

**GOVT.POLYTECHNIC,
BBSR
BEAUTY CULTURE
DEPT.
ANATOMY & PHYSIOLOGY**

PREPARED BY : MRS. S.NAYAK

ANATOMY & PHYSIOLOGY

(Mrs. Saritanjali Nayak, Lect.Beauty culture)

Chapter-1

Introduction to Anatomy & Physiology

Defination:-

1.ANATOMY

The study of the structure of the body and relationship of its various parts to each other is Anatomy

2.PHYSOLOGY

The study of the function of the human body forms is the physiology

Ex-function of heart,lungs,liver etc.

Importance of Anatomy & Physiology for a cosmetologist:-

This subject is most important for the practice of a cosmetologist. There are many other topics which a cosmetologist needs to know so that will help her to produce better service .She will apply Anatomy & Physiology in each and every work.

Anatomy helps her form various direction like the art of cutting hair depends on the understanding of bone structure of head will help her to give a suitable style to the customer's hair so that the hair style will compliment the customer's appearance.

Again in skin care it is necessary for you to understand the muscles system of body in well now nerves are affected by the massage movement & technique and finally understanding of human body is important for you for the well being of your own & your client's body.

Let us take some examples:-

If a client of broad jaw line came we need to camouflage that broad jaw structure with a dark make-up on that broad jaw line & light make-up in the shape of a beautiful jaw line.

If a client of short and broad nose wants to show her nose sharp & long then a dark make-up on both the side of nose starting from the eye brows to the tip of the nose will be applied & a light make-up on the bridge of nose along with a arch shaped eyebrows. This make-up will definitely represent her with a sharp long nose.

Again in massage time the massage should be done from insertion to origin. Anatomy will help us to know the insertion of the muscles & its origin so that we will provide a perfect massage. In the face the muscles from cheek bone to eye are originate from the border line towards the middle of the face, so the direction of our massage is from middle of face toward the ear.

For all these services we take the help of anatomy.

After knowing this anatomy and physiology it is very easy for you to decide which cosmetics treatment for the best result.

Lion is superior to all animal because of its biological, social & cultural evaluation.

In general anatomy is the study of structure of body which can be seen in neck eye. Such as the muscles, bone, hand, leg, chest etc. & the cosmetologist with these parts. Sometimes a cosmetologist is concerned with the histology of the skin and appendage, i.e. hair, nail, sweat gland, sebaceous gland.

In human body as usually the living structure (Anatomy) and function (Physiology) are very much inter related. So for understanding of various function of the body one should first know the structure of various tissues, organs system.

Muscles, jaw, bones, ligaments are these participate in functions of movement, which is under the control of nervous system. Nervous system itself & its various function are dependent upon the adequate supply of blood & oxygen.

So, it is important to know first how is the structure & anatomy before going to the depth of function (physiology).

We should read anatomy combinatic with physiology and .The knowledge of one and not of the other makes the study in complete. In order to understand Anatomy & physiology it is necessary is study the structure & activities of the cells. A cell which is the smallest unit of a living organism is capable to the function independently. This smallest unit, the cell combines

together to form a tissue . Animal body has several types cells. The cells having similar role form a unit called tissue .There are 4 types of tissue:-

- i.Epithelial
- ii.Connective
- iii.Muscular
- iv.Nervous

Epithelial tissue covers the surface & forms glands.The muscular tissue bring about movement of body parts & locomotion .The connective tissue joins & support other tissue .The nervous tissue conduits information .In human body certain tissue join together as a larger unit for a common purpose .Such a unit is called an organ for constance the organ named stomach contains all the four types of tissues.Many organs in turn work together as a still larger unit for some major life activity such a group of organ is know as organ system .

For example the organ termed stomach,intenstines,liver,pancreas and a few other bring about digestion & absorpion of food & combindley form digestive system there are eleven organ system

integumantry,scletical,muscular,digestive,respirotary,circulatory,nervous,sensor y,endurine,excretory & reproductive. The organ system together form an organism. Depending upon the evolutionary status of animal may have all or some of these syatem.

CELL : -

In order to understand Anatomy & physcology it is necessary to study the structure & activities of cells. The human body is composed of million of specialized cells perfoming the various function required for living . Every part of body is composed of cells . Thus the cell is the smallest structural & functional unit of body . Different cells have different size & shape but they have similar inter cellular component. Ex : - knowlwdge of cellular will contribute to an understanding to the skin scalp,hair & nail & how the function are .

In giving cosmetic treatment the cosmetologist should keep in mind the ulitimate effect of the treatment on the cell of the body .

In human body the cells are highly specilised and perform such vital function as movement,thinking,digestion & reproduction.

Every cell consists of a minute living substance known as protoplasm. It is a jelly like substance in which food material & water are present & this protoplasm bounds together by a thin cell membrane called cell wall .

Cell can be divided into 4 components

- i.Nucleus
- ii. Cytoplasm
- iii.Centrosome
- iv.Cell membrane

Structure of cell:-

1. NUCLEUS:-

Nucleus is found in the center . It is a spherical body which plays an important role in the cell division or reproduction of the cell. Most of the cell contains single nucleus which is round or oval in shape. In skeletal muscles fiber there are multinucleus where as in RBC we found no nucleus.

Function:-

1. It helps in cell division
2. It synthesizes protein & enzyme
3. It transfer hereditary characters

2. CYTOPLASM:-

It is found outside the nucleus and contains food materials for the growth and reproduction & self repair of the body cell. It consists of protein ,carbohydrate pigments,minerals & vitamins & various organelles also found here.

Function :-

1. It helps in protein synthesis & intercellular transport.
2. Helps in metabolism (process by which cell get nutrition & energy)
3. It helps in growth ,self repair of cell and reproduction.

3. CENTROSOME

It is a tiny cylindrical body in the cytoplasm. Each centrosome is made up of two pairs of outside the nuclear envelope in the cytoplasm.

Function:-

1. It has an important role in cell division.
2. The time of mitosis centrosome divides into two, one remains in its place and another moves to other pole this way it helps in cell division.

4. CELL MEMBRANCE:-

It is a very thin layer enclosing the protoplasm .It is the outer protective layer of cell having thickness of 10 mili micron.It is composed of protein & phospholipid.

Function:-

- 1.It acts as a boundry of the cell
- 2.It transports food particle to other cell
- 3.It excrete waste materials.
- 4.Helps in growth of cell.

Growth of cell:-

It the cell reciver adequate food ,oxygen & water ,eliminate waste product & using a proper temperature it will continue in grow.

Reproduction of cell:-

When the cell reaches maturity reproduction takes place by direct and indirect division.

1.DIRECT DIVISION OR (AMITOSIS)

It is a simple process where cell elongated then the nucleus & cytoplasm get divided into half, forming 2 separate cells . This method of reproduction occurs among bacteria & plant . takes place in human tissues i.e hair ,nail, skin .

2.INDIRECT DIVISION (MITOSIS)

It is a complex process where on series of change occurs in nucleus before the cell get divided in half . This method of reproduction occurs in human tissue.

METABOLISM

Metabolism is achemical process ,by which body cell are nourished & supplied with energy to carry on their activity .In a healthy body this process taken place under the secretion of thyroid gland.

Metabolism has two phase:-

- I. Anabolism
- ii.Catabolism

i. ANABOLISM

It is the constructive process of metabolism during anabolism the cells of the body absorb water, food & oxygen for the purpose of growth, repair & reproduction.

ii. CATABOLISM

It is the destructive process of metabolism. During catabolism the cell consumes what they have absorbed in anabolism in order to perform specialized functions such as muscular effort, secretion or digestion.

ELEMENTARY TISSUE

The cells of one or more kinds are arranged together in a characteristic manner & co-operate to perform a specific role such a group of cells is called the tissue. So we can say tissues are composed of groups of cells having the same origin, similar shape & having common generalized functions. The study of tissue & organs in relation to their functions is known as HISTOLOGY. The tissues are originated from the differentiated cells have a specific function & can be reorganized by their characteristics. Four major types of tissue are generally found in animals.

i. Epithelial tissue

ii. Muscular tissue

iii. Connective tissue

iv. Nervous tissue

i. EPITHELIAL TISSUE

An epithelial tissue is a tissue composed of one or more layers of cells covering an external surface or lining of a cavity in the body. It acts as a protective covering of the surface of the body ex- skin, mucous membrane, lining of the heart, digestive & respiratory organs & all the glands.

Epithelial tissue consists of variously shaped cells closely arranged in one or more layers, forming continuous sheets.

Function

a. They protect the underlying or overlying tissues from

i. mechanical injury

ii. drying up

iii.infection

iv.harmful chemicals

- b.Surface epithelial produce ,many useful exoskeletal structures such as scales, feater hair ,nail etc.
- c.Epithelial lining of the cavities gives rise to glands, that provide valuable secretion such as mucus,gastric juice.
- d.Epithelial lining of intestine absorbs digested food.
- e.Epithelial also excrete the waste material from the body (kidney & skin)
- f.It also forms pigments .Eye epithelium (epithelium of retina)forms pigment that produce ,pigment which makes eye dark also in skin produces melanins.

