Open Vocational Education Programme
Course Code: 449-451

Certificate Course
in
COMMUNITY HEALTH

(Training Programme for Health Workers)

Practical Manual

NATIONAL INSTITUTE OF OPEN SCHOOLING
(An autonomous organisation under MoE, Govt. of India)
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Certificate Course in Community Health (Practical Manual: 449-451)

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From the Chairperson's Desk

Dear Learners,

You are welcome at NIOS.

It's a matter of great pleasure that you have enrolled yourself in public health course of NIOS to become a skilled health worker. You have the study material of this course in your hand. It clearly highlights the importance of health for all of us. It also signifies the role of a health worker in public health.

This syllabus is divided into three parts. In the first part, the composition of the human body, physiology, immune system, cleanliness, eradication of common diseases and home remedies, nutrition, yoga etc. are included. It also includes chapters on quality life style, healthy eating habits, standard of living, and how we can make them better.

Maternity and infant health is second part of the syllabus, which includes health care in pregnancy, care of a woman during and after delivery, breast feeding and different national health programmes carried by the government. The problem of increasing population and its solution is also addressed under family welfare programmes.

In the third part of the course, information on contagious diseases, various diseases related to the life style, preventive measures, emergency management and methods of first aid are given. Subsequently, you shall learn about health treatment measures of such diseases. You are also expected to spread awareness on preventive measures related to such ailments, among the masses.

Learners, since health service is a responsibility, hence you would have to take the course very seriously. This study material would be meaningful only when you study it heartily and use it for the welfare of the society. A list of do's and don'ts for health worker is given in the very beginning of the text books. Read them again and again, and follow them. It is important to have sound knowledge and a good experience before giving health related treatment. Maharishi Charak also said in this context 'it is better to consume poison than to give someone treatment without knowledge and experience'. After getting training related to community health, you would not only be able to render service in the rural areas but also be able to work with doctors as a skilled health worker in various hospitals and nursing homes of the country. You would also be able to refer the patient to the concerned doctor after giving him/her the first aid in case of emergency.

To maintain the quality standard of this study material, a team of skilled, experienced and famous doctors had tried to understand the problems especially in the rural context. Your suggestions are also cordially invited to make this study material better.

I congratulate you to continue your study through NIOS. Now you are the proud and privileged member of NIOS community. After studying the course, you shall render valuable services to the community at large, particularly in the preventing health problems in the rural part of the country.

Prof. Saroj Sharma
Chairperson
National Institute of Open Schooling

A Word With You

Dear Learners,

I welcome you at National Institute of Open Schooling. By taking admission in the professional programme of this institute, now you have become member of the world's largest open school system. I am sure you would feel happy while studying as a student under professional programme at National Institute of Open Schooling. Before you commence the learning and training of this study material, I would like to give some useful advice. At National Institute of Open Schooling, we properly understand that you are different from other students. I comprehend that amongst you, some of you must have enriched personal experiences as well. This course shall not only make you skilled health worker, but shall also add to financial stability and social prestige. Most importantly its your vibrant energy and enthusiastic spirit, which made you take admission in this course.

This study, material has been developed in such a way that you do not need a teacher to teach the curriculum. It is advisable to be in touch with your affirmed professional institute to get study material and the information about examination programme, also obtain practical training at your study centre. These centres will provide you proper skillful training which is essential for getting proficiency in any professional course content.

Under the National Rural Health Mission, the Ministry of Health and Family Welfare, GoI, from time to time carries laudable programmes, with the aim of providing effective and accessible health facilities for the rural masses. Our national goal is "Health for Everyone". With the rapid increase in the population, poverty, lack of education, as well as shortage of doctors in the rural areas, comes a constant realization that there is a need to provide formal training to the such prospective students among the masses, who can extend significant contribution to the rural hospitals and health centres. At the same time they can also provide appropriate consultation, even timely first aid to the affected rural masses.

Also, if the need may arise, such trained health workers, can even play multifaceted active role in national health programmes at the respective state level.

I hope this course would provide you an important platform to work in the health sector and would be beneficial. On behalf of National Institute of Open Schooling, I wish you a bright future.

Dr. P.K. Chauhan
Programme Co-ordinator
National Institute of Open Schooling

Do's for the Health Worker

1. Understand the disease properly and enhance your knowledge, information in the health sector or hospital by being regular in touch with the doctors.

2. Follow the rules to prevent the disease, and tell people also about it.

3. Reveal the reality of various superstitious traditions, which is different from medical science.

4. Inform the masses about the basic rules of health defence. Stay away from various addictions and inform the masses as well about the harmful effects of such addictions.

5. You are a worker in the medical field, hence perform your duty as a community health worker in your medical institute or society.

6. Skilled health workers can give optimum help to the patient but in the case of serious and complicated diseases, work only by doctor's advice.

7. You are in the health service sector hence render selfless service to the masses. By doing so, you may realize both desired monetary gains as well as prestige.

8. Delivery and surgery are complicated services requiring intense experience, support, and study. Hence, assist surgeons and doctors.

9. Before giving health advice to someone, first study concerned person's eating habits and life style thoroughly.

10. In emergency, a health worker should be prompt in giving first aid according to the training. If needed, refer the patient to the concerned doctor.

Don’ts for the Health Worker

1. Do not be in a haste to start treatment by partial understanding of the illness. Take regular advice by the doctor.
2. Do not violate prevention rules.
3. Do not use blind superstitious methods in curing process which are different from the methods prevailing in medical science.
4. Actively inform people about the harmful effects of intoxication.
5. Do not consider yourself as a doctor as it needs more in depth study and experience. Do not be in a delusion that you know a lot. Fulfill your responsibility of community health care worker.
6. In serious condition, do not give medicine or injection to the patient without prior advice of the doctor. It can be harmful for both, the patient and your prestige.
7. Do not indulge in any such activity which brings disgrace to the medical service.
8. Do not attempt unusual delivery or surgery on your own. It can be dangerous for the patient’s life.
9. Always remember not to give improper advice.
10. Except from the training given to the health care worker, do not indulge in any other medication work.

UNIVERSAL SAFETY PRECAUTIONS

Universal Safety Precaution (USPs) are precautions to be taken by all health workers in any health setting, in order to protect themselves as well as their patients. Handling of sharp instruments like syringes, scissors, blades, scalpel and other sharp instruments and needles, are being discussed here.

HANDLING SHARP INSTRUMENTS AND NEEDLES

Objectives

- To know the importance of proper handling of sharp instruments and needles.
- To enlist precautions to be taken while handling sharp instruments and needles.
- To identify practices that can harm patients, health workers and community.

One of the ethical principles is "does no harm". Yet everyday, health workers put themselves and the patients at risk of contracting infections and even serious diseases such as Hepatitis B, and HIV/AIDS due to poor injection technique and careless handling and disposal of sharp instruments and needles.

Therefore it is important that all health workers understand the importance of proper handling of sharp instruments and needle. They should ensure that no human or animal is exposed to risk of infection or needle. A sterile syringe and needle should be used for giving injection. Reuse of a needle/syringe between patients without proper sterilization is the most harmful practice. It can cause cross infection and put patients at risk. After giving injection, sharp instruments must be discarded in a container for proper disposal.

Improper handling of sharp instruments and needles causes risks not only to patients, but to health workers themselves, and the community when they come in contact with used/contaminated objects.

Method

- Adopt proper hand washing techniques.
- Wear gloves while handling patient's body fluids and blood products and needles.
- Use mask, eye protective measure and boots to prevent contamination with body fluid and blood products.
- Prevent cuts and wounds on your hands.
- Cover any cuts/abrasions on your hands.
- Always use sterile syringes and needles for giving injections.
- Prevent needle stick injuries.
- Avoid recapping needles.

- Collect used syringes and needles in a container which is puncture proof and leak proof.
- Practice safe disposal of all medical waste.
- Seal the container when it is three-quarter full.
- Once closed and scaled, the container should not be reopened or reused.

Precautions

- Prefer use of disposable articles (syringes, gloves, needles etc.)
- Never reuse disposable articles.
- Avoid recapping needles.
- Avoid bending or removing needles with bare fingers.
- Never leave used sharp instruments and needles in place where children may come in contact with them.

Note: In case, proper container for disposal of sharp instruments and needles is not available, following can be used:

(i) Shoe boxes.

(ii) Vaccine boxes relabeled as 'SHARPS'.

Certificate Course in Community Health

COURSE CURRICULUM

Course Title: Certificate Course in Community Health

Level of the Cource: Certificate

INTRODUCTION OF THE COURSE

Two third population of India lives in rural area and have no access to proper health care facilities. The alma mater declaration of 1978 declared health as a fundamental right, and the attainment of highest possible level of health as a most important worldwide social goal. It also emphasized that such realization requires action from other social and economic sectors, in addition to the health sector. "Health for All" is the national goal and priority. There is an urgent need to provide para-professional health workers amongst the community itself, to provide simple preventive and curative health services including family planning, under the community workers scheme. The government launched Jan Swasthya Rakshak (Community Health Worker) Scheme to train 5,80,000 Health Worker on recommendation of Srivastave Committee in 1977. This Health Worker Scheme (1977) labelled as Communioty Health Volunteers in 1980 was re-labelled as village Health Guide in 1981. Due to population explosion, poverty, illiteracry and many other causes, the National Goal of "Health for All", has not reached up to its target level. There are many areas/sectors not only in rural but also in urban India, where:

- There are no fully developed medical facilities.
- According to population density, there are no doctors in sufficient numbers.
- No proper facility is available during emergency especially during night. There is also absence of trained and knowlegeable personnel to guide or refer emergency cases to the city hospital.
- Absence of trained personnel to guide the community on family planning, measures of prevention of diseases, and hygiene, health environment, polio prevention and AIDs etc.

Therefore there is an immediate need to prepare health work forces, who can assist, provide appropriate care/ service to the community in the rural sectors, hospitals, nursing homes and health clubs etc. These skilled personnels, at least one from each village/mohalla will be trained through this Vocational Training Programme-Jan Swasthya Rakshak (Community Health Worker) Scheme. These trained persons shall work in the

community as a multitasking health worker they shall work as facilitators for creating health awarness, knowledge of healthy environment, health and hygience, first aid, prevention of diseases and provide appropriate treatment in emergency situations.

Thus, it is expected, that all these gaps can be filled through the trained health workers under this programme.

OBJECTIVES

After completion of this programme, a trainee should have:

- Basic knowledge on human anatomy and physiology;
- Understanding on health, hygiene and nutrition;
- Knowledge on communicable diseases, life style diseases and common non-communicable diseases including emergency measures and prevention of diseases;
- Practical knowledge on first aid pharmacy and drug reactiion;
- Ability to provide the guidance on maternal and child health care, including family planning and immunization.

JOB OPPORTUNITIES

The programme aims to train and prepare skilled health workers. These trained persons will work in the community as a health workers as well as facilitators for creating health awareness, knowledge of healthy environment, health and hygiene and first aid, and assist in getting appropriate treatment for the patient in emergency situations.

After completing this course, the trainees shall have job opportunities as an assistant/health worker in hospitals, nursing homes, and health centre.

Course Duration: 1 year

Eligibility Criteria: 10th pass

SCHEME OF STUDY

Theory	Practical/Training
40%	60%

Programme	Duration	Essential Contact Hrs	Total Study Hrs
Certificate Course in Community Health	One year	Essential contact hrs for practical including related theoretical instructions/demonstration	400

COURSE CONTENT

Subject-01: Basic Life Sciences

Subject-02: Maternal and Child Health Care (Including family welfare and immunization)

Subject-03: Prevention and Management of Diseases and Emergency

DETAILED SYLLABUS

Subject-1: Basic Life Sciences

Lesson-01: Human Anatomy and Physiology

- Role of human anatomy and physiology
- Our body
- Cell and tissues
- Organization of human body
- Organ and organ system
- Cavities in body
- Brief description of systems
  - Integumentary system
  - Skeletal system
  - Muscular system
  - Respiratory system
  - Digestive system
  - Cardio-vascular or Circulatory system
  - Excretory system
  - Nervous system
  - Glandular system
  - Reproductive system
  - Sense Organs

Lesson-02: Our Body and Immune System

- Immune system
  - Types of immunity
  - Natural immunity
  - Acquired immunity

Lesson-03: Health and Hygiene

- Concept of health
- Factors effecting health
  - Personal hygiene
  - Exercise
  - Rest and sleep
  - Posture
  - Home care and hygiene

Lesson-04: Prevention of Common Diseases and Home Remedies

- Prevention of common disease
- Home remedies for common diseases
  - Major precautions for preparing herbal medicine at home
- General disease that occurs in children and their home remedies
  - Pain in throat
  - Earache
  - Stomachache
  - Fever

Lesson-05: Nutrition

- Our food
  - Functions of food
- Nutrition and nutrients

  - Protein
  - Carbohydrate
  - Fats
  - Minerals
  - Vitamins
  - Water
  - Dietary fibre
- Food groups
- The balance diet
  - Food pyramid
  - Nutritional requirements
- Lack of nutrients

Lesson-06: Yoga and Health

- What is yoga?
  - Importance of yoga
- Asthang yoga
  - Yam
  - Ahimsa – non-violence
  - Satya – truth
  - Asteya – non-stealing
  - Brahmacharya (celibacy)
  - Aparigrah
  - Niyam – rule
  - Sanctity
  - Satisfaction
  - Austerity

- Self-study
- Ishwar pranidhan
- Asana – Postures
- Pranayama
- Pratyahar – Control of senses
- Dharana – Concentration
- Dhyana – Medication
- Samadhi

- Yogasan and initial practices
  - Principles (siddhant) of yogaabhyasa
  - Important yogasanas
  - Surya Namaskar (Sun Salutation)
  - Pranayama and its practice

Lesson-07: Management of Diseases through Yoga

- Yoga and life
  - Principles of yoga therapy
  - Basic principles of yoga therapy
- Therapeutic aspects of yoga
  - Yogic management for respiratory problems
  - Yogic management for digestive disorders
  - Management of high blood pressure and heart diseases
  - Yogic management of back pain
  - Yogic management of cervical spondylitis
  - Management of musculoskeletal disorder gout or arthritis
  - Management of diabetes through yoga
  - Management of anxiety and depression through yoga
  - Yogic practice for ladies

Subject-02: Maternal and Child Health Care

Lesson-01: Pregnancy and Care of Woman in Pregnancy

- Puberty
- Menstrual cycle
  - Ovarian changes
  - Uterine changes
- Physiological changes during pregnancy
- Sign and symptoms of pregnancy
- Routine of woman during pregnancy
- Various investigations of pregnant woman
  - Physical examination
  - Steps of abdominal examination
  - Lab investigation
  - Assessment of risk in pregnancy
  - Prenatal screening
- Care of pregnant woman
  - Nutrition during pregnancy
  - How much work should be done in pregnancy?
  - Rest in pregnancy
  - Exercise in pregnancy
  - Personal hygiene

Lesson-02: Woman's Care during the Perinatal and Postpartum Period

- Labour: An introduction
- Signs of true labour
- Assessment of woman after arrival in the labour room
- Assessment of the status of mother and child during delivery

- Preparation of woman for delivery
- Preparation for delivery
- Third stage of delivery
- Immediate care of the newborn
- Care of the newborn baby
- Breast feeding
- Postpartum care of the mother

Lesson-03: Breast Feeding

- First and foremost milk after delivery (Colostrum)
- Advantages of breast feeding and disadvantages of bottle feeding
- Specific conditions where breast feeding is contraindicated
- Good breast feeding techniques
- Common feeding problems and their prevention

Lesson-04: National Health Programme

- National health programmes
  - National vector borne disease control programme
  - Prevention and control of non-communicable diseases (diabetes, CVD and stroke)
  - Revised national TB control programme (RNTCP)
  - Universal immunization programme
  - Reproductive and child health programme (RCH)
  - National family welfare programme (NFWP)
  - National aids control programme
  - National cancer control programme
  - National iodine deficiency disorder control programme
  - National blindness control programme
  - National programme for prevention and control of deafness

- National leprosy eradication programme
- School health programme
- National rural health mission (NRHM)

Lesson-05: Family Welfare Programme

- Importance of family welfare programmes
- Need for family welfare programmes
- Family planning
  - Temporary methods
  - Permanent methods
- Temporary methods
  - Male condom
  - Female condom
  - Diaphragm
  - Vaginal sponge (available in the form of today)
  - Intra uterine contraceptive device (IUCD)
  - Oral contraceptive pills (Hormonal contraceptives)
  - Subdermal implants
  - Hormonal vaginal ring (Only progesterone ring)
  - Centchroman pill (Saheli)
- Permanent methods (Sterilization)
  - Male sterilization
  - Female sterilization
- Post coital contraceptive (Emergency contraceptive)
- Cafeteria approach
- Birth spacing between two children
- Medical termination of pregnancy (MTP)

Lesson-06: Duties and Responsibilities of the Health Worker

- Duties of the health worker
- Responsibilities of the health worker
  - To make road map of the area
  - Survey of homes
  - Duties and responsibilities of a health worker in prevention of diseases
  - Duties and responsibilities of a health worker in curing the diseases

Subject-03: Prevention and Management of Diseases and Emergency

Lesson-01: Communicable Disease – 1

- Communicable disease
  - Mode of transmission of communicable disease
- Control of communicable diseases
- Communicable diseases
  - Chicken pox
  - Measles
  - Polio
  - Diarrhoea
  - Cholera
  - Pneumonia
  - Tetanus
  - Rabies
  - Fever in communicable diseases

Lesson-02: Communicable Disease – 2

- Parasitic diseases
  - Dengue
  - Malaria

- Leprosy
- Tuberculosis
- Diptheria
- Pneumonia
- Food poisoning
- Venereal infection
  - Syphilis
  - Gonorrhea
  - Aids
- Some parasitic infections
  - Amoebiasis
  - Hook worm (Encylostoma duodenale) infestation
  - Ascariasis (Round worm)

Lesson-03: Preventive Measures

- Origin of disease – it's root cause and associated causes
- Causes of origin of disease and it's control
  - Active immunization
  - Passive immunization
  - National immunization schedule
  - Prevention by chemo-prophylaxis
  - Protective mask
- Different routes of transmission of infection
- Direct contact route
- Prevention of diseases in the hospital
- Food supplementation
- Rehabilitation

- Prevention of diseases
- Personal hygiene
- Quarantine

Lesson-04: First Aid

- General and necessary information
- Emergency conditions
  - Shock
  - Electric shock
  - Hypothermia
  - Chill-blens or frostbite
  - Anaphylaxis
  - Foreign body in trachea
  - Dog bite
  - Earache
  - Foreign body in the ear
  - Bleeding from wound
  - Foreign body in the nose
  - Bleeding from the nose
  - Internal haemorrhage
- Bandages

Lesson-05: Life Style Diseases

- Coronary heart disease
- Hypertension
- Paralysis (stroke)
- Diabetes
- Obesity
- Cancer

Lesson-06: Drug and Drug Reactions

- What is pharmacy?
- Antiseptic and disinfectant
- Drug reactions
- The drugs and materials to be present with health worker

Lesson-07: Emergency and its Management

- Emergencies conditions
  - Drowning
  - Heat stroke/Sun stroke
  - Burning
  - Snake bite
  - Fever
  - Convulsions
  - Abdominal pain
  - Head injury
  - Fracture
  - Poisoning
  - Care of a paralysed patient

EVALUATION AND EXAMINATION SCHEME

Paper	Theory			Practical			Total
	External Assessment		Internal Assessment	External Assessment		Internal Assessment	
	Max. Marks	Time (Hrs)	Max. Marks	Max. Marks	Time (Hrs)	Max. Marks	Max. Marks
Basic Life Sciences	70	3	10	100	4	20	200
Maternal and Child Health Care	70	3	10	100	4	20	200
Prevention and Management of Diseases and Emergency	70	3	10	100	4	20	200

PASSING CRITERIA

S.No.	Subject for the trade test	Max. Marks in Theory	Minimum % required for passing	Minimum marks required for passing
1.	Theory (including Internal Assessment) (Internal Assessment–30)	(70 +10) × 3 = 240 (Written Test Paper –210)	40%	96
2.	Practical (Including Internal Assessment) Internal Assessment–60)	(100 + 20) × 3 = 360 (Practical Test –300)	60%	216

Note:
- In theory, a trainee should secure 40% marks in aggregate including Internal Assessment.
- In practical a trainee should secure 60% marks in aggregate including Internal Assessment.

PROCEDURE FOR INTERNAL CONTINUOUS ASSESSMENT

Theory

3 Tests of 10 marks each to be conducted after every 45 days — Total Marks = 30

Practical/Training (Internal Assignments)

Assessment will be done by maintaining progress card of each candidate, indicating assessment of each practical/experiments. — Total Marks = 60

Course Fee: As per prospectus

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PART-1

(VOLUME–A)

(VOLUME–B)

(VOLUME–C)

PRACTICAL MANUAL

PART-1

(VOLUME–A)

PRACTICAL 1

SKELETAL SYSTEM

AIM

To identify bones and their respective position in the human body.

After doing this exercise you will be able to recognize the important bones and will be able to comment on them.

REQUIREMENTS

A Skeleton of human body, all bones and a chart showing the skeletal system.

METHOD

Identification of the bones and their positioning in the body. Some of the important bones are described below:

Name of bone	Type of bone	Identification point	Location of the bone	Comment
1. Bones of skull: These are the bones that forms cranium jointly.				
(i) **Frontal bone**	Flat	The part of bone covering fore-head	Two bones, each lateral to mid line.	–
(ii) **Parietal bone**	Flat	Two bones joined in the mid-line-behind frontal and anterior to occipital bone	Joined to frontal bone anteriorly, occipital bone posteriorly, and temporal bone laterally.	The first cervical vertebra (C1) is connected that forms the skull and provides safety to the brain.

2. Bones of arm				
(i) **Humerus**	Long	It has head, neck, shaft and at the lower end epicondyles (medial and lateral) and an articular surface which forms elbow joint	In the upper arm	To differentiate it from femur, its length is lesser than femur. Neck is not prominent as compared to femur
(ii) **Radius**	Long	It has head, shaft and lower end. Head is flat at the top and is coin shaped. Lower edge is wider than upper edge.	Located in fore arm on the lateral side.	Its upper end forms elbow joints and lower ends forms wrist.
(iii) **Ulna**	Long	It is similar to Radius.	Placed on the medial side of the fore arm.	Upper end forms elbow joints and lower ends forms wrist.
(iv) **Carpal and meta carpal bones of the wrist**	Short bone	The length and width of short bones are almost the same. It is necessary to examine the skeleton again and again to develop accuracy in identifying each short bone. There are five meta carpal bones placed between the base of thumb, fingers and wrist. Each bone has a head, shaft and a base. They are numbered 1^{st} to 5^{th}. Metacarpal bone between the thumb and the wrist is numbered as 1^{st} metacarpal and that between the little finger and wrist is numbered as 5^{th} metacarpal	Placed in the wrist in two rows of 4 bones each. Metacarpal bones are placed , 1^{st} to 5^{th} starting from the base of the thumb as 1^{st}meta carpal bone	

Phalanxes (long)	Long Flat bone	These are short in size.	These are fourteen in numbers. Three in each fingers and two in the thumb.	
3. Appendicular Skeleton				
(i) **Clavicle**	Long	It is also known as collar bone.	Its medial end is connected to to sternum and lateral end forms shoulder joint.	
(ii) **Scapula**	Flat bone	Scapula has flat plate like surface.	Placed one each near the shoulder region on upper part of back	Upper outer end of scapula forms shoulder joint
(iii) **Sternum**	Flat bone	has a flat surface. ribs are connected anteriorly with the sternum	Placed anteriorly on the anterior region of the chest.	
4. Ribs				
Ribs	Flat	These are flat and jointed to Sternum in a circular form at the front part and are connected with vertebral column at the back.	These are 12 on each side of of chest. Ribs are 24 in number, that are joined anteriorly with the sternum and posteriorly with vertebral column.	Ribs forms a cage of bones in chest which protects heart and lungs.
5. Spine				
Vertebra	Irregular bone	Irregular in shape.	Vertebra forms vertebral column. They are 26 in numbers. Each vertebra looks like beads and interconnected with each other like a chain as follows. 7 in cervical region, 12 in chest region, 5 in back region, one in sacrum and 1 coccyx.	Vertebral column protects the spinal cord

6. Hip bone				
Hip joint	Flat	Its surface is flat and shallow. With sacrum, ischium and pubis it forms pelvic girdle.	Placed laterally and posteriory and connected to sacrum at the lower part of the back	
7. Bone of leg				
(i) Femur	Long	It has head and neck at the upper end, shaft in the middle part, medial and lateral epicondyle and an articular surface at the lower end.	This bone is located in thigh so it is also called thigh bone.	This is the longest and thickest bone of the body.
(ii) Tibia	Long	It has upper end, shaft and lower end the articular surface at the upper end terms knee joint and at lower end forms ankle joint medial malleolus can be felt on inner side of ankle. The superficial part of anterior sureface of shaft also called skin tibia can be felt beneath the skin.	In the leg on inner side it starts at the knee and ends at the ankle.	It is calf bone.
(iii) Fibula	Long	It has head, neck and shaft	In leg on the lateral side, medially joined with tibia at the upper and lower end.	It is also a calf bone.
(iv) Tarsals	Short	These are irregular in shape	They are 8 in numbers. They are located in ankle joint in two rows, 4 in each.	

