga-Read from 59 to 61-upto 8) Samadhi

5.3 Introduction-Asanas, Pranayam, Meditation and YogicKriyas

ASANAS

Asanas can be defined as a physical Yoga posture or position that is designed to improve the physiological functions of the body. Asanas are the essence of Yoga. They develop strength and endurance, improving circulation and energy flow, cleansing organs and other systems, and expanding muscles and joints. All these benefits of the Asanas are integral part of Yoga.

Asanas plays vital role in reducing fatigue, muscle tension and stress. It also improves balance, flexibility and strength. The body posture is directly related to sports efficiency and it gets improved with yoga.

Asanas helps to develop sportsmen in following ways:

(a) Muscular Strength: The yogic asanas develop the muscular strength of athletes. Almost all the asanas are similar to isometric exercises which develop strength of muscles.

(b) Cardiovascular Endurance: Practice of asanas leads to the development of intercostals muscles and diaphragm due to which endurance of a person increases.

(c) Balance: Holding of body postures in difficult position improves the balancing quality of an individual. Improvement of balance is one of the major benefits of yoga. Improved balance is referred not only to the sharp physical coordination, but also to the balance between the left and right, front and back and high and low aspects of one's body.

(d) Peace of Mind: Many meditative asanas lead to development of mental peace. Through yoga, one gets free from stress, anxiety and depression which improves peace of mind. Many competitions create fear and stress which can be removed by yoga easily.

(e) Agility: Asanas develops speed and flexibility which lead to the development of agility. Yoga makes a person flexible that helps to make him agile.

There are many asanas which are explained below:

(1) Tadasana: Tadasana is derived from a word 'tada' which means the mountain. In this posture body is kept erect with feet together. The knees and hips are tightened. The stomach should be in and the chest forward. The weight of the body is evenly distributed.

(2) Vrckshasana: The vrckshasana is taken from a word 'vrcksh' meaning 'tree'. The asana is performed by standing tadasana first, and then the right knee is bent so that the right heel is placed at the left thigh as shown in the figure. Then join the palms and raise the arms straight over the head. Like this the asana is done with left leg bending.

(3) Trikonasana : The legs are kept apart. Bend the trunk and raise the left arm up. The right arm is stretched low so that the fingers of right hand touch the ground behind the right foot. The trikonasana is done with opposite arm, and likewise this is performed several times.



1. Tadasana



2. Vrckshasana



3. Trikonasana

(4) **Gomukasana:** This asana is performed by sitting on ground while keeping legs straight first. Then palms are placed on floor to raise the body. After this, sit on left foot by bending the left knee. Place the right leg over the left thigh. Raise the arm over the head and bend elbow and then lower right arm and bend backward. Clasp the hand.

(5) **Padmasana:** It is also known as meditation posture. The right foot is placed on left thigh and the left foot on right thigh. The heels kept close to the abdomen. The hands are placed on the respective knees. The index finger should touch the thumb.



4. Gomukasana



5. Padmasana

(6) **Vajrasana:** This asana is resumed further from Padmasana. After this, left arm is kept back from shoulder to catch the left toe while exhaling. Similarly, right arm is brought back to hold right toe. The head is moved back. Exhale and raise the knees and thigh to leave the contact with floor. Then rest on the back and raise chest and trunk. Take two breaths.

(7) **Matsyasana:** After sitting in Padamasana position inhale completely. Lean the trunk backward while exhaling. Lift the chest up and rest on the head. Hold the toes.

(8) **Bhujangasana:** Lie on stomach with palms resting on floor. Lift the upper body so that the trunk leans backward. Inhale completely.

(9) **Salabasana:** Lie down on stomach so that chin also touches the floor. Hold the fist and extend arms as given in the figure. Inhale and raise the legs as high as possible.

(10) **Chakrasana:** This asana is also known as wheel posture. The legs are bent so that the body rests on knees. The body is kept back and ankles are held.

(11) **Paschimottanasana:** Lie down on back and stretch arms behind the head inhale completely and sit up and lean forward while exhaling. Body is bent so that head touches the knees and the toes are held.



6. Vajrasana



7. Matsyasana



8. Bhujangasana



9. Salabasana



10. Chakrasana



11. Paschimottanasana

(12) Ard Matsyendrasana: The left heel is kept under the right thigh and then right leg is crossed over the left thigh keeping right foot flat. The right toe is held with left hand. Then turn the head back to the right side.

(13) Sarvangasana: Lie on back. Inhale and raise legs, hips and trunk to make it vertical. Take the support with elbows and hold the trunk with hands.

(14) Halasana: Lie down on the back and stretch the arms so that palms are flat on the ground. Inhale and raise the legs until the feet touch the ground.

(15) Shavasana: This is a relaxing asana. After lying on the back, the arms are kept at the sides and legs are placed apart. The eyes are closed and breathing is done slowly and deeply.



12. Ard Matsyendrasana



13. Sarvangasana



14. Halasana



15. Shavasana

PRANAYAMA

Pranayama is derived from two Sanskrit words-Prana and Ayama. ‘Prana’ means life or life force. ‘Ayama’ means development or control.

Pranayama is the fourth stage in Patanjali’s eight stage Yoga discipline. Therefore Pranayama is the development and control of life force. It is a form of breathing exercise and is very important in yoga. Pranayama is also known as the “Control of Breath”. It goes along with the asanas or exercise. Since breath is the life-force that sustains life, nobody can survive more than a few minutes without air. When the breath stops, life ends.

There are various types of Pranayama. Some of the popular forms are Ujjayee, Shitali, Viloma, Kapalabhati, Anuloma, Suryabhedana, Bhastrika etc.

Pranayama is beneficial in sports as following developments take place with the help and practice of pranyanama:

- (i) It relaxes the body, mind, and helps to reconnect with spirit.
- (ii) It increases the absorption of oxygen and helps in elimination of waste gases and carbon dioxide from the body.
- (iii) It improves the blood circulation and thus develops endurance.
- (iv) The deep diaphragmatic breathing helps body get rid of the gaseous chemicals. It also brings up to seven times more oxygen into the lungs.
- (v) The concentration increases.
- (vi) It increases the elasticity and capacity of the lungs.
- (vii) It encourages positive thoughts, self- acceptance and self-confidence.
- (viii) It maintains a balanced metabolism.

All the above developments can improve the performance of a player.

Types of Pranayama

(1) Sitali Pranayama: Take the padmasana position. Open the mouth and lips are kept in an 'O' formation. The tongue should touch teeth and the shape of tongue must form a shape resembling a curled leaf. Then the tongue is protruded and curled out of the lips atleast one inch. Inhale fully and hold it for five seconds; side by side neck is flexed. So that chin touches sternum (chest bone). Exhale slowly. Lie down in Shavasana.

(2) Sitakari Pranayama: In this technique, the tongue is not curled like leaf and lips are parted. The rest of technique is same as of Sitali Pranayama.

(3) Kapalabhati Pranayama: In this, inhalation is slowly done and exhalation is done vigorously. In the end, lie down in Shavasana.

(4) Ujjai Pranayama: After acquiring Padmasana position, the air is inhaled through both nostrils. Hold the breath for atleast two seconds. Exhale slowly and deeply till the lungs are empty. This activity is done for five minutes. In the end lie down in a Shavasana posture.

MEDITATION

Meditation is a mental discipline by which the practitioner attempts to think into a deeper state of relaxation or awareness. It is an intensely personal and spiritual experience. The desired purpose of each meditational technique is to channelise our awareness into a more positive direction by totally transforming one’s state of mind.