There are two type of epithelial tissue i.e.

a.Simple epithelial

b.Compound epithelial

a.SIMPLE EPITHELIAL

The simple epithelial consist of a single layer it cells resting on a bacment membrance.They cover moist surface where there is alittle wear & tear by friction.

B.COMPOUND EPITHELIAL

The compound epithelial consist of a few to several layer of cells.There fore they are thicker & stronger than the simple epithelial .The compound epithelial cover the surface where constant replacement of cells is needed due to rapid wear & tear due to friction.

ii.MUSCULAR TISSUE

Muscular tissue helps the body to contract & move .It plays a multiple role in animal body.

A.It brings about movement of the body part & loco motion of the organism

B.Many muscles support the bones & other structure.

C.Muscular also responsible for the heart beat for the flow of blood & lymph ,passage of food,for flow of air ,production of sound & for the propulsion of secretion & waste product through ducts.

D.Facial expression & gesture also depend upon muscles.

These are 3 types of muscles-

- a. Skeletal muscles
- b. Cardiac muscles
- c. Visceral muscles

a. SKELETAL MUSCLES:-

It forms 80% or more of the mass of soft tissues in a body. It is found in the body wall & limbs. It is also found in tongue, pharynx & beginning of oesophagus.

These muscles contract rapidly, but can not remain contracted for a long time, since it soon gets fatigued. Its contraction is under the control of the will. It is therefore called the voluntary muscles. These muscles are joined to the bones by tendon, therefore are called the skeletal muscles. The blood supply to these muscles is abundant.

b. CARDIAC MUSCLES:-

The cardiac muscles are confined to the wall of the heart. Its unique ability is to generate its own wave of excitation that can pass directly from fiber to fiber.

The cardiac muscle like the skeletal muscles contracts quickly but it never gets fatigued. Each contraction is followed by a refractory period long enough to allow the muscle to relax. For this reason the cardiac muscle can not go into a sustained contraction. It is involuntary in nature. This muscle has a very rich blood supply.

c. VISCERAL MUSCLES:-

These muscles are found in the walls of the hollow (the internal organs) such as alimentary canal, genital tract, ducts, blood vessels, urinary bladder. Hence are known as visceral muscles. The visceral muscles contract slowly, but can remain contracted for a long time without getting fatigued. It relaxes equally slowly. It is innervated by nerves principally from the autonomic nervous system. It is therefore called involuntary muscles. The blood supply of the smooth muscles is as compared to that of the skeletal muscles. The general function of this muscle is to make the organ short & thick by its contraction or long & thin by relaxation. These muscles are smooth by composition.

iii.CONNCTIVE TISSUE

The connective tissue consists of various shaped cells lying wide apart in large amount of nonliving intercellular or extra cellular material.The connective tissue usually comprise three component matrix,fiber & cell.the number of cell is very less & matrix in abundance.

FUNCTION:-

- 1.Attachment:- They join one tissues to another .This is their major role in the body
- 2.They form around the various organs separating them so that they do not interfere with each others activities.
- 3.Support:-They form a supporting frame work of cartilage & bone for body.
- 4.Storage:-Connective tissue like adipose tissue stores the extra fat.
- 5.Shock proof :-Adipose tissue forms shock absorbing coat.

Connective tissue of the following type are seen in the body :-

- i.Bone
- ii.Cartilage
- iii.Tendon
- iv.Adipose
- v.Areolar

i.BONE:-It is the hardest of the connective tissue.Beside providing support it has metabolic & protective role in the spongy part of the bone marrow is found .The red bone marrow produces red corpuscles & granular white corpuscles .The yellow bone marrow composed of adipose tissue .It stores fat & produces corpuscles in emergency .Bone is composed of calcium

ii.CARTILAGE:-It is a solid ,semi rigid connective tissue .It contains matrix of a form material cartilage is of 3 type :-

- a.Hyline cartilage
- b.Fibrous cartilage
- c.Elastic cartilage

a. HYLINE CARTILAGE

It has a clear, homogenous, translucent, bluish-green matrix. It is large & angled. It is found in the tip of the nose, end of the bone.

b. FIBROUS:-

It is large & arranged in groups. Particularly found in intervertebral discs are white fibers. It is also found in pubic symphysis (region between the two pubic bones of pelvis) where it allows parturition (birth of young one) & in the ligamentous capsule of joints.

c. ELASTIC CARTILAGE:-

It is more elastic & flexible than any other cartilage. It is found in the pinna & external auditory canal of ear, wall of arteries and the air tubes of respiratory track.

iii. TENDON:-

It is composed of white fibrous tissue. These are very tough & elastic. Tendons connect skeletal muscles with bones.

iv. ADIPOSE TISSUE:-

The adipose tissue is a fat-stored connective tissue. It is also known as loose tissue. It primarily acts as a food reserve. The subcutaneous fat prevents heat loss from the body & also rounds off the body contour. It forms a shock-absorbing cushion around the kidney & eye ball hence prevents injury to the internal organ. It also produces blood corpuscles. It gives particular shape to limbs.

v. AREOLAR TISSUE:-

Areolar tissue, the most widely distributed connective tissue in an animal body. It fixes the skin with the muscle, attaches the blood vessel & nerves with surrounding tissues, keeps the muscle fibers together. It also forms the dermis of the skin. It permits considerable stretching and recovery to tissue.

vi. NERVOUS TISSUE:-

The nerve cells are specialized for receiving stimuli & transmitting messages. The potential change in plasma membrane helps to do this in nerve cell. This change of potential different in membrane of cell is 'impulse'. The reaction termed 'response' may be a sensation like pain or some activity like glandular secretion.

It consists of nerve cells called , processes of nerve cells termed as nerve fibers, bundles of nerve fibers forming nerves , undifferentiated pecking cells collectively termed neuroglia. Here intercellular substance & intercellular space is absent .

Process of nerve cell of two type (i). Axon & (ii) dendrite

Axon are long nerve fiber that carries impulse away from the cell body whereas the shorter dendrite carry impulse towards the cell body. Dendrite receiver impulse & axon which discharges the impulse . It carries to & from the brain .

It coordinates & co-ordinates the body function by means of nerve cell found in the brain , spinal cord & are distributed to muscle skin & vital organ & glands .

Nerve tissue consists of 3 type of matter

- a. Grey matter
- b. White matter
- c. Neuroglia

a. GREY MATTER:- The grey matter consists of nerve cell bodies , dendrite and proximal end of their axon . They grey matter integrates impulses.

b. WHITE MATTER :- The white matter consists of a bundles of medullated nerve fiber . In general it conducts impulses from one part of body to another .

Each nerve cell with its process is known as neurone . So, neurone contains:-

- i. Nerve cell
- ii. Axon & dendrite
- iii. Myelinated & non-myelinated nerve fibre

i. NERVE CELL:- These are the grey matter of nerve system & vary in size & shape . They found in brain & center of spinal cord.

ii. AXON & DENDRITE :- These are the processes of nerve cells which conduct the messages.

iii. MYELINATED & NON MYELINATED NERVE :- Myelinated nerve fibre is the nerve having axon surrounded by a sheath .It occurs in white matter of brain & spinal cord & in cranial & spinal nerves.

Nonmyelinated nerve cell is that where the the outer sheath is absent . It occurs in autonomous nerves.

The myelinated nerve fibre carries nerve impulses faster than the non-myelinated one .

The nervous tissue receives stimuli & transmits impulse from one part of the body another . By this action the functions of the various parts of the body are co-ordinated & integrated . The nervous tissue also the seat of all conscious experience.

DIGESTIVE SYSTEM

The process by which the chemical & physical composition of food alter so that it can be absorbed & utilized by body cell & the system by which it is performed is digestive system". Or

Digestion is the process of break down of food to simple material which can be absorb by our cell for their work ,growth & repair .

ORGAN ASSOCIATED WITH DIGESTIVE SYSTEM :-

The whole digestive system or to say main part of digestive system forms a tube like structure which is open at both the end .It is known as alimentary canal.

The organ which form digestive system are :- mouth , oesophagus ,diaphragum ,stomach,& intestine . Several other the salivary gland, teeth ,liver,gall balder ,pancreas & verni from appendix.

MOUTH :-

The process of digestion starts from mouth. Salivary glands & teeth are assesory organ of mouth.

In the mouth the carbohydrate receives salivar .The saliva contains salivary mylase or pthlines lysozyme.Ptyline splita starch & glycogen in dextrin & next to maltos about 30% of starch is digested here . The salivary gland present is located below & in front of ear .There are 3 pairs of salivary gland in the mouth of man . The saliva mixes with food while chewing . In this process teeth,tongue play important role . Saliva make food soft & slippery so that it can be swallowed easily. Then the food slide down to the oesopuagus .No digestion place here .It only convey the food .