PRECAUTIONS

- Ensure proper safety while studying skeleton and various bones.
- Do not write anything on model and chart and be careful while using them.
- Keep them back on their place after using.

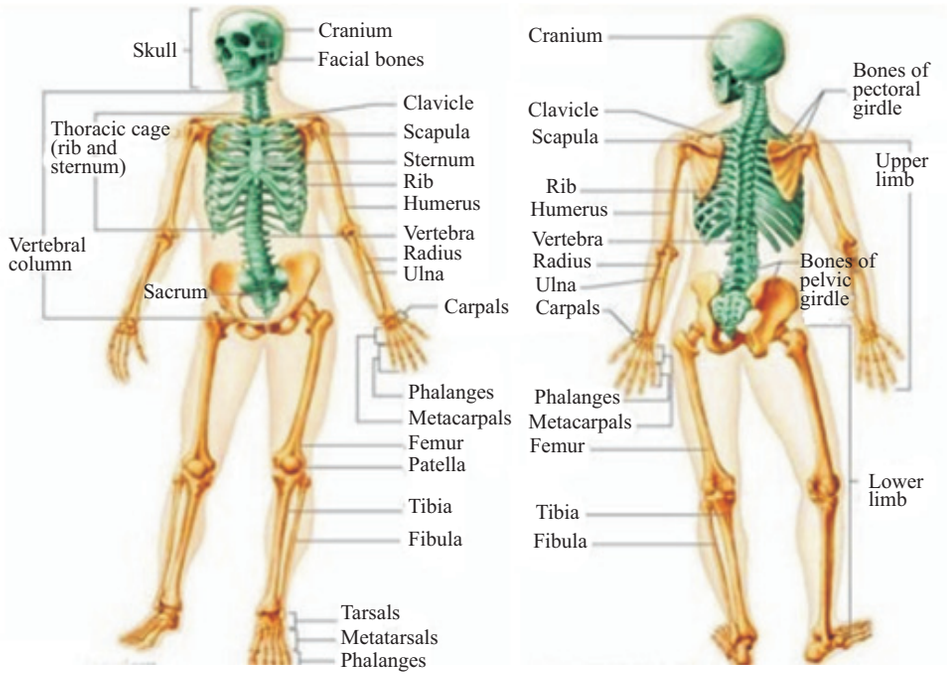


Fig. 1.1: Human skeleton

Note: Give 2-3 written answers related to various bones to the students.

Notes

PRACTICAL 2

RESPIRATORY SYSTEM

AIM

To know different organs involved in respiratory system and their respective functions. You would be able to recognize the different parts of the respiratory system and explain its function after doing this exercise.

REQUIREMENTS

Clay model of the respiratory system. A chart showing the respiratory system.

On a clay model of respiratory system identify the different organs involved in respiration as enlisted below:

(i)	Nose	(ii)	Pharynx
(iii)	Epiglottis	(iv)	Larynx
(v)	Trachea	(vi)	Bronchi
(vii)	Bronchioles (primary, secondary and tertiary)		
(viii)	Atria	(ix)	Alveolus

Flow chart showing movement of oxygen through the body and the role played by different parts of the respiratory system

Oxygen enters in the body

↓

Through nose or mouth

(We inhale and exhale by nose or mouth)

↓

Pharynx

(Oxygen enters into pharynx through naso-pharynx)

↓

Epiglottis

(a flap that opens when air enters the wind pipe. It closes when food or water are passed from oro-pharynx to food pipe)

↓

Larynx

(Voice box between pharynx and trachea)

↓

Trachea (wind pipe)

(10 to 11 cm long tube located below the larynx in the neck and inside the thorax)

↓

Bronchi

(1. Right bronchus 2. Left bronchus. It enters into left and right lungs through hilum and spread like the branches of tree in the lungs.

↓

Bronchioles

(are the smallest branches of each bronchi which are spread in lungs and are called primary, secondary and tertiary branches)

↓

Atria

(last part of tertiary bronchioles is called atria)

↓

Alveoli

(last balloon shaped part which resembles like a bunch of grapes, is covered by a network of capillaries. Gases are exchanged in alveoli)

↓

External respiration occurs; oxygen and carbon dioxide are exchanged.

↓

Circulatory System

↓

(Internal respiration occur in body cells.
Exchange of oxygen and carbon dioxide takes place)

Lungs

Identify lungs in the clay model.

(i) Left lung

(ii) Right lung

These are two pyramid shaped organs present in the thorax.

Right lung: has three lobes (upper lobe, middle lobe and lower lobe)

Left lung: has two lobes (upper lobe and lower lobe)

Each lung is enveloped by double layer of epithelium called pleura. It has fluid called pleural fluid which prevents damage of the lungs due to friction while expansion. We respire about 18 to 20 times per minute. Respiration means to inhale and exhale the air. During inspiration we breath in oxygen and during expiration we breath out carbon dioxide.

PRECAUTIONS

- During exercise properly understand the position and functions of all the organs related with the respiratory system.
- Do not write anything on the model and chart and use them carefully.
- Keep the model and chart back to their place after use.

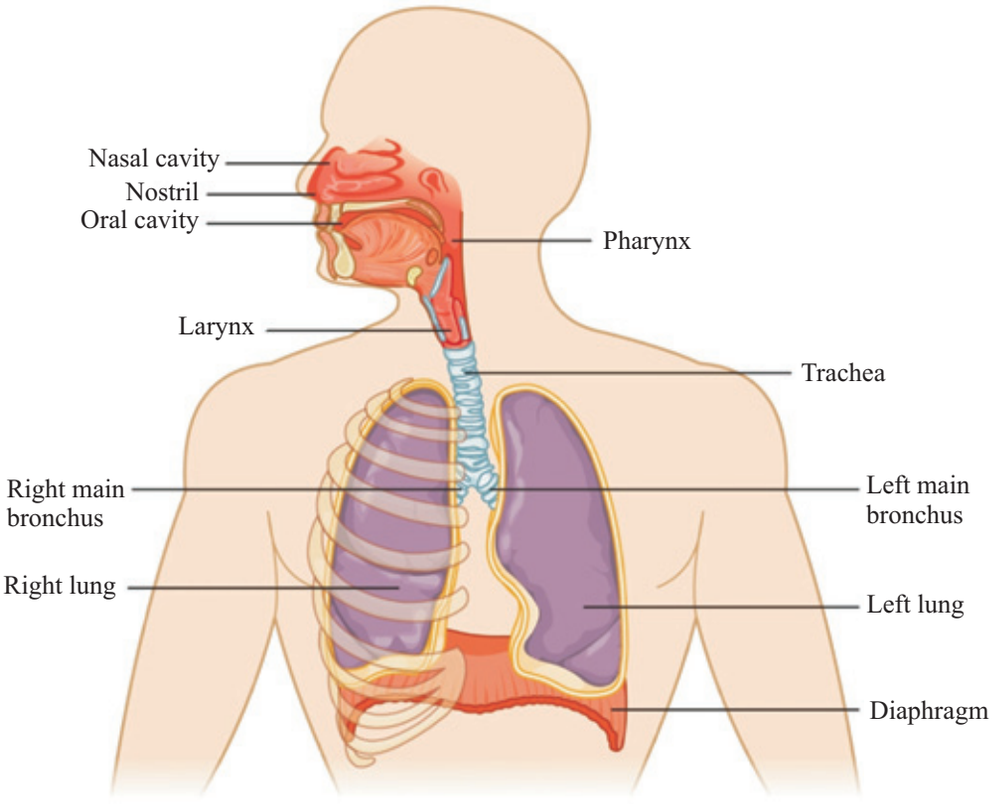


Fig. 2.1: Respiratory system

PRACTICAL 3

DIGESTIVE SYSTEM

AIM

To know different organs involved in the digestive system and their respective functions.

You would be able to recognize the different parts of the digestive system and be able to explain its functions after doing this exercise.

REQUIREMENTS

A clay model of different organs of digestive system, a chart showing the digestive system.

A brief description is given below that will help students in understanding the system.

Body cell cannot absorb the nutrients from the food we eat. Digestive system absorbs nutrients, which can be used by the cells. The process of transformation of food into usable substance is known as digestion. After digestion, the process of transfer of nutrients like (glucose, peptone, amino acid, minerals, water and vitamins) from the intestine to the blood is called absorption. The **digestion** and **absorption** are the two main functions of digestive system.

Digestive system can be seen as long muscular tube, which starts from the mouth of human body and ends at the anus. It is called alimentary canal and it has many parts that can be seen below in the chart.

Mouth (oral cavity) and Salivary Glands like (i) Sublingual, (ii) Submandibular, (iii) Parotid, these glands secretes saliva that dissolves and moves the food downwards.

↓

Notes

Pharynx: Oro-pharynx food is pushed down from pharynx to food pipe. Epiglottis closes the wind pipe when food gets into food pipe so that food cannot not enter in it.

↓

Esophagus: Food comes in esophagus via pharynx. Food goes down as the rhythmic waves like movement. These waves are called peristalsis.

↓

Stomach: It is a enlarge portion of alimentary tract that receives food from pharynx. Food stays here till it is broken into chyme by digestive juices of stomach.

↓

Small intestine 27 feet long

Duodenum: First part of small intestine and its length is almost 10-12". It receives digestive juice from liver, pancreas, and gall bladder, which further break down chyme.

↓

Jejunum: It is the next part of the small intestine. It has villi. (the hair like projection in the inner lining)

↓

Ileum: Absorption mainly takes place in ileum. Villi has cells which absorbs nutrients from small intestine and transfers them into circulatory system.

↓

Large intestine

Caecum: It is the first part of large intestine which gets non absorbed food from small intestine.

↓

Ascending Colon: Mucus is secreted to aid the movement of faeces through large intestine. Water, mineral and other nutrients get absorbed in the large intestine.

↓

Transverse Colon: Mucus is secreted to aid the movement of faeces through the large intestine. Water, mineral and vitamins get absorbed in large intestine.

↓

Descending Colon: Mucus is secreted to aid the movement of faeces through the large intestine. Water, mineral and vitamins get absorbed in large intestine

↓

Rectum: Last part which is 6-8" of food pipe. It stores the faeces.

↓

Anal Canal: Anus is the end of the alimentary canal. Faecal matter comes out from here while defecation, when we pass stool.

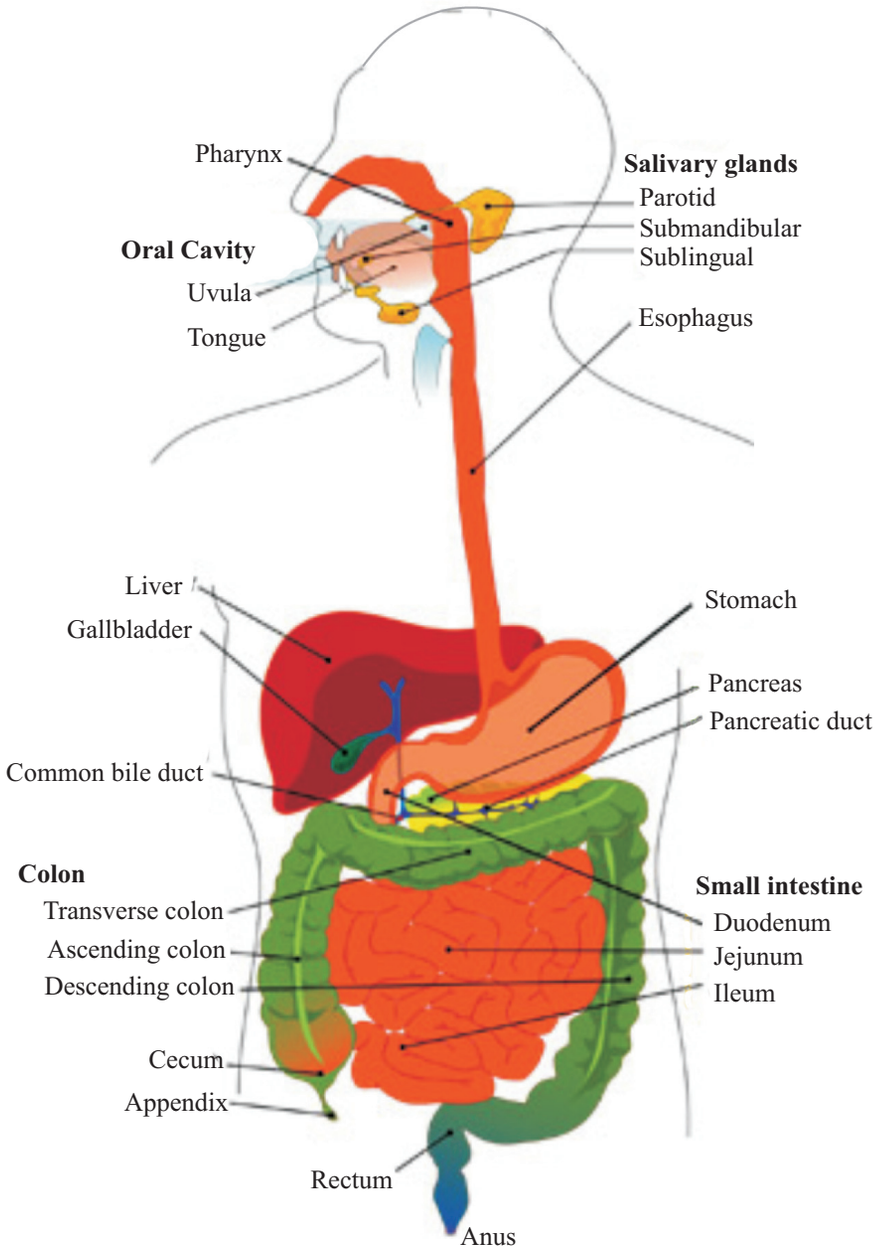


Fig. 3.1: Digestive system

Notes

PRACTICAL 4

CIRCULATORY SYSTEM

AIM

To know about different organs involved in the circulatory systems and their respective functions.

You would be able to recognize the different parts of the circulatory system and explain its functions after doing this exercise.

REQUIREMENTS

- A clay model of the Heart.
- A chart showing heart chambers.
- A chart showing circulatory system.

METHOD

With the help of clay model of circulatory system, identify the various organs and their functions.

CARDIO VASCULAR SYSTEM

Heart is a muscular organ situated in between the two lungs slightly to the left side of chest.It is covered by two layers of membrane called pericardium, which contains pericardial fluid. This fluid acts as a lubricant.

Heart has four chambers, right atrium, right ventricle, left atrium, left ventricle.

Heart beats 70-80 times per minute. In every beat, heart pumps around 200 ml. which means 16 liter in a minute.

Functions of the Heart

(i) Heart pumps oxygenated blood into the arterial system from where it is carried to the capillaries for supplying it to tissues.

(ii) Collects de-oxygenated blood from different systems.

(iii) Pumps it to lungs for re-oxygenation.

A Chart Showing Flow of Blood Through the Body

De-oxygenated blood through the venous system goes to
Right atrium
↓
Through the Tricuspid Valve
↓
Right Ventricle
↓
Through the Pulmonary semi lunar valve
↓
Pulmonary Artery
↓
Lungs
↓
Alveoli
↓
Exchange of carbon dioxide and oxygen
(external respiration)
↓
Pulmonary veins
↓
Left Atrium
↓
Mitral Valve

Notes

↓

Left Ventricle

↓

Aortic Semi lunar Valve

↓

Aorta

↓

Body (through artery system)

↓

Arteries

↓

Arterioles

↓

Capillaries

↓

Cells/ Tissues (Exchange of oxygen and carbon dioxide). [Internal respiration]

↓

Venules

↓

Veins

↓

Superior and Inferior Vena Cava

↓

Right Atrium

PRECAUTIONS

(i) A proper care should be taken while using the clay model and chart so that they do not get damaged.

(ii) Nothing should be written on the chart and model.

(iii) Put the chart and model back to their place after use.

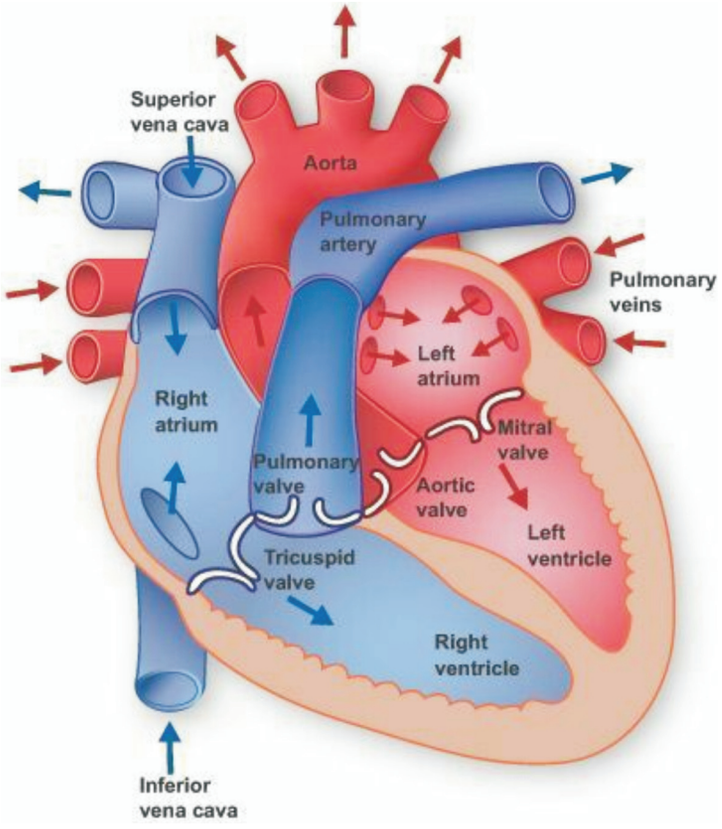


Fig. 4.1: Heart with major blood vessels

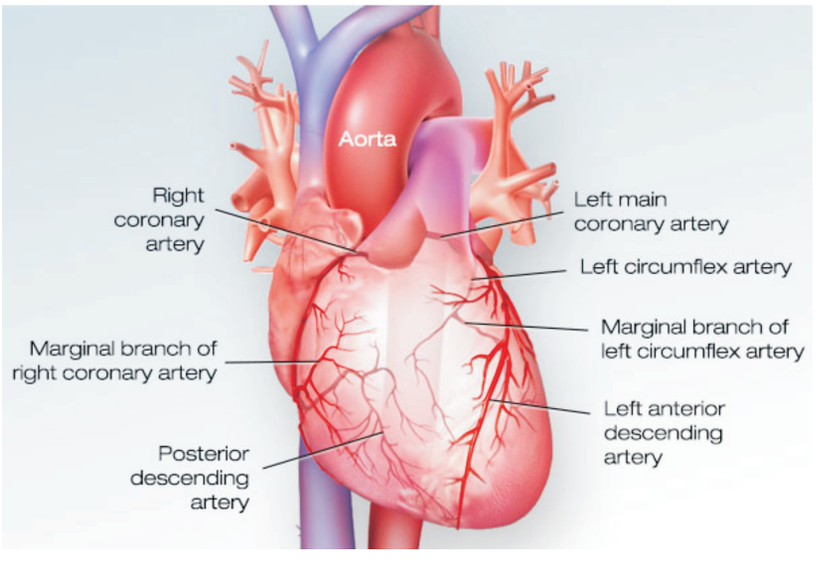


Fig. 4.2: Internal view of Heart

Notes

PRACTICAL 5

EXCRETORY SYSTEM

AIM

To know the different parts of the excretory system and their respective functions.

You would be able to identify the different parts of excretory system and explain their functions after doing this exercise.

REQUIREMENTS

- Clay model and a labelled chart of Excretory System.

METHOD

With the help of clay model of excretory system identify the various organs and their functions.

EXCRETORY SYSTEM

The liquid waste of the body is expelled from the body with the help of kidneys. Kidneys are two bean shaped organs of the size 4×3×2 inch. These are located one on each side of the vertebral column in the posterior wall of abdomen. Pure blood comes to the kidney through aorta by renal artery. The blood after filtration in the kidney passes back by renal vein to heart via inferior vena cava. Longitudinal section of the kidney shows the outer part called **Cortex** and inner part as **Medulla.**

Medulla consists of collecting system and cortex consists of numerous units called nephron. Nephron is basic functional unit of Kidney.

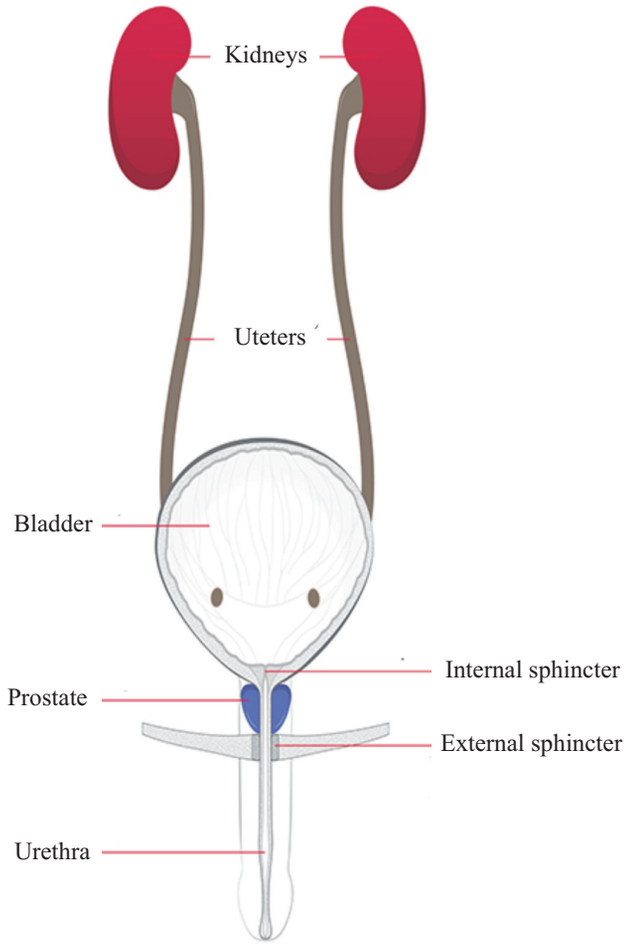


Fig. 5.1: Excretory system

FUNCTIONS OF THE KIDNEY

1. To produce glomerular filtrate.
2. It regulates electrolytes and water balance.
3. It maintains blood pH.
4. It maintains the body level of potassium and calcium.
5. Production of rennin
6. Production of erythropoietin.

Ureters

They are two in number, one emerging from each kidney and opens at the posterior surface of urinary bladder. The length of each ureter is 25 cm. Urine is carried to urinary bladder by peristaltic waves.

Urinary Bladder

It is an elastic distensible bag which can contain 200 to 400 ml. urine. It is present behind the pubis symphysis of pelvis. There are three openings on the floor of the bladder: two from the ureter and one urethral opening. We get an urge to pass urine when about 300-500 ml of urine gets collected in the urinary bladder. The urine contains soluble waste products like urea, uric acid, creatinine, sodium, potassium and calcium ions etc. We pass out one and a half liters of urine daily.

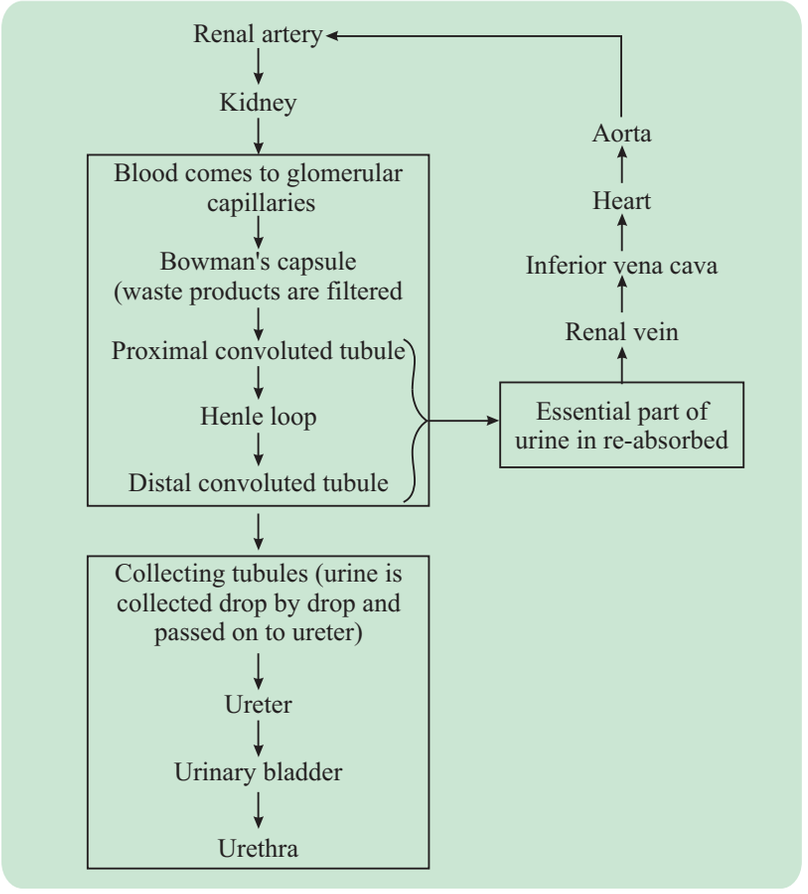
PRECAUTIONS

(i) A proper care should be taken while using the clay model and chart.