The aim of meditation is to concentrate on the 'inner self'. The entire process of meditation usually entails the three stages i.e concentration (dharana), meditation (dhyana) and enlightenment or absorption (samadhi). The meditation has many benefits for sports which are explained below:

- (1) **Relaxation and Meditation:** The practice of meditation relaxes the mind and the body. Lot of mental and physical fatigue occurs after competition and hence meditation helps in recovering from the fatigue. The mental fatigue can be minimised by the meditation.
- (2) **Stress and Meditation:** The competitive sports often create a lot of stress on players. Meditation has great impact on stress. Competition creates lot of stress which can be minimised by meditation.
- (3) **Pain and Meditation:** Chronic pain can systematically erode the quality of life. Anxiety increases the pain. A player who is under stress experiences pain more intensely and becomes even more stressed, which aggravates his pain. Meditation may not eliminate pain, but it helps people recover more effectively.
- (4) **Premenstrual Syndrome and Meditation:** The premenstrual cycle creates problem among women. Meditation can ease physical complaints such as premenstrual syndrome (PMS), tension such as headaches and other common health problems.
- (5) **Respiratory System and Meditation:** The meditation promotes deep breathing which increases the respiratory efficiency and thus enhances sports performance.
- (6) **Phobias and Meditation:** The competitive sports develop fear of losing game which can generate phobia in a player. Meditation can help to resolve the deepest of neuroses, fears and conflict which play their part in causing stress and ill health.

YOGIC KRIYAS

The Kriyas are techniques used for cleansing and purifying the body and mind. These kriyas are also known as Shat Karmas.

The Yogic Kriyas are helpful in cleansing the various internal organs of the body. These are explained below:

(A) Kapalbhati

The word Kapalbhati is derived from two words kapal and bhati which mean skull and shining respectively. This Kriya mainly works for the organs under the skull mainly the brain.

Method: The process of Kapalbhati is related to breathing. It should be started from sitting in Padmasana. The stomach muscle should be moved freely. This process is limited to Pooraka and Rechaka performed in a typical manner.

Rechaka is most important in Kapalbhati. While performing Rechaka the air is pushed out with the help of violent movement of the abdominal muscles and diaphragm. After this Pooraka is done by inhaling air. Kapalbhati comprise of a strong Rechaka, natural Pooraka and again strong Rechaka and natural Pooraka. It prevents illness and allergies.

(B) Basti/Vasti

Basti or Vasti is performed by two following techniques:

(a) **Basti (Jala-Basti):** This technique is practiced with or without a bamboo tube. But it is preferred to use a bamboo-tube. The person is advised to sit in tub containing water. The level of the water should be at the level of naval. Attain Utkatasana posture by resting the body on the forepart of feet, the heels pressing against the posteriors. A small bamboo tube is inserted into lubricated anus about 2-3 inches. Then contract the anus outside. Draw the water into the bowels slowly. Shake well the water within the bowels and then expel the water outside.

(b) **Sthula-Basti:** After sitting in Paschimottanasana, churn the abdominal and intestinal portions slowly with a downward motion. Contract the sphincter muscles. This removes constipation and all the abdominal disorders.

It helps in curing urinary and digestive disorder.

(C) Vaman-Dhauti

This is the easiest type of dhauti. This facilitates washing of entire digestive path. In one liter lukewarm water one tablespoonful of salt is added. Drink all of it, as quickly as possible. It is imperative to drink salty water fast rather than sipping. After this person will start feeling of vomiting. The body is leaned forward and the middle and index finger is inserted in the throat. This will induce vomiting. Keep reticulating your uvula and vomiting until all the water is got out of your stomach.

Dhautis prevent constipation, gastritis and dyspepsia. They also improve kidney functioning.

(D) Jal-Neti

A special "Neti Pot" is filled with warm water. A pinch of salt is added to the water. The spout of the pot is inserted into one of the nostril. The position of the head and pot are adjusted so that the water flows out from other nostril.

While it is of natural interest to yoga practitioners, this technique is especially suited to the 'common' man for its remarkable effects on treating sinus infections, allergies, headaches and even stress. Neti can prevent allergies, common colds and even asthma.



(E) Sutra-Neti

A soft and smooth sutra is inserted into the left nostril till it reaches throat. After this with the help of two fingers the sutra is pulled out of the mouth keeping other end out of the nostril. Slowly and gently the thread is pulled backward and forward for thirty to fifty times. After this the same process is done for other nostril.

It reduces emotional tension and reduces anxiety, depression, epilepsy and hysteria.

(F) Trataka

Tratak can be performed with or without any object. However it is most often performed by placing a candle about three feet in front. Gazing steadily without blinking at the candle-flame for 20 minutes is done. This practice activates the tear glands and purifies the vision.



5.4 Relaxation Techniques for Improving concentration-Yog-nidra

Yog-Nidra is known as *Yogic Sleep*. Mainly it is a state of conscious deep sleep. It is a dominant relaxation and meditation technique derived from ancient tantra. It was developed by Swami Satyananda. This technique leads to deep body and mind relaxation. This also has aim of increasing self-awareness.

Yog-Nidra technique enables to remain aware while entering into the dream during the sleeping states of consciousness. The state of Yog-Nidra is achieved by remaining conscious during the deep sleep state. The technique is very easy to perform. However in meditation a person remain in the Waking state of consciousness, and softly focus the mind, while permitting thought patterns, emotions, sensations, and images to arise. Yog Nidra is a state that is very relaxing; it is also used by Yogis to purify the Samskaras, the deep impressions that are the driving force behind Karma.

Procedure

Step 1 : Firstly lie down straight on back in Shavasana pose. Then close eyes and relax. After this take a few deep inhalations and exhalations.

Step 2 : Shift attention to right foot. Keep attention there for a few seconds, while relaxing foot. After this shift attention to right knee, right thigh and hip. Like this, be aware of whole right leg.

Step 3 : Tenderly perform again this process for the left leg.

Step 4 : After this shift attention to all parts of the body like stomach, navel region, and chest.

Step 5 : Then shift attention to the right shoulder and right arm, palms and fingers. Similarly repeat this on the left shoulder and left arm, throat, face and finally the top of the head.

Step 6 : Inhale and watch the sensations of body and relax in this still state for a few minutes.

Step 7 : After this gradually become aware of body and surroundings. Turn to right side and remain in lying position for a few more minutes. Rolling over to the right side makes the breath flow through the left nostril which helps to cool the body.



Advantages of Yog Nidra

The following are the advantages of Yog Nidra:

1. Yog Nidra provides total relaxation in the mind and body. Many people feel that it is more relaxing than even sleep.
2. It helps in reducing depression and anxiety.
3. Sleep improves significantly.
4. Learning becomes much quicker.
5. Improves concentration and memory.
6. Various diseases such as insomnia, hypertension, migraine, ulcers, digestive disorders, and even asthma can be managed by practice of Yog Nidra.

EXERCISE

1. What is Yog-nidra? (1 mark)
2. Write any two advantages of Yog-nidra. (2 marks)
3. Explain the procedure of Yog-nidra. (3 marks)
4. What do you mean by Yog-nidra ? Explain its advantages. (5 marks)
5. Elaborate the procedure of Yoga-nidra. (5 marks)

6.1 Introduction to Physical Activity & Leadership

Mental and Physical health of an individual largely depend on regular exercise and physical activity. Basically participation to regular physical activity helps in maintaining health. Active life style with regular physical activity often reduces the risk of developing some diseases and disabilities that may be caused due to ageing.

Physical activity and exercise can be treated as one and the same but physical activity is a generic term. The exercise is the major and vital component of physical activity. When physical activity is structured and planned it is termed as exercise.

