

Anatomy and Physiology by Central Council of Homeopathy India

Study of Normal Man in Pre-Clinical Period

Human economy is the most difficult of all sciences to study. Man is a conscious mentalised, living being and functions as a whole. Human knowledge has become so vast that for precise comprehension of man, as a whole development of different branches of science like anatomy, physiology and psychology was necessary. But such a division is only an expedient; man nevertheless remains indivisible.

Consciousness, life and its phenomena cannot be explained in terms of cell physiology or of quantum mechanics nor by physiological concepts which in their turn are based on chemico - physical concepts.

Though anatomy and physiology are hitherto being taught as entirely different subjects, a water-tight barrier should not be erected between them; structure (anatomy) and function (physiology) are but correlated aspects and the physico-chemical processes are but an external expression of an inexplicable phenomenon which is life.

So anatomy and physiology shall be taught with the following aims:

- (i) to provide for the understanding of the morphological, physiological and psychological principles which determine and influence the organism of the living body as a functioning unit;
- (ii) to co-relate and interpret the structural organism and normal physiology of the human body and thus to provide the data on which to anticipate disturbance of functions;
- (iii) to enable the student to recognise the anatomical, physiological and psychological basis of the clinical signs and symptoms of disorders due to injury, disease and maldevelopment;
- (iv) Similarly, to give the student to understand the factors involved in the development of pathological processes and the possible complications which may arise there from;
- (v) to give the student such knowledge of pre clinical subjects as will enable him ultimately to employ competently and rationally all the ordinary methods of examination and treatment (including surgery) that may involve such knowledge; and
- (vi) for enabling the student to pick out strange, rare and uncommon symptoms for individualization of patients and drugs for the purpose of applying the law of similar in homeopathic practice.

(PHYSIOLOGY INCLUDING BIOCHEMISTRY)

The purpose of a course in physiology is to teach the functions, processes and inter-relationship of the different organs and systems of the normal disturbance in disease and to equip the student with normal standards of reference for use while diagnosing and treating deviations from the normal. To a homoeopath the human organism is an integrated whole of body, life and mind; and though life includes all the chemico-physical process it transcends them. There can be no symptoms of disease without vital force animating the human organism and it is primarily the vital force which is deranged in disease. Physiology shall be taught from the stand point of description physical processes underlying them in health.

There should be close co-operation between the various departments while teaching the different systems. There should be joint courses between the two departments of anatomy and physiology so that there is maximum co-ordination in the teaching of these subjects.

Seminars should be arranged periodically and lecturers of anatomy, physiology and bio-chemistry should bring home the point to the student that the integrated approach is more meaningful.

THEORETICAL

- Introductions
- Fundamental phenomena of life. The cell and its differentiation. Tissues and organs of the body.
- Bio-chemical principles
- Elementary constituents of protoplasm, chemistry of proteins, carbohydrates and lipids, Enzymes.
- Bio-physical principles
- Units of concentration of solutions, ions, electrolytes and non-electrolytes filtration, diffusion, ultra-filtration, dialysis, surface tension, absorption, hydrotrophy, domain equilibrium, colloid, acid-base concentration.

Environmental Physiology

1. Skin - structure and functions.
2. Regulations of body temperature hypothermia.

Skelato - Muscular System

1. General introduction and classification of muscle fibers.
2. Excitation-contraction coupling and molecular basis of contraction.
3. Properties of skeletal muscles and factors affecting development of tension.
4. Energy metabolism of muscles.

Nerve

1. Structure and function of nerve cell.
2. Bioelectric phenomena in the nerve and muscle. R.M.P., Action and its propagation, neuromuscular transmission.
3. Classification and properties of nerve fibers.
4. Wallerian degeneration, regeneration and reaction of degeneration.

Blood composition

1. Composition and functions in general.
2. Physiology of plasma proteins, normal values, E.S.R. & other blood indices.

3. Physiology of R.B.C., W.B.C. and platelets formation, fate and physiological and functions of formed elements of blood.
4. Body fluid compartments, their measurements, blood volume and its regulation.
5. A.B.O. and RH. Blood group systems.
6. Lymphatics and RE system.
7. Coagulation & haemostasis.

CARDIO-VASCULAR SYSTEM: (C.V.S.)

1. Structure and properties of cardiac muscle.
2. Generation and conduction of cardiac impulse, E.C.G. (Normal).
3. Cardiac cycle with reference to pressure, volume changes, heart sounds etc.
4. Heart rate and its regulations.
5. Haemodynamics, B.P. and its regulation.
6. Nervous and chemical control of blood vessel.
7. Physiological basis of shock.

Respiratory system

1. Introduction, general organization.
2. Mechanics of respiration, compliance.
3. Pulmonary volumes and capacities.
4. Pulmonary and alveolar ventilation.
5. Physical principles of gaseous exchange a transport of respiratory gases.
6. Nervous and chemical control of respiration.
7. Hypoxia, acclimatization, cyanosis, dyspnoea, asphyxia, abnormal respiration.
8. Pulmonary function tests.
9. Effect of high and low atmospheric pressure effect of respiration on circulation, artificial respiration.

Digestive system

1. General introduction, Organisation plan and evolutionary significance.

2. Composition, function and regulation of salivary, gastric pancreatic intestinal and biliary's secretions.
3. Movements of G.I. tract.
4. Absorption of G.I. tract.
5. Physiology of Liver and Gall bladder structure and functions.

Excretory system

1. General introduction, structure and functions of kidney.
2. Mechanism of formation of urine.
3. Mechanism of concentration and dilution of urine.
4. Physiology of micturation.