(ii) Nothing should be written on the chart and model.

(iii) Put the chart and model back to their place after use.

A chart showing the making of urine and its path



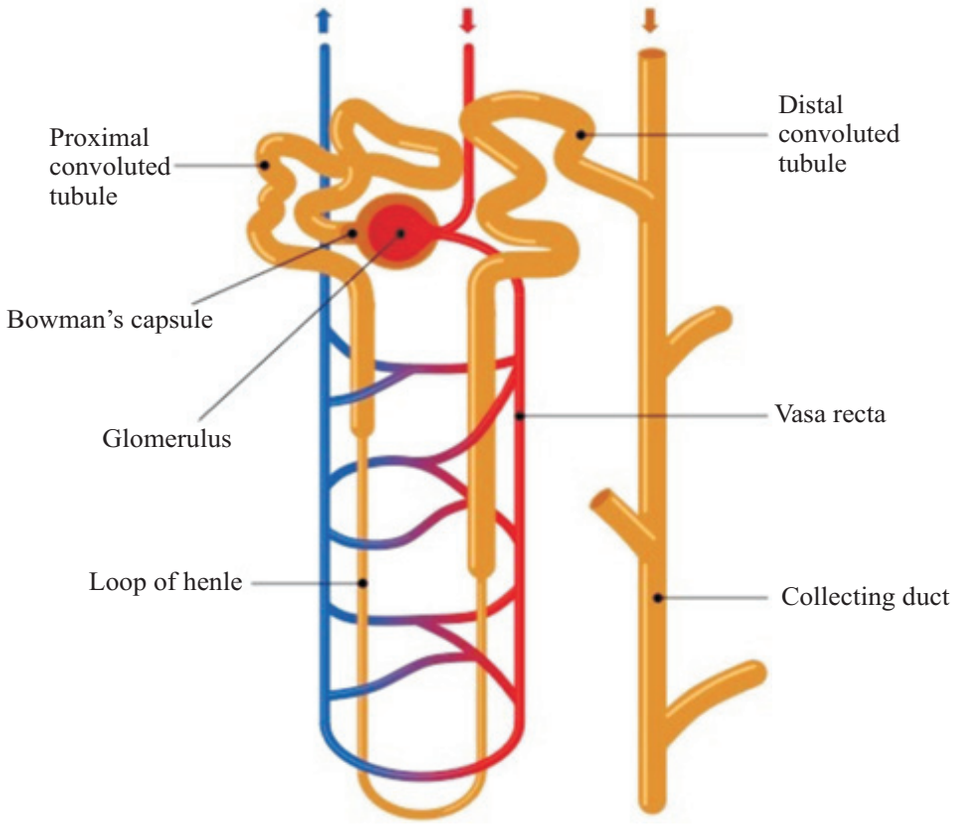


Fig. 5.2: Nephron

Notes

PRACTICAL 6

REPRODUCTIVE SYSTEM

AIM

To know different organs involved in reproduction and their respective functions.

You would be able to identify the different parts of reproductive system and explain its functions after doing this exercise.

REQUIREMENTS

A clay model of the female reproduction system.

A chart showing the male reproductive system.

FEMALE REPRODUCTIVE SYSTEM

The main function of female reproductive system is to produce ovum for fertilization and accommodate a developing foetus. After fertilization, this fertilized ovum rests for 9 months (40 weeks) in Uterus to develop and finally develops into a new born baby.

Female reproductive system consists of the following organs:

- Ovaries
- Fallopian Tubes
- Uterus
- Vagina

Ovaries

These are the two small oval shaped structures located one on each side near the lateral wall of uterus. They produce female cell or ovum and a hormone called

estrogen. Ovaries are almond like structures, one on each sides of vertebral column in abdominal cavity.

Functions

- Produce ovum
- Secretion of female hormone estrogen and progesterone.
- These hormones help in developing secondary sexual characteristics, uterus and vagina.
- Controls menstruation cycle.
- Helps in development of Mammary Glands.

Fallopian Tube or Oviduct

A pair of these tubes extends from ovary to the uterus. Each has three parts namely:

(i) Infundibulum

It is like a funnel in shape and is placed close to ovary. Infundibulum collects ovum released in the peritoneal cavity.

(ii) Ampulla

Middle dilated part where fertilization takes place.

(iii) Isthmus

Last part that opens in the uterus .

Uterus

It is pyriform muscular organ in the pelvic region of female. Its upper broader part is called body and narrow lower part is called cervix which is projected into the upper part of vagina. Uterus harbours the developing fetus and provide nutrients for it.

Vagina

This is copulation chamber in female. Vagina opens out through an opening. In female, urethra and vagina have separate openings. In the virgin, the vaginal orifice is covered by a thin membranous diaphragm called hymen.

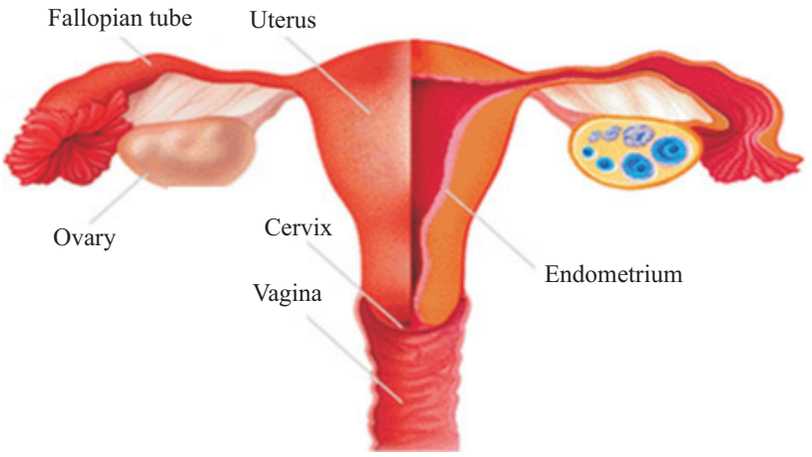


Fig. 6.1: Female reproductive system

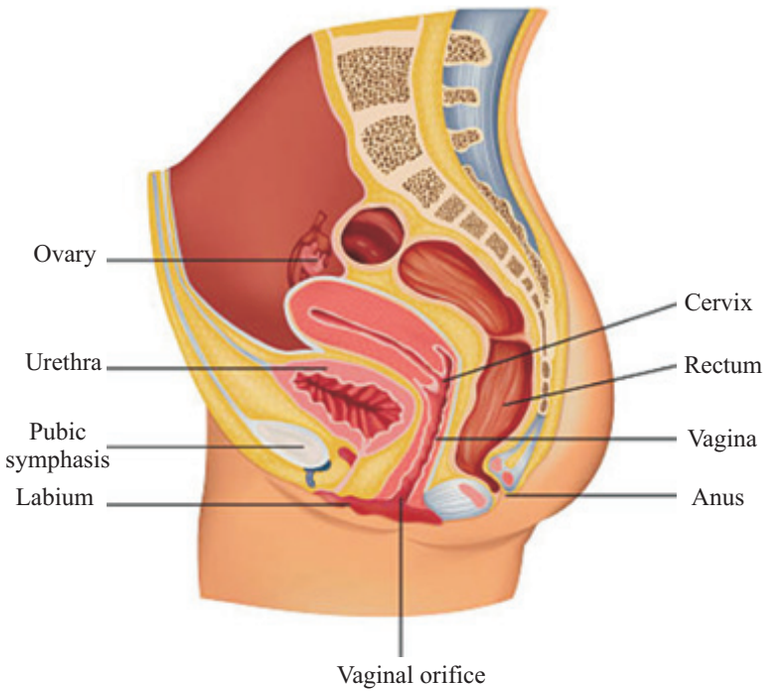


Fig. 6.2: Female reproductive system- lateral view

MALE REPRODUCTIVE SYSTEM

It consists of:

(i) Testes (male gonads)

Testes are two in numbers, which are located one each in scrotal sac. Testes produce sperms that pass further into epididymis.

(ii) Epididymis

Each Epididymis is a single coiled narrow tube which is placed along the side and top of the testes. It acts as a duct to carry sperm from testes to the vas deferens. It also stores sperms prior to ejaculation.

(iii) Vas deferens

It is a slim muscular tube almost 18 inch long in a secretory duct of the testes and is a continuation of epididymis. It transports sperms from each testes to the ejaculatory duct which opens into prostatic part in urethra.

(iv) Ejaculatory Duct

This is the terminal portion of the seminal duct. It is formed by the union of ductus deference and the secretory duct of seminal vesicles.

(v) Seminal Vesicles

It is a pair of convoluted pouches that secretes viscious fluid that constitutes to major portion of semen. It is rich in fructose and contains prostaglandin.

(vi) Prostate Gland

It is a paired tube like gland of walnut sized that is present below bladder. Urinary tract runs through the centre of prostrate. So, in aged people due to increase in size of prostate their urinary tract shrinks, and there is an obstacle in urination.

FUNCTIONS

1. It secretes an alkaline fluid that contributes to the largest part of semen.
2. It increases sperm motility.
3. Its alkalinity protects the sperm from acid present in male urethra and female vagina.

Urethra

It is a small common passage for urine and semen that leads from urinary bladder through prostate gland and the penis to the outer side of the body.

Penis

It is the copulatory organ that deposits sperms into female vagina. Urethra passes through penis that serves as a passage for urine and semen.

Notes

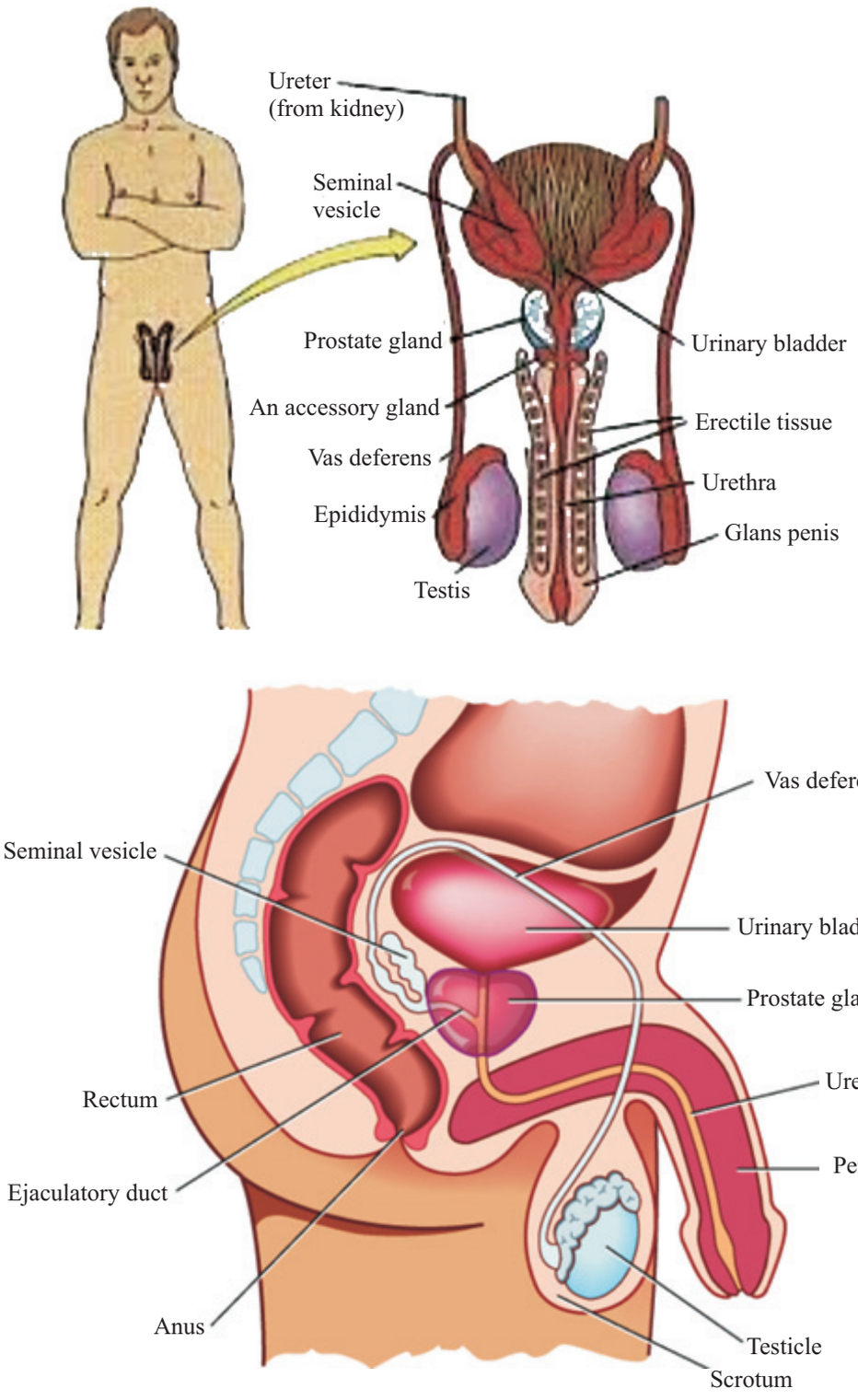


Fig. 6.3: Male reproductive system

PRACTICAL 7

NERVOUS SYSTEM

AIM

To study the structure and function of the brain and nervous system

You would be able to explain structure and actions of the brain and functions of nervous system after doing this exercise.

REQUIREMENTS

- A clay model of nervous system, and brain.
- A chart of nervous system.

NERVOUS SYSTEM

Nervous system is composed of nerve cells joined together to receive stimuli and respond to stimuli. It controls all the functions of the body. These are performed by the nerve cells present in the brain and spinal cord.

All parts of the brain and peripheral nervous system work together in relaying messages to the brain. Each message is carried to the specific part of brain by special nerve cells. The basic unit of nervous system is called neuron or nerve cell.

Each specialized neurons leads into a passage that conveys the message to the specific area of the brain that can interpret the message causing a necessary response. For example, the act of hearing due to sound waves within ears, or the act of looking the object due to light rays received by the eyes. Thus we hear, smell, taste and feel heat, cold, pressure, pain and sense of touch.

Different parts of the brain perform different functions and control all the systems of the body, and can store memory as well.

Notes

ACTIVITY

Draw a labelled diagram of the nervous system and brain. Answer the questions regarding structure and function of different organs of the nervous system.

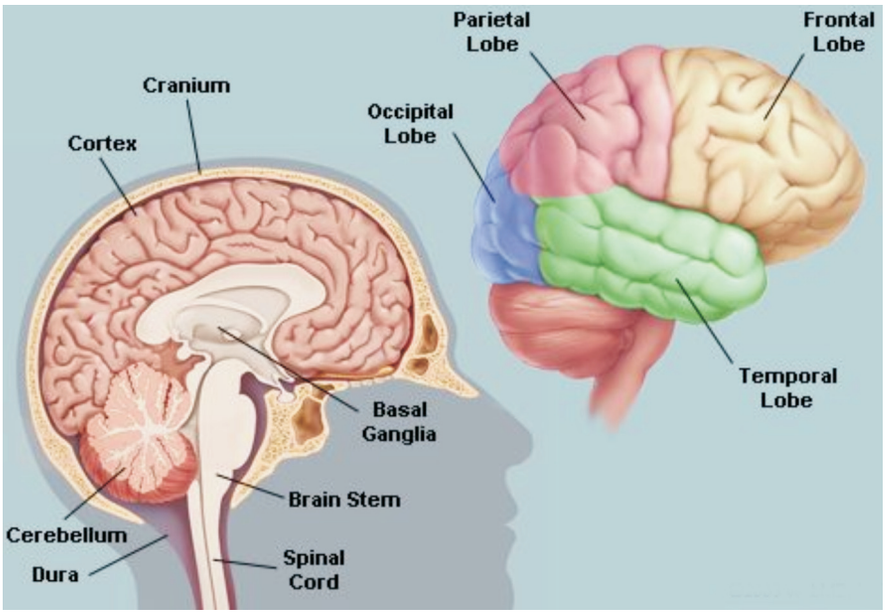
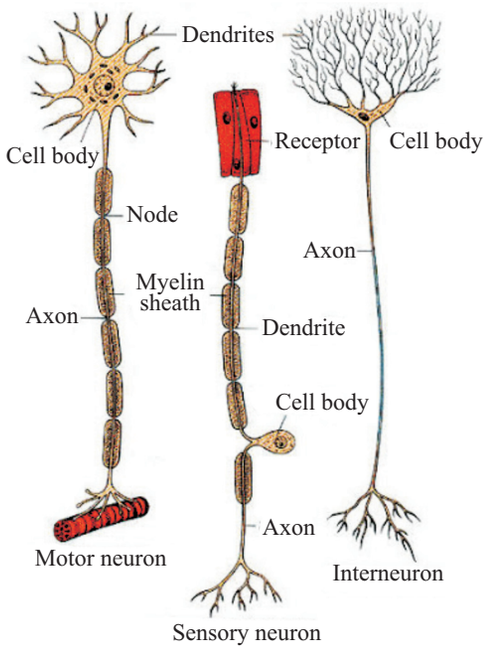


Fig. 7.1: Brain



(a) Motor neuron (b) Sensory neuron (c) Inter-neuron

Fig. 7.2: Neuron

PRACTICAL MANUAL

PART-1

(VOLUME–B)

PRACTICAL 8

ESTIMATION OF HEMOGLOBIN BY USING HEMOGLOBINOMETER

AIM

To estimate the hemoglobin percentage in the blood of the patient.

After doing this experiment, you would be able to examine the amount of hemoglobin in grams per deciliter (g/dl) in person's blood.

REQUIREMENTS

Tray containing N/10 hydrochloric acid (HCL), spirit, cotton swab, dropper, bowl of water, distilled water, paper bag for disposal, disposal sterile needles, hemoglobinometer and hand washing articles.

METHOD

1. Wash your hands properly.
2. Explain the procedure to the patient.
3. Put N/10 HCL in the tube of hemoglobinometer up to the lowest mark.
4. Clean the finger tips of the person with spirit swab.
5. Prick the finger tip of patient with sterilized disposable needle.

Notes

6. Draw the blood up to mark 20 in the pipette of hemoglobinometer and transfer it into the tube containing acid.
7. Rinse the pipette properly with water. Mix the blood and acid by shaking the tube quite well.
8. Allow it to stand for at least ten minutes so that brown colour gets developed due to formation of acid hematin.
9. Dilute it with distilled water and compare the colour formed with the colour of the both sides tube colour (standard colour) on both side of the hemoglobin meter. Go on adding distilled water with the help of dropper till colour matches with the standard colour. The point at which colour matches is noted down. It indicates hemoglobin present in blood in gram percentage.
10. Wash the articles and place them back appropriately.

Hemoglobin normal value	
For male	14-18 gm%
For female	12-16 gm%

OBSERVATION

Match the colour of the tube with two coloured tubes of hemoglobinmeter. When the colour matches with the two tubes, read the findings and record.

RESULT

Hemoglobin of the patient is ..... gm%.

PRECAUTION

1. Dispose off the paper bag containing needle, swab etc. at a proper place. Contents of hemoglobinometer to be disposed of properly (dispose in running water).

Notes

PRACTICAL 9

BLOOD GROUPS AND Rh FACTOR

AIM

To determine the blood group and 'Rh' factor of an individual.

After doing this experiment you would be able to do the assessment of blood groups and 'Rh' factor of the individual.

REQUIREMENTS

Tray containing tile of white colour, glass marking pencil, Anti sera-A, B and Anti D, sterile disposable needle, dropper, spirit, cotton, applicable sticks, microscope, slides, waste paper bag and hand washing article.

METHOD

1. Wash hands properly.
2. Explain the method to the individual properly.
3. Take a tile and mark on it 'A', 'B', 'D' with the glass marking pencil .
4. Clean the finger tip of the individual with spirit swab.
5. Prick the fingertip with sterilized disposable needle.
6. Place a drop of blood on to 'A' slide, 'B' slide, and 'D' slide.
7. Add one drop of Anti sera-A to 'A' slide, Anti sera-B to 'B' slide, and one drop of Anti sera-D to the Rh slide.
8. Mix it with applicable stick.

9. Rotate the tile clock wise for two minutes and look for agglutination by naked eyes or with magnifying glass.

10. Wash all the used articles and keep them back to the appropriate place.

OBSERVATION

- If agglutination takes place in 'A' slide only, with no agglutination in 'B' slide then it is 'A' blood group.
- If agglutination takes place in 'B' slide only with no agglutination in 'A' slide then it is 'B' blood group.
- If agglutination takes place both in 'A' slide and 'B' slide respectively, then it is 'AB' blood group.
- If agglutination does not takes place in any slide, then it is 'O' blood group 'O'.
- For the assessment of Rh factor, if agglutination occurs on the 'D' slide of tile then it is 'Rh' positive, and if agglutination does not occurs then it is Rh negative.

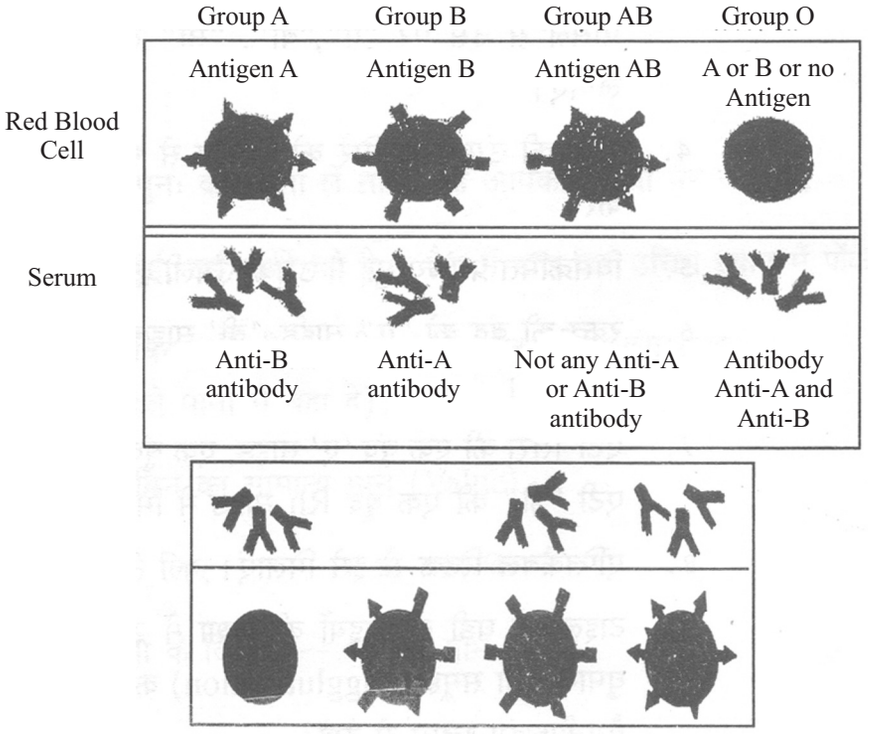


Fig. 9.1: A Picture showing blood agglutination

RESULT

The blood group of patient is ..... and Rh factor is .....

PRECAUTION

- Used needle should be capped so that it should not prick your fingers.
- Disposal of the paper bag containing needle, swab etc. at a proper place.
- Flush the blood stained tile in running water.

Note:

Colours of Anti sera:

1. Anti sera A-Blue Colour
2. Anti sera B-Yellow Colour
3. Anti sera D-White Colour

Notes

PRACTICAL 10

URINE TEST FOR SUGAR

AIM

To determine percentage of sugar in the urine.

After doing this experiment you would be able to assess percentage of sugar in person's urine.

REQUIREMENTS

Benedict's solution, test tube, spirit lamp, spirit test tube holder, dropper, paper bag for used articles, washing articles.

METHOD

1. Wash your hands properly.
2. Explain the procedure to the individual patient.
3. Instruct the patient to collect mid stream urine in the specimen bottle.
4. Take a test tube.
5. Fill it with 5 ml of Benedict solution and boil it.
6. Add 8 drops of urine with the help of dropper. Observe the changes in the colour.
7. Let it be cool and note the colour.
8. Wash the hands properly after doing the experiment.

OBSERVATION

S.No.	Observation	Comment
1.	No sugar in urine or negative sugar	No trace of blue colour in Benedict solution.
2.	Traces of sugar particles in urine	Solution appears green
3.	Definite green	(+) or 0.5% sugar
4.	Yellow to orange precipitate	(++) or 1% sugar
5.	Orange to red precipitate	(+++) or 1.5% sugar
6.	Brick red precipitate	(++++) or 2 % presence of sugar in Urine

RESULT

There is .....% sugar present in patient's urine.

PRECAUTIONS

- Make sure that all the articles in use are clean.
- Keep all the things at their place after cleaning.

Note: These days Uri-sticks are available to test the urine for sugar. Follow the guidelines given on the bottle. Keep in mind the above given precaution.

Notes

PRACTICAL 11

ESTIMATION OF BLOOD SUGAR BY GLUCOMETER

AIM

To determine the percentage of sugar in the blood in order to monitor diabetes in a patient.

After doing this experiment, you would be able to find out the diabetes in the patient by assessing the percentage of sugar in blood.

REQUIREMENTS

Tray containing spirit, cotton, paper bag, glucometer, sterilized or disposable needle, hand washing articles.

