CLASS IX

# Beauty and Wellness

## Student Handbook

**CENTRAL BOARD OF SECONDARY EDUCATION**
Shiksha Kendra, 2, Community Centre, Preet Vihar, Delhi-110092

# BEAUTY AND WELLNESS

## NSQF Level-I

Class IX

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**Beauty and Wellness : NSQF-Level I**

**Student Handbook for Class - IX**

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# भारत का संविधान

## उद्देशिका

हम, भारत के लोग, भारत को एक सम्पूर्ण [1]प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य बनाने के लिए, तथा उसके समस्त नागरिकों को:

सामाजिक, आर्थिक और राजनैतिक न्याय,
विचार, अभिव्यक्ति, विश्वास, धर्म
और उपासना की स्वतंत्रता,
प्रतिष्ठा और अवसर की समता
प्राप्त कराने के लिए
तथा उन सब में व्यक्ति की गरिमा
[2]और राष्ट्र की एकता और अखंडता
सुनिश्चित करने वाली बंधुता बढ़ाने के लिए

दृढ़संकल्प होकर अपनी इस संविधान सभा में आज तारीख 26 नवम्बर, 1949 ई॰ को एतद्द्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं।

---

1. संविधान ( बयालीसवां संशोधन ) अधिनियम, 1976 की धारा 2 द्वारा ( 3.1.1977 ) से "प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य" के स्थान पर प्रतिस्थापित।
2. संविधान ( बयालीसवां संशोधन ) अधिनियम, 1976 की धारा 2 द्वारा ( 3.1.1977 ) से "राष्ट्र की एकता" के स्थान पर प्रतिस्थापित।

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## भाग 4 क

# मूल कर्त्तव्य

**51 क. मूल कर्त्तव्य** – भारत के प्रत्येक नागरिक का यह कर्त्तव्य होगा कि वह –

(क) संविधान का पालन करे और उसके आदर्शों, संस्थाओं, राष्ट्रध्वज और राष्ट्रगान का आदर करे;

(ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आंदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;

(ग) भारत की प्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण रखे;

(घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;

(ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभाव से परे हों, ऐसी प्रथाओं का त्याग करे जो स्त्रियों के सम्मान के विरुद्ध हैं;

(च) हमारी सामासिक संस्कृति की गौरवशाली परंपरा का महत्त्व समझे और उसका परिरक्षण करे;

(छ) प्राकृतिक पर्यावरण की जिसके अंतर्गत वन, झील, नदी, और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणी मात्र के प्रति दयाभाव रखे;

(ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;

(झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;

(ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत प्रयास करे जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई उंचाइयों को छू ले;

[1](ट) यदि माता-पिता या संरक्षक है, छह वर्ष से चौदह वर्ष तक की आयु वाले अपने, यथास्थिति, बालक या प्रतिपाल्य के लिये शिक्षा के अवसर प्रदान करे।

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1. संविधान ( छयासीवां संशोधन ) अधिनियम, 2002 की धारा 4 द्वारा प्रतिस्थापित।

# THE CONSTITUTION OF INDIA

## PREAMBLE

**WE, THE PEOPLE OF INDIA,** having solemnly resolved to constitute India into a [1]**SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC** and to secure to all its citizens :

**JUSTICE,** social, economic and political;

**LIBERTY** of thought, expression, belief, faith and worship;

**EQUALITY** of status and of opportunity; and to promote among them all

**FRATERNITY** assuring the dignity of the individual and the[2] unity and integrity of the Nation;

**IN OUR CONSTITUENT ASSEMBLY** this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

---

1. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "unity of the Nation" (w.e.f. 3.1.1977)

---

# THE CONSTITUTION OF INDIA

## Chapter IV A

## FUNDAMENTAL DUTIES

### ARTICLE 51A

**Fundamental Duties -** It shall be the duty of every citizen of India-

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;

[1](k) who is a parent or guardian to provide opportunities for education to his/her child or, as the case may be, ward between age of 6 and 14 years.

---

1. Subs. by the Constitution (Eighty - Sixth Amendment) Act, 2002

# Preface

The student handbook on "Beauty and Wellness" for class IX fulfills the basic tenet of the National Curriculum Framework, 2005, which recommended that children's life at school must be linked to their life outside the school. This principal will effectively link a Childs' life with the school, home, community and the workplace.

The course on Beauty and Wellness is a part of the qualification package developed for the implementation of National Skill Qualification Framework (NSQF), wherein, Government of India has set common principles and guidelines for a nationally recognized qualification system covering Schools, Vocational Education and Training Institutions, Technical Education Institutions, Colleges and Universities. The skills introduced in this level shall be taught in depth in the following levels along with the knowledge of new techniques introduced in this sector which has a potential to take the students in many directions and in turning them into confident and successful cosmetologist and wellness trainers. Students can also become a trusted professionals, who can be relied by the clients for his/her services to make them look and feel their best.

CBSE takes the opportunity to thank the group of experts from Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), a constituent of National Council of Educational Research and Training (NCERT) who worked in association with LabourNet India Private Services Ltd., Bangalore; for preparation of this student handbook which forms a part of vocational qualification package in beauty and wellness sector for students who have passed Class VIII or equivalent examination.

Any comments and suggestions are welcome for further improvement of the student handbook.

**Chairman, CBSE**

# Acknowledgments


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# UNIT-1
## INTRODUCTION TO BODY CARE

The body care concept; sets out a way to inner health by getting in contact with your body and becoming increasingly aware of it. For example: How it functions? What it produces? How it acts and reacts to the external environment? Also developing self-awareness and alertness about one‘s body and its needs for it are to be taken care.

Today everybody is becoming conscious of their body and has started to take interest to know different ways to build and maintain it, for one to look beautiful and healthy.

Personal appearance is a key factor in keeping one‘s morale high. Beauty is a characteristic of a person, animal, place, object, or idea that provides a perceptual experience of pleasure or satisfaction. Beauty is studied as part of aesthetics, sociology, social psychology, and culture. An "ideal beauty" is an entity which is admired, or possesses features widely attributed to beauty in a particular culture, for perfection.

### Terms To Know

Health is a condition of human mind and body free from illness, injury or pain. According to world health organization (WHO) health is defined as —state of complete physical, mental and social well-being and not merely absence of disease or infirmity.

**Aesthetics or esthetics** is a set of principles concerned with the nature and appreciation of beauty, esp. in art. It is concerned with beauty or the appreciation of beauty.

**Enzymes** are biological molecules acting as catalyst accelerating the rate metabolic reactions, from the digestion of food to the synthesis of DNA. Most enzymes are proteins, although some catalytic RNA molecules have been identified. Enzymes adopt a specific three-dimensional structure, and may employ organic (e.g. biotin) and inorganic (e.g. magnesium ion) cofactors to assist in catalysis.

**Sociology** is the study of human society and its origins, development, organizations, and institutions.

**Social psychology** is the scientific study of how people's thoughts, feelings, and behaviors are influenced by the actual, imagined, or implied presence of others.

**Digestion** is the mechanical and chemical breakdown of food into smaller componentst hat are more easily absorbed by the body.

**Metabolism** is a term that is used to describe all chemical reactions involved in maintaining the living state of the cells and the organism. Metabolism can be conveniently divided into two categories:

- Catabolism - the breakdown of molecules to obtain energy
- Anabolism - the synthesis of all compounds needed by the cells

**Nutrient** is a chemical that an organism needs to live and grow. They are used to build and repair tissues, regulate body processes and are converted to and used as energy.

**Homeostasis** is the process that regulates body internal environment and tends to maintain a stable, relatively constant condition of properties such as temperature or pH. It can be either an open or closed system.

**Posture** is the carriage of the body as a whole, the attitude of the body, or the position of the limbs (the arms and legs).

**Attitude** is positive or negative evaluation of people, objects, event, activities, ideas, or just about anything in your environment.

**Diet** is the sum of food consumed by an organism.

**Therapy** is a treatment methodology intended to relieve or heal a disorder. For example: cancer therapies.

**Massage** is process of rubbing or kneading of parts of the body especially to aid circulation, relax the muscles, or provide sensual stimulation.it can be defined as the manipulation of superficial and deeper layers of muscle and connective tissue using various techniques, to aid in the healing process, decrease muscle reflex activity, inhibit motor-neuron excitability, promote relaxation and well-being.

## Session – 1

### *Human Organ Systems*

**Relevant Knowledge**

Reaching and maintaining optimum health and wellness requires an understanding of body and its functions that affect our appearance and wellbeing. Now we will proceed to understand the main factors that may influence our beauty and wellness. Knowing how your body functions and also how its malfunction due to different factors like food, sleep and exercise will also be considered for our wellbeing. So let us understand some of the systems of our body which play an important role in a person‘s growth and development process.