STOMACH:-

The next place of digestion is the stomach .Stomach is a J-shaped ,wide muscular placed obliquely on the left side of in the upper part of the abdomen just below the diafragum.

When the food reaches the stomach ,the wall of stomach begins to produce a digestive juice containing a acid i.e. HCL & enzyme in stomach till ptyline is destroyed by HCL . Pepsin breaks down protein in the food.

Stomach act as a food reserver 'Renin' is the enzyme that transfer compound protin casin of milk product to simpler protein.

As a person matures renin products decrease,grately or stops all together.

INTESTINE:-

In the small intestine next digestion takes place . The small intestine is a narrow tube of diameter of 1inch & 7 meter in length .It is the logest part of elementary canal.It is divided in 3 parts ;-Duodenum ,Jejum,Ileum.It files most of the abdominal cavity forming a coiled structure.

In the small intestine food receives 3 alkaline secrection – bile juice from liver , pancreatic juice from pancrease & intestinal juice from intestinal . This alkaline stops the action on protein . Bile – Bile has no action on protein . But it helps to break down the fats into small droplets . Bile is produced by liver stored in gall blader . Pancreatice juice :- It contains 3 different enzyme which helps to break down fats,protein & carbohydrate.

Carbohydrate – Amylase

Fat – lipase

Protine – Trypsin

Intestinal juice – it changes the compound fats to their last stage i.e. fatty acid .

Wall of small intestine is lined with millions of finger like projection called villi.Nutrients are absorbed to the blood.

Small intestine is the last step of digestion . Next to it absorption starts from large intestine.These food next passed to large intestine through a valve named caecum.But maximum of absorbtion takes place in small intestine.

Large intestine is shorter in length than small intestine . It is about 1.5 meter long & if diameter 2.5”.

The food cycle comes here with 75% of water. The main function of large intestine is to absorb the water from the digested food .

RECTUM & ANAL CANAL

It is the way of digestion. The elimination of indigestive food remains from alimentary canal is egestion. The waste material discharged from alimentary canal is called faeces or stool.

In the colon water is absorbed into blood. Faeces collect in the rectum where more water is absorbed from them. At last the faeces are passed out through the anus or anal.

CIRCULATORY SYSTEM

DEFINATION :-

The circulatory system consists of hearts, blood vessels. The blood carries oxygen & nutrients to tissues & organs so that they can function properly. It also carries waste product so that they can be eliminated from the body. Proper circulation of blood is essential if we are to remain healthy. If the circulatory system begins to break down diseases & death will follow. In this circulatory system we will study the role of heart & blood vessel.

The heart which is the greatest pumping organ maintain the circulation through out the body. Arteries which carries blood from the heart & vein to the heart. Capillaries are the blood vessel which carries blood away from heart to supply to various organ. These are the branch of arteries & venis.

THE HEART :-

Heart is the key to the operation of circulation system. Heart is a cone shaped hollow muscular organ. It is broad anteriorly and posteriorly narrow placed in the space between the two lungs called 'media sternum'. It weight is about 300 gm.

STRUCTURE OF HEART:-

The wall of heart is made up of 3 layered muscles. The layer outer to inner is epicardium, microdium & endocardium. The heart has 4 chambers. The upper two are known as atrium or auricle & the lower two are ventricle. Both the auricle & ventricle are again devided into right & left auricle & right & left ventricle. The separation between both ventricle is termed as interventricular septum & separation between both auricle is inter artiac septum. There are two major vein associated with heart namely superior venacava & inferior venacava. Both these bring impure blood to heart. Pulmonary vein brings blood from lungs to heart. The artery at heart are aorta & pulmo nary artery.

There is a bicuspid value btween left auricle & left ventricle where a tricuspid value between right auricle & ventricle.

FUNCTION OR WORKING OF HEART :-

Herat work with its pumping movement. It acts a pump. It maintains a constant blood circulation through out the body.

The heart undergoes two alternate process such as contraction (systole) & relaxation (diastole) of its chamber . The auricles & ventricles contract & relax alternately . The contraction of the ventricle are called heart beat.

The right auricle receiver impure blood from the various part of body through the superior venacava and inferior venacava .From the auricle , when it full blood goes to right ventricle by contraction through the artrioventricular tricospid valve. Nowthe impure blood from right ventricle goes to the lungs through pulmonary artery. The pulmonary antery is the only artery which carries the impure blood . When blood reaches to the lungs it get oxygenated & leaves the carbon dioxide there & returns with oxygen to the heart through pulmonary vein. It is the only vein carries the pure blood . The pure blood is stored at left auricle & when it get full again get pressure & goes to left ventricle through artrio ventricular bicuspid valve .Now blood is at left ventricle , it is the strongest chamber of the heart . Now from left vertricle the blood spreads through out the body through aorta.

CARDIAC CYCLE:-

The function of heart is to maintain a constsnt circulation of blood through out the body.This is achived by the rythemic contraction of its muscle cardiac cycle is the sequence of event which occure in the heart during a beat.The rate of heart beat 72 bits per min & time taken for 1 beat is 0.7 sec.

Cardiac cycle occure in two phase i.e. systole & diastole . Systole is the period of contraction & diastole is the period of dialation or relaxation.

PULSE :-

Pulse is the thrumbic sensation felt over the wall of ortery.It is defined as the pressure of blood & difference transmitted in the form of wave over the arterial wall pulse rate is almost the same as heart i.e. 60-80 per min.In case of fever pulse rate increase .

BLOOD PRESURE:-

Blood pressure can be defined on the pressure experienced by blood vessel.The blood pressure which in normaly experienced or feel is normally arterial blood pressure .It has two phase:-

- i.Systolic blood pressure
- ii.Diastolic blood pressure

i. SYSTOLIC BLOOD PRESSURE:-

It is the maximum blood pressure occur during the systole of heart ranged from 100-120 mm Hg.

ii. DIASTOLIC BLOOD PRESSURE:-

It is the minimum pressure that occur during diastole of heart ranged from 60-80 mm Hg.

DISORDER OF HEART:-

1. CARDIAC FAILURE:-

Cardiac failure is the condition in which the myocardium of the ventricle unable to maintain sufficient circulation of blood to meet the need of the body.

2. HYPERTENSION:-

Hypertension is the rise in blood pressure than the normal. The blood pressure in adult should be 120/80 mm Hg. At the age of 45 it may be 150/90 mm Hg & at the age of 60 it may be 160/100 mm Hg. When the blood pressure exceeds there level it is said Hypertension. There are various cause for it. But main is tension & diet imbalance.

3. HYPOTENSION:-

Hypotension is just opposite to it. It is the blood pressure than normal. It is sometimes psychological & very common in elderly people.

IMPORTANCE OF CIRCULATORY SYSTEM FOR A COSMETOLOGIST /BEAUTY THERAPIST:-

Cosmetologist have to concerned with the arteries & veins. In order to maintain their good health. Because they have to stand do not bother about it then it will develop "varicose vein" varicose vein are bulges that can found from if the vein is stretched & loose its elasticity. But a cosmetologist should take some preventive measures to avoid this. Those measure are try to not being over weight wear well fitted shoe that should support & balance of the weight of whole body. This is best to use elastic shoes. Undergarments should not be too tight, but that might disturb your circulation. Another thing to watch is high blood pressure or hypertension. This can be caused by various factor. But nerves tension is one of the most frequent cause. As a cosmetologist you are

pressured by a desire to please you customer you work with at tight schedule you also have a short time & no regular rest period so here try to take rest 6-8 hrs. Here to teach yourself to be calm to eat correctly , do some exercises for at least 20 min & take rest when you can .

MUSCULAR SYSTEM

Introduction:

Muscle is a tissue which is contractible, elastic and fibrous, by which locomotion, movement of every part of body are performed. The muscle of our body, taken as a group, form what is called the muscular system. The study of muscles and their function is called "myology". The muscles are bound together into little bound of connection tissue. Each muscle contains its separate or own nerve and blood supply.

Muscles make up nearly walk our weight, they support our body and give its shape some muscles help us perform actions such as getting out of bed and chewing our breakfast and play a key role in the activity of our body system ego digestive & circulatory system.

Types of muscles:

There are 3 types of muscles

1. Voluntary(Striated/ skeletal)
2. Involuntary (Non striated or smooth)
3. Cardiac

(1).Voluntary muscle

This type of muscle in valve in the activity such as running, throwing. Their action is controlled by will I.e. we can force the muscles to move or not to move. That's why they called as voluntary. When viewed under microscope. This type of muscle appear to be striated or stripped voluntary muscle are attached to bone, skin and other muscle by means of tendon. These are made up of, elongated muscle fibers which are not tapering. The striated muscle consigs of alternate dark and light hands. They are found in arm ,leg etc.