METHOD

1. Wash hands properly.
2. Explain the procedure to the patient.
3. Clean the fingertip with spirit swab.
4. Prick the fingertip with sterilized needle.
5. Take a drop of blood on glucometer strip. (read and follow the instructions carefully given on the booklet given with glucometer.)
6. Put the strip in the glucometer.

OBSERVATION

Take the reading of glucometer and record it. Reading shows glucose level in blood per mg/100cc.

1. Normal fasting blood sugar level should be 80 to 100 mg%
2. After meal (post prandial-P.P) the blood sugar level should be 100 to 140 mg%

RESULT

The blood sugar of person's /patient's is ..... mg%.

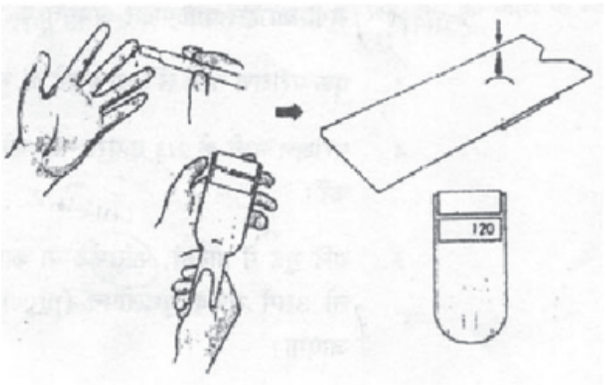


Fig. 11.1: Picture showing method of taking blood drop on the strip

PRECAUTIONS

- Re-cap the needle carefully to avoid pricking in your hand.
- Dispose of the paper bag containing needles, cotton swab etc. at proper place.

Notes

PRACTICAL 12

URINE TEST FOR ALBUMIN

AIM

To detect the presence of albumin in urine.

After doing this experiment, you would be able to find out the presence of albumin in urine.

REQUIREMENTS

Test tubes in a tray, spirit lamp, glacial acetic acid, clean specimen bottle for urine, paper bag for used articles, hand-wash articles.

METHOD

1. Wash hands properly.
2. Explain the procedure to the individual.
3. Take a test tube and fill ¾th part of test tube with urine.
4. Heat the 2/3rd upper portion of test tube over a flame.
5. If urine has protein, phosphate or carbonate particles then white cloud precipitate would develop.
6. Add two or three drops of glacial acetic acid in urine. Turbidity due to phosphate and carbonate, will disappear. If still precipitation persists, then it is due to presence of Albumin.
7. Replace the articles and wash your hands.

OBSERVATION

S. No.	Observation	Remarks
1.	No turbidity or cloudiness	No albumin in urine.
2.	Turbidity of cloudiness	Presence of albumin in the urine.

RESULT

Given samples of urine shows presence/absence of albumin.

PRECAUTIONS

- Dispose of content of the test tube done in an appropriate place.
- Keep all the objects back and wash your hands.

Note: Send the patient to the hospital for further evaluation, if albumin is present in urine.

Notes

PRACTICAL 13

USE OF CLINICAL THERMOMETER

AIM

To measure the human body temperature.

After doing this experiment you would be able to judge the human body temperature.

REQUIREMENTS

Clinical Thermometer, cotton, soap (dettol or savlon), water (to clean hands and the thermometer).

METHOD

1. Wash your hands properly.
2. Explain the procedure to the patient.
3. Clinical thermometer should be cleaned with savlon or dettol and water with the help of clean cotton swab.
4. If the mercury level of the thermometer is above 34°C or 95°F then jerk it off to lower down.
5. Put the thermometer in the axilla (armpit) of the person/patient.
6. Wait for 2 to 3 minutes.
7. Remove the thermometer from the axilla of the patient and note the temperature in Fahrenheit or Centigrade by keeping the thermometer at eye level.

8. Clean the thermometer down to upward towards bulb with clean cotton.
9. Keep the cleaned thermometer at proper place.
10. Wash your hands properly.

Result

Person/patient's temperature is ..... °C/(°F).

Note:

1. The normal temperature of human being is 37°C or 98.4°F.
2. If the temperature is more than 37°C. or 98°F, then person has fever.
3. If the temperature is more than 39°C. or 98°F, then take the patient to the doctor or hospital.

Now a days, digital thermometers are also available in the market. These can also be used to measure the temperature. These thermometers are safe for small/young children.

PRECAUTIONS

Always clean the thermometers before and after use and place it properly after use.

PRACTICAL MANUAL

PART-1

(VOLUME–C)

PRACTICAL 14

PRACTICE OF LEG JOINTS EXCERCISES

AIM

To practice and demonstrate the Sukshma Vyayama leg joints exercises.

- After completing the practice, you will be able to achieve the skill to demonstrate the joints exercises of legs and train others.

REQUIREMENTS

Yoga mat (one mat per person), cushion etc.

PROCEDURE

Preparation of Yoga hall: Clean, dry and airy Yoga hall is required.

Preparation of practitioner:

- Wear loose, light weight cotton clothes
- Before starting the practice remove pen, pencil, wrist watch, belt, ornaments etc.

METHOD OF PRACTICE OF EXERCISES RELATED TO LEG JOINTS

1. Padanguli Naman (Flexion and extension of toes)

Method

- Sit with both legs in front, keep hands behind on the ground for support.

- Bend toes forward and inward. Bend only the toes and not the entire foot.
- Toes down while breathing out and toes up when breathing in. Repeat this process five times.
- Keep the foot and ankle stable, only keep toes in motion. Practice five times, and then pause for a while. Try to feel the effect of this practice. Experience light stretch and its effect.

Fig. 14.1: Padanguli Naman

2. Gulf Naman (Ankle joint backward and forward)

Fig.14.2: Gulf Naman

Method

- Move both feet forward.

- Keep toes fixed & only move the ankles.
- Then move feet forward while breathing in and feet backward while breathing out.
- Keep complete consciousness and awareness around the ankle. Do this exercise for five times, and then pause for a while.

3. Gulf Ghurnan (Rotation of Ankle joint)

Fig. 14.3: Gulf ghurnan

Method

- Bend one leg and place it on the opposite thigh;
- Place one hand on the knee and the other one on the foot;
- With the help of your hand rotate just above the ankle;
- One rotation in one breath. Do this practice for 5 times clockwise and 5 times anticlockwise;
- Massage the areas lightly if there is pain;
- Then relax a little while in the initial position. Try to feel the effect of the practice;
- Repeat the same exercise with the other leg.

Notes

4. Janu Naman (Knee Bending)

Fig. 14.4: Knee Bending (Janu Naman)

Method

- Sit in Dandasan (sit comfortably with spine straight and legs extended). And fix your hands under the knee;
- Bend the right knee up and hold your palms under the thigh;
- Start to bend and straighten the knee;
- Straighten the knee while inhalation, bend the knee while exhalation;
- The heel should not touch the ground, do the procedure above the ground;
- Try to keep the knee straight when extended. The whole awareness, and consciousness should remain around the knee. With coordination of inhalation-exhalation, bend and straighten both the knees five times each;
- Then relax and rest in the starting position;
- Try to understand the effect of the practice.

5. Janu Chakra (Knee rotation/knee crank)

Fig. 14.5: Knee rotation

Method

- Sit in Dandasana;
- Place hands under the thigh with the arms crossed and holding the elbows;
- Now rotate the knee in a circle (try to make as large a circle as you can with inhalation more up and with exhalation down);
- Do it once in one breath; three times clock wise and three times anti-clock wise;
- Feel the effect of practice;
- Feel the stretch in thigh muscles and calf muscles. Feel light pain in knee and ankle joints. Light pressure can be given on the abdominal region with experience. Do the same five times each in both directions. Repeat the same with the other leg.

6. Janu falakaakarshan

Fig. 14.6: Janu falakaakarshan

Method

- Sit in Dandasana;
- Contract the knee muscles and then relax;
- Pull the muscles on your side while inhaling, hold for a while, and relax the muscles while exhaling;

- Do this action five times each according to your capacity and time, then relax for a while. This practice is especially effective for knee pain;
- This practice is very helpful in rheumatoid arthritis and severe joint pain.

7. Ardhatitali Asana (Half Butterfly)

Fig. 14.7: Half butterfly

Method

- Sit in Dandasana;
- Bend right knee and place right foot on the left thigh;
- Keep the left hand above the ankle and right hand over the knee;
- Move the knee up towards the chest and then gently push downwards and try to touch the ground, with the help of your hand. While inhaling bring the knee towards the ground and while exhaling bring it close to the chest;
- Do this exercise very slowly, five times each with both legs.

8. Purnatitali Asana (Full Butterfly)

Fig. 14.8: Full Butterfly

Method

- Sit in Dandasana;
- Join both the soles together to press each other, so that the heels touch the perineum. Clasp the feet with both hands;
- Now gently move the knee up and down;
- Breathe normally, keep the spine straight and the thorax expanded;
- Thereafter, move the knees up and down as quickly as possible like the wings of a butterfly.

9. Shroni Chakra (Hip Rotation)

Fig. 14.9: Hip Rotation

Notes

Method

- Sit in the position of half butterfly;
- Put one hand on the knee, and hold the foot with the other hand; then rotate the knee;
- Move the knees clockwise and anti-clockwise, with inhalation upward and with exhalation downwards;
- Then do the same with the other leg.

PRECAUTIONS

- Backache and Sciatica patients should not do this asana.
- Don't do the above Asanas in a hurry.
- Do it according to your capacity.
- People with knee joint problems, Sciatica or slip disc should not practice or do it under the guidance of a trained Yoga teacher.
- Do these practices with full awareness and concentration, not merely mechanically.

BENEFITS

- These practices are more beneficial for Arthritis or any other type of leg disease.
- They prepare body for difficult Asanas and meditation.
- They remove stiffness of our body and increase our capacity.
- They are very good for mental and physical balance.
- They regulate the blood pressure.

OBSERVATION

Observation on the effect of Asanas:

- Do the above Asanas for 3 weeks and observe their effect.
- Write 'Yes' or 'No' according to effect.

Effect	First Week	Second Week	Third Week	Fourth Week
Relief in stiffness				
Cracking sounds from joints				
Feeling of warmth				
Relief in stiffness of muscles				
Reduction in pain				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 15

PRACTICE OF HAND JOINTS EXCERCISES

AIM

To practice and demonstrate the Sukshma Vyayama – hand joints exercises.

- After completing the practice, you will be able to achieve the skill to demonstrate the practice of joint exercises for hands and train others.

REQUIREMENTS

Yoga mat, cushion (one each per person).

PROCEDURE

Preparation of Yoga Class: The Class should be clean and airy.

Preparation of practitioner

- Wear comfortable, loose, cotton clothes.
- Before starting the practice remove your pen, pencil, wrist watch, ornaments etc.

METHOD OF PRACTICE FOR JOINTS OF HANDS: WRIST JOINTS

1. Mushtika Bandh (Hand Clenching)

Method

- Raise your hands up to the level of shoulders;

- Elbows should be straight;
- Make a fist by keeping the thumbs inside;
- Open the fist with inhalation and close the fist with exhalation.

Fig. 15.1: Mushtika bandh

2. Manibandh Naman (Wrist forward and downward bending)

Fig. 15.2: Maniband naman (Wrist forward and downward)

Method

- Place the palm stretched in the front and move the wrists up and down;
- Move wrist joint upward with inhalation and move it downwards with exhalation.

3. Manibandh Chakra (Wrist joint rotation)

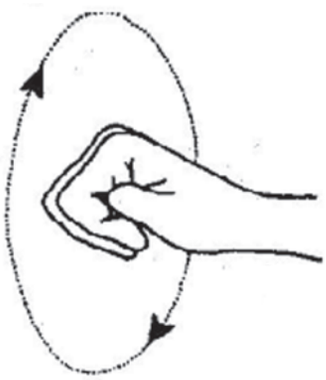

Fig. 15.3: Manibandh chakra

Method

- Make the fists and move in circular direction;
- Once in a breath, from outside to inside and then inside to outside;
- Do this five times each in both direction and rest for some time;
- Place both palms on thighs; feel the stretch produced in the arms.

4. Kohni Naman (Elbow bending)

Fig. 15.4: Kohni Naman

Method

- Flex the elbow and then extend. With inhalation, move to the front side and with exhalation move towards shoulders and backside;
- Thereafter, move towards sides and then back;
- The attention and focus should be around the elbow;
- Rest for some time.

5. Skandh Chakra (Shoulder Rotation)

Fig. 15.5: Skandh chakra

Method

- Place the fingers on shoulders. Move the elbows in circular direction from shoulders;
- With inhalation expand the chest and move elbows outward to the side. With exhalation bring the elbows together in the centre;
- Rotate five times from backwards to front and from front to backwards;
- Attention and focus should be around shoulder and rest for sometime.

6. Greeva Sanchalan (Neck Movement)

Method

- Move the neck backwards gradually while inhaling and move forwards gradually while exhaling;

- Give movement to the neck. Take care that no extra pressure is involved as the nerves of that area are sensitive;
- Move the neck forwards and backwards, then sideways. While inhaling move backwards and while exhaling move forwards 5 times each;
- Rest for some time;

Feel the experience of practice done. The whole body becomes energetic and active. Feel better circulation of Prana, alertness and activeness. (The practice of joint movements is complete).

Fig. 15.6: Neck movements

PRECAUTIONS

- The patients of cervical spondylosis should practice these movements only under the guidance of experts.

- Don't be in a hurry while doing these practices.
- Practice as per your capacity.
- Practice them with full attention and alertness, not mechanically.
- During these practices, the vertebral column and head should be in a straight line.

BENEFITS

- These practices are useful for the patients of gout, cervical spondylosis, high blood pressure and especially for elderly persons.
- They prepare our body for difficult postures and for meditation.
- These practices remove the stiffness of the body and enhance overall capacity.
- They are very good for mental and physical balance.

OBSERVATION

- Practice these exercises up to a period of four weeks and observe the effect.
- Write 'Yes' or 'No' as per the effects.

Effect	First Week	Second Week	Third Week	Fourth Week
Effect on Joints				
Feeling of warmth				
Experience on the muscles of the body				
Reduction in pain and mental balance				

RESULT

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Notes

COMMENTS

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(Signature of Yoga Teacher)

Notes

PRACTICAL 16

PRACTICE OF ASANAS OF ABDOMINAL GROUP

AIM

To practice and demonstrate the Sukshma Vyayama – Asanas of abdominal group.

- After completing the practice, you will be able to achieve the skill to demonstrate the Asanas of the Abdominal group and train others.

REQUIREMENTS

Yoga mat, cushion etc.

PREPARATION OF PRACTITIONER

- Wear loose, light cotton clothes.
- Before starting the practice remove your pen, pencil, wristwatch, belt and ornaments etc.

METHOD OF PRACTICE

1. Uttanapadasana
2. Padachakrasana
3. Padasanchalanasana
4. Pawanmuktasana
5. Udarakarshana

1. Uttanapadasana (Raised legs pose)

Fig. 16.1: Uttanapadasana

Method

- Lie down on the back comfortably on the ground, keeping legs straight;
- Keep your hands on the side while palms should be touching the ground;
- While inhaling slowly lift your legs, without folding the knees, and make an angle of 30 degrees;
- Stay in this position for a while with normal breathing;
- While exhaling slowly bring both legs to the ground;
- Repeat this posture three times;
- Repeat the same with both legs;
- From both sides near the knees and thighs, feel stretch in the calf muscles with full attention. Then for a short rest, lie down in Shavasana, both hands on sides, palms open and facing the sky. Keep spine, head and neck in one line. Feel the effect of the practice. Feel the flow of life in thighs, knees, back, ankles etc.

2. Padachakrasana (Leg rotation)

Method

- Lie down in Shavasana;
- As done earlier, while keeping the knee straight, raise the right foot above the ground and rotate;

Fig. 16.2: Padachakrasana

- Raise the foot while inhaling and bring it down while exhaling;
- Make a long big circle;
- Practice 3 times gradually clockwise and anti-clockwise;
- Repeat the same with the second leg;
- Feel better blood circulation in the thigh and calf muscles. Feel a little pain in the ankle and back;
- Full attention and awareness should be around the knees;
- After some time relax in Shavasana.

Note: This practice is also done with raising both legs. It is a difficult practice which is complicated for the patients of heart and backache.

3. Cycling

Fig. 16.3: Padasanchalansana

Method

- Lie down in Shavasana;
- Keep both the legs together;
- Hands should be straight with palms towards the ground;
- It is just like cycling;
- First, hold the knee, place it near the chest, then inhale and move the leg front and backward like cycling;
- Repeat the same procedure with the second leg;
- Repeat the same with both legs together;
- Repeat this practice 5 times each with rhythm;
- Practice it gradually without any hurry. Relax for some time in Shavasana;
- Keep all attention and awareness on the effect of the practice on the abdominal area and chest area, wherever pressure has been given. These practices are helpful in removing abdominal disorders.

4. Pawanmuktasana (Leg lock/wind relieving pose)

Fig. 16.4: Pawanmuktasana

Method

- Lie down in Shavasana;
- Keep both the legs together. Fold both the knees;

- Inhale by crossing both the palms outside the knees. Try to touch the nose with knees while exhaling;
- Repeat this practice 3 to 4 times;
- Relax for some time in Shavasana.

5. Udarakarshana (Abdominal stretch pose)

Fig. 16.5: Udarakarshana

Method

- Lie down in Shavasana;
- Keep both the legs together. Fold both the knees;
- Cross the fingers of both the palms with each other and place them below the head;
- Fold both the knees and bring them near the chest;
- Now turn the head to the left side and knees to the right side;
- Give a massage to the vertebras;
- Then repeat in reverse direction, i.e. head to the right side and knees to the left side;
- It improves the secretion of insulin. It helps in constipation and gas removal (flatulence).

PRECAUTIONS

- During the practice, maintain your awareness and concentration on respiration, mental calculation and internal abdominal massage.

- Don't be in a hurry while practising.
- Practice as per your capacity.
- Practice them with full awareness, concentration and not mechanically.

BENEFITS

- These practices are beneficial in abdominal disorders (indigestion, hyperacidity, constipation), backache and in reducing the central obesity.
- They remove the stiffness of the body and enhance our capacity.
- They are very good for mental and physical balance.

OBSERVATION

- Practice above Asanas for 3 to 4 weeks and observe their effect.
- Write 'Yes' or 'No' as per the effects.

Effect	First Week	Second Week	Third Week	Fourth Week
Effect on the stiffness of the body				
Effect on the abdominal muscles				
Effect on the body				
Effect on the naval				
Effect on the level of energy				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 17

RELAXATION ASANAS

AIM

To practice and demonstrate the relaxation Asanas.

- After completing the practice, you will be able to achieve the skill to demonstrate the relaxing asanas and train others.

REQUIREMENTS

Yoga mat (one yoga mat per person), cushion etc.

PREPARATION FOR PRACTITIONERS

- Wear loose comfortable and light cotton clothes.
- Before starting practice remove your pen, pencil, wrist watch, belt etc.

1. Shavasana

Fig. 17.1: Shavasana

Notes

Method

- Lie down on the ground on your back;
- Keep the legs little apart from each other. Place both hands near the trunk;
- Keep your arms at your side and your palms slightly open facing up to the sky;
- Close your eyes and breathe normally;
- Relax the muscles nerves and other body parts;
- Try to concentrate one by one on the tie, calf, knee, thighs, stomach, chest, hands, neck, face, head and all other body parts;
- Feel the relaxation in all the parts of the body;
- Thereafter rub both the palms and touch lightly on eyes. Gradually open your eyes.

BENEFITS

- By practicing this asana, all the muscles, blood vessels, nerves of the body and every organ gets relaxed. This also removes the tiredness due to excess work.
- Reduce mental stress and high blood pressure.
- The brain and heart get relaxed; capacity of these organs get enhanced.
- It is highly beneficial for the patients of insomnia.
- The mind is relieved of the conditions of fear, tension and pain.
- In the asana with supine position condition, relaxation is practiced in shavasana only.

2. Makarasana

Fig. 17.2: Makarasana

Method

- Lie down in a prone position;
- Place one hand on the other hand and put your forehead on it;
- Legs should be kept apart. Heels should be on the inner side and ankles should be on the outer side;
- Chest should be slightly elevated from the ground;
- Give light pressure on the stomach;
- The body should be balanced in between;
- Keep breathing normal;
- Rest in this position for 5 to 7 minutes;
- Makarasana is an ideal pose after the practice of Asanas in prone position.

PRECAUTIONS

- Do not practice Makarasana immediately after taking food.

BENEFITS

- This Asana is very good for mental and physical balance.
- Reduces stress and fatigue.
- Regulates the blood pressure.

OBSERVATION

- Practice this Asana for four weeks and observe its effects.
- Write 'YES' or 'No' as per the effects.

Effect	First Week	Second Week	Third Week	Fourth Week
Physical effect				
Mental effect				
Internal awareness				
Effect on complete breathing				

Notes

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 18

MEDITATIVE ASANA

AIM

To practice and demonstrate the meditative asana.

- After completing the practice, you will be able to achieve the sksill to demonstrate the meditative asanas and train others.

REQUIREMENTS

Yoga mats (one yoga mat per person.), cushion etc .

PREPARATIONS FOR PRACTITIONERS

- Wear loose comfortable cotton clothes.
- Before starting the practice, remove your pen, pencil, wrist watch and belt, etc.

1. Siddhasana (Accomplished posture)

Fig. 18.1: Siddhasana

Method

- Sit in Dandasana;
- Fold the left leg from the knee;
- Hold with the hands and touch the right thigh with the heel;
- Now fold the right leg from the knee and place it on the joint of the left ankle near the genitals;
- Now touch the first finger of both the hands with thumbs i.e. Gyan Mudra. Rest both hands on your knees;
- Head, neck and back should be straight without any pressure and with a pleasant expression;
- Close the eyes smoothly, breathe normally and relax the body. Sit in this position for as long as you feel comfortable.

2. Padmasana (Lotus pose)

Fig. 18.2: Padmasana

Method

- Sit in Dandasana;
- Fold the left leg from the knee and place the right foot on the left thigh;
- Place the left foot on the right thigh;
- Keep the back, neck and head straight;
- Place both hands on knees in Gyan Mudra;

PRECAUTIONS

- Don't be in a hurry while practising this Asana.
- Practise as per the capacity of your body.
- Patients suffering from knee problems, sciatica and slip disc should not practise this Asana. Practise this under the guidance of a qualified Yoga teacher.

BENEFITS

- These Asana are very good for mental and physical balance.
- They reduce stress and depression.
- They regulate blood pressure.

OBSERVATION

- Practice these Asana for four weeks and observe their effect.
- Write 'Yes' or 'No' as per the effect of the effects of posture.

Effect	First Week	Second Week	Third Week	Fourth Week
Physical effect				
Mental effect				
Effect on internal awareness				
Effect on complete breathing				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 19

EXERCISE OF VAJRASANA GROUP

AIM

To practice and demonstrate the Asana of Vajrasana group.

- After completing the practice you will be able to achieve the skill to demonstrate the asanas of vajrasana group and train others.

REQUIREMENTS

Yoga mats (one yoga mat per person), cushion etc.

PREPARATIONS FOR PRACTITIONER

- Wear loose comfortable cotton clothes.
- Before starting the practice, remove your pen, pencil, wrist watch, belt and all the ornaments etc

1. Vajrasana (Diamond pose/Thunder bolt pose)

Fig. 19.1: Vajrasana (Diamond pose)

Method

- Sit in Dandasana;
- Fold both legs from the knees;
- Keep the legs below the hips so that the heels are facing upwards and the toes touching each other;
- Place both palms on the thighs;
- Keep the back, neck and head straight;
- Keep your eyes open and look straight;
- Breathe normal.

Benefits

- It regulates the whole digestive system and provides relief in digestive disorders.
- This is beneficial for reproductive organs.
- Vajrasana stimulates the nerves and helps in spiritual development.
- This is the only posture which can be practiced after taking food.

2. Supt Vajrasana

Fig. 19.2: Supt Vajrasana

Method

- First of all, sit in Vajrasana;
- Keep the palms of both the hands behind the back on the ground;

- Thereafter, gradually go back with the support of elbows and lie down;
- Shoulders and neck should be on the ground; keep both the palms under both the shoulders by folding the palm;
- Then gradually raise your head upwards so that the back portion of the head touches the ground;
- While coming back, keep both the hands on both the thighs. Both knees should be joined with each other in this condition.

Benefits

- Its regular practice reduces the waist and broadens the chest.
- It is a good asana for respiratory disorders like Asthma and Bronchitis.
- The lungs expand fully during its practice; Hence the capacity of lungs increases.
- It relax the muscles.
- People having a fatty abdomen and broad waist should practice this asana gradually.
- Improves blood circulation and purifies the blood.
- Makes the body light.
- Its regular practice helps in correction of navel displacement.

3. Shashakasana (Rabbit pose)

Fig. 19.3: Shashakasana (Rabbit pose)

Method

- First sit in Vajrasana;
- Keep the knees away from each other;

- Sit in such a position that the toes touch each other;
- Keep both palms on the ground in between the knees;
- Take both the palms in front, away from your body after exhalation;
- Bend forward and touch the chin to the ground;
- Keep both arms parallel;
- Look in front and maintain this position;
- Inhale and come backwards;
- Exhale and come back to Vajrasana;
- Stretch the legs backwards and come back to the Asana of relaxation.

Benefits

- Its practice is helpful in reducing stress, anger etc.
- It gives relief from reproductive disorders and is also helpful in digestive disorders, constipation, and backache.