All the body systems and organ functions are vital in our healthy growth; here we will look at some of the key body functions which affect our appearance and wellness.

## Digestive System

The Digestive system is a group of organs and tissues involve in the breaking down of ingested food in the alimentary canal into a form that can be absorbed and assimilated by the tissues of the body.

Major digestive organs includes: Gastrointestinal Tract, it is also known as "alimentary canal" .It consists of all organs i.e. stomach, small intestine and large intestine through which food passes (mouth to anus).

Accessory Structures assist in digestion. They include teeth, salivary glands, liver (largest organ), gall bladder, and pancreas.

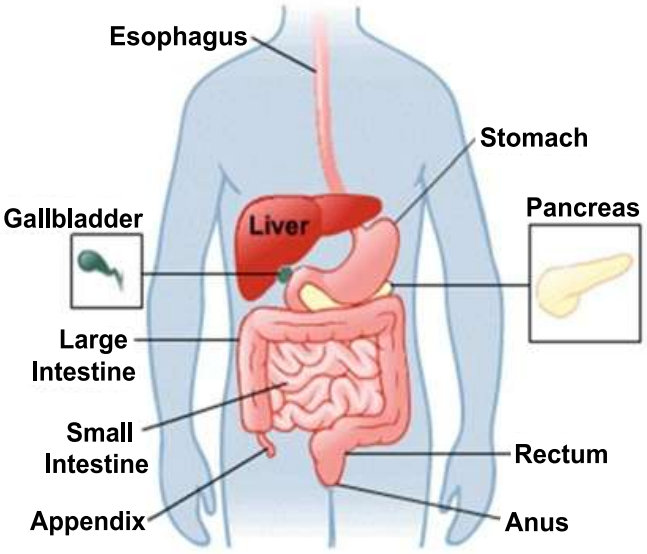
## The Process of Digestion

Digestion of food starts in the mouth.Saliva is secreted by Salivary gland. It contains an enzyme called ptyalin. Ptyalin acts on cook starch converting it into complex sugars. It also helps to increase the surface area of the food substance.

Food passes down from the mouth through the gullet (oesophagus) into the stomach. In the stomach food is further broken down into smaller pieces by the action of enzymes. Food is retained in the stomach for 3-4hours.

Food passes down from the stomach to small intestine where actual digestion, absorption and assimilation takes place by the action of some enzymes.

From the small intestine, undigested food passes into the large intestine. Here water is absorbed, these concentrate the waste product and makes them semi solid. In this state the waste product are called faeces. The faeces pass into the rectum and out of the body through the anus.



## Nutrient Absorption

*Carbohydrates* are enzymatically digested to form monosaccharides (glucose, fructose, and galactose). It is absorbed in small intestine by active transport or facilitated diffusion and enters the blood capillary in villi, then directed to hepatic portal vein.

*Proteins* are enzymatically digested to amino acids or di-and tri- peptides, absorbed in SI by active transport or facilitated diffusion, enter blood capillaries in villi, then directed to hepatic portal vein.

*Lipids* are enzymatically digested to short or long chain fatty acids; they are suspended in Small Intestine in form of micelles with bile salts, while inside the epithelial cells, lipids bound into chylomicrons for transport to lacteal villi; then into lymphatics and then to venous circulation.

## Respiratory System

The Respiratory System is the combination of organs and tissues associated with breathing (gaseous exchange). It consists of a pair of lungs enclosed in the thorax and connected to the air outside by a series of branch air tubes (trachea, bronchi and bronchioles) and air pathways (nasal cavity, pharynx and larynx). The ribcage, intercostals muscles and diaphragm work together, to draw air into and out of the lungs.

Respiration is the chemical breakdown of glucose accelerated by enzymes inside the body cells to liberate energy, carbon dioxide and water or alcohols is given off as waste products.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| $C_6H_{12}O_6$ | + | $6O_2$ | → | $6CO_2$ | + | $H_2O$ | + | 674Kcal |
| Glucose | | Oxygen | | Carbon dioxide water | | | | Kinetic and heat energy |

## Respiration can also be describe as

a) The intake and absorption of oxygen from the surrounding environment.

b) The transport of oxygen to individual cells of the body and

c) Using oxygen to release energy in the form of adenosine triphosphate (ATP).

Breathing is the process that moves air in and out of the lungs or oxygen through other breathing organs such as gills. Breathing is only one process that delivers oxygen to where it is needed in the body and removes carbon dioxide.

In addition to removing carbon dioxide, breathing results in loss of water from the body. Exhaled air has a relative humidity of 100% because of water diffusing across the moist surface of breathing passages and alveoli.

There‘s a pretty good chance you aren‘t breathing correctly. At rest, when sleeping, while running – you can probably breathe different and breathe better.

**How to identify whether you are not breathing properly?**

Place your right hand on your chest and your left hand on your abdomen. Take a big breath by inhaling through your nose or your mouth (whichever is most natural for you), slowly. Really fill your lungs, and note which hand rises more. Did your right hand move first and most, with your left hand lagging behind – if it moved at all? Did your shoulders go up? Did your traps rise like you were shrugging a couple dumbbells? If all of this happened then you are a chest breather.

If your right hand rose first and most prominently in the previous exercise, you did not effectively utilize your diaphragm. Without the diaphragm contracting and opening up the lower half of the lungs, less space is available for incoming air.

**What happens if you don’t breathe properly?**

A 20% reduction in oxygen blood levels may be caused by the aging process and normal breathing habits. Poor breathing robs energy and negatively affects mental alertness. Unless breathing is exercised, aging affects the respiratory system as follows:

1. Stiffness: The rib cage and surrounding muscles get stiff causing inhalation to become more difficult. Less elasticity and weak muscles leave stale air in the tissues of the lungs and prevents fresh oxygen from reaching the blood stream.

2. Rapid, Shallow Breathing: This type of breathing, often aused by poor posture and weak or stiff muscles, leads to poor oxygen supply, respiratory disease, sluggishness, or heart disease.

**Circulatory System**

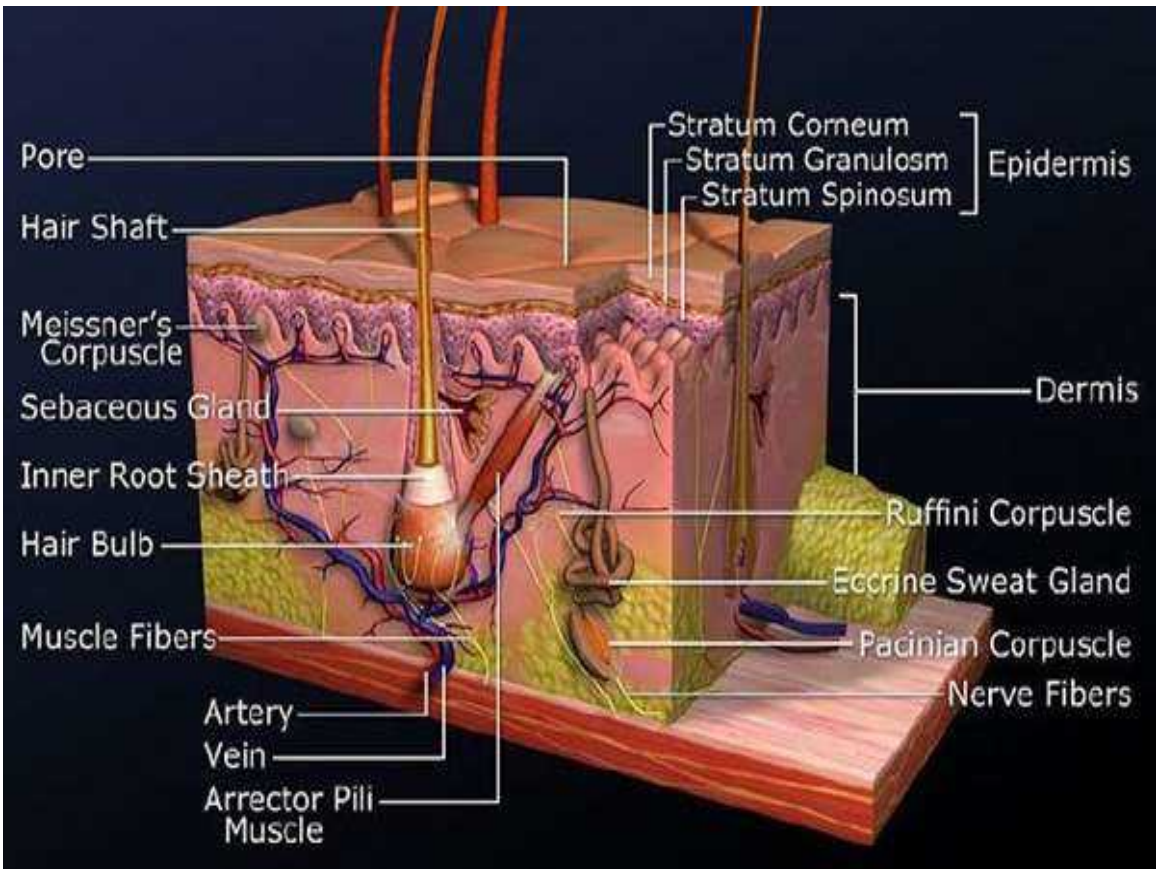
On an average your body has about 5 litres of blood continually travelling through it by the way of the circulatory system. The heart, the lungs and the blood vessels work together to form the circle part of the circulatory system. Each part must be working independently in order to work altogether. Systemic and circulation supplies nourishment to all of the tissues located throughout your body with the exception of heart and lungs because they have their own systems. Arteries are blood vessels that carry blood away from the heart. Blood carried by arteries is usually highly oxygenated, having just left the lungs on its way to the body‘s tissues. Of all the organs in the body, whereas veins carry deoxygenated blood from organs to heart.