(2). Involuntary muscle :

This is other wise known as smooth or untreated muscle. These muscle are not under the control of our will power. They are not striated. Thy move whether or not we want them to. They are found in the wall of stomach, intestine and blood vessels. The cells of smooth muscle are quite long pointed at both the ends.

(3). Cardiac muscle:

Structurally the cardiac muscle is a special variety of muscle which non-striated muscle . It is on automatic organ which contracts rhythmically and is not under the control of will. It's found only in muscle of heart. The fiber branch are anatomies with each other. They are arranged longitudinal. They are characteristically red in color.

As a cosmetology we only deal with the voluntary muscle .

Voluntary muscle are composed of bundles of long, fibrous cylinders. Each muscle has its origin and insertion. The origin refers to the more fixed or stationary, attachment of one end of a muscle to a bone or tissue. The insertion is the attachment of the other and of the muscles to a movable bone or another muscle.

Muscle comes in various sizes and shapes some are very large such as those in arms, ,chest and back some muscles of face and neck are so small that it is difficult to locate their origin and insertion. But, by working along with other muscle, theses tiny muscle create many facial expressions and assist in talking, laughing,yaming and chewing.

How muscle work :

Muscle work by expanding and contracting muscle are very elastic, they can be stretched beyond their normal length and shrink and thicker than normal. But they always come to their shape size. But the stimuli for expansion and contraction always comes from outside the muscles . The nerves are prime mover of the muscles.

Arteries ,veins,cappilaries and lymph are abundant in muscle. The blood supplies oxygen and nourishment and picks up waste material. When the muscles are being exercised the heart beat speeds up & flow of blood to muscle increase.

Muscles are frequently injured when a person falls or receives a hard blow. This causes the muscles fiber and capillaries to rupture. The muscles can be pulled or striated. The injury many be pain full but there is usually no permanent damage. Certain influence the force with which a muscle fiber contracts . It is morn. Where as fatigue and cold weaken the power of contraction.

Muscle is nerve completely at rest. It may appear to be, but it is always in a condition of muscle tone which means ready to respond to stimuli. This is a reflex produced by stimulation of nerves.

(posture is determined by the degree of muscle tone)

ENERGY FOR MUSCLE CONTRACTION:

Energy is provided by the conversion of adenosine tri phosphate(ATP) into adenosine diphosphate (ADP).ADP immediately turn back into ATP by provided by the break of glycogen to glucose. In the presence of adequate supply of oxygen, this break down as aerobic(respiration) and produces carbon dioxide and water. If there is not enough oxygen the glycogen is only broken down to an aerobic glycogen (i.e.lactic acid). And the presence of lactic acid in pt. blood increase. This is a normal occurrence in athletes but occurs too rapidly in patients whose heart or circulation does not supplies the working muscle enough blood.

Some important muscle:

(A) Head and face

NAME	LOCOMOTION	FUNCTION
Frontalis	Front of scalp ,fore head root Of the nose	Raises eye brows, draw scalp back, Wrinkles brow
Occipitalis	Back of the scalp	Draw scalp back
Superior auricularis	Above ear	Draw ear upward
Posterior auricularis	Behind ear	Draw ear backward
Temporalis	Beneath superior auricularis	Open & close jaw During chewing
Masseter	Back of jaw	Close the jaw
Orbicularis oculi	Encircles eye	Close the eyelid
Corrugator	Eye brow	pulls eyebrow down
Procerus	Between eyebrow	Pulls forehead down

Nasalis

Bridge of nose

Open & closes nostril

Post & anterior dilator

Skin of nostril

Open nostril

Naris

Depressor septinasi

Membrane deviding
nostrils

Closes nostril

RESPIRATORY SYSTEM

INTRODUCTION:-

Respiratory is a chemical phenomenon in which exchange of gas takes place or respiration is the process where the exchange of gases takes place. The gases are O₂ & CO₂. Respiratory system consist of a group of organs which are designed to convey air & to provide a mechanism in which blood & air come into intimate relation with each other, that gaseous exchange occurs between the two, the oxygen of air absorbed by the blood & carbon dioxide is eliminate into the air.

The organs associated with the respiratory system are :-

i.nose ii. Pharynx iii.larynx iv.trachea v.lungs vi.bronchiles

The exchange of gases between the blood & lungs is called external respiration where an exchange of gas between blood & cell is refered on internal respiration.

The body needs a constant supply of O₂ in addition of food & water. O₂ is used by cell to break down food molcules & thus supply us with energy. While performing this function it produces gaseous waste in form of CO₂ & H₂O. The fuction of respiratory is to fulfil the need of O₂ & eliminate CO₂ & moisture.

ORGANS ARE ASSOCIATED WITH RESPIRATORY SYSTEM:-

The respiratory system consist of organs of respiration, i.e. in lungs in which gaseous exchange take place & a series of air passage connecting the exterior to lungs. The air passage consist of the nasal cavity, pharynx, larynx, trachea, bronchiol, lungs.

NOSE:- It is the 1st organ of respiratory system. It consists of 2 large irregular cavities (nasal passage). The nasal chamber is provided with a pair of folded scroll turbinal bones. Those bones are covered with vascular & glandular epithelium which acts as an air filter. It removes dust particles & germs, warms up the inhale air & detects the smell. Posteriorly it is opens to pharynx near glottises.

PHARYNX:- It is involved both in digestive & respiratory system .It is a tube of 12-14 cm in length .It starts from the base of the skull i.e. from 1st cervical vertebra to 6th .It lies behind the nose ,the mouth ,the larynx.

Function-it passes air

LARYNX (VOICE BOX) :- Larynx the organ of voice froms the upper part of respiratory passage & extended from the root of tongue (tonsil) to the lower border of the cricoid cartilage opposite the level of the sixth cervical vertebral .There is a little difference in the size of larynx till puberty after the puberty it grows larger in male.

A piece of cartilage called epiglottis arises from the ventral edge of thyroid & end in front of the glottis which prevents the passage of food into the wind pipe.

Function It gives a passage way for air between pharynx & trachea.

TRACHEA :-

It is otherwise called as wind pipe. It is a continuation of larynx . It is extended up to the level of 5th thoracic vertebra .At this level it is divided into right & left branches which enters into each lungs.It is composed of fibrous , tissue & made up of a hyaline cartilage.

The presence of cartilage helps to open & provides an obstruct passage of air between external atmosphere & lungs.

BRONCHIS:-

The trachea ends by dividing into 2 bronchi namely left & right bronchi.They pass into the corresponding lungs.Then these bronchi formed division like structure know as bronchioles .The final terminal of each bronchus contain of thin layer of epithelial cells surrounded by numerous capillaries .The main exchange of gas takes place through this .That's why it is called (air sac).

Function:- Exchange of gases takes place here.

LUNGS:-

They are 2 in number suspended in the chest cavity or thoracic cavity .They are cone shaped . The right lung is divided into 3 part i.e. superior,middle,inferior while left lungs is divided into 2 part i.e.

superior & inferior .Lungs are spongy masses of tissue containing million of tiny air cells surrounded by blood filled capillaries .The surface area of lungs is 70 meters.

MECHANISM OF REPIRATION:-

Respiration involved 2 stages :-

- i. Inspiration (breath in) or inhale
- ii.Expiration (breath out) or exhale

Respiration is a process by which lungs expands to take air & control to exhale.

When the capacity of thoracic cavity is increased by the contraction of inter postal muscle (the powerful muscle of the chest moves the ribs up ward & down ward as a result the muscle below the lungs i.e. diafragm,flatterns out & the chest expand) pressure inside the cavity falls or lessness as compared to atmospheric pressure .This results in air being drawn into lungs (as the air pressure outside the body is higher the air pushes in through the nose which is known as inhealing in inspiration or breath in)

When the muscle below the lungs or diafragm & inter postal muscle relax the air pressure inside body becomes higher than the outside & the lungs remains in the original position. As a result the air is pushed out of the body it is known as exhealing or expiration or hreath out.

The rate of respiration in 16-18 per min .In adult & is more in children i.e. 35-40 per min .The rate of respiration $\frac{1}{4}$ to the rate of heart beat .

ABNORMALITIES:-

- 1.APNEA :- Sping stoping of respiration for short interval .Periods of apnea occur many time each night during sleep call the person to wake -up briefly.When awake breathing retracts. Frequency of apnea is increased by taking alcohol ,antihistamines.
- 2.HYPERNEA :- It is increase in rate of respiration or depth of respiration.

3. HYDISPENIA:- It is otherwise is bronchial .It occurs bronchioles .It creates difficulty in breathing.

4. POTYPHENIA:- It is also known as asthma. It is an allergic attack of breathlessness associated with bronchial obstruction or contraction characteried by expiratory wheeze

5. BOHR EFFECT :-The effect of increased acidity of haemoglobin is called bohr effect.

SOME BEAUTY TREATMENT RESTRICTED FOR RESPIRATORY TRACK PROBLEM PERSON:-

In cosmetology or in treatment some treatment are restricted to respiratory track patients .These may cause severe condition to them .