4. Simhasana (Lion pose)

Fig. 19.4: Simhasana (Lion pose)

Method

- Inhale and hold the breath;
- Back should be bent forward while taking out the tongue as far as possible;
- For taking the position of a lion, sit in Vajrasana by placing both the palms on the ground;
- Please note that your neck should be straight;
- Roar loudly;
- Sit back in the earlier position;
- Repeat this practice three times;
- After repeating three times, rub your neck with both hands;
- Swallow the saliva.

Benefits

- It removes the problem of the neck/throat.
- Clears the voice.
- The neck muscles become stronger.

PRECAUTIONS

- Persons with knee problems should not do this Asana or do it only under expert guidance.
- Practice as per your capacity.

OBSERVATION

- Practice this Asana for four weeks and observe its effect.
- Write 'Yes' or 'No' as per the effects.

Effect	First Week	Second Week	Third Week	Fourth Week
Physical effect				
Mental effect				
Relief in leg pain				
Effect on vertebral column				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

Notes

PRACTICAL 20

PRACTICE OF GROUP OF ASANAS IN STANDING POSITIONS

AIM

To practice and demonstrate the groups of Asana in standing position.

- After completing the practice, you will be able to achieve the skills to demonstrate the group of Asana in standing position and train others.

REQUIREMENTS

Yoga mats (one yoga mat per person.), cushion etc.

PREPARATIONS FOR PRACTITIONER

- Wear loose comfortable cotton clothes.
- Before starting the practice remove your pen, pencil, wrist watch and belt, etc

1. Tadasana (Palm tree)

Method

- Stand straight and join both legs together. Keep both hands on your sides with the palms touching the thighs. This position is called 'Samapadasan';
- Interlock and overturn the fingers and place the hands over the head;
- Choose a point in the front anywhere on the wall. Keep your consciousness centered on the point. With inhalation lift your hands up and straight. Raise the heels up and try to stand on the toes;

- Slowly come down with exhalation. Repeat this action five times. Feel the stretch, and relax;
- Try to feel the effect of the practice.

Fig. 20.1: Tadasana

Benefits

- This Asana removes the stiffness of our body and makes us feel fresh.
- During this, there is a stretch in the entire body muscles which gives strength.
- It is very beneficial for the health of our spinal cord.
- It provides physical balance leading to balance in the personality.

2. Tiryak Tadasan (Swaying palm tree pose)

Fig. 20.2: Tiryak tadasan (Swaying pose)

Method

- Keep the legs apart and come to Tadasana;
- In the position of Tadasana, bend towards the left side while exhaling. Feel the stretch;
- Come back in the middle while inhaling;
- Now bend towards the right side while exhaling;
- Keep your hands and arms straight. Feel a slight pain in the waist and shoulder region. Bend both sides equally;
- Feel the activeness in arms, thighs, abdominal and chest muscles.

3. Kati Chakra Asana (Standing spinal twist pose)

Fig. 20.3: Kati chakra asana: (Standing spinal twist pose)

Method

- Open both feet and keep up to one foot apart and stand straight;
- Bring both hands to the height of the shoulders and move them to the front;
- At this stage, the palms of both hands should face each other;
- After that, turn your body from the waist towards the left;
- At this stage, fold your left hand and place it on the waist and half-fold your right hand and place it on your chest;
- Similarly practice it on the other side.

Benefits

- This Asana is also an important posture for the practice of Shankha Prakshalana;
- With its practice, the waist becomes flexible like rubber;
- Shoulders, arms and waist become thin;
- It is a good posture for women and Diabetics.

4. Garudasana (The eagle pose)

Fig. 20.4: Garudasana

Method

- Come to Sama padasana;
- Standing straight, keep the left thigh over the right thigh, and wrap one leg on the other leg with knees and calves;
- Bring both arms in front of the chest and wrap with the left arm on the right arm;
- In this position, both hands look like the beak of an eagle;
- Slowly bend downwards and try to put the toes on the ground.

Benefits

- Its practice removes joint pain;
- Arthritis patients should practice this Asana regularly.

Notes

- The persons who have tremors in their body, and extremely thin people, get benefited from this practice.
- This practice cures enlarged testicles.

PRECAUTIONS

- Persons suffering from knee problems should practice these asanas only under the supervision of a specialist.
- Perform these Asanas according to the capacity of your body.
- During these Asanas, maintaining your vision at a point in front of you will be more beneficial.

OBSERVATION

- Do the above Asanas for four weeks and observe their effect
- Write 'Yes' or 'No' according to effect.

Effect	First Week	Second Week	Third Week	Fourth Week
Flexibility in muscles				
Effect on the spinal cord				
Feeling of strength in the body				
Feeling of relief in backache or back muscles				
Effect on weight				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 21

SURYA NAMASKAR

AIM

To practice and demonstrate Surya Namaskar (Sun salutation).

- After completing the practice, you will be able to achieve the skills to demonstrate Surya Namaskar and train others.

REQUIREMENTS

Yoga mat (one yoga mat per person.) and cushions.

PREPARATION FOR PRACTITIONER

- Wear comfortable, loose and light cotton clothes.
- Before starting the practice, remove your pen, pencil, wrist watch and belt, etc.

Method of Surya Namaskar

First position: Stand facing the Sun, keep both legs together and both hands in Namaskar mudra in front of the thoracic region.

Second position: Inhale and open the hands from the front, bend backwards. Face the sky. Bend the waist backward as much as possible.

Third position: Exhale and take your hands from the back to the front and lean forward. Try to touch the floor near the feet with the head over the knees.

Fourth position: Bending downwards more, stretch the left leg back as far as possible like in Bhujangasana and keep the right foot on the floor in the same

Notes

position between both hands. The right knee should be in front of the chest and the head tilted upwards and backwards, back arched. Inhale and gaze directed towards the sky (the eyebrow center).

Fig. 21.1: Surya namaskar

Fifth position: With exhalation, take the right foot back beside the left foot. Simultaneously, raise the buttocks and lower the head between the arms and gaze at your navel point. The legs and arms should be straight. Keep the heels on the floor in the final position.

Sixth position: Lower the knees, chest and chin to the ground. When both hands, knees, toes, chest and head (eight parts) touch the ground while hips are raised, it is called 'Sashtangasana'. Keep breathing normal.

Seventh position: With inhalation, lower the buttocks and hips towards the ground, keep the elbows bent and at the level of the waist (navel), arch the back and push the chest forward into the cobra pose (Bhujangasana).

Eighth position: Same as the fifth position.

Ninth position: Same as the fourth position. Keep the palms flat on the ground. Bend the left leg and bring it forwards between the hands.

Tenth position: Same as the third position.

Eleventh position: Same as the second position.

Twelfth position: Same as the first position.

PRECAUTION

- Persons suffering from heart disease, sciatica, cervical spondylitis and swelling in the body and women during menstruation should do this asana only after consulting a specialist.
- Do Surya namaskar according to your body capacity.

BENEFITS

- These series of asanas awaken our vital force (*Prana Shakti*).
- Each position of these asana influences our Endocrine glands. It increases the immunity of our body and purifies it.
- Surya namaskar is very beneficial for adolescents.
- These Asana remove stiffness from our body and give freshness.
- There is a stretch in the entire body muscles which lends the body strength. It is very beneficial for the health of our spinal cord.
- It provides physical balance leading to the balance in the personality.

OBSERVATION

- Do the Surya Namaskar for four weeks and observe its effect.
- Write 'Yes' or 'No' according to effect.

Effect	First Week	Second Week	Third Week	Fourth Week
Stretching in muscles				
Effect on spinal cord				
Feeling of strength in the body				
Feeling of relief in backache or back muscles				
Effect on respiration				
Effect on weight				
Effect on mental state (*manas patal)*				
Internal stability				

Notes

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 22

BACKWARD BENDING ASANAS

AIM

To practice and demonstrate backward bending Asana.

- After completing the practice, you will be able to achieve the skills to demonstrate backward bending Asana and train others.

REQUIREMENTS

Yoga mats and cushions (one each per person)

PREPARATION OF YOGA CLASS

Yoga class should be clean and well ventilated.

PREPARATION FOR PRACTITIONER

- Wear comfortable, loose and light cotton clothes
- Before starting the practice, remove your pen, pencil, wrist watch and belt, etc

1. Bhujangasana (The Cobra Pose)

Method

- Lie down on the ground on your stomach, and place your head down towards the ground;
- Keep both the legs together and keep the palms close to the chest on the ground;

- While inhaling, pressing the ground with the palms, lift the upper part from the navel as far as possible;
- Move your neck and waist backwards;
- While exhalation, return to the normal position.

Fig. 24.1: Bhujangasana

Precautions

- Heart disease, hernia and high blood pressure patients should not do this asana or should do it only after consulting a specialist.
- This is beneficial for backache patients, but do this under the supervision of a yoga expert.
- Do it according to your body capacity.

Benefits

- This Asana removes stiffness in the body and provides freshness.
- It makes the abdominal muscles flexible and strong.
- It is very beneficial for the health of the spinal cord.
- It has an effect on the *Manipur chakra* (Solar plexus) and increases our confidence.
- It removes fear.
- It strengthens the digestive system and reduces abdominal fat.
- It is useful in management of bronchial and back problems.

2. Shalabhasana (The locust pose)

Fig. 24.2: Shalabhasana

Method

- Lie down on the abdomen with your forehead on the ground;
- Keep both hands with the torso and under the thighs;
- Join both the legs;
- While inhaling, gradually lift the right foot and while exhaling, bring it back to the ground;
- Repeat with the left foot (Ekpadsalabhasana);
- Afterwards, do the same action with both the legs (Dwipadsalabhasan);
- Relax in Makarasana.

Benefits

- This Asana makes the waist and spine flexible; and the chest becomes wider.
- It increases hunger and removes many disorders of the abdomen like gas, acidity, low appetite, indigestion, and grumble in the stomach.
- By regular practice of this asana, the navel remains at its place.
- By this asana, muscles of the abdomen, thighs and legs become strong.
- It is beneficial in ascites and fistula.

3. Dhanurasana (The Bow Pose)

Fig. 24.3: Dhanurasana

Method

- Lie down on the stomach;
- Fold the knees and hold the ankles with both palms;
- As you inhale, raise the head and the chest upwards. Pull the legs outwards and backwards so that the spine is arched like a bow;
- Rest on the abdomen and don't bend the elbows;
- Slowly come back while exhaling;
- Relax in Makarasana.

Benefits

- Relieves back pain and cervical spondylitis.
- Relieves abdominal disorders.
- Reduce obesity and makes the spine strong and flexible
- Useful for Diabetic patients.

OBSERVATION

- Do the above asana for four weeks and observe their effect.
- Write 'Yes' or 'No' according to effect.

Effect	First Week	Second Week	Third Week	Fourth Week
Flexibility in abdominal muscles				
Effect on spinal cord				
Feeling of strength in the body				
Feeling of relief in backache or back muscles				
Effect on weight				
Experience of extrovert thoughts				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 23

PREPARATORY PRACTICES OF PRANAYAMA

AIM

To practice and demonstrate preparatory practices of pranayama.

- After completing the practices, you will be able to achieve the skills to demonstrate the preparatory practices of pranayama and train others.

REQUIREMENTS

Yoga mats and cushions (one each person).

PREPARATION FOR PRACTITIONER

- Wear comfortable, loose and light cotton clothes
- Before starting the practice, remove your pen, pencil, wrist watch and belt, etc.

METHOD

- Sit in any meditative posture such as Sukhasana, Padmasana or Siddhasana;
- Gradually start breathing in, from both the nostrils equally;
- Keep progressively expanding your abdomen with slow breathing;
- After expanding count up to six in your mind, while holding your breath;
- Exhale slowly with the contraction of the abdomen;
- If you want, you can hold your breath outside up to six counts;
- Repeat the above process for five to six min. ingenuously.

PRECAUTIONS

- Do not rush in the practice.
- Stop the practice if there is any kind of pain or feeling of discomfort.

BENEFITS

- It prepares us for practice of Pranayama.
- It calms the mind by bringing the body in a relaxation state.
- It relaxes the respiratory system.
- It is beneficial for breathing.

OBSERVATION

- Do the above practice for four weeks and observe its effect.
- Write 'Yes' or 'No' according to effect.

Effect	First Week	Second Week	Third Week	Fourth Week
Experience of concentration				
Effect on respiration				
Experience of physical relaxation				
Experience on consciousness				
Experience of internal awareness				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 24

NADI-SHODHANA PRANAYAMA (ALTERNATE NOSTRIL BREATHING)

AIM

To practice and demonstrate the Nadi-Shodhana Pranayama.

- After completing the practice, you will be able to achieve the skills to demonstrate the Nadi-Shodhana Pranayama and train others.

MATERIALS REQUIRED

Yoga mat, cushion (one each, per person)

PREPARATION FOR PRACTITIONER

- Wear comfortable, light, cotton clothes.
- Before starting the practice, take out your pen, pencil, wrist watch, belt etc.

POSITION

- Sit in any meditation posture like Padmasana, Sukhasana etc.
- Keep your spinal cord and neck straight.
- Close your eyes gently and focus on your breathing.
- Place your left hand on left knee palm facing upwards.
- Keep the ring finger of your right hand on left nostril and thumb on right nostril.

Fig. 24.1: Nadi-shodhana Pranayama

METHOD

- Inhale from your left nostril up to eight counts;
- Keep holding your breath for thirty-two counts;
- Exhale from the right nostril for sixteen counts, keeping your left nostril closed with your finger;
- Now, inhale again from right nostril up to eight counts;
- You have to hold your breath again for 32 counts. Holding the breath is called Antah-Kumbhaka;
- Exhale from the left nostril for 16 counts.

PRECAUTIONS

- Patients of heart disease, hypertension and epilepsy should not practice Kumbhaka.
- Do not be hasty in the practice.
- Stop the practice if there is any kind of pain or discomfort.
- Do not stress during inhalation and exhalation.

BENEFITS

- The practice of Nadi-Shodhana relaxes and balances the respiratory and nervous system.
- It is more beneficial in cure of diseases like Hypertension, Parkinson's disease, Diabetes, Mellitus, Asthma etc. (without kumbhaka)
- It removes mental fatigue.

Notes

- It is helpful in circulation of *Prana* in the body.
- It purifies *Nadi* (channels).

OBSERVATION

- Practice the Pranayama for four weeks and observe its effect.
- Write 'Yes' or 'No' according to effect.

Effect	First Week	Second Week	Third Week	Fourth Week
Feeling of concentration				
Effect on breathing				
Feeling of physical relaxation				
Effect on consciousness				
Feeling of inner awareness				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 25

SHEETALI PRANAYAMA

AIM

To practice and demonstrate the Sheetali Pranayama

- After completing the practice, you will be able to achieve the skills to demonstrate the Sheetali Pranayama and train others.

MATERIALS REQUIRED

Yoga mat, cushion (one each per person)

PREPARATION FOR PRACTITIONER

- Wear comfortable, light, cotton clothes.
- Before starting the practice, take out your pen, pencil, wrist watch, belt etc.

POSITION

- Sit in a comfortable position (Padamasana, Vajrasana or Sukhasana).
- Keep your spinal cord straight, but your body should be relaxed.
- Hands should be on the knees.
- Curl the side of the tongue like a tube.
- This pranayama can also be performed in a standing position.

Notes

Fig. 25.1: Sheetali Pranayama

METHOD

- Inhale through curled tongue making a whistling sound;
- At the end of Inhalation, move the tongue to neutral position and close the mouth. Keep holding your breath up to your comfortable limits;
- Slowly exhale through nose;
- Keep practising for 15-30 times daily.

PRECAUTIONS

- Patients of low blood pressure, respiratory disorders such as Asthma, Bronchitis should not practice it.
- Do not be in haste while practicing.
- Stop the practice if there is any kind of pain or discomfort during practice.
- Do not practice it in winter.

BENEFITS

- This gives coolness to our body & mind, and is very beneficial in summer.
- It is helpful in reducing blood pressure and gastric acidity.
- It is helpful in circulation of *Prana* in the body.
- It calms down our psychological and emotional excitement.

OBSERVATION

- Do the above Pranayama for four weeks and observe its effect.
- Write 'Yes' or 'No' according to effect.

Effect	First Week	Second Week	Third Week	Fourth Week
Feeling of concentration				
Effect on breathing				
Feeling of physical relaxation				
Effect on consciousness				
Feeling of inner awareness				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 26

BHRAMRI PRANAYAMA (HUMMING BEE BREATHING)

AIM

To practice and demonstrate the Bhramri Pranayama (Humming Bee Breathing)

- After completing the practice, you will be able to achieve the skill to demonstrate the Bhramri Pranayama and train others.

REQUIREMENTS

One Yoga mat per person, cushion etc.

PREPARATION OF YOGA CLASS

Yoga classroom should be clean and well ventilated.

PREPARATION FOR PRACTITIONER

- Wear comfortable, light, cotton clothes.
- Before starting the practice, take out your pen, pencil, wrist watch, belt and jewellery etc.

BHRAMRI PRANAYAMA

Position

- Sit in a comfortable position (Padamasana, Vajrasana, Sukhasana etc.);
- Keep your spinal cord straight, but the body should be relaxed;
- Close your eyes;

Fig. 26.1: Bhramri pranayama method

- Close both ears with both the thumbs;
- Take a deep breath through both nostrils;
- Keeping the ears closed, breathe out making a high pitched sound like a bee;
- Breathe in again and repeat the same process 5, 10, 15 or 20 times;
- In the end, inhale through both nostrils, perform Kumbhaka as long as possible and slowly exhale.

PRECAUTIONS

- People suffering from ear infection, should not practice Bhramari Pranayama.
- Introvert people should not practice this Pranayama.
- Do not be in a hurry while doing this Pranayama.
- Stop the practice if there is any kind of pain or discomfort.

BENEFITS

- It is beneficial in Insomnia.
- It relaxes our body and calms the mind.

Notes

- It is beneficial for ailments of ears, nose and throat diseases.
- It is effective in reducing high blood pressure and gastric acidity.

OBSERVATION

- Do the above Pranayama for four weeks and observe its effect.
- Write 'Yes' or 'No' according to effect.

Effect	First Week	Second Week	Third Week	Fourth Week
Feeling of concentration				
Effect on breathing				
Feeling of physical relaxation				
Effect on consciousness				
Feeling of inner awareness				
Effect on mental state *(manas patal)*				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL 27

BHASTRIKA PRANAYAMA (BELLOW'S BREATH OR HEATING PRANAYAMA)

AIM

To practice and demonstrate the Bhastrika Pranayama (Bellow's Breath or Heating Pranayama).

- After completing the practice, you will be able to achieve the skills to demonstrate the Bhastrika Pranayama and train others.

MATERIALS REQUIRED

Yoga mat, cushion etc. (one each per person).

PREPARATION FOR PRACTITIONER

- Wear comfortable, light, cotton clothes.
- Before starting the practice take out your pen, pencil, wrist watch, belt and all jewellery etc.

POSITION

- Sit in Padamasana;
- Keep your spinal cord, head and neck straight;
- Hands should be on the knees;
- Keep your mouth closed.

FIg. 27.1: Bhastrika Pranayama

METHOD

- Keep inhaling and exhaling through the nose 10-15 times, fast like the bellows of an ironsmith;
- Keep constricting your abdomen during each exhalation;
- During the practice make sure to produce a hissing sound;
- Maintain the rhythm of inhalation and exhalation fast;
- After finishing one set, end the process with long inhalation;
- Exhale deeply and slowly. This full process is one set. Continue this up to three sets.

PRECAUTIONS

- Do not practice it with diseases like heart disease, high blood pressure, high acidity, hernia and ulcer etc.
- During practice, if vertigo or more sweating occurs, it means that the practice is not being done properly and it should be stopped.
- Do not practice it in high temperature conditions.
- Keep the facial muscles relaxed during practice.
- Do not haste into the practice.
- Do it according to your capacity.

BENEFITS

- It burns the toxic elements in our body.
- It reduces abdominal fat.
- It is beneficial in the cure of *Kapha* diseases.
- It makes metabolic action smooth.
- It is beneficial for the patients of asthma and lung problems.

OBSERVATION

- Do the above Pranayama for four weeks and observe its effect.
- Write 'Yes' or 'No' according to the effect.

Effect	First Week	Second Week	Third Week	Fourth Week
Increase in the level of energy				
Effect on breathing				
Effect on digestive system				
Effect on will power				
Effect on mental state (manas patal)				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

Notes

PRACTICAL 28

YOGA NIDRA

AIM

To practice and demonstrate the Yoga Nidra.

- After completing the practice, you will be able to achieve the skills to demonstrate the *Yoga Nidra* and train others.

REQUIREMENTS

Yoga mat, cushion etc (one each person).

PREPARATION FOR PRACTITIONER

- Wear comfortable, light, cotton clothes.
- Before starting the practice, take out things such as pen, pencil, wrist watch, belt and jewellery etc.

PRACTICE METHOD

1. Take a deep breath during Shavasana and feel peace in the entire body. Feel relaxation in the body while exhaling.
2. Take your consciousness to various body parts when their name is called. Remember that there should be no tension or movement in your body.
3. Take your focus to the right big toe, then to second, third, fourth and fifth toe; and move your consciousness later to sole, ankle, calf, shin, knee, thigh etc. respectively.

FIg. 28.1: Yoga Nidra

4. Do the same with the left leg. Later take your consciousness to the parts of right and left hands.

5. After legs and hands, concentrate on trunk and later on your entire face. This we call as Nyasa practice or body visualization.

6. After body visualization, feel the Pranic flow in each and every cell. Feel that flow's vibration in the weakest or the diseased part of your body. Make your body visualize that the diseased part is getting healthy and healed.

7. Similarly, move your consciousness to the various body parts more than once. The body will get maximum relaxation and rest.

8. Be conscious towards breathing mentally. Do back counting from 54 to 0 like "I know, I am inhaling 54. I know, I am exhaling 53". Continue till you reach to 0. In case you forget the counting in between, start the procedure again from 54. Do not sleep; continue the counting process.

9. With your inner eyes, visualize the various beautiful scenes of nature. You can imagine mountains, falling springs, etc. You can see waves of the ocean. Visualize the early morning sunrise. Visualize any famous temple. Mentally involve yourself in group of members doing prayer at the place, with which your religion is associated. Like think of prayer in a mosque if you are a Muslim. If you are a Sikh, do your prayer at a Gurudwara. Do prayer at church, if you are a Christian. In short, involve yourself emotionally in the prayer in which you have faith and trust.

10. While travelling mentally through these places, bring your focus on your body lying there in Shavasana. Again move your consciousness in all the body parts quickly in order. Again feel the Pranic energy flow in your body and feel the life in the body.

11. Now feel that your body has become very light like a flower. The fragrance has spread around you. Now, you feel overwhelmed with divine waves. You are calm completely. You are in the state of happiness.

Now, in the end, turn right and sit back in your place. Don't open your eyes yet. Pray to your God, keeping your spinal cord straight and get ready for good deeds with renewed energy.

1. Practice Yoga Nidra under expert guidance only.
2. Keep yourself awakened throughout while practicing Yoga Nidra.

PRECAUTIONS

- Do not wake up with a jerk.
- Maintain physical stability.
- Keep your eyes closed.
- There should be no interruption during practice.

BENEFITS

- It reduces physical, mental and emotional stresses.
- It gives complete rest to the body and control over all the internal systems.
- Yoganidra practice increases functional abilities.
- With its practice, we can remove bad habits and other kinds of Phobias.
- This prepares us for *Dharna* and *Dhyana*.
- It is helpful in awakening of our body chakras.
- In this, high level consciousness experience is achieved.

OBSERVATION

- Practice the above method of Yoga Nidra for four weeks and observe its effect.
- Write 'Yes' or 'No' according to effects.

Effect	First Week	Second Week	Third Week	Fourth Week
Effect in the body				
Effect on breathing				
Mind calmness and stability				
Effect in internal awareness				
Effect on mental state (Manas patal)				
Experience of spiritual consciousness				
Positive effects in our body and mind				

RESULT

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COMMENTS

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(Signature of Yoga Teacher)

PRACTICAL MANUAL

PART-2

CONTENTS

PRACTICAL 1

WASHING HANDS WITH SOAP AND WATER

AIM

Right technique of washing hands.

- After doing this experiment you will learn the right technique of washing hands with soap and water.

REQUIREMENTS

Soap/detergent, soap case, sufficient availability of water, nail cleaning brush, nail cutter, disposable/reusable towel.

METHOD

1 Rub both the hands properly under running water. Dust and micro-organisms like bacteria will be washed.

2 Use soap along with water for good cleaning of hands.

3 Allow flow of water from forearms to the fingers wtih soap so that bacteria will be washed off.

4 Wipe hands with clean towel.

OBSERVATION

Observe the hand washing technique of your class-mate and practice correct hand washing technique and discuss it in class.

Notes

RESULT

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IMPORTANT POINT

Keep hands and forearms clean to prevent the risk of infection.

BENEFITS

Cleaning the hands is very important in order to:

- Prevent the spread out infection to the patients.
- Reduce risk of infection for the health worker.
- Prevent the cross infection among patients.

Note: Important conditions where hand washing is very essential.