When the circulatory system is affected, it affects the skin and other organs in performing its functions optimally. It also acts as a transport system by carrying food, oxygen to help fight diseases and stabilize body temperature and pH to maintain homeostasis. The circulatory system plays a role, through lymphatic systems; in building a defence system for the body, filtering out organisms that cause diseases, producing white blood cells and generating anti-bodies vital to our immune system.

Anything that promotes healthy circulation helps to keep skin healthy and vibrant. By increasing blood flow, exercise helps nourish skin cells and keep them vital. In addition to providing oxygen, blood flow also helps carry away waste products, including free radicals, from working cells. The job of neutralizing toxins belongs mostly to the liver. But by increasing blood flow, about of exercise helps flush cellular debris out of the system.

**Integumentary System**

The integumentary system is the largest of the body's organ systems. The integumentary system is the organ system that protects the body from various kinds of damage, such as loss of water or abrasion from outside.



The system mainly comprises of the skin and its appendages (including hair, scales, feathers, hooves, and nails). Any alterations in the skin will affect the overall wellbeing of an individual. The integumentary system has a variety of functions; it may serve to waterproof, cushion, and protect the deeper tissues, excrete wastes, and regulate temperature, and is the attachment site for sensory receptors to detect pain, sensation, pressure, and temperature. The skin is an organ because it consists of different tissues that are joined to perform specific activities. In adults, the skin covers an area of about 2 square meters, and weighs 4.5 to 5 kg. It ranges in thickness from 0.5 to 4.0 mm, depending on location.

**Functions of Skin**

**Functions of skin are as follows:**

1. Regulation of Body Temperature: In response to environmental temperature, production of sweat is decreased or increased accordingly. Changes in the flow of blood to the skin also help regulate body temperature.
2. Protection: The skin covers the body and provides a physical barrier that protects underlying tissues from shocks, physical abrasion, bacterial invasion, dehydration, and ultraviolet (UV) radiation. Hair and nails also have protective functions.
3. Sensation: The skin contains abundant nerve endings and receptors that detect stimuli related to temperature, touch, pressure, and pain and relate the information to the nervous system.
4. Excretion: Besides removing heat and some water from the body, sweat also is the vehicle for excretion of a small amount of salts and several organic compounds by integumentary glands.
5. Storage of Nutrients: Lipids are stored in adipocytes in the dermis and in adipose tissue in the subcutaneous layer. These are made available to the body when there is depletion which may be due to starvation.
6. Blood Reservoir: The skin houses extensive networks of blood vessels that carry 8 to 10% of the total blood flow in a resting adult.
7. Synthesis of Vitamin D: Vitamin D is a group of closely related compounds. Synthesis of vitamin D begins with activation of a precursor molecule in the skin by ultraviolet (UV) rays in sunlight

**Skeletal System**

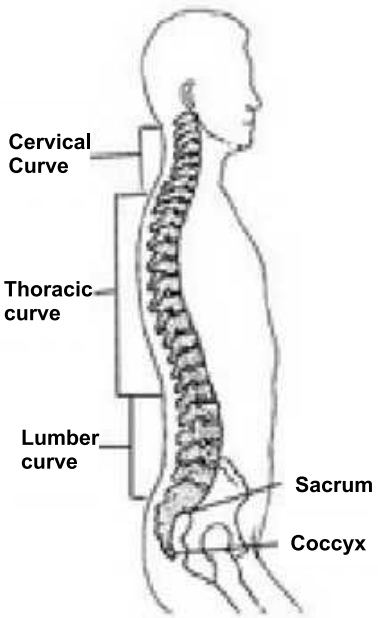
Skeletal system provides the shape and form for our body in addition to supporting, protecting and storing minerals. Muscles allow movement efficiency and endurance and contribute to an overall feeling of well-being. We have 206 bones in our body. The human body is constructed in a way that it is a symmetrical and can be balanced through a central line through the body. Musculoskeletal system helps us to maintain a good posture.

Good posture is an easy and very important way to maintain a healthy mind and body. When you practice correct posture, your body is in alignment with itself. This can alleviate common problems such as back or neck pain, headaches, and fatigue. Being in good general health and standing (or sitting) tall will also boost your bearing and self-confidence. Good posture is nothing more than keeping your body in alignment.

The most important thing about a good posture is that it is a dynamic posture. It should always be moving, at least a little bit. A static posture is pain and injury waiting to happen. In fact static positioning is a common torture method for self-inflicted pain.

Good posture should be dynamic and strong. It is also affected by your individual body type. So use these guidelines given below and find what works for you. A good posture should keep you free from pain, allow you to stay flexible and provide the strength and motion stay flexible and provide the strength and motion necessary to perform your task without undue stress on any component of your body.

What good posture looks like when a person is standing: a straight back, squared shoulders, and chin up, chest out, stomach in. If you can draw a straight line from your earlobe through your shoulder, hip, knee, to the middle of your ankle you've got it.




**The S-Curve**

Even though you are constantly moving there are some basic positions to follow to keep a good posture. Those positions support the natural S-curve of the spine. The spine, with its many vertebrae, is a flexible support column for you upper body that's kind of like s spring mount. It is able to absorb a lot of force and strain due to its design, but if it gets out of the S-curve you magnify the strain on your spine and can cause serious injury.

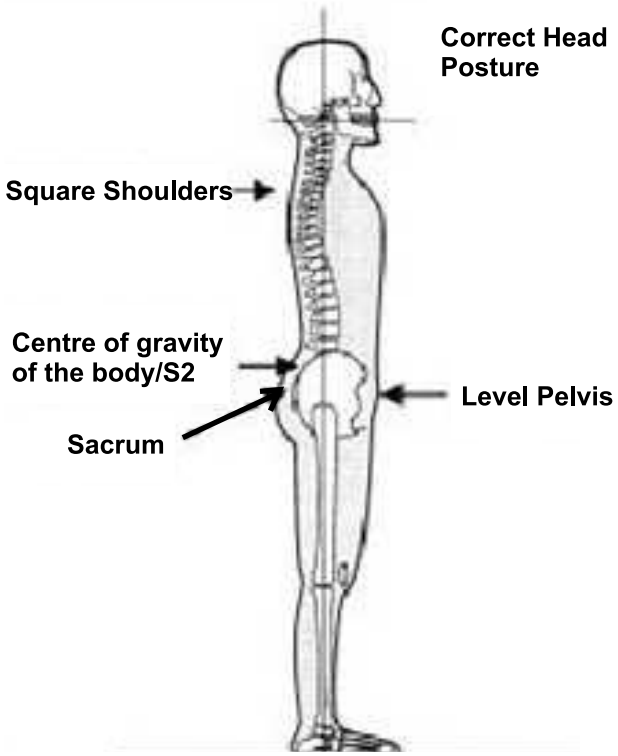
The spinal S-curve has a concave section at the lower back. The small of your back and lumbar should form a slight hollow. The spine continues upwards producing a convex area between the shoulder blades. So if you looked at a right profile of the spine it would follow an "S" shape.

The S-curve and shoulder and pelvis alignment are supported with muscles balancing. The muscles on the left and right side should be equally strong. If you've had an injury or have a weak muscle in some other way then other muscles start to compensate. The muscle imbalance can throw the entire skeleton system out of whack and cause a lot of problems from back pain to Thoracic Outlet Syndrome (compression at the superior thoracic outlet wherein excess pressure placed on a neurovascular bundle).