In such condition we can not give a permanent hair treatment like permanent hair colour, perming or straightening .Because the chemical present in permanent hair colour paraphynyle diamine , ammonia in perming lotion etc. are very toxic chemicals for a respiratory track patient it is more harmful.

For an asthma patient bleach is not used it cause various side effects inside the client.

NERVOUS SYSTEM

INTRODUCTION:-

Nervous system is the complex network of nerve cells & nerve fibre that together with the brain & spinal cord controls & coordinate the whole body activity .The study of structure & function of the nervous system is known as neurology

The nervous system composed of neurons which exercise control by sending electrical signals called nerve impulses.

NERVE CELLS & NERVES:-

The nerve cells are different from other cells. Unlike other cells nerve cells are not capable of cell repairing like other human cells they contain a nucleus but they also contain some long & short thread like fibre called processes .These processes carries nerve impulses through out the body ,it receive sensory information sent by the sensory receptor about the stimuli acting on them,analyses & interprets this information to produce sensation initiates instructions & relays,the later to the effector cells for giving a suitable response to the stimuli acting on the receptors.

There are 2 types of process:-

- i.Axon
- ii. Dendrite

i.AXON:-

Axon are the long nerve fibre that carries impulses away from the cell body .At the end of the axon there are nerves terminals that may be connected to muscle organs or dendrites of other nerve cell.

ii.DENDRITE:-

The shorter nerve fibre that is dendrite carries the cell body.

Some of the axon are very long .One of the longest carries signal from spinal cord to the toes.

Neuron is the nerve cell with its processes ,axon & dendrites. The nerve is like a cord i.e. that have many thin fibre that cord or cable carries

signal between brain & spinal cord at one end & muscles gland & sensory organ at the other end.

TYPES OF NERVE:-

There are 2 types of nervous:-

i.Sensory nerve

ii.motor nerve

i.SENSORY NERVE:-

These nerve are otherwise called afferent nerve . These carry information or incoming message from the sense organ to spinal cord or brain i.e. central nervous system.

ii. MOTOR NERVE:-

These are called efferent nerves .These bring impluses of motion from the central nervous system to the muscles & gland.

RELAXATION OF NERVE CELL:-

When we touch a hot object we pull our hand away immediately without loosing a moment.This is called reflex acting where the both type of nerve work together .When they work together are called mixed nerve . When we touch a hot object the nerve ending of the skin send a signal along the sensory nerve to the spinal cord i.e. travel to the brain from where muscle of our hand & arm to pull away all the action take place in an instance.

This two type of nerve work together in a reflex action but they can work alone when you decide to pick up a stone from the ground ,tha brain send signal along various motor nerve to different muscle.These muscle are put into action & you can pick up the stone .Here the sensory nerve come into play independently.Your eyes tells you where the stone is and set in your hand let you know the texture & feel the stone.

DIVISION OF NERVIIOUS SYSTEM:-

The nervous system is devided into 3 main parts :-

i.Central nervous system

ii. Peripheral nervous system

iii. Autonomic nervous system

i. CENTRAL NERVOUS SYSTEM :-

Central nervous system includes brain & spinal cord . Brain is composed up billion of nerve cells & their fibre running to and from the brain . It is enclosed within the spinal cord / column . Most messages between the brain & all other parts of the body carried through the spinal cord.

ii. PERIPHERAL NERVOUS SYSTEM:-

This includes all the sensory & motor nerve that carry messages to & from the central nervous system . It includes 12 pair of carnial nerves and 31 pair of spical nervous.

iii. AUTONOMIC NERVOUS SYSTEM :-

These are the nerves those controle the activity of our various internal organ like digestion respiration circulation etc. It has 2 division ;-

1. Sympathetic nerve
2. Para- sympathetic nerve

In symphathetic nerve system the reaction takes place wher as parasymphathetic system may stop the reaction.

The autonomic nerve system fuctions independently not according to our will and these impulses are carried by autonomic system.

EXCRETORY SYSTEM

INDRODUCATIO:-

Excretion is the removal of toxic waste products of metabolism from the body. Excretory system eliminates solid , liquid & gaseous waste. This short system includes large intestine,liver,lungs, kidney & skin. Digestive system described the role of liver & large intestine in removal of solid waste. In respiratory system we know the role of lungs in removal of gaseous waste. Now we will discus about the liquid waste removal by kidney & skin.

FUNCTION OF KIDNEY OR URINARY SYSTEM:-

Removal of liquid waste by kidney is also unitedly known as urinary system.

The organs associated with urinary system are

1. Kidney
2. Ureters
3. Urinary bladder
4. Urethra

KIDNEY :-

Kidney are a pair of bean shaped structure. They lie on the posterior wall of the abdominal. It lies one on each side of the vertebral column. Right kidney is lower than the left kidney . where as the left kidney is slightly narrow & longer than the right kidney. Each kidney is about 11cm long.6cm wide & 3cm thick.

FUNCTION :-

It maintains the normal composition of the plasma to be determination of excess waste & water product of protein metabolism. The function can be performed by the nephron . And each nephron is capable of forming urine.

It also plays an important role in the regulation of acid base balance in the body.

MECHANISM OF FORMATION OF URINE :-

- Main composition of urine is urea. It is prepared at liver & through blood it reaches the kidney. • Blood with nitrogenous waste i.e. urea, NH₃ & uric acid, comes to kidney through renal artery
- Inside kidney ultra filtration is done by Bowman's capsule.
- Blood is supplied to capsule by efferent arterials.
- Blood from glomerulus enters to Bowman capsule by filtration pressure.
- RBC, WBC, platelets, blood protein remain back while other substances pass into lumen of Bowman capsule. It is known as glomerular filtrate.
- Blood collected from capsule by afferent arterials.
- The glucose, NaCl & water are absorbed through different part of renal tubule.
- Passing through the loop of Henle it reaches to collecting tubules.
- They through ureter it goes to urinary bladder.

Ureter:-

There are 2 tube like structure conveying the urine from kidney to the urinary bladder ureter continues with the funnel shaped pelvis of the kidney. Each tube measures 20-30 cm approx. The diameter of each of the tubes is 3mm. Each ureter moving downward to abdominal cavity & open into base of urinary bladder. Each ureter is lined by fibrous tissue, muscular tissue & mucous layer.

FUNCTION:-

The ureter helps to move urine from kidney to bladder. This is because of peristaltic contraction of the muscular wall.

URINARY BLADDER:-

It is a sac like structure, acts as reservoir or store house of urine. The size & shape of bladder depends upon the amount of urine it contains. The bladder opens into the urethra as it is the lowest point of urinary system.

FUNCTION:-

It acts as reservoir or store house.

URETHRA:-

It is a canal which extends from the neck of the bladder to the exterior . Its size depends upon the sex . Female urethra is 4cm in length where as male urethra is 20cm approx.

Female urethra is lined by a thin muscular & spongy coat , with a mucous membrane.

PHYSIOLOGY OF URINARY SYSTEM:-

The urinary bladder act as reservoir for urine where approx 200-300ml of urine accumulation inside the bladder. Then it gives pressure inside the bladder & it stimulates outside by the help of autonomic nerves ending with in the membrane wall at the bladder walls.

MICTURATION:-

It is the function of passing urine . It occurs when the muscles wall of the bladder contracts.

COMPOSITION OF URINE

H₂O-96%

Urea-2%

Uric acid & salt – 2%

DISEASES:-

PYELITIS:- An inflammation in pelvis of kidney due to infection.

POLYUREA:-

AN-UREA:- Less secretion of urine .

RENAL CALCUL :- Deposition of insoluble substance in urinary track.

- (Disorder in function of liver or kidney may develop stone in both organ).

ENDOCRINE SYSTEM

Introduction :

In the body chemical signal transmitted from cell to co-ordinate bodily function. Each involves specific receptor protection the surface of the cells the receives the signal. This transmission is conducted by hormone. The endocrine system consists of specialised gland which bring about controls, by sending chemical messenger termed hormone.

Or,

In other words hormone are the chemical substances which are produced by specific group of cell & released in to blood stream. They can affect the distant part of body or whole body. Even though hormone in the blood come in contact with every part of body but they affect only specific target organ. This target cells are connected with receptor cell. For a particular hormone or particular group of hormone the. The whole function of all these endocrine glands is endocrine system.

There are 2 type of glands are present in our body.

1. Duct less gland or endocrine gland
2. Duct gland or exocrine gland

1 . Duct less gland or endocrine gland :

The have no duct or channel to transport their products. Their secretion are directly poured into blood for transport are directly poured into blood for transport. These gland secret hormone.

2 . Duct gland or exocrine gland :

They have duct or channel to transport their products. Their secretion passes through definite duct to their destination. There exocrine glands secret enzymes, mucous etc.