- On arriving and leaving the work place/ health centre/dispensary/hospital etc.
- Before and after contact with a patient/ before and after the performing any examination.
- Before and after dressing the wound.
- Before and after the use of medical equipments.
- Before and after giving medicine/ injection to the patient.
- Before and after handling any body fluids & excreta.
- Before and after serving the food to the patient.
- Before and after taking off the gown and gloves.

Notes

PRACTICAL 2

PURIFICATION OF WATER BY CHLORINATION METHOD

AIM

To demonstrate the purification of water by chlorination method.

- After doing this experiment you would be able to clean water by chlorination.

REQUIREMENTS

Bleaching power, plastic bucket, a container having lid for storage of stock solution, plastic container, earthen pot or plastic bucket with lid & tap, a big spoon, and a big stick.

METHOD

1. Store bleaching power in an air tight container. Keep this container in a dark, cool and dry place.
2. Add 40 gm (three big spoons) bleaching power in a liter of water which prepares 1% solution. Mix it with the help of a stick and leave this stock solution for 1 ½ hours. The solid compound will settle down at the bottom. Now use only clear solution.
3. Store the clean chlorine solution in another container and place it in a cool and dark place.
4. Add three drops of chlorine stock solution in one liter water for process of chlorination.

Notes

5. Mix the solution immediately and thoroughly. Leave it for an hour before using it.
6. Store disinfected water in a clean plastic bucket with a tap.
7. If the water is highly coloured and if it has an odour, then add 6 drops of chlorination stock solution in the water bucket for chlorination.

Note:

1. Purification is done to provide safe and sufficient drinking water, so that the diseases related to contamination of food and water can be prevented.
2. Now a days chlorine tablets are available that can be used at home to clean the water easily by adding them into the water. These may be used as per the instructions given on the bottle. These tablets are available in health centres, dispensaries. They can also be purchased from the chemist.

OBSERVATION

Observe the water for any sediment & colour.

RESULT

Chlorination is the easiest technique for the purification of water at home.

POINTS TO REMEMBER

1. Water should be clear and free from turbidity as turbidity affects chlorination of water.
2. If water is highly polluted then more quantity of chlorine is needed to disinfect the water.
3. If some sediment is seen then water should be strained.
4. Try to get water from clean & safe source.
5. Use glass with a handle to take out the water. Do not put hands or glass directly while taking out clean water.

PRACTICAL 3

PREPARATION OF MALARIAL PARASITES SLIDE

AIM

To rule out the presence of Malarial Parasite (MP) in the peripheral blood smear.

- After doing this experiment, you would be able to know the presence of Malaria parasites in peripheral blood smear.

REQUIRMENTS

Leishman's stain, microscope, sterile disposable needle, disposable syringe to collect blood, cotton, spirit, glass slide, glass stick for staining, distilled water, soap.

METHOD

1. Wash hands with soap properly.
2. Explain the procedure and reassure the patient.
3. Take two clean glass slides.
4. Clean the patient's tip of the finger with spirited cotton swab.
5. Prick the finger tip with sterilized disposable needle.
6. To prepare a thick blood smear, place 2-3 drops of blood at one end of slide.
7. Prepare a thin blood smear on the other end of glass slide.
8. Dry the smear in air.
9. To de-hemoglobinise the blood stain, remove hemoglobin from blood stain so that malaria parasites can be seen easily.

This can be done by following steps:

(a) Place two/three drops of distilled water into thick blood smear and rotate the slide three times.

(b) Repeat this process twice or thrice, so that entire hemoglobin can be removed.

(c) Make sure that while de-hemogloblization, drops of distilled water must not touch thin blood smear as it can wash out thin blood smear.

(d) Now stain the slide with Leishman's stain.

STAINING PROCESS

1. Place the slide on staining glass rods.
2. Cover the blood smear with 10-12 drops of Leishman's stain and leave it for 2 minutes.
3. Now add 18-20 drops of buffer water over the stain and leave it for 10 minutes.
4. Wash out the slide with buffer water and dry the smear in air.

OBSERVATION

Examine the blood stain by microscope. Observe the Malarial parasites in red blood cells.

RESULT

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PRECAUTIONS

1. Re-cap the needle properly to avoid needle stick injury.
2. Cotton, needle etc. should be disposed properly.
3. Keep the things back to their place after cleaning them.
4. Wash hands properly with soap before and after the procedure.

Notes

PRACTICAL 4

PREPARATION OF SPUTUM SLIDE

AIM

To rule out the presence of Microbacterium tuberculi bacteria

- After doing this experiment you would be able to know the presence of Microbacterium tuberculi bacteria in the slide.

REQUIREMENTS

Clean wide mouthed bottle container to collect Sputum, distilled water, clean glass rod, glass slide (unscratched), inoculation loop,(sterilized inoculation loop), carbol-fuchsin, sprit lamp, acid ethanol, acqueous methylene blue, microscope.

METHOD

1. First of all wash hands with proper technique.
2. By the help of sterile inoculating loop take little amount of sputum and prepare a slide.
3. Prepare a smear as thin as possible by making concentric circles.
4. Fixation: Dry the smear in the air and fix the smear by passing the slide three times over the flame.
5. Sputum slide is ready for acid fast bacilli (A.F.B)/Z.N (Zeil Nelson stain) staining and tubercular bacilli can be seen in this slide.
6. Place the sputum slide on glass rod.
7. Put carbol-fuchsin on the sputum smear.

Notes

8. Boil the carbol fuchsin after burning (use spirit lamp or gas burner for boilings the cotton wool with the help of spirit for 5 minutes.
9. Wash it with distilled water and cool.
10. After covering the slide, decolorization is done with acid ethanol.
11. Wash the sputum smear with water.
12. Counter stain it with methylene blue.
13. Now wash it with water and dry the sputum smear.
14. Now examine it under microscope.
15. Wash the hands properly with soap.

OBSERVATION

Observe the presence or absence of tubercular bacilli under the microscope.

RESULT

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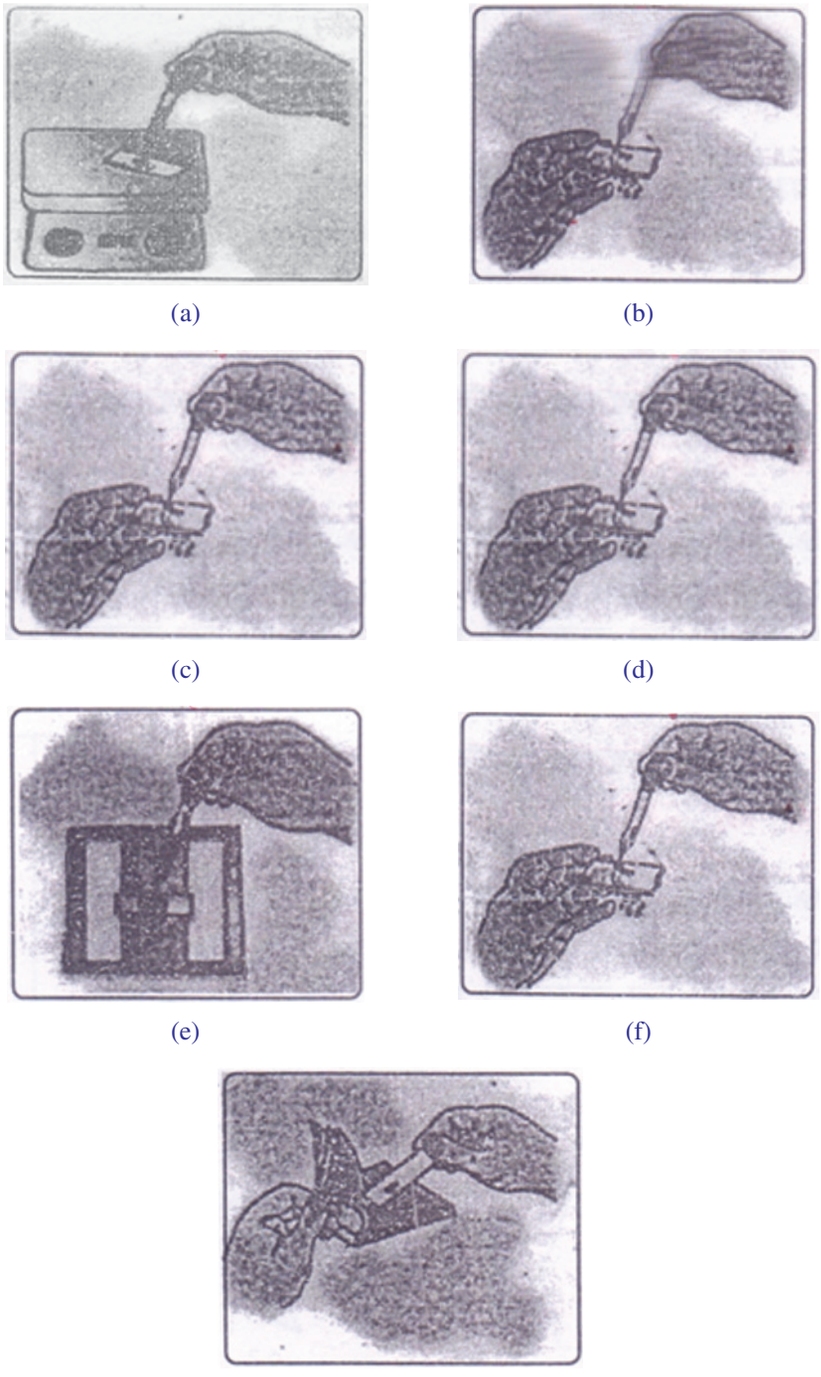
PRECAUTIONS

1. Ask the patient to provide early morning sample of sputum.
2. Sputum sample is tested for three times to confirm the diagnosis.
3. Keep all the things/articles back to their place after cleaning it.
4. Wash your hand by using the proper technique before and after the procedure.

Note:

- Acid fast Bacilli which are like a rod in shape, will take the colour of carbol-fuchsin and remain red even after the reaction with dilute acid.
- The presence of acid fast bacilli shows that patient is suffering from Tuberculosis.

(a) Heating process: Use the carbol – fischin and heat it for 5 min. Make sure that Stain should not be evaporated.



(a) (b) (c) (d) (e) (f) (g)

Fig. 4.1: Sputum slide

Notes

PRACTICAL 5

GRAM STAINING

AIM

To study the bacilli and cocci using gram staining.

- After doing this experiment you would be to do the gram staining.

REQUIREMENTS

Crystal violet, Gram iodine solution, 95% ethanol, Safranin solution, glass slide, microscope, sterilized loop, bacterial colonies, bloating paper, culture plate, spirit lamp, normal saline, soap.

METHOD

1. Wash the hands with soap properly.
2. Take a clean slide.
3. Place one drop of normal saline on it.
4. With the help of sterilized loop take a bacterial colony out from culture plate and mix it with normal saline on the slide and make a smear.
5. Dry the smear in the air.
6. Move the slide over flame for 4 to 5 times to fix the smear.
7. Slide is ready for gram staining.

PROCESS OF GRAM STAINING

1. Place the prepared slide on staining rod.

2. Put the Crystal Violet on the slide and keep it for 1 minute.
3. Cover the slide by gram iodine solution and keep it for 1 minute.
4. Rinse it with tap water.
5. Now cover the slide with 95% ethanol and keep it for 1 minute.
6. Rinse/wash the smear with water.
7. Make a counter stain with safranin solution and keep it for 10 minute.
8. Wash it with tap water.

OBSERVATION

See the slide in microscope. Slides having dark purple, are gram positive and the slide having pink colour, are gram negative .

RESULT

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PRECAUTIONS

1. Ensure proper disposal of media culture after procedure.
2. Keep the things back to their place after cleaning them.
3. Wash the hands properly before and after the practical.

Note:

Gram staining process divides the bacteria into two groups.

Gram Positive: Staphylococci, Streptococci, Pneumococci, Diptheria bacilli.

Gram Negative: Gonococci, Meningococci, Vibrio cholera, Salmonellae.

PRACTICAL 6

CONTRACEPTIVE MEASURES

AIM

To recognize various contraceptive measures

- After doing this experiment, you would be able to recognize various contraceptives and would be able to explain their use and importance of it.

REQUIREMENTS

All the available samples of contraceptives, model/ chart/poster of reproductive system (male and female).

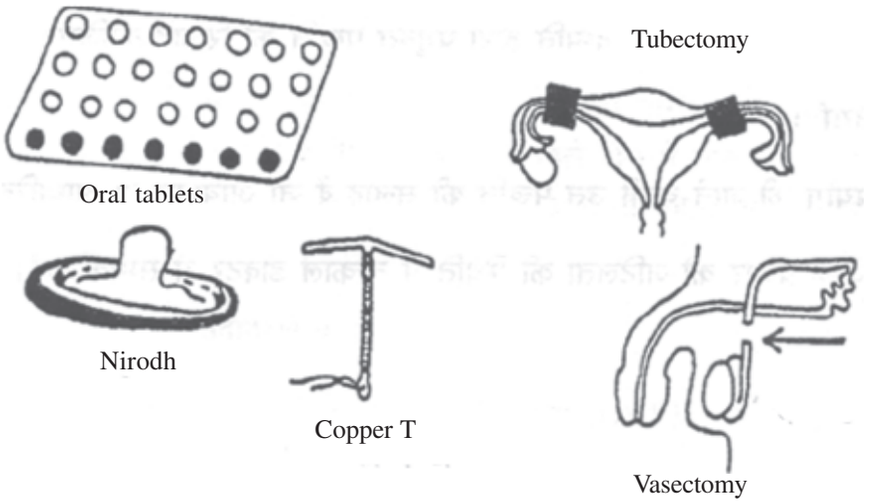

Fig. 6.1: Contraceptives methods

METHOD

1. Identify various contraceptives.

2. Discuss about the importance and utility of contraceptives.
3. Draw pictures of various contraceptives
4. Explain the use and tell about where and when these contraceptives are used. Tell about the permanent process of contraception with the help of models.

OBSERVATION

Discuss about the various contraceptive measures with the eligible couple, and help them to choose the correct method.

RESULT

Make a record of choosing the method of contraceptives by eligible couple.

PRECAUTION

- Advice the necessary contraceptive methods according to their need.
- Consult the doctor immediately in case of any complication.

Notes

PRACTICAL 7

ESTIMATION OF EDD (EXPECTED DATE OF DELIVERY) PREGNANT LADY

AIM

To calculate the estimate date of delivery.

- After doing this practical, you would be able calculate the estimate date of delivery by date of last menstrual period.

METHOD

1. Make an estimation of expected date of delivery.
2. Correct time period of pregnancy can be calculated. The duration of pregnancy is normally 280 days/ 40 weeks.
3. Correct date of delivery can be calculated by adding 7 days to the first day of last menstrual cycle and then adding/counting 9 months to that date.

For example:

If first day of last menstrual period (LMP) is 02 January 2017, then

2 + 7 = 9 January 2017. Now add 9 months into the date and the estimated delivery date will be 09-10-2017.

- If the mother does not remember last menstrual period or conceived second time without menstrual cycle after previous delivery, in that cases another techniques are being used.

- Measure the height of the uterus. It will help to calculate the weeks of pregnancy.
- The day mother feels fetal movements for the first time can be counted as 20 to 22 weeks. Delivery date can be calculated in this way.

OBSERVATION

1. Discuss with the pregnant lady and find out the estimated date of delivery.
2. If the date of last menstrual period is 10 February 2016, then calculate the estimated date of delivery.

RESULT

1. The estimated date of delivery of the pregnant lady is .....
2. According to the given date the estimated deliver date is .....

Note: If the mother does not remembers her date of last menstrual period then ask her to correlate with some important occasion/day so that a rough idea can be made.

PRACTICAL 8

IDENTIFICATION OF HIGH RISK PREGNANT WOMEN HAVING COMPLICATIONS

AIM

To identify high risk pregnant women with complications

- After doing this experiment, you would be able to understand the symptoms of high risk conditions, indications and factors of high risk conditions. You would also be able to recognize the women having higher complications.

METHOD

Discuss with mother about points mentioned below and try to know the history of her delivery.

MENSTRUAL HISTORY

- Age of Menarche.
- Regularity, intervals and duration of flow.
- Dysmenorrhoea and any other problems.
- Date of last menstrual period.

DELIVERY HISTORY

History of previous delivery, Date and mode of last delivery, time period of delivery, history of any abnormality during pregnancy, Sex of infant, birth weight at the time of birth and delivery age, present health of the child.

HISTORY OF PRESENT PREGNANCY

Planned or unplanned, last menstrual period, indications and symptoms.

MEDICAL HISTORY

- Any long term or serious disease of their own or in the family.
- General health habits.

SOCIAL HISTORY

Education and occupation of the woman and her husband, structure of family, source of income of family.

BODY CHECK-UP AND LAB

This helps in identifying the women having complications. Information given below is helpful to know the factors of complications.

- Women below the age of 15 years or above 30 years.
- Multigravida. (Pregnant more then 4-5 times.)
- Short heighted women (less than 140 cm)
- Multiple pregnancies.
- Anemia, any other serious or long term disease.
- Pre-eclampsia and eclampsia.
- Ante-partum haemorrhage.
- Last delivered still birth baby or last pregnancy with intrauterine death.
- Last delivery by operation(caesarian section).
- Twins.
- Pregnancy associated with general diseases like cardio vascular, diabetes, kidney disease and mental disease.

These are some factors that contribute to the high risk. History of patient and complete body checkup helps in recognizing the high risk pregnancies.

Notes

OBSERVATION

1. Make a list of complications after identifying and observing them in the pregnant woman.
2. Examine 10 mothers in second trimester of pregnancy and identify any high risk mothers present in them.

RESULT

Make a record of your result.

PRACTICAL 9

ASSESSMENT OF VITAL SIGNS OF PREGNANT WOMEN

AIM

To measure the vitals of pregnant women

- After doing this experiment, you would be able to measure the vitals of pregnant women.

REQUIREMENTS

Measuring tape, weighing machine, BP Apparatus, Stethoscope, paper and pencil to record the results.

METHOD

1. **Measurement of height:** Ask the woman to stand close to the wall straight. And mark a point at the level of woman's head with the help of scale/rod/ cardboard on the wall. Measure the distance from the floor upto that point on the wall. Average height of an Indian woman is around 145 cm to 150 cm. Height of woman indicates the size of her pelvis.

2. **Measurement of weight:** Weight should be measured during each visit. Risk of gestational diabetes gets increased due to obesity. The average weight of Indian women in the age group of 25 to 30 years is 55 to 66 kg.

   (a) During pregnancy, in first trimester, weight gets increased by 1 kg.

   (b) In second trimester its average growth is 5 kg. (2 kg per month)

   (c) In third trimester it increases by 5 to 6 kg (average 2 kg per month)

Notes

(d) During pregnancy on an average weight increases by 10 to 11 kg in total.

Increase of weight during pregnancy indicates the weight of infant during birth time. Excessive growth of weight can be due to toxemia. Static weight shows some irregularities like unhealthy development of infant or infant death in uterus/intra uterine death.

3. **Blood pressure measurement:** Blood pressure should be measured during each visit.

- Wrap the blood pressure cuff around the arm.
- Feel the radial pulse.
- Raise the pressure to a point till radial pulse is not felt.
- Keep the dial of stethoscope on the brachial artery of elbow joint.
- Pressure in the cuff is lowered when intensity of the sound gradually increases and sound suddenly reduces or disappears.
- The point where the sound increases in intensity, it shows systolic blood pressure. The point where sound diminishes or stopped, shows diastolic blood pressure.
- Normal value of blood pressure is 120/80mm of Hg
- Increase in BP indicates Toxemia.

OBSERVATION

Do all these three measures for height, weight and blood pressure and discuss the result.

RESULT

Height ..... cm

Weight ..... kg

Blood pressure ..... mm of Hg.

PRACTICAL 10

ONE DAY SAMPLE MENU FOR PREGNANT WOMEN

AIM

To maintain health and guide the balanced diet of a pregnant women

- After doing this exercise you will be able to suggest nutritional food to the pregnant woman about food

REQUIREMENTS

Food group chart, ICMR recommended dietary allowance chart, measuring glass-1, measuring cup-1, ½ cup, ¼ cup, measuring spoon-table spoon (big spoon), 1 small tea spoon, ½ small tea spoon, ¼ small tea spoon.

METHOD

1. Let us assume that Lata is a pregnant woman. She is a home maker and belongs to middle income group family.
2. We will prepare one day sample menu of balanced diet for Lata. As we know that during pregnancy, the necessity/requirement of calories, protein, vitamins and minerals increases, hence, to fulfill that requirement, an extra amount have to be added in meal to meet the requirements.

Food item	Quantity during pregnancy (in grams)
Grain/Cereals	220
Roots and root vegetable	120

Sugar and jaggery	25
Fat and oil	35
Milk	500 ml
Pulses	60
Meat/fish/chicken/eggs	50
Green leafy vegetables	200
Other vegetables	160-200
Fruits	160-200
Total calories	2175
Total protein (grams)	69

3. Now we can say that (according to RDA chart), the following below mentioned food is added / included in pregnancy.

Food	Quantity (in gram)
Pulses/cereals	20
Roots and roots vegetables	60
Sugar/ Jaggery	10
Meat/fish/chicken/eggs	50
Green leafy vegetables	100

4. Now these food items would be distributed to Lata as one day sample menu.

Meals	Food items	Quantity
Morning breakfast	Mango and milk shake/lassi/Butter milk	1 glass
	Stuffed paratha 2 (stuffed with gram lentil and Onion)/paratha with vegetable/ Coriander chutney	2
	Boiled egg	1
	Roasted ground nuts	1/3 cup

Mid morning	Laddoo made of flour, sesame, gram and jaggery	2
	Tea	1 cup
Lunch	Roti	2
	Rice	1 cup
	Spinach, paneer curry	½ cup
	Mixed pulses	1 cup
	Curd	½ cup
	Salad	1 cup
Evening tea	Tea	1 cup
	Puffed rice	1½ cup
	Coriander and mint chutney	
	Seasonal fruit	1
Dinner	Vegetable soup	1 cup
	Fenugreek leaves paratha	2
	Cereal/pulse	1 cup
	Vegetable (potato or soya chunks)	½ cup
	Sprouted moog dal Raita	½ cup
	Salad	½ cup

Eat adequate quantity of food

- Whole grain, whole/pulses with peels, fruits, vegetables, black berry, guava, papaya etc.

Eat less in quantity

- Refined sugars, carbohydrates, butter, fat, ghee, pickle etc in less quantity.

Do not eat

- Meat, packaged fruit juices, cold drinks, sweets, fried foods, food made by all-purpose flour, jam etc.

Notes

Fig. 10.1

OBSERVATION

Prepare one day sample menu food table for pregnant woman with your classmates and discuss about balanced diet of that women.

RESULT

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POINTS TO BE REMEMBERED:

1. To increase the fibre in meal, include whole green gram, black lentil and beans gram in the food.
2. It would be more nutritious to add mixed grain and cereals in meal.
3. Jaggery should be used in place of sugar.
4. Vitamin C and vitamin B are increased in the food by taking sprouted green lentil.
5. Maintain food hygeine during cooking process.
6. Avoid fried foods and take more boiled and roasted food.

Notes

PRACTICAL 11

ASSESSMENT OF INFANTS

AIM

To assess vital signs of infant

- After doing this experiment you will be able to do assessment of an infant.

REQUIREMENTS

Thermometer, cotton, anti septic lotion, hand washing material, tape, paper and pencil to record observations.

It is essential for the chidren health to have assessment related to birth record, their environment, family history and family resources.

Health assessment will help.

- To plan and care.
- To preventn illness.
- To minimize the effect of disease.
- To educate the mother and family members about care of infants.

METHOD

We should clean our hands with soap and water properly for the check up of infant. After that we should perform the task mentioned below step by step.

1. Take history of infant and discuss with mother.
2. Do a physical examination.

Notes

WEIGHT

- Use spring balance.
- To take the weight of infant, remove the cloth of infant, wrap infant into an old thin cloth and measure the weight in spring balance.
- Record the weight every week till one month.
- After that once in a month.
- If the weight is less than normal to that age, then inquire for any disease or having inadequate diet.

HEIGHT

- The average height of an infant is 47-50 cm. Measure the height from head to toe. Observe for any abnormality or wound in the body during examination.

COLOUR OF SKIN

Observe the skin colour under proper light. A healthy baby is pink in colour. If the colour is a bit blue then it means baby has cyanosis.

VITAL SIGNS

Temperature

- Touch the baby and feel whether she is hot, warm or cold. The average temperature of little babies under the arm pit is 36.6°C.
- If the baby's temperature is less than 35°C then the baby is hypothermic and if the temperature is more than 37.4°C then considers it as fever.
- Record the temperature of baby using the thermometer in axilla.

Heart rate

- Place your hand to the left of the chest of baby and measure the heart rate per second.
- The average heart rate of new born baby is 120-140 per min.

HEAD TO TOE EXAMINATION

Head circumference

- The average head circumference of a new born baby's head is 33- 35 cm. Measure using measuring tape.

Eyes

- Examine the colour of eyes. Check for any kind of redness or discharge.

Mouth

- Examine the mouth of baby while her crying and check for any abnormality or coating over tongue.

Chest

- Examine for any abnormality and breathing movements.

Stomach

- Feel abdomen for any distension.

Reproductive Organs

- Check the genital organs and check for any abnormalities or infection.

Urine and Stool

- Ask about the urine and bowel patterns of baby.