According to William D McArdle, et.al. "Physical activity is any body movement produced by muscles that results in increase in energy expenditure."

Physical activity always does not require sports infrastructure like workouts in Stadiums and Fitness centers. Physical activity may include brisk walking, jogging and even taking the stairs instead of escalators. Even going to office on bicycle than using a car can also be a physical activity.

Many research studies have indicated that regular physical activity done with reasonable intensity provides general health benefits.

Health Benefits of Physical Activity

The following are the health benefits of physical activity:

- (a) Physical activity reduces the risk of coronary heart disease and cardiovascular disease.
- (b) Physical activity also reduces the chances of hypertension.
- (c) Type-2 diabetes can be prevented by active regular physical activity.
- (d) Physical activity reduces the risk of depression.
- (e) Physical activity promotes physical fitness level.

Meaning of Leadership

It is essential for every group to have a leader because only a leader is helpful in influencing and directing a group properly for the attainment of any goal. If the leader is not effective the group is shattered. Thus the family, class, game, team whatever may be the group a good leadership is required. To explain the meaning of leadership, it is necessary to go through the following definitions :

According to La Pierie, "Leadership is a behaviour that affects the behaviour of other people more than their behaviour affects that of the leader".

Conclusion

La Pierie explains that leader should have more knowledge and influence as compared to the group.

According to H.T. Mazumdar, "The leader is one who has power in authority".

Conclusion

According to him leadership is quality of power and authoritative behaviour.

According to Allen, "Leadership is the activity of persuading people to cooperate in achievement of a common objective".

Conclusion

According to him leadership is a process of motivation for the achievement of common goal and to develop cooperative attitude among the group.

According to Terry, "It is the activity of people to strive willingly for mutual objective".

Conclusion

According to him leadership is an influence which makes the group eager and ready for the attainment of common goal.

6.2 Qualities & Role of a Leader

QUALITIES OF A LEADER

(i) Intelligence : A leader must have sharp intellectual level and deep insight. He should have farsightedness. Intelligent leaders have good thinking power and anticipation. He should take quick and right decisions for which intelligence is required.

According to G.D. Stodord, "Intelligence is the ability to take activities that are characterized by (i) difficulty (ii) complexity (iii) abstractness (iv) economy (v) adaptiveness to a goal (vi) social value (vii) emergence of originals and to maintain such activities under the conditions that demand a concentration of energy and a resistance to emotional forces."

The quotation explains that how intelligence is helpful in leading the group. A leader having good thinking power can reply the questions asked by the group. Woodworth explained thinking as mental exploration for finding out the solution of a problem. While leading any group, reasoning quality of a leader always help the group to understand the concept effectively. Problem solving can only be done with the help of good reasoning power. That is why Maier explained that reasoning is productive thinking in which previous experiences are organized or combined in a new way to solve a problem. So in the end we can conclude that if a leader is good in intelligence, reasoning and thinking he will be more effective in the implementation of the task for which he acts as the leader.

(ii) Firm Determination : The leader must have the quality of firm determination. He should remain determined through the learning process for which he is leading. The firmness of determination of leader should be as strong as possible. A determined leader never leaves his task half way. Firm determination has good impact on the group. The group follows the leader with determination. For example if the coach is determined to implement the training schedule, only then he will be able to implement the task in an effective way for progressive learning of skills.

(iii) Co-operative and Sympathetic Behaviour : A leader should be cooperative and sympathetic towards his followers. Such attitude can win the hearts of the followers, which will be very helpful in achieving the desired goal. The sympathetic and affectionate attitude of a leader is always liked by the group. The learning process remains interesting. Tense relationship between leader and group always put hurdles in the process of learning. The love and affection displayed by the leader is always replied in the same manner.

(iv) Good Personality : A leader must possess good personality traits which can influence the group effectively. He should have a charming personality. A leader possessing good quality can easily adjust himself to the environment and various situations occurred in the learning process. Good personality is always admired by the group. Dynamic personality leaves good impression on the group.

(v) Knowledge of the Subject : The leader should have vast knowledge and proper understanding of the subject. The deep knowledge of the subject always impresses the followers. The leader must be equipped with latest knowledge and research. For example if a coach is training high jumpers and is using old techniques like western roll, scissor style or straddle, the group will not attend him with interest. On the other side if the coach is training the high jumpers with the latest technique like Fosbury flop the trainees will automatically be motivated towards learning. So a leader must have latest knowledge, equipment, data, material references, etc., for impressive teaching which will be helpful to him for effectively leading.

(vi) Good Art of Oratory : A leader must have good art of oratory. He should have plenty of words to express his ideas. A well prepared speech can influence the group effectively.

A leader must have command in the language and vast vocabulary so that he can easily communicate with the group. A good speech given before any match can be very helpful in the psychological motivation of the players. It can create enthusiasm in the group.

(vii) Sociable : A leader should have social qualities so that he can interact with the group effectively. He should be extrovert by nature, that helps in understanding the minds of his followers. A socialized leader has always sacrificing instinct for the common good. This basic instinct always impresses the followers. The social qualities displayed by the leader is always liked and imitated by the group.

(viii) Emotionally Balanced : Since leader has to teach different individuals, he should be emotionally balanced. He should have tolerance as well as calm temperament. Emotional characteristics like fear, anger, jealousy and anxiety present in leader always hinder in the implementation of common task. These emotional disturbances often consume too much of mental energy which can be used for constructive work.

(ix) Impartial : A leader must have unbiased attitude which can win the confidence of his followers. Biased attitude always creates rivalry within the group which can shatter the group. For example if an umpire or referee is acting as leader of the teams and he displays partial attitude towards one particular team. This attitude is never liked by spectators as well as other team. This attitude can make the leader ineffective and is not followed by the group.

(x) **Sincerity** : A good leader must do his work sincerely. He should be sincere towards his work and followers. A sincere advice is always followed by the group with great interest, because the followers feel that this sincere advice is going to help them to a great extent.

(xi) **Honest** : Honest leader is always liked by a group. Honesty has good impression on the group. Honest leader will always utilize the material and funds for the better learning of the group which is always welcomed by the group.

(xii) **Courageous** : A good leader should be courageous by nature which is essential to rule over the group. He should be authoritative in nature which can direct the group effectively towards the attainment of goal.

(xiii) **Regular and Punctual** : Irregularity has bad impact on the group, so a good leader must possess regularity and punctuality.

There are many opportunities to lead in the field of physical education, like captain of cricket team who acts wisely, sincerely, impartially and effectively. Even leadership training is provided when a leader is appointed for warming up. Sometimes organisation of competitions also helps in the development of leadership qualities.

ROLE OF A LEADER

A leader possessing good qualities can lead effectively and efficiently. If group is guided by an ideal leader then the group will learn and achieve the goal. The role of a leader is given below:

- (a) Leader acts as an organizer and distributes the work among the followers. This quality helps the group to work in a systematic manner. It saves energy and time.
- (b) Leader plans the future training instructions. If planning is done in advance then it is easy to execute these plans.
- (c) Since leader is experienced and expert in the field for which he or she is leading, this helps the group to understand difficult steps or questions. The leader with his or her expert opinions removes confusions and misconceptions of the members of the group.
- (d) Whenever a group is moving out the leader can act as their representative. Leader helps in producing ideas, views and opinions of the group.
- (e) Leaders acts as model and can demonstrate his or her qualities in front of the group. With the help of imitation, group can learn the group task.
- (f) The process of motivation is required in any kind of learning that is why motivation is considered as golden road to learning. From the beginning to the end of the task, at every step motivation is required. Leader plays an important role in motivating the group.

