



PHYSIOLOGY AND HEALTH EDUCATION

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ABSTRACT:

Physiology is in a sense the study of life, internal working of organisms and how they interact with world around them physiology tests how organs and systems with in the body work, how they speak to each other and how they combine their efforts to make conditions favorable for survival. Health is highly subjective concept a state of complete physical, mental and social well being and not the mere absence of disease or infirmity-physical health refers to automatically integrity and physiological functioning of the body, mental health ability to learn and think clearly and social health ability to make and maintaining acceptable interaction with other people. Many criteria utilize health education as primary means of prevention of diseases of promotion of health. In view of this the national health policy and health sector development program have identified health education on a major component of program service.

INTRODUCTION:

The health of the human body depends upon the health of its individual parts. The human body is composed of systems of organ which in turn are composed of tissues with wide variety of cell. Physiology details the function of cells, tissues, and organ physiology and education the people to adopt healthy promoting behaviourly providing appropriate, knowledge and helping to develop positive attitude, as well as helping the undergraduate students to make decision about their health and acquire the necessary confidence and skills by gathering the correct knowledge of physiology.

We can use undergraduate student as health educator there for before involving any individual, group or the community in health education with a particular purpose or for a programme the need should be ascertained. It has to be also specific and relevant to the problems and available solution.

The main study of physiology is to concentrate on all the organ system, how it has the working and coordination among themselves and coordination with the other organ systems. The lists of organs system have to be studied during the course of health education to get familiar and explain to others for proper health education. The important organs system for physiological studies as follows.

(1) Digestive System:

The food that we eat are not necessarily usable, in their current form by our tissues they have to be broken down and rearranged to "Humverisons" Enzyme play important role in digestion. Alimentary canal consist of esophagus, stomach, small intestine, large intestine, rectum and anum.

Digestion of proteins begins in the stomach, where as the process as speed up by the enzyme pepsin. Harmful bacteria that has entered the body can be killed by the stomach's acidic environment.

In the small intestine, enzymes complete the process where the

end matters in absorbed by villi. The large intestine, absorbs water and passed the unobservable rest off as faeces.

(2) **Respiratory system:** Exchange of gases between the body and environment has three steps.

- ❖ **Ventilation:** Is the process of inhaling and exhaling with O₂ entering the alveoli.
- ❖ **Gas Exchange:** Process of exchanging gas for the other between the alveoli and capillaries.
- ❖ **Cell Respiration:** The chemical process occurring in the mitochondria where energy is released as ATP.

Alveoli are the structural and function units of lungs. Alveoli secrete fluid making the inner surface moist. It also increases the surface area, dense network of capillaries near the surface.

Process of respiration, when we inhale, the diaphragm moves down and because flat become of abdominal muscles release. The volume of the thorax increases air flows into the lungs. External intercostal muscles contract.

- ❖ When we exhale, abdominal muscles contract and the diaphragm becomes shaped, moving up. The volume of the thorax decreases and intercostal muscles contract causing pressure to increase. Air flows out to equalize pressure gradient.

The Circulatory System or Transport System:

The heart is the organ for collecting blood, pumping blood and opening and closing valves. Left Atricles, Right Atricles and Right Ventricles.

- ❖ The right atrium relaxes for the blood to be received from the superior and inferior vena cava.

- ❖ The atrioventricular valve opens for blood to go to the right ventricle by the contracting atrium.
- ❖ The right ventricle then relaxes to receive the blood from the atrium. Then it contracts in order to open up the pulmonary valves. Deoxygenated blood goes through the pulmonary artery. Where it enters the lungs so that the blood will be oxygenated.
- ❖ Blood returns from the lungs to the heart through the pulmonary veins, now oxygenated.
- ❖ The left atrium relaxes to receive it and then contracts to pump blood and open the atrioventricular valve where then the blood goes to the relaxed left ventricle.
- ❖ The left ventricle contracts to open the semilunar valves and then the blood goes through the Aorta to the rest of the body.

The Control of Heart Beat in terms of the Pacemaker Nerves and Adrenaline:

- ❖ The pacemaker is located in the wall of the right atrium at the sinoatrial node (SAN). Each time the pacemaker sends out a signal, the heart carries out the contraction of a beat. The heart beat by itself is myogenic.
- ❖ The arteries carry the blood from heart to the different parts of the body and narrow lumen to help maintain the high pressure.
- ❖ The veins bring the blood from all parts of the body to heart.
- ❖ Capillaries connect the vein and artery. Moist and therefore diffusion and has a short diffusion distance. Narrow diameter and large quantity allow for

large exchange of materials through diffusion.