Behavior of baby

- Crying due to hunger: Observe the baby crying. If the baby is crying try to find out some underlying problem may be hunger or wet napkin or pain in stomach etc.

OBSERVATION

Examine an infant, observe and make a report.

RESULT

Record your observations and take the baby to the doctor if there is any abnormality. Assess proper growth and development of the baby.

PRECAUTIONS

Wash your hand properly before and after examining the baby.

Notes

PRACTICAL 12

ONE DAY SAMPLE MENU FOR LACTATING WOMAN

AIM

To know Nutritional food and balanced diet of Lactating women

- After doing this experiment you would be able to suggest a lactating woman about the diet.

REQUIREMENTS

Food group chart, ICMR recommended dietary allowance chart, measuring glass -1, measuring cup -1, ½ cup, ¼ cup, measuring spoon- table, Spoon (big spoon), 1 small tea spoon, ½ small tea spoon, ¼ small tea spoon.

METHOD

1. Let us assume that Vimla is a lactating woman.
2. We shall prepare a balanced food table for Vimla (according to RDA Chart.)

Food Material	Quantity for lactating woman (in gram)
Grain/Cereal	240
Roots and tubers	120
Sugar/Jaggery	40
Fat and oil	40
Milk	625

Cereals	60
Meat / fish/eggs	50
Green leafy vegetable	200
Other vegetables	200-210
Fruits	160-200
Total calories	2435 kcal
Total protein	77

3. Now we will compare it with RDA chart and would find that following foods have been increased or added during the lactation period.

Food	Quantity (in gram)
Grain	40
Roots and root fruits	60
Sugar/ jaggery	15
Fat and oil	05
Meat/ fish/chicken/eggs	50
Green leafy vegetables	100
Other vegetables	80-100

4. Now these food items would be distributed to Vimla's one day sample menu.

Meals	Food items	Quantity
Morning breakfast	Milk/lassi/Butter milk	1 glass
	Boiled egg/omlette/Paneer	1(50 g)
	Potato paratha + Chutney	2
	(Coriander amla)	11/3 cup
Mid morning	Tea	
(Snacks)	Upma (with mixed vegetable)	1cup
	Sprouted green lentil	1cup

Lunch	Roti	2
	Rice	½ cup
	Spinach dal	1 cup
	Panir curry	½ cup
	Curd	½ cup
	Salad	1 cup
	Seasonal fruit	½ cup
Evening tea	Tea/milk	1 cup
	Laddu (made up of flour, gram flour, basil)	2
	Or ground nut	½ cup
Dinner	Rice	½ cup
	Roti	2
	Mixed vegetables	½ cup
	Boondi raita	½ cup
	Pulses	1cup
	Fruit custard /milk	½ cup

OBSERVATION

Prepare a one day sample menu food table for lactating woman with your classmates and discuss about her balanced diet.

RESULT

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IMPORTANT POINTS

1. To increase the nutrition in meal, whole grain and lentils should be included.
2. Locally available seasonal fruits and vegetables should be used in food.

3. For the sufficient availability of mother's milk, adequate water and liquids should be included in food.
4. The frequency of meal should be increased.
5. In the meal of lactating woman sprouted lentils, citrus fruits, milk in adequate quantity and green leafy vegetables should be included positively.
6. Food higiene should be maintained.
7. Avoid excessive fried food and have steamed and roasted food.

Notes

PRACTICAL 13

INFANT FEEDING AND WEANING

AIM

To advise mother about nutrition of infant and weaning practices

- After doing this experiment you will be able to make the lactating mother understand about infant feeding and process of weaning.

REQUIREMENTS

- Sample of food items that can be used as a supplementary food.
- Supplementary food poster/chart/picture of weaning.
- Facilities to prepare weaning foods.

METHOD

1. Advice mother to feed the baby with exclusive breast milk for at least 6 months or as much as you can. After six months other supplementary food should also be started to the babies besides breast milk.
2. Meanwhile continue breast feeding as long as possible.
3. Start giving supplementary food like mashed banana, mashed potato, suji kheer, vegetable soup, dal soup, porridge.
4. Make sure that start only one supplementary food at a time.
5. Start with a very small quantity and increase it gradually.
6. Do not force any new food if child does not like it.

7. Have an interval for some days before starting new supplementary food.
8. With the help of chart/poster, educate them about supplementary diet prepared by mixing the grains and vegetables, grains and pulses, pulses and vegetables, as this combination of food is more nutritious.
9. Advice about the cleanliness and washing hands during cooking and feeding the baby.

OBSERVATION

Explain about the ideas of weaning to a mother of six months old baby. Prepare a list of supplementary diet and discuss it with mother.

RESULT

Prepare a report on the discussions held with mother.

Note: After attaining the age of a year or more, introduce the baby with family foods but in small quantity.

Notes

PRACTICAL 14

CALCULATION OF BIRTH RATE, INFANT DEATH RATE AND MATERNAL DEATH RATE

AIM

To determine the health status of mothers and children.

- After doing this experiment, you would be able to calculate Infant's birth rate, death rate, and mother's death rate.

REQUIREMENTS

Paper and pencil, chart paper

METHOD

1. **Birth Rate:** Birth rate can be defined as "number of live births per thousand of estimated midyear population in a given year."

$$\text{Birth rate} = \frac{\text{The number of live birth during the year}}{\text{Estimated mid-year population in the same year}}$$

   Birth rate is a simple calculation and it does not shows fertility, nor the increase or decrease in population. It is helpful to compare the birth rate in different places and time.

2. **Infant Mortality Rate:** Infant mortality rate can be defined as the mortality rate of infants registered in the same year as compared to the total number of live births registered in a given year. It is generally referred to as infant mortality as compared to per thousand live births.

$$IMR = \frac{\text{The number of child deaths below one year of age}}{\text{Number of live birth in the same year}} \times 1000$$

Infant mortality rate can be considered as an important indicator of health status in the community.

3. **Maternal Mortality Rate:** Death of woman occuring due to complications of pregnancy or delivery, at delivery time. The risk of death increases in pregnancy during delivery in women. Maternal mortality rate is defined as mother's mortality if the death occurs during pregnancy, or delivery or death within 42 days after delivery except any accidental deaths.

   Maternal mortality rate can be calculated in this way:

$$MMR = \frac{\text{Number of maternal deaths during pregnancy, delivery, peuperium}}{\text{Number of live births in same population in same period or year}} \times 1000$$

   If the infant mortality rate and maternal mortality rate is high, it means that the health status of mothers and infants are not good. Maternal mortality rate of developed countries is 0.13 or 0.17 and it is lower than India. It shows that in developed countries the best facilities are available for pregnant women and the delivery conducted are handled by the skilled health workers.

OBSERVATION

Collect and record the information mentioned above in your community. On this basis calculate the health status of mothers and infants of your place.

ACTIVITY

Collect the information regarding births and deaths of mothers and infants from the notified office of your area and calculate infant mortality rate and maternal mortality rate.

Notes

PRACTICAL 15

IMMUNIZATION PROGRAMME

AIM

To prepare a chart on immunization schedule

- After doing this experiment, you would be able to guide the community children by preparing an immunization chart.

REQUIREMENTS

Poster paper, coloured sketch pens, pencil, rubber etc.

METHOD

Make an immunization schedule as per National Immunization programme.

- Get the vaccination card from the health centre and distribute them to mothers.
- Vaccination card also have columns like vaccine given and due date for next dose.
- In vaccination card, vaccines given at particular age is mentioned.
- Prepare a chart showing -

Table 15.1: National Immunization programme

Vaccine	Age				
	Birth	6 Week	10 Week	14 Week	6-12 Monthes
Primary dose					
B.C.G	√				
Dose of polio	√	√	√	√	
D.P.T		√	√	√	
Hepatitis B	√	√	√	√	
Measles					√
Booster dose					
DPT + polio dose	16-24 months				
D.P.T	5 years				
Tetanus Toxoid (TT)	At 10 years repeat on 16 years				
Vitamin A	9, 18, 27, 30 and 36 month				

OBSERVATION

Visit health centre and observe the vaccination of at least 5 children.

RESULT

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POINTS TO BE REMEMBERED

– Tell the mothers that if the child is ill then consult to doctor.

– Tell the mothers that if the child suffers any problem then advice to visit to the health centre for checkup.

– Help mother to learn about the vaccination and the due date of next dose of vaccine by record.

– If the child is vaccinated then record the given date and due date of next dose in the card.

Note: Visit health centre and observe immunization of at least 10 children. Prepare and discuss the report.

PRACTICAL 16

TECHNIQUES OF MAINTAINING PERSONAL HYGEINE

AIM

To know the correct techniques of maintaining personal hygeine

- After doing this exercise, you will be able to adopt the right techniques of maintaining personal hygiene in daily life.

REQUIREMNETS

Model/chart/poster of teeth, Model/chart/poster of ear, toothbrush, nail cutter, apron, head cap, wash basin with tap water, chart/poster related to personal hygiene, tongue cleaner, handkerchief and tissue paper, towel, ear bud.

METHOD

(A) Oral Hygiene

After every meal, rinse the mouth to remove food particles

1. Dental Care

- Rinse the mouth with water after each meal so that the remains of food present in the mouth and teeth gets cleaned out.
- Brush teeth correctly - Hold the toothbrush at an angle of 45 degrees against the gum line and move the brush back and forth with short gentle light strokes for

1 to 2 minutes. Teacher should explain about the right technique of brushing the teeth.

- It is the best to rinse mouth before brushing to remove the plaque and loosen debris from the tooth surface.
- Brush the teeth twice a day. It means in the morning and at night before sleeping.
- A brush with soft round bristle should be used. Brush should be changed after every 3 months.

2. Cleaning of tongue

Use tongue cleaner or toothbrush to remove bacteria from tongue.

3. Care of Ear

- Clean the outer ear gently with clean warm wet cloth water.
- If there is water in the ear, then turn/bend your head to one side and then bend to other side. Repeat it till the water drained out on its own.
- Do not use pointed sharp object to clean the ear wax.
- Use ear bud to clean the ear.
- Do not put any foreign object into ear.

Note: Teacher can demonstrate with the help of charts/posters/models

4. Care of Eyes

- Clean the eyes with clean sterile water and after that sprinkle water with hands atleast for 6 to 8 times.
- Wipe and dry it with soft clean cloth or towel.
- Do not put kajal in eyes.

5. Care of Nose

- Do not put any foreign object/finger in the nose.
- Use soft clean cloth or tissue paper to clean the nostrils.
- Do not clean harshly with handkerchief or tissue paper.

Notes

6. Care of hair

- Daily comb the hair and keep the head covered to prevent dust.
- Apply sufficient oil to hair and massage gently so that it prevents from dandruff.
- Avoid infections like pediculosis by keeping the hair clean.
- Avoid unnecessary use of hair colour and dye.
- Wash hair twice a week with good shampoo or soap.

B. Personal hygiene of food handlers

- Take bath daily.
- Wash the hand properly with soap and water before and after cooking.
- Wear neat and clean cloth along with apron and head cap.
- Keep the nail clean and short.
- Avoid touching face, nose or mouth while cooking food.
- Avoid coughing and sneezing around the food. Cover your mouth and nose with clean handkerchief while coughing and sneezing.
- Take vaccines regularly for typhoid and cholera.

C. Food Hygeine

- Grains, cereals and pulses should be washed in clean running water properly.
- Fruits and vegetables should be washed properly in running water before cutting.
- Do not throw the water in which grain and pulses are soaked. It is can be used in cooking as it has vitamins and minerals.
- Use fresh fruits and vegetables immediately.
- Do not use cut fruits as they are exposed to dust and flies.

Cooking food

- Food should be cooked properly.

- Cooked food should be kept covered.
- Give priority to the boiled and pressure cooked food.
- Cooked food should be consumed within few hours of cooking.
- Over fried and spicy food should be used less.

OBSERVATION

Observe personal hygiene of any two of your classmates and present the report in class.

RESULT

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Note: Teacher should present the right techniques of personal hygiene with the help of model, chart and posters.

Notes

PRACTICAL 17

FOOD GROUPS AND THEIR NUTRIENTS

AIM

To get the knowledge of composition of different food items

- After doing this experiment, you would be able to explain the food groups.

REQUIREMENTS

Five food group system, posters/model/ chart of micro and macro nutrients present in different food items. Pencil, scale, eraser, sketch pens, samples of food items.

Five food group	Food Items	Main nutritious element
1. Cereals (Energy giving food)	Wheat, rice, millet, jowar , maize corn, etc.	Calories, protein, vitamin B, fibre, iron, calcium
2. Pulses (body building food)	Green lentil, black gram, gram lentil (chana dal), yellow lentil (arhar dal), kidney beans (Rajma) etc.	Protein, fibre, vitamin B
3. Milk/egg/meat (body building food)	Milk, curd, egg, meat, fish etc.	Protein, calcium, phosphorus, vitamin A

4. Fruit and vegetables (protective food)	Fruit (apple, orange, guava etc),vegetables (bottle gourd, green leafy vegetables, spinach, potato, carrot, peas, tomato, radish etc.)	Vitamins and minerals.
5. Fat and sugar (energy giving food)	Oil butter, ghee, sugar, jaggery etc.	Calories, fat soluble vitamin.

OBSERVATION

Categorize different food items into 5 food groups from your kitchen and discuss about it.

RESULT

.....

.....

Notes

PRACTICAL 18

PROVIDING HEALTH EDUCATION TO THE COMMUNITY

AIM

To impart health related information and practices to community by role play

- After doing this experiment, you would be able to provide the health education to your community.

METHOD

While planning to provide health education, we should remember the points mentioned below.

- Need based – Identify the special needs of health of person.
- As per convenient of the community.
- Involve the group.
- Use appropriate method like role play, discussion, counseling etc.
- Include only important points.
- Use regional/local language so that it can be understood easily.
- Ask questions for assessment.
- Make timely tours for the improvement in methods.

STEPS OF ORGANIZING ROLE PLAY

- Select the topic needed – as per requirement

- Select main subject/discussion/ points.
- Prepare a story or script for role play.
- Assign roles to different members performing role play.
- Choose the area according to role assigned.
- Use different methods of informing people about role play .For example, by sticking the posters, distributing pamphlets or by drum beating.
- This task should be performed in common place in community.
- Try to make it entertaining and interesting by including local language and local people.

OBSERVATION

Plan and conduct health education for any one group (like school going children, adults, pregnant women, lactating women, aged people).

RESULT

Evaluate the plan and prepare the report.

Notes

PRACTICAL 19

PREPARING A ROAD MAP OF YOUR PLACE

AIM

To prepare an area map for locating families, communities and resources.

- After doing this exercise, you will be able to map your area to find out the families communities and resources, and would be able to plan your work based on geographical area.
- Map shows directions, place and distance to reach to the community.

METHOD

1. Survey the area (walk around and observe the area).
2. Local landmarks like school, market, primary health centre or residential area, panchayat ghar etc.
3. Prepare a rough road map during survey.
4. Estimate distance based on walking time.
5. Connect the roads with each other in map and locate the main landmark of plotting.
6. Take necessary support from locals and community head/leaders.
7. Now prepare final road map on graph paper or poster paper.

OBSERVATION

Make a road map for your area and discuss the steps followed during preparing it. Make a report.

RESULT

.....

.....

Notes

CERTIFICATE COURSE IN COMMUNITY HEALTH

PRACTICAL MANUAL

PART 2

List of main things and project works

List of things

1. BP Instrument
2. Clinical Thermometer
3. Stethoscope
4. Fetus height chart
5. Foetoscope
6. Weighing machine /Body weighing scale
7. Copper T/ Multiload Device
8. Oral pills(pills to take orally)
9. Contraceptives
10. Foam tablet
11. A chart to maintaining the cold chain for Polio
12. Formula of Birth Rate

    Formula of Infant Mortality rate, mother Mortality Rate
13. Formula to calculate estimated delivery date using given last menstrual period

Project work

List of projects works

1. Survey of families
2. Filling antenatal card before delivery
3. Survey of child/ infant clinic
4. To participate in immunization programme, pulse polio
5. To sent women having complications for doctor checkup

PRACTICAL MANUAL

PART-3

CONTENTS

PRACTICAL 1

FIRST AID BOX

AIM

To provide the knowledge about the contents of a first aid box. (You would be able to make a First Aid Box after doing this exercise.)

REQUIREMENTS

A labeled First aid box with all the contents.

METHOD

Collect all the articles of first aid box as listed, label them and learn their uses.

OBSERVATION

Try to know its use and practice in the class.

RESULT

First aid box is ready to use.

FIRST AID BOX

Note: list of content of first aid box.

1. Cotton
2. Small plastic bowl/steel bowl
3. Sterilized dressing
4. Sterilized syringe
5. Roller Bandage
6. Splint

Notes

Fig. 1.1: The things in the first aid box.

7. Magnifying glass
8. Forceps
9. Packet of Glucose
10. Adhesive dressing
11. Thermometer
12. Scissor
13. Gloves
14. Safety pins
15. Paper tissue
16. Gauge
17. Burnol
18. Mercurochrome
19. Dettol/Savlon
20. Constriction Bandage
21. Tablet Paracetamol
22. Chloromycetin Applicam (for eyes)
23. Spoon
24. Torch
25. Hand wash article (soap, towel etc.)

PRECAUTIONS

1. Make sure that all the things are available in the first aid box time to time.
2. Always make sure that all the medicines/ solutions, lotion must be before their expiry date.
3. Never use the medicines after their expiry date.

Notes

PRACTICAL 2

HEALTH EDUCATION FOR PREVENTION AND CONTROL OF COMMUNICABLE DISEASE

AIM

To impart health education for prevention and control of communicable disease.

- after doing this exercise, you would be able to provide health education to prevent and to control the communicable disease.

REQUIREMENTS

Articles for demonstration as per the topic. Audio Visual (AV) aids, related to causes and prevention of various diseases.

METHOD

Assign health education topics to students in groups of 2 or 3,as per the need of the community. guide them to prepare the content of subject and their related AV aids, keeping in mind background and interest of the community.

Steps of organizing health programmes

1. Identify the target group.
2. Select the topic.
3. Prepare its contents and audio-video material.
4. Prepare its language.

Notes

5. Choose the place for it.
6. Inform the community about the date, time and venue of health education Programme.
7. Introduce yourself.
8. Introduce the topic.
9. Conduct health education using necessary teaching – learning methods (such as play, puppet show, exhibition, film show, slide show etc.)
10. Evaluate the health education by asking questions from the group.
11. Arrange follow up visits and programmes.

The students should gain skill in imparting need based health education in a local language which is understandable by villagers.health promotion and preventive Aspects of various diseases should be emphasized.

OBSERVATION

Observe for change in knowledge and behaviour for healthy practices.

RESULT

After the experiment, make a report and discussion on the changes in the practice and knowledge related to health education.

POINTS TO REMEMBER

- Arrange community resources.
- Encourage participation of community (for venue, demonstration etc.).
- Observe the changes in community's behavior (health practices).

A practical model to provide knowledge to the community about health education.

Suresh : Hello, good morning Prakash! How are you ? You look very weak.

Prakash : Hello, good morning. I was very sick from last 10 days. I had diarrhea (loose motion) and vomiting. Now I have taken treatment. Where are you going? What's this chart in your hand?

Suresh : I am going to your village. I heard that many people are suffering from diarrhea and vomiting. The water of your area must have been infected. So I called the villagers to come to the Panchayat Bhawan.I will tell them how to prevent water-borne disease.

Prakash : Just wait. I am going to the post office and coming back. I will walk with you as I also want to know how these diseases can be prevented. Both went to the Panchayat Bhawan, where 30-40 people, women and men were waiting.

Suresh : Hello everyone. I heard that a large number of people are suffering from loose motion in your village.

Suresh : Diarrhea is caused by contaminated water, food and poor personal hygiene. As a large number of people are suffering from this, probably water is infected. Water has been taken from the tap and has been sent for the bacteriological test. Drink boiled water till the report is awaiting. If it is not possible to boil the water, then add one pill of chlorine in a bucket of water. It can be used for drinking after keeping it for half an hour.

Now I will show you the pictures of bacteria and parasites which pollute water like E.coli, Amoeba, Giardia etc.

Any question? A villager named Rameshwar asked what we will do if diarrhea attacks?

Suresh : Start to give ORS. One packet of ORS should be dissolved in one litre of water, and can be given to the patient at regular intervals. Once prepared this solution should be consumed within 24 hrs. A fresh solution can be prepared for further use.

Some homemade liquid fluids (like rice water, light tea, pulses water, coconut water etc.)

ORS can also be prepared at home by mixing salt, sugar and lemon water. The taste of ORS is like tears. Adequate amount of fluid should be given to prevent dehydration. If you have any questions, or if you require any help then I will be happy to help you.

Notes

PRACTICAL 3

TO PREPARE ORAL REHYDRATION SOLUTION (ORS)

AIM

To prepare an oral rehydration solution from an ORS packet.

- After doing this exercise you would be able to make ORS at home by ORS packet.

REQUIREMENT

- A clean jug filled with boiled cold water
- A Steel Spoon.
- A Steel jug of one liter capacity.
- ORS packet.
- Sugar, Salt/lemon.

METHOD

1. Fill a steel jug with one liter water.
2. Cut the ORS packet and pour the powder in the jug.
3. Stir the water with the spoon so the powder gets fully dissolved.
4. Taste this ORS solution and use it within 24 hours. The next day if necessary a fresh solution can be prepared.
5. Make this solution at home if an ORS packet is not available.

6. For this, add one teaspoon of salt and one handful of sugar in one litre cold boiled water. Add lemon juice.

7. Your solution is ready, it should be consume within 24 hours.

ORS is a prepared solution of electrolytes and glucose, it prevents dehydration by providing essential electrolytes and water which are lost due to diarrhea and vomiting. So ORS is one of the main tool to prevent death of patient in disease like Cholera, Diarrhea and Gastroenteritis.

OBSERVATION

Make a lifesaving solution (ORS) by using given technique.

RESULT

Now your ORS solution is ready.

PRECAUTIONS

1. Utensils which are to be used should be cleaned.

2. Use only boiled cold water to make the solution.

IMPORTANT POINTS

- ORS should be used in the cases of loose motion, vomiting.
- It can save people from death due to dehydration.
- Observe the elements of ORS packet (sodium chloride 3.5 gm, sodium citrate 2.9 gm, potassium chloride 1.5 gm, glucose 20 gm). And add them in a one litre of water.

PRACTICAL 4

FIRST AID MANAGEMENT IN CASE OF DROWNING

AIM

To provide artificial respiration to drowning patients.

- After doing this you will be able to provide first aid to the person who is suffered with drowning.

REQUIREMENT

Mat or darri, cloths for artificial respiration, soap, water and Towel.

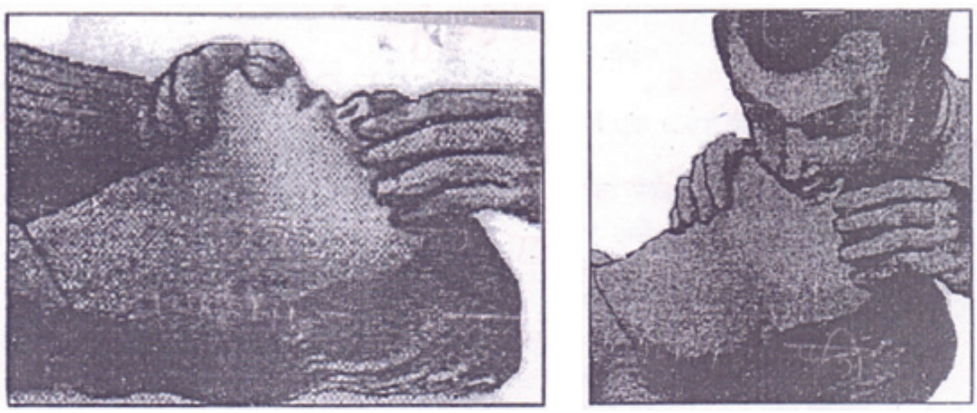

Fig. 4.1: Artificial breathing

MOUTH TO MOUTH ARTIFICIAL RESPIRATION

Method

- Firstly, the patient is taken out of the water, placed on a flat surface.
- Examine the patient's mouth and nose, any dirt, water and any other object should be removed so that an artificial respiration process can be started.
- Now turn the face one side and give pressure on the stomach with hands. So that the water filled in lungs can come out from mouth and nose.
- After the water comes out of the mouth keep his face straight upward and put a handkerchief on his mouth and start the process of mouth to mouth respiration.
- Mouth to mouth breathing process should be done 15 times in a minute.
- The process should continue till the normal respiration can be restored.
- Breathing process gets affected due to drowning. The process of mouth to mouth breathing procedure inflates and distends the lungs, and provides life saving oxygen.

OBSERVATION

- Practice the procedure of mouth to mouth with your classmates.

RESULT

After giving the mouth to mouth respiration, normal respiration starts and skin starts getting normal.

POINTS TO REMEMBER

1. Mouth to mouth breathing procedure should be done 15 times in a minute.
2. Keep this process continue until normal respiration restores.

PRACTICAL 5

FIRST AID MANAGEMENT OF FRACTURE

AIM

To immobilize the fracture part.

- After doing this exercise you will be able to provide the First aid in fracture.

REQUIREMENTS

Splints of different size, bandages of different size, Triangular bandage three or four in number, cotton.