6.3 Behaviour change stages for physical activity (Pre-contemplation; Contemplation; Planning; Active; Maintenance)

Physical Activity and Exercise are essential to improve quality of life. Staying active will preserve the physical energy that adds life to the years. Development of sedentary lifestyle has increased risks of illnesses and diseases. This general trend toward inactive and other unhealthy lifestyles has led to a crisis in the health care system.

The stages of change have been applied as a model of how people change in relation to a variety of problem behaviors. The Stages of change model consists of five stages, which play vital role in the process of changing attitudes and behaviors. The 5 Stages of Change Model is a very helpful structure that describes the various stages we go through to change our lifestyle habits. Behavioral changes do not happen in one day, but through a series of distinct, predictable stages. The 5 stages are explained below:

PRE-CONTEMPLATION

Generally people do not think about changing their inactive and sedentary style. In this stage they do not think about changing their inactive or sedentary behavior and are not aware of their problems. Mostly they are pessimistic about their ability to make change, or even deny the negative effects of their existing lifestyle habits.

CONTEMPLATION

In this stage people think about their problems. They can identify that they are inactive and have devoted some thought to changing. They do not take action to change but they may be beginning to consider options for change. They are contemplating whether it's something that will be worth it. Generally people remain in this stage for years without preparing to take action.

PLANNING/PREPARATION

People in this stage make their mind to change their negative habits within one month. They may take an appointment with a personal trainer, nutritionist, or other fitness professional. They start preparing for joining gym. People in this stage begin the process of examining possibilities and options, such as considering a gym membership, looking at new exercise clothing or contemplating a walking or jogging program.

ACTIVE/ACTION

In this stage people intake appropriate measures to overcome their sedentary lifestyle by modifying their behavior, experiences, or

environment in order to overcome their problem. This action needs a commitment of time and energy. During this stage, people change their lifestyle. They start exercising more consistently and start eating healthier.

MAINTENANCE

This is the stage of successful, sustained lifestyle modification. People have been exercising for years consistently and have blended positive habits into lifestyle. It is also characterized as maintenance stage.

6.4 Creating Leaders Through Physical Education

CREATING LEADERS THROUGH PHYSICAL EDUCATION

Leadership qualities are developed through participation in sports. Moreover in sports so many opportunities come where you have to act like a leader. Great players act as leaders who not only set high standards but also take responsibility to demonstrate the skills. Leadership opportunities and training can be found in all sporting activities. Leadership can encourage and support individuals.

Leaders may or may not be captains, though captaincy is the ultimate form of leadership. Sports provide opportunities to develop skills in communication and team building. These skills enable people to function effectively as leaders.

Participating in sports often develops confidence and also trains individuals to make quick decisions. While creating leaders the following points must be considered:

A. Leadership Styles

Effective leaders always assess situations and decide quickly. Playing sports provides many opportunities to recognize when to behave positively. For example, when a soccer player sees a chance to score a goal, he makes the kick. In this case a leader is needed to consult teammates before making a decision. Playing team sports often involves developing approach to tackle the opponent. So while creating leaders it must be noticed that the leadership style is effective and productive.

B. Team Building

Playing and coaching sports always develop unity of team. The team-building skill is the most important quality of leaders. The quality to inspire others and focus on achieving objectives is also important for effective leader. In case of team games team spirit is very vital to excel in sports. While creating leaders it should be taken into consideration that the quality of team building is very important.

C. Decision Making

Sports help to learn to make decisions by observing and interpreting information quickly. A leader makes decisions to find strategies to win. Playing sports prepares a leader to influence others, set realistic goals and solve problems efficiently to win a competitive advantage. In the process of creating leaders it must be observed that the leader must have quality of making wise decision in minimum possible time.

D. Communication

Leaders must possess excellent communication skills. Players often communicate among themselves and also with the coaches. A leader can effectively communicate with teammate and coach. For example, a baseball pitcher and catcher communicate using signals instead of speaking. Finding the ways to communicate efficiently in any situation often helps a leader to succeed. While creating leader it must be taken into account that he possesses good communication skills. There are following opportunities available to act as a leader in sports:

- (i) Captain of the team
- (ii) Coach of the team
- (iii) Manager of the team
- (iv) Officials of the match
- (v) Leader for warming up or any training session
- (vi) Sports Organizer
- (vii) Demonstrator of mass drills

6.5 Meaning, objectives & types of Adventure Sports (Rock Climbing, Trekking, River Rafting, Mountaineering, Surfing & Para Gliding)

ADVENTURE SPORTS

Adventure sports have been traced for thousands of years. The meaning of Adventure sports is in its name. Thrilling and adventurous sporting activities are known as adventurous sports. They are also defined as outdoor sports in which participant competes in natural

environment against himself or others. The degree of difficulty can be increased and when difficult adventure activities are done then they are known as extreme sports. Extreme sports can be considered a sub-category of adventure sports.

The adventure sports are also known as 'Action Sport' and 'Adventurous Sport'.

The adventure sports are challenging as they are risky and competitive. The following are the categories:

A. Adventure Sports on Mountains

The mountains are the place for adventure sports. During the summer, the adventure sports like mountain biking and rock climbing are done. On a mountain bike, riders tackle rough terrain and downhill trails and get lot of fun. In Rock climbing the climbers scale natural rocks formations using their hands and a few pieces of specialized equipment to prevent fatal falls enjoy as challenging event.



B. Adventure Sports in Air

Many adventure activities like skydiving, para gliding, bunging canoeing, jumping, hang gliding, high wire (tight rope) walking, sky surfing, etc., are often liked by adventurous people.

C. Water Sports

In the water sports many activities like cliff diving, river rafting, barefoot water skiing, windsurfing, scuba diving, etc. Surfers use an extremely long board but it becomes more challenging when they use a much smaller board. The extreme canoeing is done with a boat having typically narrow and wooden boat.

D. Winter Sports

During the winter season, adventure sports enthusiasts reach to mountains covered by snow. Just similar to rock climbing, ice climbing involves scaling the side of a frozen waterfall or solid ice glacier. Skiing is also famous adventurous sporting activity.



OBJECTIVES OF ADVENTURE SPORTS

Since adventure sports involve risk and challenges it is very interesting and appealing. The following are the objectives of adventure sports:

A. To Improve Positive Attitude

Adventure sports develop zeal to conquer difficult activities and this develops positive attitude. Participants attain optimistic attitude.

B. To Build Self-confidence

The adventure sports builds self-confidence as after doing challenging tasks they become fearless. This removes the negative experience of frequent failure. To develop self-esteem and self-confidence through positive sporting experiences participation to adventure sports is very vital.

C. To Develop Concentration and Attention

Through a series of risky experiences, each participant form habit of extended attention. This increases ability to concentrate.

D. To Improve Curiosity

Every individual is given opportunities to discover qualities, dimensions and relationships amidst a rich variety of stimulating situations. This develops curiosity which is an essential element in creative learning.

E. To Channelize Surplus Energy

Every individual possesses surplus energy which can lead towards destructive activities. But due to participation in adventure activities, it facilitates proper utilization of energy.

F. To develop Leadership Qualities

During the participation in adventure sports individuals have to take lead and this helps in promoting leadership qualities.

G. To develop Physical Fitness

The adventure sports leads to the development of Physical fitness level. To develop physical fitness it is essential to develop components like speed, flexibility, muscular strength, muscular endurance, aerobic capacity and anaerobic capacity. Adventure sports develops all these components.