Correcting any muscle imbalance is the first step to a good posture. Often this requires specific training of the afflicted muscle and should be done under the direction of a medical professional, physical therapist, personal trainer or someone else with training in strengthening specific muscles safely.

**Muscle Strength**

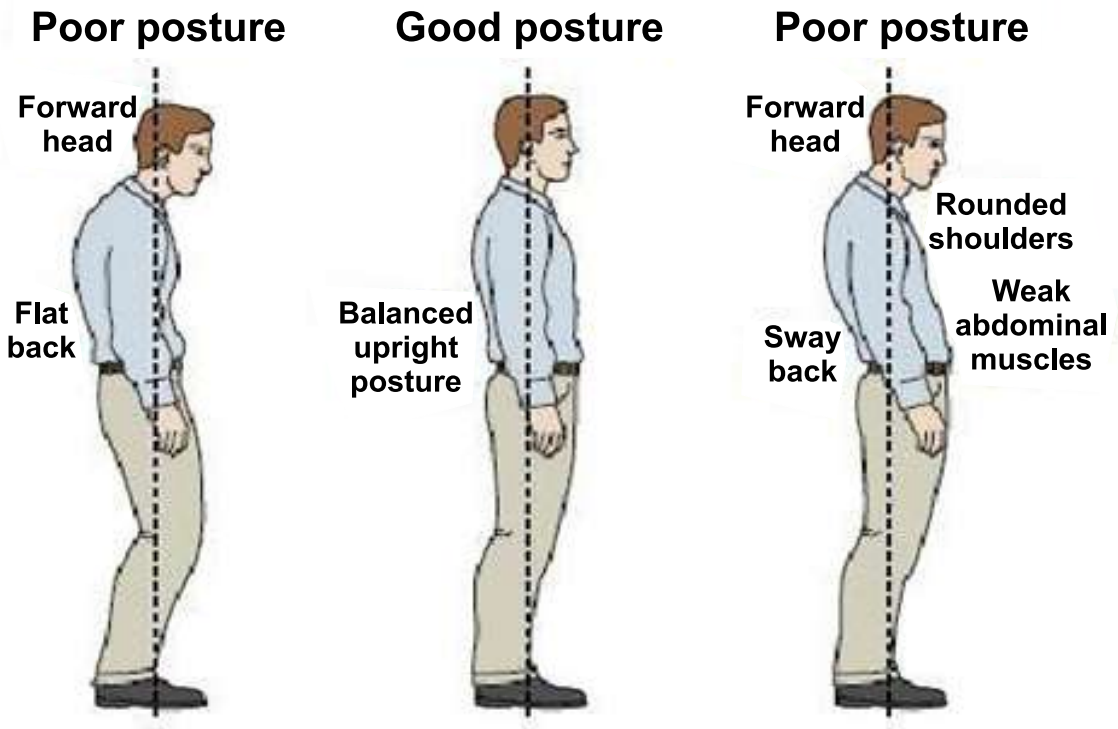
Ensuring your muscles are strong enough to hold your body in a good posture is the next thing to consider. This is most often a consideration for those who are overweight or aging. If you are overweight you are placing more stress on your muscles constantly and they will need to be strengthened to compensate. Or the excessive weight needs to be lost.




The elderly benefit from strength training to maintain muscle mass and density and that helps keep their posture in alignment.

**The Standing Posture**

Keeping a good posture while standing can simply be stated as "standing tall and proud." You should have your feet roughly shoulder width apart. Your knees should be in line with the middle of your feetand your hips should be about the same. Your knees should always be slightly bent. Locking your knees restricts blood flow and is a sure fire way to make yourself pass out.




Your chest should be balanced over your hips neither leaning forward nor backwards. Your shoulders should be back and your chest held out. This keeps your insides nice and open allowing the lungs to work without constriction and fluid to flow throughout the body without a problem. Your head should be upright with your chin slightly elevated.

Arms should be held in a controlled manner at your side. Don't let them hang lifelessly. Your muscles should always be in control and holding your body strong. If you place your hands on your waist you will end up raising your shoulders and that can be a bad thing if prolonged or done repeatedly. Instead place your hands inside pockets or fold place your hands into the small or your back. When you've achieved this posture remember to move from it. If you are supposed to be standing still make small deviations when able otherwise move a lot.

What you stand on can make a lot of difference in your posture. Concrete is one of the worst things to stand or even walk on. Hard, unforgiving surfaces can cause disorder on your posture and body in general. Grass, carpet, and wood are better than stone, tile and concrete. When you do not have a softer surface to stand on, be sure to use an anti-fatigue mat.

**Sitting Posture**

When you are sitting without any support for you back you should sit up straight with your chest balanced over your hips. The height of your seat should allow your upper legs to rest parallel to the ground or slope towards the floor at your knees. You never want your knees higher than your hips.

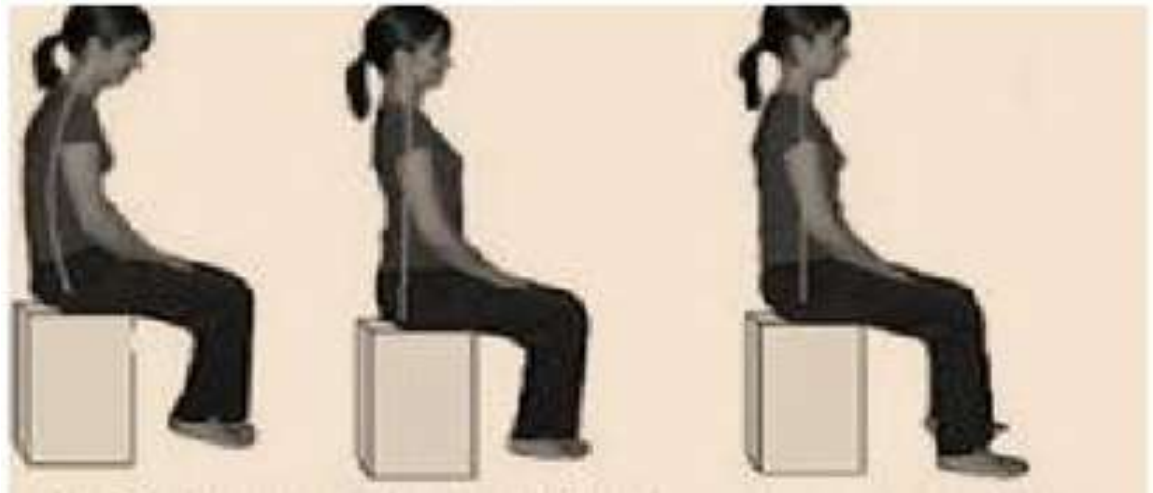
A comfortable range for your leg to chest angle is 90-105 degrees. This keeps everything open so blood and fluid flows freely. Placement of the feet should be whatever is comfortable and positions should change periodically. If you are leaning back slightly or have a short back rest then your feet should be flat on the floor in front of you. If you are leaning forward then you can tuck them in underneath the seat.

What you are doing while sitting has a major impact on your posture and an equal impact on what a good posture is for that task. Chairs or other seating supports should be adjusted to support good postures.

Working at a computer or typing is best supported with a slightly reclined sitting posture with the back at about 105-120 degrees from the floor. A full back rest on the chair supporting your lumbar and shoulder blades is needed as well as a setup where your hands, elbows and shoulders are not raised excessively and your head is at a comfortable angle.

Reading and writing often requires sitting forward and working over a desk. In this case you want a chair that has a forward tilt of 5 to 15 degrees and a desk low enough to rest your forearms on without causing your shoulders to be raised. The chairs should also allow you to tuck your feet and lower legs under it without complications.

Playing a musical instrument while seated often requires a specific posture to support the motions needed for the instrument. Whatever the specifics are they should be observed whenever playing and practicing. Good posture in this case not only supports good health but is often necessary for proper playing.



**What is the best position for sleeping and lying down?**

1. No matter what position you lie in, the pillow should be under your head, but not your shoulders, and should be a thickness that allows your head to be in a normal position.
2. Try to sleep in a position which helps you maintain the curve in your back (such as on your back with a pillow under your knees or a lumbar roll under your lower back; or on your side with your knees slightly bent). Do not sleep on your side with your knees drawn up to your chest. You may want to avoid sleeping on your stomach, especially on a saggy mattress, since this can cause back strain and can be uncomfortable for your neck.
3. Select a firm mattress and box spring set that does not sag. If necessary, place a board under your mattress. You can also place the mattress on the floor temporarily if necessary. If you've always slept on a soft surface, it may be more painful to change to a hard surface. Try to do what's most comfortable for you.
4. Try using a back support (lumbar support) at night to make you more comfortable. A rolled sheet or towel tied around your waist may be helpful.
5. When standing up from the lying position, turning on your side draws up both knees and swing your legs on the side of the bed. Sit up by pushing yourself up with your hands. Avoid bending forward at your waist.