Ex : Digestive gland, salivary gland, sweat gland.

Endocrine gland :

The secretion of endocrine gland I i.e. hormone are vital to bodily function can speed up or slow down these activity that can affect the growth rate, reproduction, circulation or nutrition.

Come of the important endocrine glands in our body are

1. Pituitary gland
2. Thyroid
3. Pancreas
4. Adrenal
5. Thymus

There are some part or organ of body whose internal secretion also have important role as hormone. Those organ & hormone are stomach producing gastrin, ovary producing estrogen, progesterone, testis producing estrogen or testosterone.

(1) Pituitary gland :

PG is a pea-sized gland near the base of the brain. It is known as master gland because its hormone controls the activity of other endocrine glands. PG also produces growth hormone, other Pituitary hormone helps in normal sexual development and maintain water balance of body.

(2) Thyroid gland:

Lower part of neck in front of the trachea. It is attached to the wind pipe. It secretes a hormone "Thyroid". It regulates the metabolism of our body and controls our weight. (Because weight is caused by the blood calcium level and promoting calcium deposition in bone). The secretion of thyroid is regulated by a hormone secretion by pituitary gland namely thyroid hormone. Hypo-secretion causes mental and physical growth are retarded. Hyper-secretion will cause high metabolism rate & rise in temperature. The person will lose weight thyroid gland are of 2 bodies.

(3) The thymus gland :

This gland is located in the thorax. It consists 2 lobes. It quite small at birth and at puberty hi it increases in size and then shrinks again. It's function is unknown, but thought to be concerned with the production of antibodies

(4) Parathyroid gland :

Parathyroid glands are 4 small glands. These are placed two on each side of thyroid gland. These hormones secreted from the gland is known as Parathyroid hormone. It regulates calcium metabolism and controls

the amount of calcium in blood and bone. It helps in decreasing the excretion of calcium from kidney.

(5) Pancreas :

It is the only gland which comes under both endocrine and exocrine gland. It produces hormone named insulin which helps to decrease blood glucose level or it maintains the blood glucose level.

Pancreatic juice produced from the pancreas is the secretion which comes under the secretion of exocrine gland.

(6) Adrenal gland :

Adrenal gland are located on the top of each kidney, during the time of stress they secrete the hormone "adrenaline" into the blood in greater than normal amount. It increases the heart beat level/ rate causes the body to release the stored food and helps to take more oxygen into lungs

In general adrenal gland helps to cope with emergency and during stress.

REPRODUCTIVE SYSTEM

INTRODUCTION :

Reproduction is a process by which organism constantly replace the old with similar but some what variable.

MENSTRUAL CYCLE :

It is characterized only in the primates & do not occur in other vertebrate group . Lake of cycle is highly variable as 28 days. General regarded for human female. If is regulated by interplay or pituitary & ovary hormone.

During mensured phase the superficial endometrium are sloughed rupturing spinal arteries which result in bleeding. This cycle or phase last 4-7 days .it corresponds with formation of new follicle in ovary. This is distributed or the menstruation represent & the terminal action of the ovarian hormone. There are 4 phases of menstrual cycle.

1. Menstrual
2. Follicular
3. Ovulation
4. Luteal

Menstrual phase : It is the starting of the menstrual cycle. It lasts for 4 to 7 days .

The proliferative stage is conditioned by estrogen & extend from the end of menstrual . The to ovulation occurs near the middle of the cycle. At the end of the menstrual disintegration . The endometrium is thin & pore banal part of endometrial is there. No change occurs in endometrium during ovulatory process. During presentational phase the uterus is under the influence of both estrogen & progesterone. Here the endometrium differentiate into a tissue that can the requirement of embryo. It is only type of structure where blastocystic cop. It implantation has not occur that she in the function and degenerative are observe in endometrium. During the outer portion of endometrium last and there is a bleeding in to urinary cavity occurs.

Fertilization :

It is the result of the fusion and copulation of sperm and ovume or egg cell which generally occurs in uterine tube after sexual intercourse.

Generally menstruation cycle starts after 13-15 year, age in female.

Menopause :

It is defined as the period in which menstruation stops . In this phase ovarian disturbances will star 2-3 year after menopause. The age of menopause between 45-50 year age

SKELETAL SYSTEM

INTRODUCTION :

The bones of our body form a framework called the skeletal system. The skeleton supports this body in an upright position & protects vital organs. It is composed of about 2/3 minerals. These minerals are primarily phosphate & carbonates. The study of bones is called osteology.

JOINT :

Bones are joined with one another. The place where two bones are joined to each other is called a joint. The joints make the skeleton mobile. These joints are of several types.

(1) Ball & socket joint :

This is found in the hips & shoulder, where upper & lower limbs join the trunk. These joints allow considerable movement.

(2) Sliding joint :

This is found in the wrists and ankles. This joint allows the bone to move in certain directions only. It also enables the limb to withstand stress.

(3) Saddle joint :

This joint is found at the thumb, allowing up & down & side movement.

(4) Hinge joint :

This joint is found at the knee, elbow & at the root of all the fingers. It allows only up & down movement.

(5) Pivot joint :

This joint is found where the skull is linked to the spine. It allows the head to move from one side to the other.

Joints are held in place by bands of tissue called ligaments. As mentioned above, the joints allow movement. But this movement must be without one bone end being covered with a smooth tissue called cartilage. The joint is lined & lubricated by a tough fibre membrane containing a slippery fluid called synovial fluid.

SKIN

Introduction

Skin is the outer most covering of the body. It is thressed all over body . In the form of layer. It is not same in every part of our body. The difference is due to the thickness, presence and absence of certain appendages like nail, hair. The skin along with its appendages is known as “ integumentary system”. The study of the structure function disease of the skin called dermatology.

The skin is very elastic, durable and complex structure. It is the largest organ of our body. The skin is, called as the mirror of our body because the skin is sign of over all good health.

Structure of skin

The skin has mainly 2 division

1. Outer one is epidermis
2. Inner one is dermis

There is a third layer called subcutaneous tissue or fatty tissue or adipose tissue (subcutaneous-beneath the skin)

Epidermis :

It is the outer part of skin. It is made up of epithelial tissue layer after layer. It has no blood vessel and to project the inner layer, it is very thick in some part of our body like in palm and sole base epidermis. Consisting of sublayer i.e.

1. Stratum corium
2. Stratum lucidum
3. Stratum granuloma
4. Stratum germination

1. Stratum corium:

It is the outer most layer consisting of tightly packed scales or cell and these cells are made up of a hard protein called ' keratin '. The total surface of stratum corium covered with a thin film of oil though it's nearly water proof these cells are continuously worn away /shed or replace. This layer protects the inner layer or organ mainly by 5 things

- 1.Physical damage
- 2.Chemical damage
- 3.Bacterial infection
- 4.Radiation
- 5.Dehydration (being water proof)

2. Stratum lucidum:

It is consisting of 2-3 layer of cell that are nearly dead looking like granules of skin and have been worn away.

2. Stratum germination:

This layer situated just above the dermis new cells are continuously formed here which shifted towards the surface to replace the dead cell from the most layer. This germinate layer contain a special cell called as melanocytes. This cell contain a dark brown pigment called as "MELANINS", which determines the colour.

3. Stratum granuloma :

It is consisting of 2-3 layer of cell that are dead looking like granules of skin and have been worn away.

4. Stratum germination :

This layer situated just above the dermis new cells are continuously formed here which shifted towards the surface of replace germinate layer contain a special cell called as

“Melanocytes”. This cell contain a dark determines the colour of skin from the destructive effect of excessive UV ray. People with fair skin have a small number of Melanie pigment where as dark skin people have greater amount of Melanin suffer from a decease called ‘albinism’.

Melanin project the skin from sun’s UV rays. When the skin is exposed to sunlight the melanocytes produce a greater amount of pigment for protection. This is what case of tanning.

The epidermis layer consisting of almost entirely dead or dying cell. It has blood supply only in the deepest layer.

Dermis:

It is the under lining or inner lining layer of skin. It is the true skin made up of fibers i.e. elastic in nature. In dermis we can found many nerve blood vessel and hair. This is the ticket layer of skin and is firmly attached to epidermis. Dermis is divided into 2 distinct layer

1. Papillary or super facial layer
2. The reticular or deeper layer

1. The papillary layer:

The papillary layer lies next to the epidermis is raised into number small process called papilla contain blood papillary and nerve endings.

This nerve endings are especially sensory nerve endings or receptor which are responsible for sense of touch pain.

3. Reticular layer:

The reticular layer contain a large variety of structure with in its network.

1. Hair follicles
2. Sebaceous gland
3. Areetorpili muscle

4. Sweet gland
5. Blood vessel
6. Lymph vessel
7. Nerve

The are sensory receptor which are concerned with secession of pressure, pain, tempered etc. The blood vessel in this layer supply skin with oxygen and nutrient.