H. To develop Social Relations

Adventure sports especially camping gives an opportunity to reside together at same place in tents. This develops qualities of

co-operation, tolerance, consideration, trust and responsibility when faced with group and team problem-solving tasks.

I. To provide Recreation

All adventure sports have creativity with enjoyment. Participation in these recreate individuals to a great extent.

ROCK CLIMBING

It is an activity in which participants climb up and move across the rocks like walls. The aim of rock climbing is to reach the pre-defined route without falling. After climbing the participants have to reach at the starting position. The degree of difficulty depends upon length and angle of elevation of the rocks.

Rock climbing competitions are designed in such a way that the competitors reach at the finish point as quickly as possible. It is very important to learn the technique of rock climbing as it can be dangerous also. To make it safer a special kind of equipment is used.

TYPES OF ROCK CLIMBING

Rock climbing as adventure sports can be done indoors on artificial made plywood climbing structures or it can be done outdoors on cliffs and natural rocks.

A. Traditional Rock Climbing

In traditional climbing the participants are connected by rope and harnesses scale a rock face carrying racks of specialized equipment. The climbers place wedges, nuts and other forms of protection from their racks into cracks in the rock. The rope is hooked to these pieces of protection so that, if a climber falls, the rope catches them.

B. Sport Rock Climbing

Sport climbing resembles with traditional climbing to a greater extent except that the protective pieces are permanently bolted into the rock.

C. Indoor Climbing

Indoor climbing is like a sport climbing and is performed on indoor climbing structures made of plywood or concrete. Artificial handholds are fixed on the wall.

ROCK CLIMBING BASIC TECHNIQUE

The rock climbing is done in the following ways:

Step 1

Warming up and stretching exercises are done before the start of climbing.

Step 2

Tie harness on the body to protect for sudden fall.

Step 3

The muscles are tightened and then handholds are held. The legs are used to lift body and the hands used only to guide the direction.

Step 4

Do not go away from the wall and also do not look very far up or down. Stay focused on general area so that holds can be seen.

Step 5

The climbing is not done in haste. Take your time; it's not a race. Then start moving up by placing feet on higher hold. The body weight is lifted by legs and not by arms.

Step 6

Climb for a couple of feet and then take rest for a while to recover. Then again start the climbing.

Step 7

After reaching the top while coming down, the speed should also be slow to prevent falling.

TREKKING

Trekking is known as a combination of hiking and walking activity. This activity is done for many days and generally planned away from urban areas.

Trekking makes a journey on foot especially through mountains. A trek is a long, adventurous journey undertaken on foot in areas where means of transport are not generally available. Trekking should not be confused with mountaineering. However, trekking can be done on risky mountains to make it adventurous but it does not aim to reach its peak. The mountaineering is an activity of climbing the mountains to reach their peaks.

TYPES OF TREKKING

A. Tea House Trekking

Tea house trekking is known as doing trekking by eating and sleeping at Tea house. In this type the trekkers trek and every day they will get the tea house to eat and sleep. It is a good opportunity to know about the local people's culture, tradition and the day-to-day life style. It gives a good chance to have interaction with the local people. The trekkers also enjoy local meals.



B. Camping Trekking

In this type of trekking the trekkers carry all food items and tents. All sleep in tents. The staff cooks meals as per the decided menu.

GRADING OF TREKKING

The trekking can be graded according to its difficulty and duration of trek.

A. Easy Trek

This kind of trekking is meant for beginners. The trek is done on the route which does not involve difficult climbing. The duration can last up to 7 days. The easy treks are considered as full access of teahouses and low altitude.

B. Moderate Trek

The trekkers face more challenging routes as compared to easy trek. They are longer and can last up to 10 days. The route has moderate altitude.

C. Strenuous Trek

In Strenuous trek the route is selected to high altitudes up to 5000m. They generally last up to 15 days. They also involve some steep climbing. But these treks does not involve rock climbing sort of activity.

D. Difficult Trek

Difficult treks are suitable only for real adventure seekers. The route has some steep ascents to high altitudes. Here the possibility of rope climbing is also necessary. These treks might last for 20-40 days.

TECHNIQUES OF TREKKING

Though trekking does not involve any great skill. There are some basic tips to make it enjoyable. The following points should be followed while trekking:

A. Maintain Pace

The trek should not be done with a speed. The pace should be adjusted for a long day ahead. The pace should not be too slow or too fast. Don't start out too fast in the excitement on the first day. Take it easy, warm up, and get into your rhythm as soon as you can.

B. Rhythmic Trekking

The trekking should be done with a rhythm. The unscheduled breaks should be avoided. Generally plan a hike for 30 minutes then take a break.

C. Use of Trekking Sticks

The trekkers use sticks to facilitate better and efficient trekking. The rhythm for stick movement becomes natural if the arms are moved in a swing. When the arm swings forward place the sticks' tip firmly on the ground. As the legs shift weight, push down on the stick. This reduces some of the weight going onto knees. On descents the sticks are placed ahead to take weight. It is best to use the stick with wrist straps as shown in the picture. By using these straps, the better comfort is achieved rather than ending with aching wrists and hands.

RIVER RAFTING

It is the challenging recreational outdoor activity. It is done with inflatable raft as shown in the picture. In this activity, small groups of people float down a river on a raft. Generally the crew consists of six who steer the raft with paddles. The development of this activity as an adventure sports has become popular since the mid-1970s. The multi-person raft is propelled by single-bladed paddles. It is considered an extreme sport as it can be fatal. The trip can last up to few hours or it can be combined with a camping that may last for several days. Most common rafts are 3.7 to 5 meters. They are rectangular in shape and are inflatable. The rafts are made of nylon fabric and are coated by neoprene.

DIFFERENT TYPES OF RAFTS

The different types of water rafts are explained below:

A. Oar Raft

The Oar rafts are 16 to 18 feet in length. These rafts have a metal frame and padded seats up front. The Oar Raft has 3-5 seats.

B. Paddle Raft

Paddle rafts are smaller than Oar raft and are more exciting. The Paddle Rafts are slightly smaller



than Oar Raft and are about 12 to 14 feet in length. These rafts carry 6-8 people and one guide.

C. Oar assisted Paddle Raft

It is a combination of the Oar and paddle. Generally this is used for beginners. The experienced guide sits at the back and uses oars. The other use paddle to get experience of rafting. This Raft usually carry 4-6 people.

D. Catarafts

Catarafts are 14-16 feet in length. Usually they are designed for one person but they can accommodate up to 5. This can be seen in the picture.

E. Inflatable Kayak

The inflatable rafts look like kayak. These light-weight rafts are usually about 10 feet in length. Most of them are only for one person. However some kayaks are made for two persons as shown in the picture. Because of their light weight and the fact that they can be deflated, rolled up, and stored and can be transported easily.

F. Rig

The J-Rig and the S-Rig are the two largest white water rafts. Both are constructed from two long pontoons and a metal frame that connects them. These are by far the largest white water rafts and are about 20 feet. They can carry up to 30 people.

TECHNIQUES OF RIVER RAFTING

The river rafting is water adventure sports mainly uses oars and paddles. The technique of using them is explained below:

A. Technique for Oars

When in rafting oars are being used it must be noticed that it is not just about arm movement but entire upper body and legs all play a major role in providing the raft sufficient power to run. It is also needed to lean slightly forward to thrust the blade in the water for greater control.

B. Technique for Paddles

The Paddlers should be spread evenly on both sides of the raft to make a proper balance. The paddlers' inside hand is the one that grips the top of the paddle. The outside hand holds the stem of the paddle. The outside hand is pulled backward to push backward. To move the raft to the right, paddlers on the right paddle backwards while those on the left do the forward paddle.