**What to Avoid**

Keeping a good, dynamic posture can be difficult if you have developed some bad habits. Stay aware of your posture throughout the day and strive to avoid these common posture problems.

- Do not hunch or roll your upper back. Keep those shoulders back, chin up and chest out. Also do not drop your shoulders. If you get tired or just lose focus you may stop controlling your arms with your muscles and let them hang freely. Good posture needs muscles support so keep those arms held and those shoulders in place.

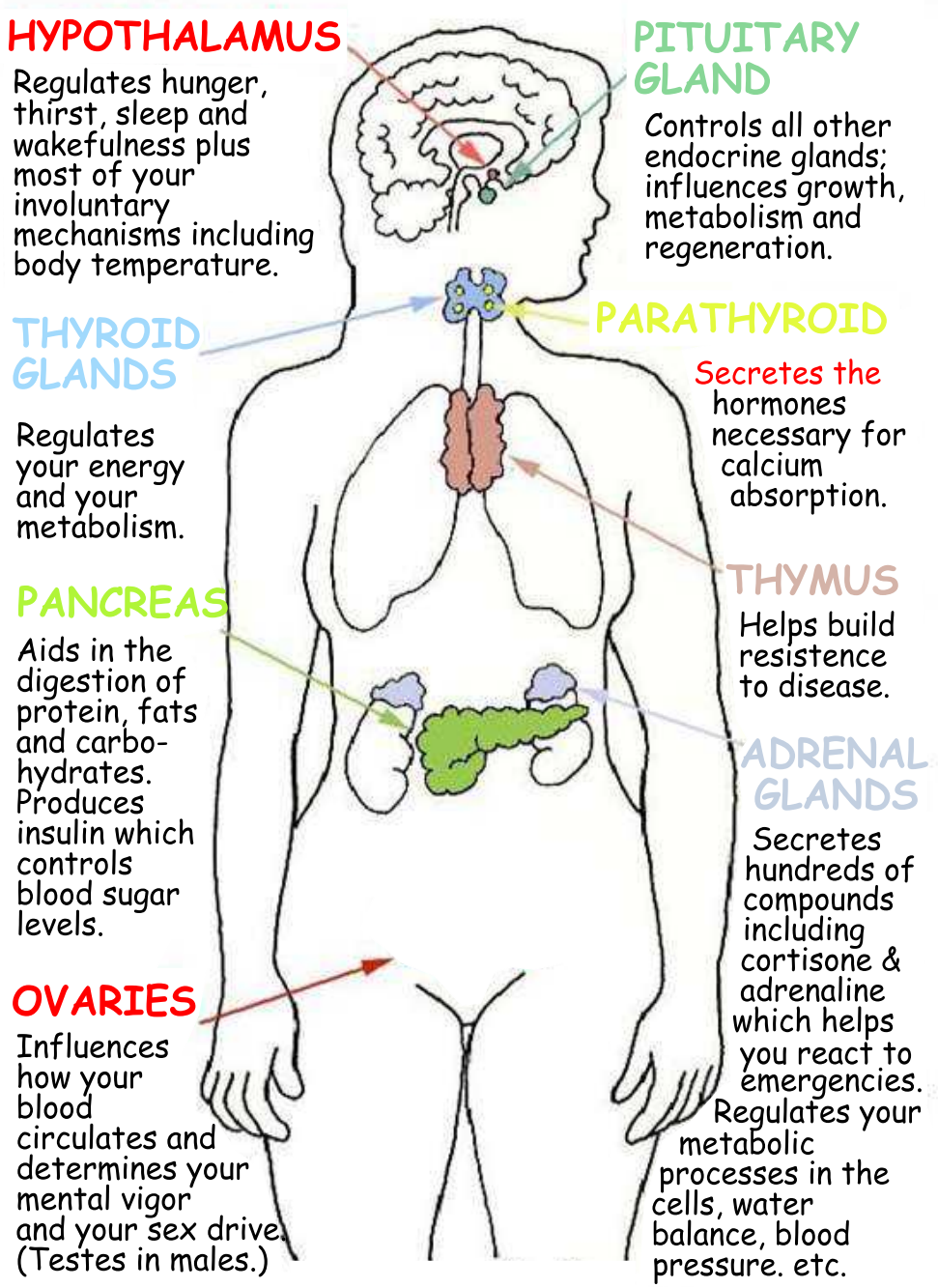
- Do not raise your neck to the side. Unless you are still living in the eighties this is probably not a problem due to social pressure. Instead it often comes about with talking on the phone. If you tend to hold the phone between your head and shoulder you should stop. Utilize a speaker phone option if available. If you cannot do that then you should invest in a headset for your phone. At the minimum you should attach shoulder support to your handset that limits the amount the neck has to bend to hold the phone to your shoulder.

- Never lock your knees, or any of your joints for that matter. The joints should always be slightly flexed. Bone on bone, full extension should be avoided. It can damage the joint and reduce fluid flow to the extremities. If you lock the knees while standing it will cause you to eventually faint. Usually in about 5-15 minutes.
- You should also avoid tilting your hips to the side while standing. A sachet of the hips while walking is not a problem and is often quite normal body mechanics. And a side to side movement or shifting of your weight over your hips can be helpful but tilting the hip well over to the side is not.
- Tilting the hips to one side while standing is similar to locking your knees. It can constrict fluid flow around and through the pelvis. It also shifts your balance point over to the side causing more strain than necessary on your body. At the same time it pulls the spine out of a healthy S-curve. And lastly it tends to let the bone rest on bone on the joint instead of having the body held by muscle which can causes irritation and bone damage.
- Try to keep from raising your shoulders upwards. You probably raise your shoulders hundreds of times a day without even realizing it. Every time you rest your elbows or forearms on an armrest that is slightly too high for you it pushes your shoulders up. If you place your hands on your hips it pushes your shoulders up. If you hold hands with someone taller than you it pushes your shoulders up. If you carry a purse or shoulder bag you often shrug your shoulder upwards to keep it on.
- Raising your shoulders, especially just one of them, causes a significant imbalanced loading across your upper body. One raised, or dropped, shoulder can throw your posture severely out of whack.
- Keep your feet healthy and springy. Allow them to keep the natural splaying (where the feet turn out slightly with the toes wider apart than the heels). Feet are not meant to be perfectly straight. They are also meant to be dynamic with motion in the ankle, metatarsals and toes in every step. Clodhopper, hard soled shoes should be avoided.

Good posture is paramount for good ergonomic. It should be dynamic and strong. It is also affected by your individual body type. So use these guidelines and find what works for you. A good posture should keep you free from pain, allow you to stay flexible and provide the strength and motion necessary to perform your task without undue stress on any component of your body.

**Endocrine System Functions**

# THE ENDOCRINE SYSTEM



The endocrine system includes all of the glands of the body and the hormones produced by those glands. The glands are controlled directly by stimulation from the nervous system as well as by chemical receptors in the blood and hormones produced by other glands. By regulating the functions of organs in the body, these glands help to maintain the body‘s homeostasis. Cellular metabolism, reproduction, sexual development, sugar and mineral homeostasis, heart rate, and digestion are among.

Endocrine cells are glandular secretory cells that release their secretions into the extracellular fluid. The glands are a group of cells that secrete chemicals that allow the body to create a product or finish a process somewhere else in the body. Hormones are chemicals that help to transfer information throughout the body, typically from one organ group to another so that the body has all the information it needs to monitor its function. There are up to 20 major hormones secreted by the gland in the endocrine system which are essential to different tasks throughout the body. When a gland in the endocrine system releases a hormone, it will travel through the bloodstream. These hormones are designed to interact with a specific part of the body, so when it arrives at this organ or tissue, a message will be sent to this area. Some hormones also bind with proteins that will control the amount of the hormone that will be allowed to enter a new area of the body so that the body is not overwhelmed with the signal being sent.