Endocrine

1. Physiology of pituitary, thyroid, parathyroid, pancreas adrenal cortex and adrenal medulla.
2. Regulation of secretion of endocrine glands.

Reproduction

1. Introduction in general and types of reproduction.
2. Physiology of testes and ovaries.
3. Physiology of menstruation, pregnancy and lactation.
4. Placenta and its function, foetal circulation and respiration.

Central Nervous System

1. General Organisation, structure and function of nerve cell and neuralgia.
2. Cerebrospinal fluid.
3. Physiology of synapse and receptor organs.
4. Physiology of reflex action - classification properties etc. of reflexes.
5. Sensory and motor tracts and effects of sections transaction & hemisection of the spinal cord.
6. Spinal. decerebrate and decorticate preparations and Regulations of posture and equilibrium.
7. Reticular formation.

8. Cerebellum and basal ganglia.
9. Sensory and motor cortex.
10. Physiology of voluntary movements.
11. Higher functions of cortex: sleep and wakefulness. EEG. memory, speech, learning.
12. Physiology of thalamus and hypothalamus and limbic system.
13. Physiology of autonomic nervous system, peripheral and central mechanism.

Special Senses

1. Physiology of taste and smell sensation.
2. Ear-General anatomy, conduction of sound waves through external, middle and internal ear.
3. Peripheral and central mechanism of hearing and auditory pathways.
4. General anatomy refractory media and protective mechanisms in Eye.
5. Formation, circulation and functions of aqueous humor.
6. Physiology of optics, Formation of image, accommodation errors of refraction, acuity of vision.
7. Physiology of retina photoreceptor functions, dark and light adaptation, photochemistry of vision, colour vision.
8. Visual pathway and effects of various levels.

Nutrition

1. Balanced diet and special dietary requirements during pregnancy, lactation and growth.

BIOCHEMISTRY

1. Biochemical principles and elementary constituents of protoplasm.
2. Chemistry of proteins.
3. Chemistry of carbohydrates.
4. Chemistry of lipids.
5. Enzymes and vitamins.
6. Metabolism of proteins, fats carbohydrates, minerals. Biophysical process and their principles in relation to human body.

Practical

LIST OF PRACTICALS IN PHYSIOLOGY

1. Method of Collection of Blood.
2. Haemoglobinometry.
3. The Microscope-Construction; Use & Care.
4. Total White Blood Cell Count.
5. Differential WBC count.
6. Packed Cell Volume.
7. Packed Cell Volume.
8. Calculation of Blood Indices.
9. E.S.R.
10. Bleeding Time.
11. Clotting Time.
12. Blood Groups.
13. History taking and General Examination.
14. Examination of Alimentary System.
15. Examination of the Cardiovascular system.
16. Pulse.
17. Determination of Arterial Blood Pressure in Humans and effect of posture, exercise and Cold stress.
18. Clinical Examination of the Respiratory system, E.C.G.
19. Stethography.
20. Spirometry.
21. Examination of Higher Functions.
22. Cranial Nerves.
23. Motor Functions.

24. Reflexes.
25. Sensory system.
26. Recording of Body Temperature.

LIST OF DEMONSTRATION

1. Varieties of Stimuli: Faradic or Induced and Galvanic or Constant Current: Apparatus Used in the Laboratory.
2. Excitability of Muscle.
3. Effect of Graded Stimuli.
4. Simple Muscle Twitch, Effect of temperature on the muscle.
5. Effect of two successive stimuli on the Skeletal Muscle of Frog.
6. Genesis of Tetanus.
7. Fatigue.
8. Effects of Pre and after Loading on Frog's Gastrocnemius Muscle.
9. Heart Block.
10. Properties of Cardiac Muscle.
11. Perfusion of Mammalian Heart and effect of various ions on it.
12. Effect of stimulation of Vagus sympathetic Trunk and Crescent on Frog's Heart.
13. Effect of Acetylcholine on Heart.
14. Effect of Adrenaline on Frog's Heart.
15. Action of Nicotine on Frog's Heart.
16. Photokinetic stimulation, Ophthalmoscopy and Tonometry.
17. Recording Mammalian blood pressure and respiration and study of factors influencing them.
18. Specific Gravity of Blood.
19. Gastric Analysis.

PRACTICAL IN BIOCHEMISTRY

1. Introduction to Biochemistry and familiarization with laboratory Instruments.
2. Study of Disaccharides - Lactose, Maltose & Sucrose.
3. Study of Polysaccharides - Starch, Dextrin & Glycogen.
4. Introduction of Proteins.
5. Normal Urine report (Inorganic and Organic Constituents)
6. Unknown solutions - Study.
7. Quantitative & Estimation of Glucose in Urine.

Paper - I

Elements of Bio-physics, Biochemistry, Blood and lymph, Cardiovascular system, Reticuloendothelial system, spleen, Respiratory system Excretory System, Skin, regulation of body temperature, sense organs.

Paper - II

Endocrine organs, nervous system, nerve muscles physiology, Digestive system and metabolism, biochemistry of protein, carbohydrate and lipid, enzymes, Nutrition.

Practical Examination

1. Examination of physical and chemical constituents of normal and abnormal urine (qualitative)
 2. Enumeration of total cell count of Blood (R.B.C. or W.B.C) or differential count of peripheral blood or estimation of percentage of HB.
 3. Viva-voce on instruments and apparatus
 4. Biochemistry examination of proteins/carbohydrate/lipoid.
 5. Experimental physiology
 6. Laboratory Note-Book
 7. Viva-voce on experiments
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