RIVER RAFTING GRADING

The river rafting has been graded into following six categories as per the degree of difficulty:

River Rafting Grade 1

When the area is very small and water level is flat. This grade is best for beginners.

River Rafting Grade 2

In this grade the water may be rough and there may be some rocks. It might require maneuvering.

River Rafting Grade 3

This contains white water, small waves and may be having a small drop. But it is not considered risky or dangerous. However it may require significant maneuvering. Paddling is also required in this grade.

River Rafting Grade 4

This consists of white water, medium waves, some rocks, a considerable drops and sharp maneuvers.

River Rafting Grade 5

At this grade the white water, large waves, large rocks are there. Only experienced persons are advised to experience this grade. Strong paddling and maneuvering is a need in this grade.

River Rafting Grade 6

The degree of difficulty is very high and it is very dangerous. Rafters can expect to encounter substantial white water, huge waves, huge rocks and hazards.

MOUNTAINEERING

It is the adventure sports that leads to climbing of mountains to its peak. Mountain climbing started in Europe. The tallest peak in the North America located on Mount Kinley was climbed in 1913.



Sir Edmund Hilary of New Zealand and Tenzing Norgay of Nepal became first to climb world's highest mountain Mount Everest in 1953.

Mountaineers always try to conquer a tall peak. But it becomes more challenging when new routes are explored.

TECHNIQUE

Mountaineers use climbing ropes and attached to them with waist harness. On ice slopes the climbers use ice axes and set of metal spikes. These special spikes are known as crampons and are attached to bottom of shoes as shown in the picture. In case of difficult terrain belaying technique is used. In this technique the leader ascends and the second mountaineer release the rope from a secure position. While advancing, the leader fixes gear into snow. The lead climber belays the second climber who also removes gears for its further use.



SURFING

Surfing is the sport of riding waves in a standing or horizontal position. It is performed ocean, river, man-made created waves and glide across the surface of the water until the wave breaks and loses its energy.

During the surfing the surfer riders stands on surfboards and steer the water - nearly parallel to the beach toward the shore. The ability to balance and plan on rapidly moving water is pretty wonderful.

In the old times the Hawaiian surfboards were 10 to 16 feet long and made from solid wood. It was very difficult to carry from the breakers to the shore. But latest surfboards are made of fiber, which are lighter and stronger.



TYPES OF SURFING

Types of surfing are also classified as per the board of the surfer. They are explained as below:

- (a) **Short Board:** Short boards are 5 to 7 feet and are recommended for fast and steep waves. They range from 5 to 7 feet long.
- (b) **Fish surfboard:** They are shorter, wider and flatter than short boards. They go faster in slower breaking waves and surf more smoothly than short boards.
- (c) **Fun board:** Fun boards are a general term for all surfboards and they are best for beginners. They are 7 to 9 feet long.
- (d) **Long board:** Usually they are 8 to 11 feet long and are easy to paddle and catch waves on.
- (e) **Hybrid:** They are the combination of two similar board types. For example the short board and long board.



TECHNIQUE

1. First pick the right wave.
2. Take off is done after watching where the wave is breaking more.
3. Always keep center of gravity at lower level. This can be achieved by bending knees. This also increases stability and helps to gain speed.
4. Paddle with closed fingers. Paddling out and paddling for waves require strength.
5. Adjust feet while riding the wave.

PARAGLIDING

It is generally considered that paragliding is jumping off from mountains with a parachute or being pulled into the air behind a boat with a parasail. Pilot fly off mountains, they never jump off. The movement of air into the canopy inflates it and gives it its aerodynamic shape. As the para glider is soft and can easily be packed into a bag and carried around. Its portability is its main advantage.

TYPES OF PARAGLIDING

The paragliding is mainly of two types and are explained below:

- (a) **Non powered paragliding:** It is done with assistance of natural wind only. The pilot runs few steps and the para glider gets inflated and then flies off the mountain.
- (b) **Powered paragliding:** It is also known as Para motoring. In this type of paragliding the pilot wears a motor on his back which provides enough thrust to take off. The advantage of powered gliding is that it can be launched in still air.



TECHNIQUE

The para glider is laid out on the ground at the top of the mountain on a gentle slope and facing into the wind. The pilot



is connected to the para glider with a special harness. The para glider is then pulled gently into the wind, which causes the para glider to inflate. The pilot then takes a few brisk steps into the wind and floats gently up into the air.

6.6 Safety Measures during Physical Activity & Adventure Sports

All the adventure sports involve many risks. Therefore they need material and safety measures.

MATERIAL REQUIRED FOR ROCK CLIMBING

The rock climbing needs variety of equipment for making it a safer adventure sport. The following equipment is required:

A. Clothing

The clothing must be such that the climber can spread legs and arms to its full extent. Usually lycra clothes are preferred.

B. Harness

The harness is an equipment used to attach rope without giving any knots. Harness is used in many adventure activities. Harness gives protection and prevents from falling.

C. Climbing Shoes

The climbing shoes are made of rubber so that these can be easily molded into any shape. The shoes should be fit and comfortable.

D. Helmet

Helmets protect head injury in case of falling or if anything falls on head.

E. Rope

For climbing, special rock climbing rope is used. These ropes have enough strength, elasticity, and flexibility.

The most common rope is called a kernmantel which has tightly woven nylon fibers over a loosely plaited core or collection of straight fibers. This can be seen in the picture.

F. Carabiner

They are metal links used to hold the rope in place quickly and securely as shown in the picture. They are very safe to use as knots are always risky.

SAFETY MEASURES FOR ROCK CLIMBING

Climbing is dangerous. You need to do everything you can to mitigate the effects of gravity and falling. Redundancy is key. Always back-up every important piece of gear with another piece of gear and use more than one anchor at a belay and rappel station. Your life depends on it. Beginner climbers are most vulnerable to accidents. Always use sound judgement; respect climbing dangers; don't climb over your head; find an experienced mentor or take lessons to learn how to climb safe. Remember that most accidents happen because of climber's error. Use the following tips to keep safe when you're out on rock climbing.

A. Use Harnesses Carefully

When rock climbing is about to begin the harness should be properly tied and all buckles should be checked so that they are properly closed.

B. Proper Knots

Wherever knots are tied they must be checked properly. Loose knots may get loosened and can lead to any injury.

C. Wear Helmet

A Helmet protects head from falling on rocks and from the impact of falling. Head injury can be protected by the use of helmet.

D. Always use Proper Rope

Before the start of rock climbing the rope should be checked thoroughly. The carabiner should be used along with rope.

E. Use Climbing Shoes

Always the rock climbing should be done while wearing proper climbing shoes. These shoes have better gripping and can prevent from slipping.

MATERIAL REQUIRED FOR TREKKING

Trekking means to walk in some mountain whether it is for many days or a few days. To walk in the mountain special equipment is needed which is explained ahead:



A. Foot Wear

Mountain trekking shoes are required.

B. Clothing

The clothes should be taken as per the climate and temperature. In case of high altitude woollens are required. Many accessories like thermal inner wear, jacket, gloves, hat, etc. are needed.

C. Trekking Stick

The trekking sticks are used to maintain balance. These are also helpful in reducing strain on back, knees and legs.

D. Other Equipment

Rucksack, sleeping bag, flashlight and batteries, mattress, binocular, little sphere rope, stick, wastage management bag, camera, etc., are required for trekking.

E. Miscellaneous Items

Toiletries like toilet paper, soaps are required while going for a trek. Small knife, sun screen lotion, sun glasses, water bottle, biscuits, chocolates, water purifying tablets, compact first-aid kit, etc., are also required.