Subconscious tissue:

It is a layer of fatty tissue ground below dermis. This varies in thickness according to age,sex and general health of the individual. This bats service as a cushion in between skin and muscle.

Function:

- This also helps to keep the skin smooth and be used for energy if necessary.
- It store food and be used on energy
- It acts as insulator

When we are old this layer shrinking, it no longer can support our skin so.skin loses its firmness gradually the surface of skin become loss, shake and wrinkle develop.

Function of skin :

Skin perform a number of function. The most obvious and natural one serves as on cover for all other organ of body. Other function are temperature regulation, protection, absorption sensation, excretion secretion, synthesis of vitamin D and storage.

1. Temperature:

The normal body temperature is 98:4 F no matter how or cool the air is . The help the temperature of body constant. Our skin prevent loss of heat in cold we anther and fornicates loss of heat in hot weather through masa dilation and vale contraction respectively.

When the cells of our body break down the food, heat is produced. The blood carries the heat to the skin. Where evaporation of sweat cools the body. In hot weather sudoriferous glands are very active whereas in cold weather we sweat very little so that it can be kept in the body. The some function of skin affect many time our hair style and make up. As a cosmetologist if allow your client to sit a longer time under the hair dryer that person's sweat gland will become very active moisture of the skin of the client body will wet the hair and style will be damage. Like wise, excess heat , will effect the make-up

2.protection :

Protection is the primary job of skin it is formed in different ways. It protect underlining tissue from mechanical shock.

- It hold body fluid inside, as the skin is water proof. It prevents excessive loss of water through evaporation. It prevents entire organ from harmful substances and decrease causing germ.
- It protect body against the absorption of many chemical substances if in any case the people who is allergic to chemical is able to penetrate the skin the result will be very serious, because the protective counties i.e. the skin is not able to protect the internal tissue from injury. Lymphatic system a short or secondary circulatory system. That is closely related to blood circulation. The lymph is a clear fluid containing WBC and small amount of RBC and fat, main function of lymph is to remove bacteria from body

a. .Absorption :

As skin is a protection cover it prevent externals substances. Some substances can penetrate it in a limited way . Like oil. Fatty

acid, including in this group are such useful substances like medicines and some, cosmetics.(Which are emollient and plant extract).

4. Sensation :

Our skin serves as a sense organ for touch, pain, pressure, heat etc. The skin is well supplied sensory nerve endings or receptor. That conveys message to brain and spinal cord.

5. Excretion :

Skin assist in the process of excretion and water of waste product from the body. It eliminate water in the form of sweat, to keep the body cool. This sweat also contain waste material such as salt and other material and little amount of urea, which is easily removed from body and excreted through sweat. This sweat excrete from sudoriferous gland, and which are humorous on the palm and sole, under the arm and on fore head. But they are present in all part of the body. The activity of these gland is controlled by nerves system.

This glands are functioning all the time in elimination process. They become very active when we are exercising during warm weather certain drug,imotional stress

6. Secretion :

The skin is well supplied with sebaceous gland that secrets oil which is vital for our skin. The oil secretion by the sebaceous gland lubricates the skin, and keep it soft and pliable. This also soften our hair.

The mixture of sweat and oil make the surface slightly acidic and helps the bacteria to remove from entering to the body. All parts of our body are well supplied with sebaceous gland except palm and sole diet , hormone and stress play on important role in deterring the amount of secretion of sebum.

7. Storage:

The skin stores reserve food in the form of fat in a layer. (a special type of cell). Called subcutaneous layer

8. Synthesis

The skin react with early sunlight and help in synthesis of vitamin-D.

Colour of skin :

The colour of skin weather fair or dark is hereditary, but mainly it depend upon 3 factor.

1. Amount of melanin present is stratum germination. The more the number of melanin present darker the skin.
2. Thickness of skin
3. Amount and available of blood supplied to capillary of dermis

Life- span of skin :

The ability of skin is to resume its normal state after deformation is called as the pliability of the skin. It is mainly due to the presence of collage and elastic fiber present in dermis of skin with age the amount of collagen and elastic fiber decrease and skin loses its pliability.

Appendages of skin :

There are 5 appendages of skin

1. Hair
2. Nail
3. Oil gland
4. Sweat gland
5. Mammary gland

Mammary gland :

These are modified sweat gland. These glands are present both in male and female. But in male it persist only in a limited

spread where as in female after puberty they enlarge in the form at a pair of breast.

Structure :

Each breast carry a natural conical projection called “nipple”. There are -20 milk duct open at nipple. Each milk duct continued in word in a branching manner to join a clusture of 15-20 lobes of glandular tissue and those lobes are called mammary gland. Function of the gland is to secret milk which is highly nutritious for the body.

Modifying factor :

It activity is related with the re-production and pregnancy or reproductive hormone.

Common skin problem :

i. Disorder of oil gland :

1. Acne : It occurs when oil gland produces too much of sebum and that reaches the skin surface become flogged and pimple can be formed sometimes these pimple goes into deep and form acne. These acne can also accrue on chest and back

In teenager this acne is usually a temporary condition which can be treated by cleaning of skin, using a good avvality diet and by using non greasy cosmetic.

2. Come tone or black head :

Black head are clogged pore with sebum, it harden and gives a black projection steaming can help to clear the type of projection condition. Black head occur on surface of skin.

3. Melia or white head :

When the sebum accumulated beneath the surface of skin. It become a white projection known as Melia or white head.

4. Steadman or wen :

It is a general sebausous east in generally tumor or abhor mal or growth of sebausous gland that from under the skin.

5. Asbestosis :

It is a disorder that occurre most frequently in older people due to the less secretion of sebausous gland and skin became very dry and scaly.

6. Seborrhea:

It is a condition causes by over production of sebum from sebaceous gland

The surface of skin become very oily and shiny and the scalp is effected and the hair become and very oily and causes dandruff.

B . Disorder of sweat gland :

1. Hyperhidrosis:

Normally the sweat gland becomes very active in hot weather in order to keep body cool. But some people sweat a great deal even in cool weather and when a they are at rest. They should concerned a physician.

2. Anindrosis :

Here the sweat gland stapes It function it many cause by the forever or some or an other disorders, during third time body lusts it's ability to regulate its temperature.

3. Body dour

It also known as “ dromedaries” . It refers to foul smelling perspiration. Perspiration has itself a little or no odor but bacteria infection may case foul smelling good grooming habit can control it.

4. Prickly heat or miliariborubra:

It is caused by inflammation of skin around the sweat pores. It usually appear in hot weather. It appear in the form small red pimple and is accompanied by itching and catching. This condition disappear when weather cool available for temporary relief.

You can use baking soda to work to reduce the condition.

Tanning or sun burn :

When the skin is exposed to sunlight the UV ray of sun penetrate to the deeper layer of epidermis and dermis. That causes the skin and lather like skin. The factors responsible for the elasticity of skin break down and the skin become thin and wrinkled this called as sunburn or tanning.

Sweat gland :

Sweat gland are the sudoriferous gland have 3 main part

1. One is coiled based deeply situated in dermis
2. A wavy duct
3. Sweat pore opening of gland on the surface of skin.

Distribution:

There are 2 type of sweat gland

- A. Eccrine- it is found all over the body
- B. Apocrine- it is particularly found in arm pit around the primal break down into bacteria which creates a odour.

Through all over the body sweat gland present in a bundle plenty at the palm, sole, forehead and arm pit.

Function:

It regulate the body temperature it eliminate waste product by the form of salt and water from body.

Factor modifying sweat secretion :

1. Immotion
2. Exercise
3. Meat
4. Drugs

Sebaceous gland

It is the sudoriferous gland. It look like bag filled with large. Pale cells which open by means of a duct into the hair follicle. They give out on oil secretion called as sebum.

Function:

- It makes the skin supple and soft
- It prevents loss of internal water by evaporation
- It has chemical substance. Which kills bacteria

Factor modifying sebum secretion :

1. Diet- diet containing excessive oil and fat increase the rate of secretion of oil.
2. Hormone- particular at the time of puberty and pregnancy .
3. Emotional imbalance- lock of sleep due to mental tension also Couse the over production of oil
4. Drug – hormone drugs, contraceptive peals and steroid medicine

Distribution:

It is found all over the body except palm and sole. They are present evidently on the face, neck, shoulder and chest.

HAIR

Hair is an appendage of skin. It is a slender thread like structure or growth of the skin and scalp of human body. There is no sense of feeling because of absence of nerves in the hair.

The scientific study of hair is technically named as 'Trichology'. Hair is chiefly composed of a hard and dead protein called keratin. The chemical composition of hair is

Carbon -50.56%

Hydrogen -6.36%

Nitrogen-17.14%

Sulfur-5.00%

Oxygen -20.35%

The chemical composition varies with the color of hair. Color is present because of more oxygen and sulfur where as darker hair contains more hydrogen and carbon.