The blood flows in the arteries, veins and capillaries and it is composed of plasma, erythrocytes, leukocytes and platelets.

- ❖ **Plasma:** Plasma is largely water and makes up about 55% of the total blood volume. This is the main transporting part of blood and takes advantages of the solvent properties of water.
- ❖ **Erythrocytes:** Red blood cells, transport O_2 and assist the transport of carbon dioxide.
- ❖ **Leucocytes:** White blood cells, do the phagocytosis, and protect the body by ingesting harmful foreign particles bacteria, and dead or dying cells.
- ❖ **Lymphocytes:** White blood cells in the vertebrate immune system. It includes natural killer cells, T Cells and B Cells, for immunity.
- ❖ **Platelets:** Platelets involved in homeostasis leading to the formation of blood clots.

Blood transports, nutrients, oxygen, CO_2 , hormones, antibodies and urea.

Homeostasis & Excretion:

Homeostasis involves maintaining the internal environment at a constant level between narrow limits. This includes blood pH, O_2 and CO_2 concentration, blood glucose, body temperature and water balance. The endocrine and nervous system involve in homeostasis.

EXCRETION:

Removal of nitrogenous waste from the body is excretion. It involves the kidney, urethra, urinary bladder, urethra etc.

Nitrogenous waste is in the form of ammonia, urea, uric acid. It depends upon the availability of water. The venous artery will supply the kidney with urea and unwanted materials. Without kidneys the excess material would not be able to be filtered out and may cause harm to the body.

Nervous System: Nervous system consists of central nervous system and peripheral nervous system. Whole nervous system composed of special cells called neurons, that carry electrical impulses rapidly. Neurotransmitters are chemical messengers in nervous system. Electrical impulses have Na^+ , K^+ , & Cl^- ions etc. It moves on the plasma membrane.

Reproductive System: Reproduction of young ones for continuity of life is reproduction with production of gametes by the male of female reproductive organ, i.e., testis and ovary.

Hormones play an important role for regulating the changes of puberty in boys and girls and in the menstrual cycle in females. Testosterone begins puberty in males, when sperm production takes place, testosterone stays at high levels until the age of 40 – 50 then gradually decreases. It is also responsible for voice change, hair growth in certain parts of the body and building of muscles.

Estrogens lead to the production of eggs and which leads to the menstrual cycle in females. Two weeks after the start of menstruation, ovulation occurs, it also causes the empty follicle to develop into corpus luteum, which releases the hormone progesterone, which maintains the uterus prepared for implantation.

In my researches I work have selected a group of students from UG (B. Sc.) for health education especially concentrating on the physiology. After completion of study for the period of 2 months about the physiology and health education, assigned them with some questions like:

- (1) Why digestion of large food molecules is essential?
- (2) Why the need of enzymes for digestion.
- (3) What is the necessity for ventilation system.
- (4) How O₂ get transported?
- (5) Identify the list of things that are transported by the blood.
- (6) What does blood contain?
- (7) Where is pacemaker positioned?
- (8) What is Homeostasis ?
- (9) State that the nervous and endocrine system as both involved in Homeostasis .
- (10) Which hormone is important for male secondary sexual characters?

CONCLUSION:

Education play important role for awareness about the things which is related to human beings. Total our health system is depend upon the physiology i.e., organs, organs system and inter connection of organ system. All health education should be need based. Therefore before involving any individual, group on the community in health education with a practical purpose or for a programme the need should be ascertained. It has to be also specific and relevant for the problems and available solution. Health education aims at change of behavior. Therefore multi disciplinary

approach is necessary for understanding of human behavior as well as for effective teaching process. It is necessary to have a free flow of communication. The two way communication is particularly of importance, in health problems without health education, the patient may fall sick again from the same disease again and again. Awareness through education is compulsory. The focus of health education interventions is to prevent and manage disease, injuries and other health conditions through surveillance of cases and promotion of health behavior, communities and environment, with education it prevent health problems from reoccurring by implementing various programmes developing policies, administering services and conducting research.

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