SAFETY MEASURES FOR TREKKING

To have safe trek the following points are taken into consideration:

A. Avoid Trekking Alone

Trekking is not to be taken casually. Always go with team and never try to do trekking alone. The people who leave the group are lost in the ways and being alone it can be danger if encountered by any wild animal.

B. Prior Information about the Trek Location

Prior knowledge of trekking area, the geographical conditions, terrain details and various other statistics about that location can play a vital role in keeping the trek safe. This also helps in saving trekkers from wild animals.

C. Knowing Weather before Trek

Many injuries occur due to bad weather. So, it is important to know about weather forecast before starting a trek.

D. Carry Light Weight Rucksack

Carrying heavy rucksack creates fatigue and can lead to a fall. So, it is important to carry light material while going for trek.

MATERIAL REQUIRED FOR RIVER RAFTING

While going for river rafting the following material is needed:

A. Raft

The most important thing is raft which should be appropriate for safe rafting.

B. Oars and Paddles

The Oars and Paddles are required for white river rafting. The oars and paddle are selected which are made from lightweight materials or combination of materials such as wood, fiberglass and carbon.

C. Personal Floatation Device (PFD)

Life jacket designed specifically for whitewater rafting must be attained. It provides greater flexibility and more buoyancy than those designed for other water sports.

D. Helmet

A helmet is one of the most important pieces of equipment for water safety. A fall into the water could result in a head injury. Especially river rafting courses have rocks also which can be more dangerous if head of rafter strikes with any rock.

E. Clothing

The type of clothing depends upon the weather and river conditions. The special bathing suits are worn for river rafting. Other clothing options for cooler temperatures include paddling jackets and pants. A good synthetic material sweater is sufficient.

SAFETY MEASURES FOR RIVER RAFTING

River rafting has become such a popular extreme sport around. Since it is thrilling and challenging activity in the rivers it may have elements of risk. The following points are taken into consideration for the safety during the river rafting:

A. Knowledge about the River

The rivers have different behaviours during the entire year. The route of the river must be shown to the rafter. Knowledge of drops can make rafter ready well in advance.

B. Never go for Rafting alone

Rafting should never be done solo. The beginner should always go with an experienced guide. Even if you are experienced always go with other experienced rafters. But never go alone.

C. Avoid Raft in the Dark

Rafting should be done while there is plenty of day light. The rafting must end before the darkness falls.



D. Listen Carefully to your Guide

The guide knows better what you should do and when to do it during your trip. It is always necessary to listen to guide as his instructions are very important during the rafting.

E. Wear Jacket and Helmet

Always wear a Life Jacket and helmet while rafting. Both the things are very important for the safety.

MATERIAL REQUIRED FOR MOUNTAINEERING

Since mountaineering involves very long route and hence lot of equipment is needed. The following mountaineering equipment is needed:

A. Climbing Ropes

Climbing ropes are very important equipment needed for mountaineering. They are made to absorb the force of a fall.

B. Climbing Harness

The right harness for mountaineering can improve both performance and safety.

C. Sleeping Bags

There are many types of sleeping bags available. While selecting the sleeping bag consider the weight. The sleeping bag should fit to the size of the mountaineer.

D. Crampons

In the snow crampons are attached to the sole of the climbing shoes to have better grip over snow.

E. Clothing and other Accessories

The mountaineers should have wind proof and water proof clothing. It has multi layers to protect the body from snow, rain and strong cool winds. It requires sun glasses, sun hats, face masks, etc.

SAFETY MEASURES FOR MOUNTAINEERING

The following are the points important for safety while climbing the mountain:

A. GPS Navigation

It is very important to carry the map. Now-a-days global positioning system is used for Navigation. This helps the mountaineers to remain on the route and can save them from any accident caused by avalanche.

B. Sun Protection

Skin burns are very common on high altitudes. The mountaineers should use sunglasses, and sun screen creams for protecting from sun burns.

C. Insulated Clothing

Insulated clothing is the best to protect the body from severe cold climate. The jackets used for mountaineering have multi layers as shown ahead in the picture.

D. Illumination

Even the mountaineers plan to stop climbing before dark but it is essential to carry a headlamp or flashlight.

E. First-Aid Kit and Common Medicine

The First-Aid kit must be carried along with to treat in case of any injury. Common medicine can also be used in case any one gets sick.

MATERIAL REQUIRED FOR SURFING

For this adventure activity surfing boards are required. Apart from this good wetsuits are also required.

SAFETY MEASURES FOR SURFING

The following are the safety tips for safe surfing:

1. Initial training must be taken from qualified instructor.
2. Do not attempt surfing unless you can swim.
3. There should be somebody on land who knows where you have gone and when you will return.
4. The weather should be checked before surfing. High and furious tides are hazardous.
5. Always be aware of other surfers around you to avoid collision.

MATERIAL REQUIRED FOR PARAGLIDING

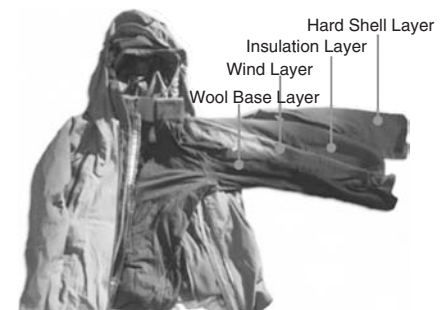
Para glider is required for para gliding. The Glider must be according to your take off weight. For powered para gliding motorized equipment is needed.

Helmet is required for the mountain high flights.

SAFETY MEASURES FOR PARAGLIDING

The following are the safety tips for para gliding:

1. Firstly check para glider as old porous gliders don't respond well to collapses and have delayed recovery.



2. Don't become over confident and don't do radical stuff near the ground.
3. Don't fly in bad weather conditions.
4. In the learning stages always accompany trainer.
5. Always wear helmet.
6. Good landing site is very important. It should be visible from distance and must be accessible. Irregular and rough landings may lead to injuries.

EXERCISE

QUESTIONS CARRYING 01 MARK

1. Define physical activity.
2. What do you mean by leadership?
3. Write any quality of a leader.
4. What do you mean by Pre-contemplation?
5. What is contemplation?
6. Write about sports on mountain.
7. List any four adventure sports.
8. What is rock climbing?
9. What do you mean by Trekking?
10. List the types of river rafting.
11. What is Mountaineering?
12. What is surfing?
13. What do you mean by powered paragliding?

QUESTIONS CARRYING 03 MARKS

14. Explain physical activity.

15. Write about any three benefits of physical activity environment.
16. Define leadership with giving two quotations.
17. Write any three qualities of a good leader.
18. Elaborate the role of a leader.
19. Explain Pre-contemplation and contemplation.
20. Describe the opportunities available to act as leader in sports.
21. What are adventure sports?
22. Elaborate objectives of adventure sports.
23. What are the material requirements for trekking?
24. Explain the types of surfing.

QUESTIONS CARRYING 05 MARKS

25. Explain the concept of physical activity.
26. Define leadership. Explain the qualities of a leader.
27. Elaborate the Behavior changes stages for physical activity.
28. Define adventure sports. Discuss its objectives.
29. Describe rock climbing and explain about its safety measures.

UNIT 7

TEST, MEASUREMENT & EVALUATION

Read 7.1 as : Define Test, Measurement & Evaluation from page no. 102 to 108 of the book.