Structure :

There are 2 main divisions of hair. I.e. hair root and hair shaft

1. Hair root :

Hair root is the portion of the hair structure found beneath the skin surface. This is the portion of the hair which is enclosed within the follicle.

2. Hair shaft :

It is the part of hair structure that is extended above the skin surface.

3. Hair bulb :

The structure closely associated with hair root and hair follicle, hair bulb and hair papilla.

4. Hair follicle :

It is a tiny tube like depression or pocket like structure inside the skin which holds the hair root for every in our body it has a own follicle varies in depth depending upon the thickness of skin and scalp.

As the bottom of the follicle, contain a finger like projection called papilla which is well supplied with blood vessel and herve.

Papilla is the structure from where new hair develops.

It is the papilla that nourish the hair bulb and it has the ability to produce hair cell. So, it is known as mother of productive organ of the hair cell can not be formed nor can be grow without the papilla is healthy and well nourished it will produce a new cell of hair

The hair bulb lies just above the papilla and fits over it tightly. It is wide at base and narrow as moves towards surface of skin. It's nourished by the papilla

Structure connected to the hair follicle :

1. The arrector pili muscle :

It's on involuntary muscle attached to the lower portion of muscle contracted the hair, is to strand of street . Eye lash and eye hair lack of arrector papilla muscle.

2. Sebaceous gland :

One or more sebaceous gland and also attached to each follicle. Those duct are connected to the hair follicle for the secretion of oil on sebum. It helps give lustier. Pliability to hair and also sleeps the skin surface soft and supple. By over production of sebum it causes many disorder like dandruff. Gradually it leads to hair loss or boldness

Hair shaft :

The outer layer of hair shaft is called cuticle. It is composed up of tiny transparent over lapping protective scales like cell pointing out word to word end from the scalp and this type of arrangement is called imbrication.

They can not be seen with necked eye. They can be felt if we slide our finger along a dry hair from the end toward the scalp. The hair will be felt sticky rough.

Alkali chemical penetrate into the cuticle & damage it so hair that has been color treated. Chemical waved or relaxed will always feel rough because of damage cuticle.

Beneath the cuticle the cortex layer is lies this is the middle layer gives stronger and elasticity to the hair, it is made up of fibers substances that coil in a helix like the spiral. The large fiber then coil around each others create cortex. The layer contains the pigment which want to change its color, what was natural , we have to change the color granules in the cortex layer.

The cortex also contain the structure that gives hair its shape. This is the layer. Where all the change occur when we style our hair by thermal or chemical method.

Cortex is the part of the hair where all the chemical Chang occur. So ,we should take some precautions otherwise the cortex layer well be damage or destroyed.

Medulla :

The inner most layer is called as medulla. It is a care or round cell that can run from hair bulb to shaft. Sometimes may be client. A specially in soft hair and the hair which gross on the check orm and other part of body.

Distribution of hair :

Hari as found all over the body except palm, sole, lips , and eyelids.

1. Distribution of long hair :

It graphs from the scalp. Protect the scalp against surgery and injury, it also gives a pleasing frame to face long hair also graph under the arm pit in both male and female and on the face of the males .

2. Distribution of short, bristly hair

They are present at the eye brow and eye lashes. They add beauty and color to the face. They also helps in protection.

3. Language hair :

It is very fine, soft hair present in check, fore head and all over the body. It helps in the evaporation of perspiration.

Forms or structure :

The hair as a grows alt assume get size and direction of the follicle I.e. straight, wavy, curly, junky or excess curly hair.

The shape of individual hair short is generally related to the form of the hair straight hair are usually round form, wavy hair ,oval form curly & kinky hair are usually flat.

Basically shape of hair is due to the hereditary or genetics.

Characteristics :

Characteristics of hair generally means its texture, elasticity , porosity , density.

Texture :

It is usually determined by the diameter of hair. And may be on berry on different part of hair. We can determine by feeling also (harsh, soft ,wiry) . Coarse hair contain large diameter where on the fine hair has very small diameter coarse hair are thick and fine hair are thin. We can find all the 3 layer i.e. medulla, cortex and cuticle in coarse hair . Where as we can find cuticle and cortex in fine texture hair is categorized as coarse , medium, fine and very fine hair.

All the 4 types of hair can be categorized by on how the hair feels and their diameter.

Wiry hair can resist hair treatment or can take large time to permanent wave(perming) , tinting (coloring) or lightening (bleaching) .

Porosity

Porosity is the ability of hair to absorb moisture weather the hair is coarse, medium or fine.

Good porosity:-

The hair whose cuticle layer raised from the shaft can absorb a face or normal amount of moisture or chemical.

MODORATE POROCITY:-

It has less pores then the hair with good porocity.

POOR POROCITY :-

The hair whose cuticle lies more closely can absorb loast moisture.

Hair that is very porous take less to treat . Usually hair with good & moderate porocity have no problem in giving hair treatment whether it is permanent waving ,tinting or straightening.

Hair with poor porocith needs analysis and before the application of cosmetics porocity.

ELASTICITY:-

Elasticity refers to the ability of being stretched beyond its normal length refers to its original form without breaking . Hair with normal elasticity gives a life & of hair .

Normal hair is capable to stretched about $1/5$ time & wet hair $\frac{1}{2}$ times its normal length . Dry hair is not so elastic of stretched about 20% of its length porous hair is stretched more than its length due to poor porosity of hair.

DENSITY :-

Density refers to the hair per square inch on the scalp .According to the density hair is said to be thin,medium or thick depending upon how much hair is present.The average are of the hair is about 420 sq inch . So per a square inch the number of hair is normally 1000 . The number hair varies with colour of hair .

Black – 108,000

Red- 9000

Brown – 110,000

HAIR GROWTH :-

Each individual hair goes through the steady cycle of events . Growth fall & replacement are the three stage of the cycle.

The preform proper formation & growth of hair depend upon the proper nourishment & oxygen supply by blood is very important for the health & life of hair . Normally we can loose in healthy the hair is also healthy . Its body is weak or ill the hair weakness & dies . When our body is ill blod stream will not provide food element to the hair to growth stronger it becomes weak & loss of hair occurs.

The growth of hair influenced by various factors i.e. nourishment , season time of a head hair grows faster than the other body hair . In summer & in day time & when properly nourished by blood stream the growth of hair is faster.

Scalp hair at the rate about $1 \frac{1}{2}$ inch per month of a healthy body.The growth of scalp hair occurs more rapidly between the age 15-30% . But decreases sharply between 50-60 yr age.

Female scalp hair grows faster than male scalp hair . The scalp hair growth follows the cycle:-

1. In the 1st stage active hair growth is occur & called on Anagen period. During this period scalp hair continuous to growth & it can be of 2-6 year (basically 2-3 year)
2. In second stage hair growth decrease & is called an catagen period . During this period follicle shrinks & the bulb thickness & it slightly lift from papilla.

3. In the third or last stage the hair growth stops or it is the resting stage & is known as telogen period . This resting phase lasts about smooths & ends when a new hair forming from the papilla pushes the old hair up & out . As long as the papilla is active the hair growth cycle will repeate again & again .

The average & of hair is 50-100 per day is normal . Hair loss of more than this estimate average indicates some scalp & hair troble.

Eye brow hair & lashes are replaced every 4-5 month.

GROWING OF HAIR :-

Age affected the texture & behavior of hair – grey hair is mainly due to the absence of hair pigment in the cortex of hair . Grey hair is very nearly white & whitish yellow color in the hair shaft . Normaly these hairs grows out in this condition in aging process in human being . It also can caused due to serious illness or nerves shocks . An early age graying is due to imotional tension & that is called pre mature greyness . Some times it will found in several member of a family due to defective pigment formation.

Technical term for greying of hair is ‘ canities’.

Sometimes in young person prematured graying is result of a defective pigment formation occurring during birth . It is found in several person of a family are effected with prematured greyness at some time .

DISORDER OF HAIR IN SCALP :-

Alopecia :- Loss of hair is technically known as alopecia .

There are 4 types of disorder :-

1. Alopecia Areata
2. Pattern Baldness
3. Telogen Effluvin
4. Traction Baldness

1. ALOPECIA AREATA :-

Alopecia Areata is a condition in which hair falls out in patches. The patches can vary from the sized of pea to several inches in diameter. They may be a effected other region of the body is also affected . There is usually no pain ,itching or inflammation .

This is some times caused by deficiency of nutrient & vitamins . Due to typhoid some other serve fever . These patches be

round or irregulars & may vary in size $\frac{1}{2}$ " to $\frac{2}{3}$ " in diameter in most of the cases due to decrease in blood supply & some times the nervous system also injured . So the affected are is poorly nourished. This condition may be improved by proper scalp treatment.

2. PATTERN BALDNESS :-

It is generally occurs in male person . But also can occur in female .