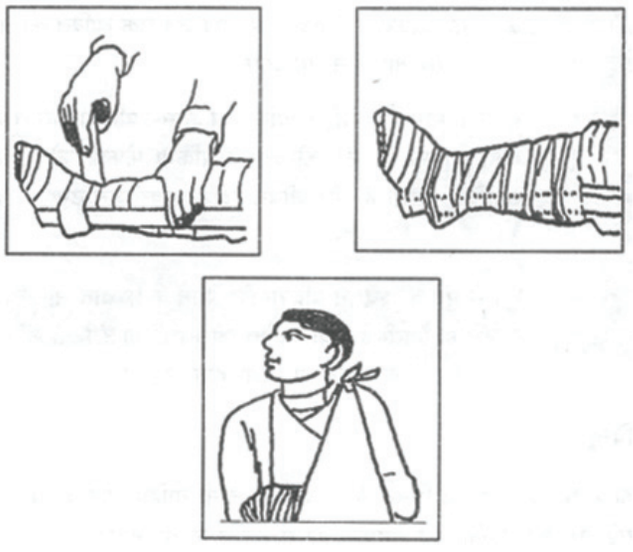

Fig. 5.1: Splints and triangular bandages

Splints are flat pieces of wood of different sizes which are having cotton padding. They are tied with bandage to prevent abnormal movement of broken bones in absence of splints, pieces of cardboards, pieces of branches of trees or splints of bamboo can be used.

METHOD

1. Put the patient on flat surface examine the patient for any external injury, bleeding or foreign bodies. If there is any foreign body that should be removed slowly without disturbing the broken part.
2. If there is bleeding, place some gauze and cotton, and apply bandage firmly on the wound which act as a pressure bandage and stop bleeding.
3. Before tying the fractured part, or before immobilizing try to adjust the fractured part on its actual position, now apply the splint and tie it with the limb. If there is any problem to take the fractured bone to its normal condition, then tie it with the wood in the same position.
4. Now apply the splint and tie it with the limb in such a way that no movement take place between the fractured parts Triangular bandage are used, tie the fractured part with splint by using three or four triangular bandages.
5. Now send the person to the hospital.

OBSERVATION

Observe the process by practicing it with your friends/classmates.

RESULT

After immobilizing the affected part, patient can be easily transferred to the hospital for further treatment.

PRECAUTIONS

Observe blood oozing around the fracture.

- Observe bluishness of any part affected by fractured bone.
- Application of splints at fracture site reduces pain, provides pain free mobility to the patient, prevents internal injury of nerves and blood vessels of internal organs.

Notes

PRACTICAL 6

FIRST AID MANAGEMENT OF NOSE BLEEDING

AIM

To prevent excess loss of blood from the nose.

- After doing this exercise you will be able to stop the bleeding from the nose.

REQUIREMENTS

- A bowl to collect the blood coming from nose so that correct estimation of blood loss can be measure
- Gauge
- A bowl full of ice cubes
- Soft cloth.

METHOD

1. Ask the patient to sit down with their head tilted forward.
2. Keep bowl below the nose and collect the blood drop from nose which gives correct estimation of blood loss.
3. Press hardly below the nasal bone.
4. Apply cold compression on the forehead.
5. If still bleeding is there then roll a gauze piece and push it through the nostril as far as possible and keep it at least for 2 hours so that it can give pressure and stop bleeding.
6. If the bleeding doesn't stop after packing, advice him for the hospital.

OBSERVATION

- Observe the vital signs of the patient at regular intervals.
- Preserve the blood drops for further investigation.

RESULT

By doing this process bleeding stops or reduces and the patient feel comfort.

PRECAUTIONS

1. Tilt the head of the patient forward position.
2. Take the patient to the hospital.

PRACTICAL 7

FIRST AID FOR DOG BITE

AIM

To manage dog-bite.

- After doing this exercise, you will be able to provide first aid to the victim of dog bite.

REQUIREMENTS

1. Antiseptic soap like carbolic, neem or dettol.
2. Jug filled with clean water or running tap water.
3. Antiseptic like savlon or dettol.

Fig. 7.1: Dog biting

METHOD

1. Ask the patient to sit or lie down.
2. Clean the affected place with water or soap, also wash the surroundings area of the bite because while biting, saliva is deposited there. Hence due to washing the surrounding area the germs can't enter in the body through wounds.
3. If there is bleeding, stop it by local pressure and pour some antiseptic like savlon on the wound.
4. Do not bandage the wound as virus increase in closed condition.
5. Send the patient to the hospital for treatment (Anti rabies vaccine)
6. Injection of tetanus toxoid should be given.

OBSERVATION

1. Make sure that the saliva is washed off from the bitten area do not put red chili powder on the bitten area.
2. Clean the place with water and soap.

RESULT

By washing the wound with water and soap, the possibilities of entering the germs into the body and risk of rabies is minimized.

IMPORTANT POINT

- Washing the wound is first aid management of dog bite.
- Take the patient to the hospital for an Anti rabies vaccine.

Notes

PRACTICAL 8

USE OF TOURNIQUET IN EMERGENCIES

AIM

To stop hemorrhage.

- After doing this exercise, you will be able to use the Tourniquet in the correct manner.

REQUIREMENTS

- Tourniquet, hand washing articles, gauze, cotton press over wound, antiseptic lotion etc.
- A tourniquet is rubber tube with fixing the end or it is made up of string canvas about one inch wide with fixing device.
- When the blood vessel gets damaged and blood comes out from arteries and vein, in that case to prevent hemorrhage, a tourniquet is used.

METHOD

- In the absence of proper tourniquet, a simple rubber or plastic tube or a piece of cloth can be used and a pencil can be used to make it tight.
- Tourniquet should be applied on the part where is a single bone and make it tight in such a way that the arterial pulse cannot be felt. This will stop arterial or venous bleeding. Refer the patient to the hospital.

OBSERVATION

After application of tourniquet bleeding stops and the patient shifted to hospital along with tourniquet.

RESULT

The patient's life will be saved as the arterial or venous bleeding stops after its application.

PRECAUTION

1. Due to cut in major artery or vein severe bleeding occurs. In case of cut in a artery, the whole body blood can be lost due to bleeding with in 15-20 minutes and death can occur. So apply tourniquet as soon as possible and refer the patient to the hospital.
2. Tourniquet should be loosened after 30 minutes for a few seconds to prevent the risk of gangrene.

PRACTICAL 9

USE OF AMBU BAG

AIM

To learn the application of an ambu bag in case of respiratory distress.

- After doing this experiment, you would be able to help the patient who is suffering from breathing difficulty, with the help of an ambu bag.

REQUIREMENTS

1. Ambu bag.
2. Gauge or cotton.
3. Towel, tissue paper.

Fig. 9.1: Artificial breathing with a bag valve mask.

Whenever breathing problems or respiratory difficulties occur, artificial respiration with the ambu bag is highly effective. It can be connected with an oxygen tube so that along with air, oxygen can be directly pumped into the lungs.

METHOD

1. Clean the saliva from mouth and nose with gauge or cotton or tissue paper.
2. Apply the mouthpiece on face and start pumping the rubber balloon of apparatus. The air will be pumped directly into the lungs, the lungs inflate with the air, when pressure from the bulb released, and the air will come out. This procedure will take approximately 4 seconds and 15 times per minute till the normal respiration starts.
3. If the oxygen is available then oxygen tube is fitted with oxygen nozzle of ambu bag which will help the blood to get oxygenated.

OBSERVATION

This is a very effective way to reduce respiratory distress of patients as air is directly forced into the lungs.

RESULT

The normal breathing gets started by using an ambu bag.

PRECAUTIONS

1. Clean the saliva coming out from the mouth and nose of the patient properly.
2. Take the patient immediately to the hospital.

IMPORTANT POINTS

- Revival chances are better with an ambu bag. That is why it is very significant or necessary equipment in an ambulance and emergency department.
- The improvement in patients is indicated by return of normal color on the face and lips and starting of normal respiration.

Notes

PRACTICAL 10

CARDIAC MASSAGE IN AN EMERGENCY

AIM

To restart the heartbeat, whenever the heart beat stops.

- after doing this experiment you will be able to provide an external cardiac massage to the patient in an emergency.

REQUIREMENTS

Not any special machinery required in this process. Only external massage is to be given by a first aid healer.

External Cardiac massage is given immediately when heat beat stops.

METHOD

1. The First aider sits by the side of the patient and with the radial side of the right palm gives a blow at the middle of sternum. Usually heart beat will start after the first blow.
2. If heart beat does not start with blow then external cardiac massage is given.
3. To give cardiac massage first aid healer should sits by the side of the patient and both the palm are placed one over the other on the chest wall over the heart and pressure is applied with the body weight of the first aider. it will take approximately 2 seconds.
4. Two second relaxation is given and the total cycle is about 4 second.
5. This should continue till the heart starts beating normally.

OBSERVATION

After cardiac massage, heart beats and nerve start getting normal and body colour gets normal.

RESULT

In an emergency after cardiac massage, the patient's heart beat become normal.

PRECAUTIONS

1. It is a life saving measure.it should be started immediately within 3 minute otherwise permanent damage occurs in the brain.
2. Refer the patient to the hospital for further treatment.

Notes

PRACTICAL 11

EXAMINATION OF LABEL OF VIAL AND MEDICINE

AIM

To examine the label of vial and medicine.

(After doing this experiment, you will be able to check the label of the vial and select the correct to the required medicine.)

REQUIREMENTS

One injection vial of cotrimaxozole syrup, a strip of cotrimaxozole tablet.

METHOD

1. Examine the vial, bottle of medicine and strips of tablet separately.
2. Read the name of the medicine carefully. Check for the manufacturing and expiry date of medicine and see the medicine has not expired.
3. Check the dose (how much medicine is to be used per kg of the body weight.)
4. Read the storage instructions whether it is kept in refrigerator and at what temperature. This is very important for vaccine vial. If not kept at proper temperature, it will not be viable.
5. Examine the medicine bottle in light and see whether there is any deposit or floating substances. if such things are found the vial should be discarded.
6. Shake well before using the drug.

OBSERVATION

Check labels of 10 bottles/packets.

RESULT

Prepare a report of examination and discuss.

PRECAUTIONS

1. Check the expiry date, manufacturing date and name of the medicine very carefully.
2. Do not use any expired medicine.
3. Always maintain a cold chain for vaccines.

Notes

PRACTICAL 12

MAINTENANCE OF LIQUID DIET INTAKE AND OUTPUT CHART

AIM

To assess the function of kidneys.

- After doing this experiment, you will be able to make a chart of liquid diet taken by the patient and urine output.

REQUIREMENTS

Paper and pen, jug containing 5 litres of water, a glass, toilet facility, measuring glass.

Input and Output chart

Date	Time	Amount of water/fluids consumed			Amount of urine passed	
		Liquid	litre	m.l.	litre	m.l.
		1. Water				
		2 Juice				
		3. Milk				
		4. Tea				
		5. Lassi				
		6. Cold drink etc.				

METHOD

1. Note all the liquid diets consumed by patients should be entered in the chart. Maintain the record according to the date and time.
2. Similarly, whatever amount of urine is passed at any time with in 24 hrs,should be recorded in the chart.
3. At the end of 24 hrs, all intake whether water, fruit juice or drinks etc. are noted in the chart and total amount calculated of liquid.
4. Similarly, add the whole amount of urine excreted from the body.

OBSERVATION

Compare the intake of fluids with the output. if the output is remarkably less than the intake, refer the patient to a doctor.

RESULT

The less amount of urine output compare to intake of liquid, indicates the early symptom of kidney failure.

PRECAUTIONS

1. Note the amount of liquids taken by the patient properly in the chart.
2. Compare the intake of fluids with the output. If the output is remarkably less than the intake, refer the patient to the doctor.

PRACTICAL 13

CHECKING BODY TEMPERATURE

AIM

To check temperature of an individual using thermometer and identify any variation from normal temperature.

- After performing this experiment you will be able to check the body temperature of the patient using a thermometer.

REQUIREMENTS

Thermometer, cotton, antiseptic solution, bowl for washing Thermometer, paper bag, paper and pencil.

Normal temperatures taken from different parts of the body

Oral – 98.6° F or 37° C (add here degree symbol)

Axillary – 97.6° F or 36.4° C

Groin – 97.6° F or 36.4° C

Fig. 1.1: Clinical thermometer

METHOD

First of all wash your hands properly.

1. Make sure that the patient hasn't taken anything orally and has not taken bath within 15 minutes.

2. Take the thermometer from the bottle of the antiseptic solution.
3. Rise the thermometer under tap water to remove antiseptic solution washed. Clean the thermometer with cotton.
4. Tell the patient to put the thermometer under the tongue.
5. Instruct the patient to close his lips and be in the position for 2 minutes and also not to bite or press it hard.
6. Clean twice with soap or in tap water.
7 Check the temperature by taking the thermometer out of the mouth.
8. Read the thermometer at eye level in sufficient light, and note the reading.
9. Shake the thermometer to bring down mercury level before next use.
10. Keep other things back to their place.
11. Keep it again in antiseptic solution for next use.

OBSERVATION

- Make a record of 5 persons' temperature.

RESULT

Person's body temperature is ..... °F

PRECAUTIONS

1. Take axillary temperature if one thermometer is to be used for many patients.
2. Wait for 15 to 20 minutes if the patient has had food or drink.
3. Never hold the thermometer by bulb.
4. In case a patient breaks the thermometer in the mouth. immediately, remove pieces of glass from mouth with cotton swabs and ask the patient to spit the contents as early as possible.
5. Never leave the patient alone while taking temperature.

Notes

IMPORTANT POINTS

- Do not take oral temperature when the patient is very weak, unconscious or confused.
- Do not take oral temperature if the patient is having breathing difficulty or fits.
- Do not take oral temperature if injury or inflammation in mouth.
- Do not take oral temperature after taking any hot or cold, substance.
- Do not take oral temperature for children below 5 years.
- If the temperature is taken by rectum from a rectal thermometer for children or adults, it will be 1°F higher than oral temperature.

Notes

PRACTICAL 14

RECORDING OF PULSE RATE OF PATIENTS

AIM

To record the vital signs like pulse rate of a patient.

- After doing this experiment, you would be able to read the pulse rate of patient.

REQUIREMENT

A paper and pencil (to record the pulse rate) and watch (a clock having a second's arm) for counting.

Pulse

It is the rate at which the heart is beating. The number of pulse beats in minute. normal pulse rate is 70-80 per minute.

Rhythm

It is the regularity with which the heart beats. Normally the pulse is regular in rhythm (beat and the pause occur uniformly)

Volume

It is a force, which means the strength of the beat and fullness of the artery.

- Pulse is normally taken while taking temperature. Frequency depends upon the condition of the patient.

Notes

Pulse rate varies as per age

New Born baby	130-140/minute
0.1 year	115-130
2 years	115-100
3 years	100-90
4 to 10 years	80-90
10 years and above	70-80
Old Age	70-60

Factors causing variation in pulse

Age	:	Pulse rate decreases with age.
Sex	:	Females having slightly higher pulse rate than males.
Physical activity	:	Exercises and physical activity increases pulse rate.
Stress	:	Anxiety, fear, excitement, stress etc increases pulse rate.
Relation with temperature	:	Increase in temperature leads to increased pulse Rate.
Volume of blood	:	The pulsation rate increases when blood volume reduces due to bleeding or any other cause.
Drug effect	:	Intake of some medicines also causes increase or decrease in pulse rate.

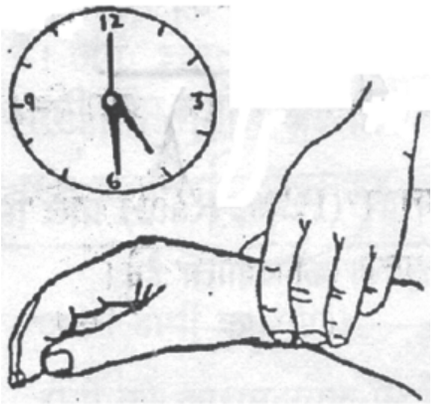

Fig. 14.1: Reading pulse rate.

METHOD

- Make sure the patient is relaxed.
- Explain the patient and make him/her comfortable.
- Radial pulse present under the lower end of the radial bone. which is just above the wrist joint in the radial groove.
- Select the appropriate site for pulse reading.
- Use the fingertips of your index, middle and ring fingers as they are the most sensitive part of your hands to feel a pulse.
- Do not apply too much pressure.
- Check pulse, pulsation rate, rotation, volume and stress.
- Immediately record the rate of pulse rate.

OBSERVATION

1. Examine and record the pulse of any five persons.
2. Count pulse rate for 1 minute.

RESULT

The patient's pulse rate is ..... per minute.

PRECAUTIONS

1. Feel pulse with index, middle and ring finger.
2. Examine the pulse for 1 minute.
3. Normal pulse rate is 72 per minute, generally any kind of variation shows abnormality pulse rate.
4. If any abnormality is felt then immediately inform the doctor.
5. Wash your hands before and after the examination.

PRACTICAL 15

OBSERVE THE BREATHING RATE

AIM

To observe respiration and to monitor fluctuation in respiration.

- After doing this experiment, you would be able to measure the breathing rate of patients.

REQUIREMENTS

Paper, pencil, second's arm watch, soap for washing hands, water, towel etc.

Respiration means breathing. It consist of inspiration, and expiration. Complete cycle of inspiration, expiration and impulse is called respiration. In this process, the air containing oxygen is inhaled and carbon dioxide is exhaled.

Normal Breathing Rate		Per minute
At the time of birth	–	30-40
One year	–	26-30
Two years	–	20-26
Adolescent	–	18-20
Adult	–	16-20
Old age	–	10-24

METHOD

1. First of all, wash your hands properly.
2. Make the patient comfortable.

3. Stand directly in front of the patient while counting the respiratory rate.
4. Wait for sometime if the patient has had an activity or is anxious.
5. Do not tell the patient that you are examining respiratory rate.
6. Respiratory rate can be checked before or after counting pulse while the hand is still on the patient's arm.
7. Note the patient's chest for inhaled and exhaled respiration.
8. Count each fall in the chest as one respiration.
9. Observe regularity, colour of patient and any difficulty while breathing.
10. Count respiration for a minute.
11. Record findings.

OBSERVATION

1. Stand in front of the patient and check the fall and rise of chest for respiration.
2. Student to check the respiratory rate of any 5 persons and make a record.

RESULT

The respiratory rate of the patient is ..... per minute.

PRECAUTIONS

- Count the respiratory rate when there is no physical activity.
- Immediately report if there is any irregularity in respiration.

PRACTICAL 16

CHECKING OF BLOOD PRESSURE

AIM

To measure the blood pressure for an individual as per indication or prescription to check any variation.

- After doing this experiment, you would be able to measure the blood pressure of a person.

REQUIREMENT

Sphygmomanometer, Stethoscope, and soap for washing hands, water, towel etc.

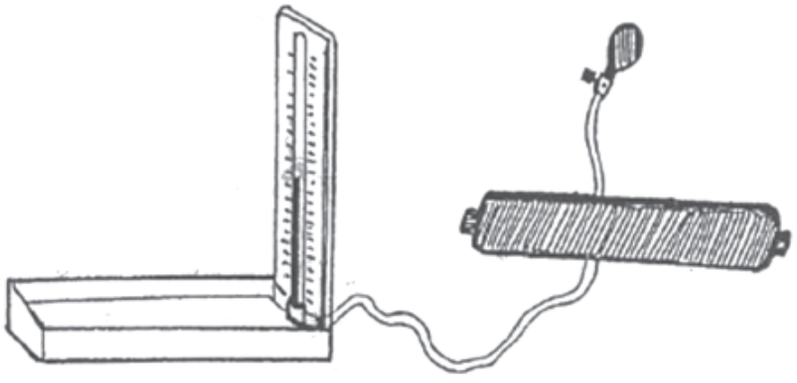

Fig. 16.1: Blood pressure measuring machine

Blood pressure is the force or pressure caused by the circulation of blood on the wall of the blood vessels. It is recorded as systolic and diastolic pressure. It is presented in mm of Hg of mercury. A healthy person has blood pressure rating. (120/80 mm Hg).

METHOD

- Wash your hands properly.
- Explain procedure to the patient.
- Make a patient relax and comfortable.
- Wrap the deflated cuff smoothly evenly around the arm about 2-3 cm above the elbow with 2 tubes of the cuff towards the hands of the patient.
- Make sure the patient's arm is at the heart level, arm may support the table or the pillow. patient may be in lying or sitting position.
- Tighten the screw of the rubber bulb of the apparatus.
- Place a manometer vertically at your eye level.
- Use your fingertips to palpate the brachial artery. place earpiece of the stethoscope into your ears and place the diaphragm of stethoscope lightly and firmly over the artery which you locate with one hand.
- Close the exhaust valve, inflate the cuff. Your fingers can no longer palpate the pulse or you cannot hear the pulse from stethoscope once the cuff is inflated.
- Cuff pressure is now greater than arterial pressure.
- Release the pressure in the cuff by slowly opening the valve, while watching the mercury level in the manometer.
- When blood just begins to flow in the artery the flow creates a pounding sound (first knock off sound). When you hear this first beat or clear tapping sound, note the reading on mercury column. It is systolic blood pressure.
- Further release the pressure slowly and continuously till the sound of arteries is stopped in the stethoscope. Note the mercury column at this point. This is diastolic pressure.
- Deflate the cuff completely and remove from the patient's arm, replace back in storage space.
- Make patients comfortable.
- Record the blood pressure in the patient record.
- Wash your hand after this procedure.

Notes

OBSERVATION

Test the systolic and diastolic blood pressure of any two persons and record it.

RESULT

The blood pressure of a patient is ..... mm Hg.

Fig. 16.2: Measuring blood pressure using stethoscope

PRECAUTIONS

- Make sure that the BP apparatus is giving accurate reading.
- Do not take BP if there is any bleeding or impairment of blood supply to the particular arm of a person.
- Avoid taking BP on the same arm, where there is a hemodialysis shunt for patients undergoing dialysis.
- Do not measure blood pressure immediately after a meal or any activity.
- Release all the air from the cuff so that it may not give inaccurate reading. Twisted cuffs may produce unequal pressure.

Note: Every student should record at least 10 people's blood pressure and record it.

PRACTICAL 17

IDENTIFICATION OF ABBREVIATIONS/SIGNS IN DOCTOR'S PRESCRIPTION

AIM

After doing this experiment, you would be able to understand the signs written by a doctor in prescription.

REQUIREMENTS

Prescription, medicine strip, syrup.

METHOD

- Read carefully the prescription given by the doctor.
- Carefully read signs mention in the prescription.

Like:

OD	–	once in a day.
BD	–	twice a day.
TDS	–	thrice a day.
QD	–	four times in a day
HS	–	at night before sleep.
SOS	–	only when necessary

Notes

OBSERVATION

Write the signs with meaning of prescription written by doctor in your exercise book.

RESULT

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PRECAUTIONS

1. Medicine should be taken only according to the signs given by the doctor.
2. The quantity of medicine should be taken only according to prescription.
3. Without taking a proper dose the patient does not get relief by the medicine.
4. Medicine taken in more quantity than prescribed can cause a drug reaction.

Notes

PRACTICAL 18

FIRST AID IN CASE OF FOREIGN OBJECTS IN THE EAR

AIM

After doing this experiment, you would be able to provide the first aid to the patient to get the things out, like grain, insects from the ear.

REQUIREMENTS

Torch, coconut or mustard oil.

METHOD

- Stretch the outer ear and try to lower down the ear so that foreign bodies can come out.
- Any insect entered in the ear, can also come out or can die by this process.
- Insect can also come out by flashing the strong light of a torch in the ear.
- Luke warm mustard or coconut oil in the ear can also help to kill the insect.
- If a foreign body or an insect enters inside the ear person suffers from severe pain, feels dizzy and the hearing is reduced.

OBSERVATION

Check the ear of 2 classmates/people with the help of a torch.

Notes

RESULT

After the insect or things comes out from the ear, the person can hear normally, pain also gradually falls.

PRECAUTIONS

1. Do not insert any sharp object into your ear.
2. Do not clean the ear with a matchstick.
3. If the insect or the object is not coming out by first aid or pain is not getting normal even after removing the insect or object, then immediately take the patient to the specialist.

Notes

PRACTICAL 19

FIRST AID IN CASE OF FOOD POISONING

AIM

After doing this exercise, you will be able to provide the patient the first aid for food poisoning.

REQUIREMENTS

Packaged food, material kept in the open, clean water, ORS solution, soap etc.

Identification of food poisoning in the patient

1. Blood or mucus in stool.
2. Vomit, nausea or abdominal distention.
3. Loose motion.
4. Problem in swallowing.
5. Stomach pain.
6. Blurred vision.
7. Nerves weakness
8. Deficiency of water in the body.

METHOD

- Provide the ORS to the patient of food poisoning immediately and advice him to take it.

Notes

- There are many causes of food poisoning like open road side food, eating with unwashed hands, unhygienic food.

OBSERVATION

Visit any of the four house in the neighbourhood to check the parameters of food hygiene.

RESULT

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PRECAUTIONS

1. Wash hands properly before cooking and eating the food.
2. Do not eat food which is preserved in the fridge for long.
3. Do not eat road side food.
4. Boil water before drinking.
5. Use fruits and vegetables only after washing thorough clean water.
6. Always cover the food items and drinking water.
7. Always use clean water for cooking.
8. Advice to go to the hospital immediately after first aid.