Skinfold (*Deleted*)

UNIT 9

KINESIOLOGY, BIOMECHANICS & SPORTS

9.1 Meaning and Importance of Kinesiology & Biomechanics in Physical Education and Sports

MEANING OF KINESIOLOGY

The Kinesiology word derived from the Greek word Kinesi which means motion and Logos that means study. Hence Kinesiology is a discipline that studies the movements. In other words it means study of muscular movements. Kinesiology and physical education study the role exercise, physical movement and sports play in the development of human health and pleasure. Mainly it is observed that various applied sciences like biomechanics, anatomy, physiology and psychology to better understand how the human body responds to physical activity.

The overall objective of the programs in kinesiology is to improve the better understanding about the human movement.

In the field of physical education kinesiology is study of the human body as a machine. Mainly it has three major areas of study namely mechanics, anatomy, and physiology. The knowledge of these three fields makes the foundation for the study of human movement. It focuses on the anatomical and musculoskeletal analysis of human movement. Mainly it involves the study of structure and functions of muscles, actions of joints and the neuromuscular basis of movement.

IMPORTANCE OF KINESIOLOGY

Study and application of kinesiology is very important in the field of games and sports and is explained below:

(a) Improved performance

Kinesiology deals with study of analyzing movements of the human body. It helps in improving sports performance as it helps in correcting the movement. The sports person strive to achieve their goals efficiently without wasting energy.

(b) Safety

Kinesiology helps in designing movement experiences that avoid injuries. It also helps in designing safety equipment.

(c) Helps in developing motor skills

Kinesiology helps in developing motor skills and specialized sports skills that helps in achieving better sports performance. Through the knowledge of kinesiology, accuracy in direction, force and rhythm is achieved.

(d) Rehabilitation

After injury a person requires to perform correct therapeutic exercises which are developed through the knowledge of kinesiology. So it helps the ailing muscles.

MEANING OF BIOMECHANICS

Read from page no. 133 of the book

IMPORTANCE OF BIOMECHANICS IN PHYSICAL EDUCATION AND SPORTS

Read from page no. 133 to 135 upto (D) Improvement in the training.

9.2 Levers and its types and its application in sports (*Read from page no. 137 to 139 under Art. 9.3 of the book*)

9.3 Equilibrium-Dynamic and Static and Centre of Gravity and its Application in Sports (*Read from page no. 139 to 140 under Art. 9.4 of the book*)

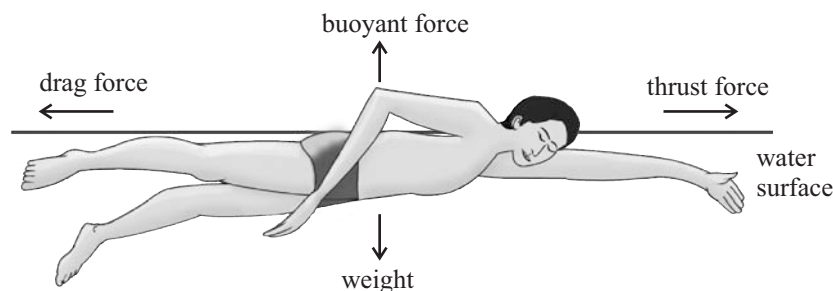
9.4 Force-Centrifugal and Centripetal and its Applications in Sports (*Read from page no. 140-141 under Art. 9.5 of the book*)

9.5 Introduction to Buoyancy Force

Buoyancy is the phenomenon that an object less dense than a fluid will float in the fluid. Archimedes' principle states that a fluid will exert an upward force on an object immersed in it equal to the weight of the fluid displaced by the object. Buoyancy is also known as the buoyant force and is known as the force exerted on an object that is wholly or partly immersed in a fluid.

Buoyancy is the upward force on an object produced by the surrounding liquid or gas in which it is fully or partially immersed, due to the pressure difference of the fluid between the top and bottom of the object. The net upward buoyancy force is equal to the magnitude of the weight of fluid displaced by the body. This force enables the object to float or at least seem lighter.

An object's buoyancy determines whether or not it will float. Mainly buoyancy depends on the object's density. As density is different from mass or weight in that it refers to an object's ratio of mass relative to its volume. For example a shot and a rubber ball can be of the same size and same volume. But the shot is heavier than ball in spite of same size and has a higher density than the ball. Due to this reason if we throw the shot and the rubber ball into a pool, the shot will sink but the rubber ball will float.



This reduces impact on the joints. In swimmers, the centre of buoyancy changes due to position and type of movement. In synchronized swimming, opposing forces of centre of buoyancy and centre of gravity helps to generate subtle and elegant rotation in the water by just simply moving their limbs. The centre of gravity and the centre of buoyancy are not always in the same place.

11.4 Load, Symptoms of Overload, Adaptation and Recovery *(Read from page no. 173 of the book)*

- **Main Symptoms of Overloading and Adaptation** *(Read from page no. 175 to 176 of the book)*

11.5 Skill, Technique and Style *(Read from page no. 177 to 181 of the book)***11.6 Role of Free-play in the Development of Motor Component****MEANING OF FREE PLAY**

Free play refers to an activity performed for amusement or recreation. It consists of physical activities essential for healthy channelization of energies. Generally these movements give children the chance to develop gross and fine motor skills. They play vital role for fitness and wellness of the child. It is a well known fact that apart from motor developments, socialization, personal consciousness, language, creativity and problem solving qualities are also developed. Always physical play incorporates play with social interactions. According to the North Carolina Child Care Health and Safety Resource Center, “All children birth to age five as well as school age children should engage in daily physical activity that promotes health-related fitness and movement skills.”

It is found that most of the children obviously build up the ability to run and walk naturally. The play can be in the form of following types:

- (a) **Outdoor Play:** Outdoor playgrounds are the best places for a child to develop mental skills, socialization and motor skills. They require regular practice so that they can develop skills like running, catching, jumping, throwing, kicking, bouncing, etc. Later children fit in these skills into sports and games.
- (b) **Indoor Play:** Mostly children lack indoor physical play because they do not feel indoor environment favorable to them. However, indoor physical play provides a safe environment. Generally these include activities like aerobics, dancing or various other physically active games.

ROLE OF FREE PLAY IN THE DEVELOPMENT OF MOTOR COMPONENT

Free play is a great opportunity for children to develop and enhance various qualities which are explained below:

- (a) **Development of Gross and fine motor skills:** Regular physical activities improve over all physical fitness, fine motor skills and gross motor skills. Gross motor skills are referred as movements involving larger muscles, like those in the arms, legs, feet or the entire body. These helps for efficient walking, running and jumping. However fine motor skills refers to movements involving smaller muscles, like those in hands, wrists and fingers such as holding a pencil.
- (b) **Physiological developments:** Regular physical activities lead to developments of heart muscles and this enhances the efficiency of circulatory system. The heart responds to exercise by becoming stronger and more efficient. Exercise reduces the amount of harmful cholesterol and fats in a person's blood. The respiratory system also gets developed by regular participation to the free play. The muscles also get stronger. Participation to the free play prevents sugar from accumulating in the blood by triggering muscles to take up more glucose from the bloodstream and this reduces a person's risk of developing diabetes. Children who play regularly always get development in increase of bone density. Hence the bones become stronger.
- (c) **Control of obesity:** Children who live sedentary lifestyle and do not participate in physical activities are found to be obese. A child who is physically active may have a shortfall of calories and this can reduce fat and lowers obesity.
- (d) **Development of emotional well-being:** Regular physical activities often lead to the release of serotonin in the central nervous system which is responsible for emotional well-being.
- (e) **Development of social skills:** Participation in play generally lead to development of social and communication skills. Free play also provides a great environment for children to develop their social qualities.