**You may read additional information provided below for better understanding on endocrine glands:**

Anatomy of the Endocrine System

a) Hypothalamus: The hypothalamus is a part of the brain located superior and anterior to the brain stem and inferior to the thalamus. It serves many different functions in the nervous system, and is also responsible for the direct control of the endocrine system through the pituitary gland. The hypothalamus contains special cells called neurosecretory cells—neurons that secrete hormones:

- Thyrotropin-releasing hormone (TRH)
- Growth hormone-releasing hormone (GHRH)
- Growth hormone-inhibiting hormone (GHIH)
- Gonadotropin-releasing hormone (GnRH)
- Corticotropin-releasing hormone (CRH)
- Oxytocin
- Antidiuretic hormone (ADH)

All of the releasing and inhibiting hormones affect the function of the anterior pituitary gland. TRH stimulates the anterior pituitary gland to release thyroid-stimulating hormone. GHRH and GHIH work to regulate the release of growth hormone—GHRH stimulates growth hormone release, GHIH inhibits its release. GnRH stimulates the release of follicle stimulating hormone and luteinizing hormone while CRH stimulates the release of adrenocorticotropic hormone. The last two hormones—oxytocin and antidiuretic hormone—are produced by the hypothalamus and transported to the posterior pituitary, where they are stored and later released.

b) Pituitary Gland: The pituitary gland, also known as the hypophysis, is a small pea-sized lump of tissue connected to the inferior portion of the hypothalamus of the brain. Many blood vessels surround the pituitary gland to carry the hormones it releases throughout the body. Situated in a small depression in the sphenoid bone called the sella turcica, the pituitary gland is actually made of 2 completely separate structures: the posterior and anterior pituitary glands.

1) Posterior Pituitary: The posterior pituitary gland is actually not glandular tissue at all, but nervous tissue instead. The posterior pituitary is a small extension of the hypothalamus through which the axons of some of the neurosecretory cells of the hypothalamus extend. These neurosecretory cells create 2 hormones in the hypothalamus that are stored and released by the posterior pituitary:

- Oxytocin triggers uterine contractions during childbirth and the release of milk during breastfeeding.
- Antidiuretic hormone (ADH) prevents water loss in the body by increasing the re-uptake of water in the kidneys and reducing blood flow to sweat glands.

2) Anterior Pituitary: The anterior pituitary gland is the true glandular part of the pituitary gland. The function of the anterior pituitary gland is controlled by the releasing and inhibiting hormones of the hypothalamus. The anterior pituitary produces 6 important hormones:

- Thyroid stimulating hormone (TSH), as its name suggests, is a tropic hormone responsible for the stimulation of the thyroid gland.
- Adrenocorticotropic hormone (ACTH) stimulates the adrenal cortex, the outer part of the adrenal gland, to produce its hormones.
- Follicle stimulating hormone (FSH) stimulates the follicle cells of the gonads to produce gametes—ova in females and sperm in males.
- Luteinizing hormone (LH) stimulates the gonads to produce the sex hormones—estrogens in females and testosterone in males.

- Human growth hormone (HGH) affects many target cells throughout the body by stimulating their growth, repair, and reproduction.
- Prolactin (PRL) has many effects on the body, chief of which is that it stimulates the mammary glands of the breast to produce milk.

c) Pineal Gland: The pineal gland is a small pinecone-shaped mass of glandular tissue found just posterior to the thalamus of the brain. The pineal gland produces the hormone melatonin that helps to regulate the human sleep-wake cycle known as the circadian rhythm. The activity of the pineal gland is inhibited by stimulation from the photoreceptors of the retina. This light sensitivity causes melatonin to be produced only in low light or darkness. Increased melatonin production causes humans to feel drowsy at nighttime when the pineal gland is active.

d) Thyroid Gland: The thyroid gland is a butterfly-shaped gland located at the base of the neck and wrapped around the lateral sides of the trachea. The thyroid gland produces 3 major hormones:

- Calcitonin
- Triiodothyronine (T3)
- Thyroxine (T4)

Calcitonin is released when calcium ion levels in the blood rise above a certain set point. Calcitonin functions to reduce the concentration of calcium ions in the blood by aiding the absorption of calcium into the matrix of bones. The hormones T3 and T4 work together to regulate the body‘s metabolic rate. Increased levels of T3 and T4 lead to increased cellular activity and energy usage in the body.

e) Parathyroid Glands: The parathyroid glands are 4 small masses of glandular tissue found on the posterior side of the thyroid gland. The parathyroid glands produce the hormone parathyroid hormone (PTH), which is involved in calcium ion homeostasis. PTH is released from the parathyroid glands when calcium ion levels in the blood drop below a set point. PTH stimulates the osteoclasts to break down the calcium containing bone matrix to release free calcium ions into the bloodstream. PTH also triggers the kidneys to return calcium ions filtered out of the blood back to the bloodstream so that it is conserved.

f) Adrenal Glands: The adrenal glands are a pair of roughly triangular glands found immediately superior to the kidneys. The adrenal glands are each made of 2 distinct layers, each with their own unique functions: the outer adrenal cortex and inner adrenal medulla.

- Adrenal cortex: The adrenal cortex produces many cortical hormones in 3 classes: glucocorticoids, mineralocorticoids, and androgens.

i) Glucocorticoids have many diverse functions, including the breakdown of proteins and lipids to produce glucose. Glucocorticoids also function to reduce inflammation and immune response.

ii) Mineralocorticoids, as their name suggests, are a group of hormones that help to regulate the concentration of mineral ions in the body.

iii) Androgens, such as testosterone, are produced at low levels in the adrenal cortex to regulate the growth and activity of cells that are receptive to male hormones. In adult males, the amount of androgens produced by the testes is many times greater than the amount produced by the adrenal cortex, leading to the appearance of male secondary sex characteristics.

- Adrenal medulla: The adrenal medulla produces the hormones epinephrine and norepinephrine under stimulation by the sympathetic division of the autonomic nervous system. Both of these hormones help to increase the flow of blood to the brain and muscles to improve the-fight-or-flight response to stress. These hormones also work to increase heart rate, breathing rate, and blood pressure while decreasing the flow of blood to and function of organs that are not involved in responding to emergencies.

g) Pancreas: The pancreas is a large gland located in the abdominal cavity just inferior and posterior to the stomach. The pancreas is considered to be a heterocrine gland as it contains both endocrine and exocrine tissue. The endocrine cells of the pancreas make up just about 1% of the total mass of the pancreas and are found in small groups throughout the pancreas called islets of pancreas is considered to be a heterocrine gland as it contains both endocrine and exocrine tissue. The endocrine cells of the pancreas make up just about 1% of the total mass of the pancreas and are found in small groups throughout the pancreas called islets of Langerhans. Within these islets are 2 types of cells—alpha and beta cells. The alpha cells produce the hormone glucagon, which is responsible for raising blood glucose levels. Glucagon triggers muscle and liver cells to break down the polysaccharide glycogen to release glucose into the bloodstream. The beta cells produce the hormone insulin, which is responsible for lowering blood glucose levels after a meal. Insulin triggers the absorption of glucose from the blood into cells, where it is added to glycogen molecules for storage.

h) Gonads: The gonads—ovaries in females and testes in males—are responsible for producing the sex hormones of the body. These sex hormones determine the secondary sex characteristics of adult females and adult males.

- Testes: The testes are a pair of ellipsoid organs found in the scrotum of males that produce the androgen testosterone in males after the start of puberty. Testosterone has effects on many parts of the body, including the muscles, bones, sex organs, and hair follicles. This hormone causes growth and increases in strength of the bones and muscles, including the accelerated growth of long bones during adolescence. During puberty, testosterone controls the growth and development of the sex organs and body hair of males, including pubic, chest, and facial hair. In men who have inherited genes for baldness testosterone triggers the onset of androgenic alopecia, commonly known as male pattern baldness.
- Ovaries: The ovaries are a pair of almond-shaped glands located in the pelvic body cavity lateral and superior to the uterus in females. The ovaries produce the female sex hormones progesterone and estrogens. Progesterone is most active in females during ovulation and pregnancy where it maintains appropriate conditions in the human hormones progesterone and estrogens. Progesterone is most active in females during ovulation and pregnancy where it maintains appropriate conditions in the human body to support a developing fetus. Estrogens are a group of related hormones that function as the primary female sex hormones. The release of estrogen during puberty triggers the development of female secondary sex characteristics such as uterine development, breast development, and the growth of pubic hair. Estrogen also triggers the increased growth of bones during adolescence that lead to adult height and proportions.

i) Thymus: The thymus is a soft, triangular-shaped organ found in the chest posterior to the sternum. The thymus produces hormones called thymosins that help to train and develop T-lymphocytes during fetal development and childhood. The T-lymphocytes produced in the thymus go on to protect the body from pathogens throughout a person‘s entire life. The thymus becomes inactive during puberty and is slowly replaced by adipose tissue throughout a person‘s life.

