Revision Notes

Chapter 7

FUNDAMENTALS OF ANATOMY AND PHYSIOLOGY

INTRODUCTION ANATOMY: Anatomy is the study of the structure of human body.

PHYSIOLOGY: Physiology is the study of functions of human body.

MAIN SYSTEMS OF HUMAN BODY

- Skeletal System
- Muscular System
- Digestive System
- Respiratory System
- Nervous System
- Glandular System
- Excretory system
- Reproductive System

IMPORTANCE OF ANATOMY AND PHYSIOLOGY

- Helps in physical fitness.
- Provides knowledge about body structure.
- Helps in selection of games.
- Protects from sports injuries.
- Helps in the process of rehabilitation.
- Helps in maintaining healthy body.
- Helps to know about individual differences.

SKELETAL SYSTEM AND ITS FUNCTIONS

SKELETAL SYSTEM: The skeletal system is the bony framework of our body.

FUNCTIONS OF SKELETAL SYSTEM

- It provides support to the body.
- It gives shape and structure to the body.
- It provides protection to the vital organs of the body.
- It acts as lever.
- It acts as storehouse of minerals.
- It acts as production house of RBC.
- It acts as junction or attachment to skeletal muscle.
- It works as self repair system.

CLASSIFICATION OF BONES

- Long bones
- Short bones
- Flat bones
- Sesamoid bones
- Irregular bones
- Sutural bones

TYPES OF JOINTS

- Immovable or fibrous joints
- Slightly movable or cartilaginous joints
- Freely movable or synovial joints
  a. Hinge joint
  b. Pivot joint
  c. Ball and socket joint
  d. Saddle joint
  e. Gliding joint

MUSCULAR SYSTEM

PROPERTIES OF MUSCLE

- Muscles are the moving force behind our movements.
- Muscles are attached to the bones of the skeleton.
- Muscles give rounded shape to the body.

- Muscles help in the protection of organs with the bones.
- Human body contains more than 650 individual muscles.
- The muscles contribute about 40% of our body weight.

TYPES OF MUSCLES

- Voluntary/skeletal/striated muscle
- Involuntary or smooth or spindle muscle
- Cardiac muscle

FUNCTION OF MUSCLE

- Gives shape and structure to the body.
- Provides protection to the body.
- Helps in fluid movement
- Provides effort (of lever)

STRUCTURE OF MUSCLE: A muscle fibre is made up of myofibrils. Each myofibril consists of protein molecules called actin and myosin.

RESPIRATORY SYSTEM

RESPIRATION: Respiration is a physical process by which living organism take in oxygen from the surrounding and give out carbon dioxide.

FUNCTIONS OF RESPIRATORY SYSTEM

- To exchange oxygen and carbon dioxide between the air and blood.
- To produce sound.
- To regulate blood PH.
- To protect against some micro organism.

TYPES OF RESPIRATION

- External respiration
- Internal respiration

MECHANISM OF RESPIRATION: It involves nose, nostrils, lungs, blood and cell through

which oxygen and carbon dioxide are exchanged and energy is produced in the body.

CIRCULATORY SYSTEM: The transport of material between various parts of body is called circulatory system. It consists of heart, blood vessels, arteries, arterioles, capillaries, veins, venules and fluid.

STRUCTURE OF HEART: Heart is fist shaped. It consists of four chambers which collect impure/deoxygenated blood from different parts of body and after purification/oxygenation it sup- plies pure/oxygenated blood to different parts of body through blood vessels.

BLOOD: Blood is a special kind of fluid which acts as a medium of transporting nutrients and gases from one part of body to another.

HEART RATE: It is the number of pumping of heart in one minute.

STROKE VOLUME: It is the volume of blood pumped out by heart in one beat. It is approximately 80 ml/beat in normal adult, whereas trained players have 110 ml/beat as stroke volume.

CARDIAC OUTPUT: Cardiac Output = stroke volume x heart rate. It is 5 to 6 liters at basal level.

BLOOD PRESSURE: It is the force exerted by the blood on the walls of blood vessels.

SECOND WIND: The breathlessness caused due to prolonged exercise is removed automatically by our body. It is called as second wind.

OXYGEN DEBT: The amount of oxygen taken by an athlete during the recovery period after strenuous activity is called as oxygen debt.