## Urinary System

The urinary system consists of the kidneys, ureters, urinary bladder, and urethra. The kidneys filter the blood to remove wastes and produce urine. The ureters, urinary bladder, and urethra together form the urinary tract, which acts as a plumbing system to drain urine from the kidneys, store it, and then release it during urination. Besides filtering and eliminating wastes from the body, the urinary system also maintains the homeostasis of water, ions, pH, blood pressure, calcium.

## Nervous System

The nervous system consists of the brain, spinal cord, sensory organs, and all of the nerves that connect these organs with the rest of the body. Together, these organs are responsible for the control of the body and communication among its parts. The brain and spinal cord form the control center known as the central nervous system (CNS), where information is evaluated and decisions made. The sensory nerves and sense organs of the peripheral nervous system (PNS) monitor.

## Exercise

### A. Case Based Problem

**Case Study**

26 years old beautician named Rita, developed worse lower back pain and when she tries to walk using the correct standing posture it causes a pain in her back so she prefer to walk or stand in stooped position.

Doctor prescribed her pain relief ointments and asked her to rub on the back when its pain. Doctor explained her that she is losing her ability to extend the spine and therefore she is succumbing to constant flexion because it feels normal. However, when she tries to extend the spine, it feels abnormal and painful. Doctor educated Rita that she should always stand upright and follow the correct standing posture guidelines.

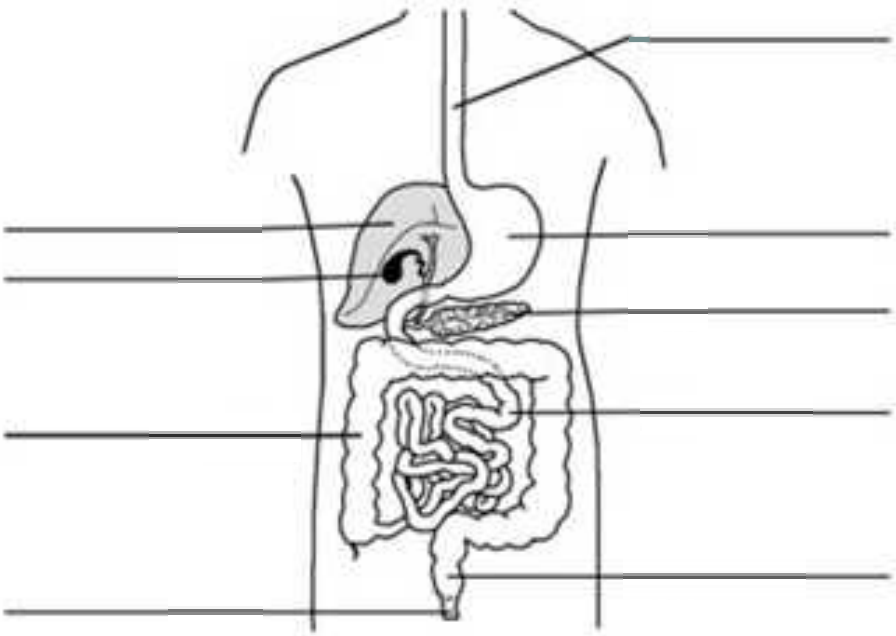
a. Why Rita developed a back pain?

b. Do you think applying pain relief ointment on back is a permanent solution to her back pain? If No, what she should do to overcome such development?

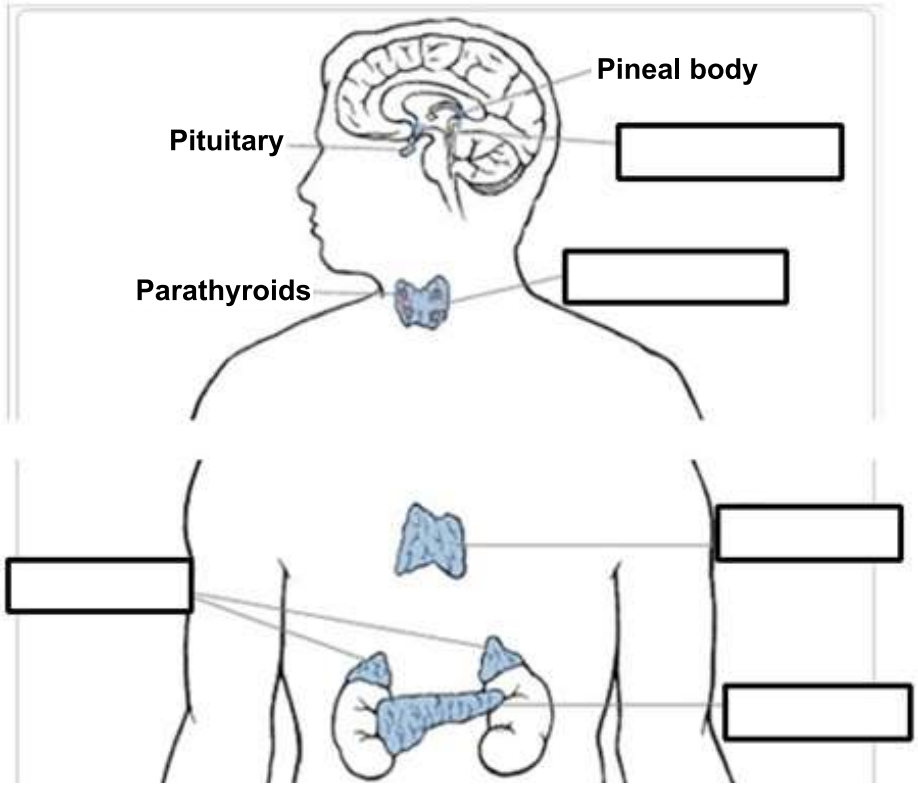
### B. Assignment

Q1. Name the organ shown below and label them.

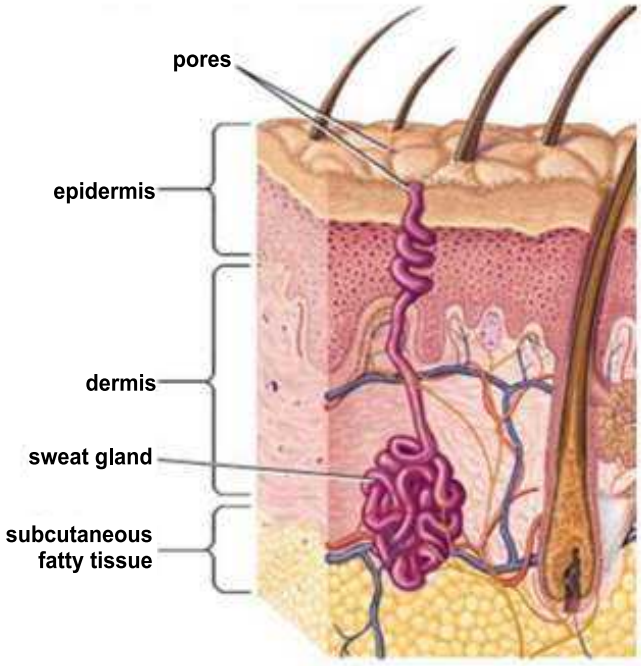
a) _____



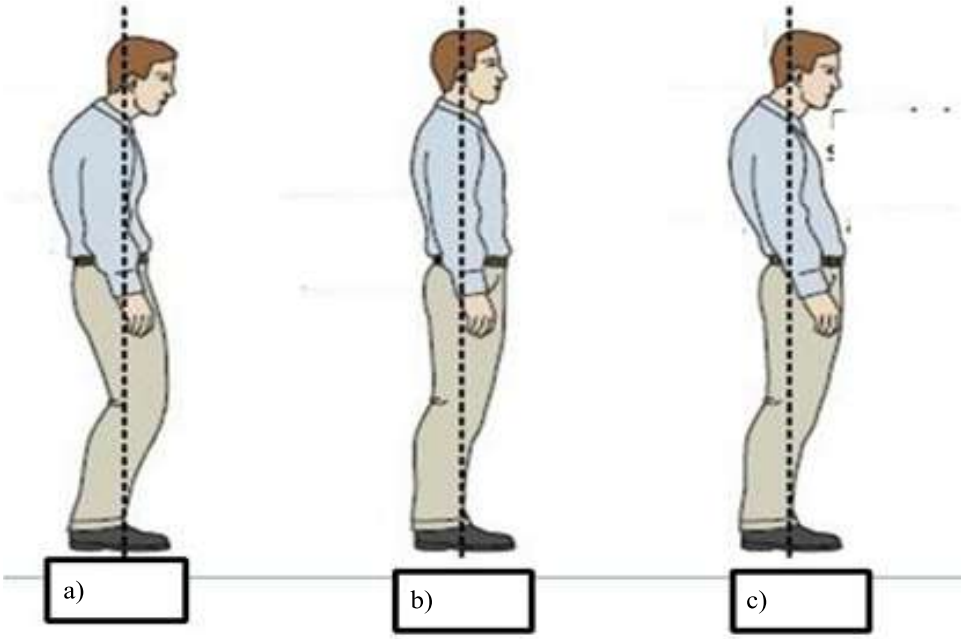
b) _____




Q2. Explain the functions of the body system shown below:



Q3. Identify the correct standing posture. (Tick in the box below)




1. Tick in the box for correct posture.
2. Write the symptoms of incorrect posture.

## Assessment

**Answer the following questions**

**A. Fill in the blanks**

1) _____is a muscular tube which pushes the food taken in from the mouth towards stomach.
2) Body organs and muscles are protected from shocks, physical abrasion and bacterial invasion by the _____ system which creates a physical barrier.
3) The lymphatic system is responsible for helping fluid and waste leave the body and for regulating the _____system.
4) Nutrients, oxygen, carbon dioxide, hormones are transported from and to different body system through_____ system.
5) Air moves in and out of the lungs due to the contraction and expansion of the _____.
6) In the circulatory system, _____ circulate due to pumping of the heart.
7) The sequential steps of _____involve the mouth, esophagus, stomach and intestines.

**B. Match the following**

| | | | |
|---|---|---|---|
| I. | Arteries | A. | Responsible for pumping blood throughout the body. |
| II. | Veins | B. | Carry blood back to the heart. |
| III. | Digestive system | C. | Breaks down food into simpler substances. |
| IV. | Excretory system | D. | Carry blood away from the heart. |
| V. | Circulatory system | E. | Responsible for removing waste from the body. |

**C. Differentiate between**

a) Arteries and Veins
b) Enzymes and Hormones
c) Metabolism and Digestion
d) Breathing and Respiration

**D. Short answer question**

1) Describe the respiratory process and its importance.
2) Explain the functions of all the endocrine glands.

**Checklist for Assessment Activity**

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Arteries and Veins
b) Enzyme and Hormone
c) Metabolism and Digestion
d) Breathing and Respiration

**Part B**

Discussed in class the following:

a) What are the important functions of skin?
b) What are the functions of endocrine system?
c) Why is it important to maintain good standing procedure?

**Performance standards**

The performance standards may include, but not limited to:

| **Performance standards** | **Yes** | **No** |
|---|---|---|
| Demonstrate the correct posture for standing | | |
| Demonstrate the correct posture for sitting | | |
| Identify human organ systems | | |

# Session – 2

## *Nutrition*

### Relevant Knowledge

### Nutrition

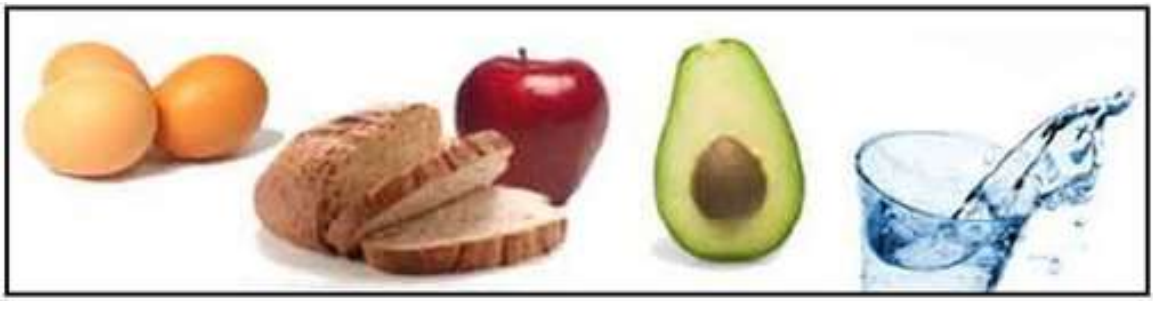
The word 'Nutrition' means the act or process of nourishing or of being nourished, a 'nutrient' means any substance that nourishes an organism. A nutrient can also be defined as a chemical that an organism needs to live and grow or a substance used in an organism's metabolism which must be taken in from its environment.

We need nutrients as they provide energy for our body, help build and repair tissues and regulate body processes. The food we take is our main source of nutrition; the food is digested by our digestive system and the nutrients are absorbed from this process.

### Nutritients

Organic nutrients include carbohydrates, fats, proteins (or their building blocks, amino acids), and vitamins. Inorganic chemical compounds such as dietary minerals, water, and oxygen may also be considered nutrients. Essential nutrients are the nutrient which are said to be "essential" if it must be obtained from an external source, either because the organism cannot synthesize it or produces insufficient quantities. Micronutrient & Macronutrient are needed in very small amounts are micronutrients and those that are needed in larger quantities are called macronutrients.

Nutrients are classified into 6 groups; they are carbohydrates, fats, proteins, vitamins, minerals and water.



**Protein** **Carbohydrate** **Fats** **Water**

1. Carbohydrates: A carbohydrate is an organic compound that consists only of carbon, hydrogen, and oxygen. Carbohydrates supply energy to our body; they also help in growth and maintenance of the body and provide fiber to the body. 50%-60% of calories required by body comes from carbohydrate. Some of the sources of carbohydrates are bread, rice, vegetables such as potatoes, green beans and corn. Other food items rich in carbohydrates are sugar, honey and fruits.

2. Proteins: are large biological molecules consisting of one or more chains of amino acids. Proteins are very important for our body as they help build and repair body tissues, fight infections and supply energy to the body. Some of the sources of proteins are meat, poultry, fish, eggs, milk, curds, peas and nuts.

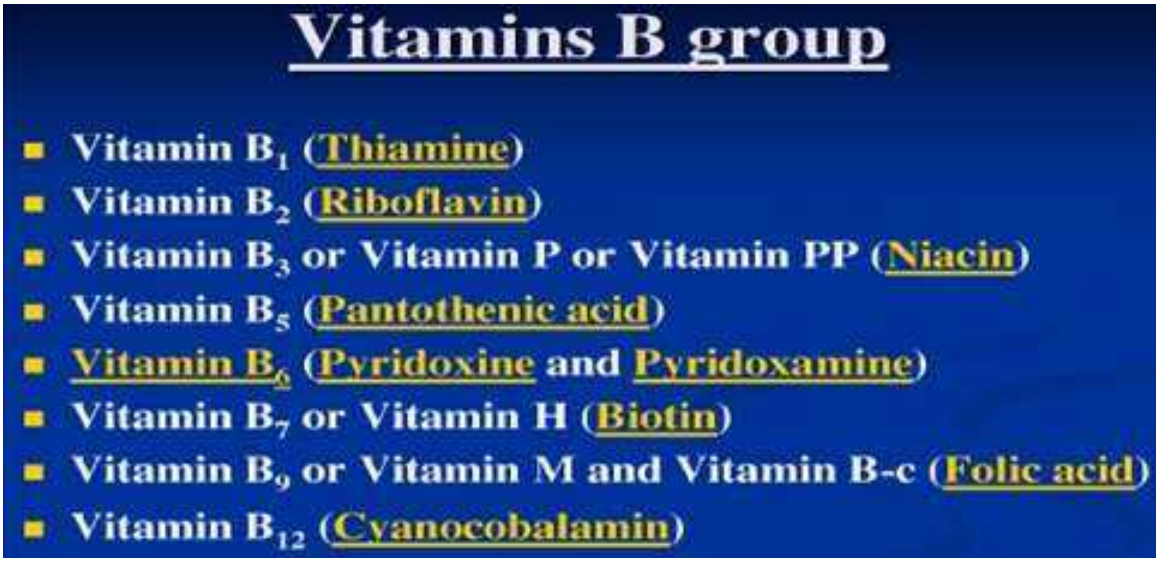
3. Fats: consist of a wide group of compounds that are generally soluble in organic solvents and generally insoluble in water. Fats supply concentrated sources of energy to our body; they also help in carrying vitamins essential to our body. Most importantly fats provide a feeling of fullness and satisfaction after each meal as our bodies generally take longer to digest fats.

4. Vitamins: A Vitamin is an organic compound required for our body; as a vital nutrient in limited amounts. Vitamins are further classified as Vitamins A, B, C, D, E and K. Vitamins play a vital in maintain a healthy body as each type of Vitamin provides plenty of benefits.

**a) Vitamin A**

- Helps keep eyes healthy and able to adjust to dim light.
- Helps keep skin healthy.
- Helps keep lining of mouth, nose, throat and digestive tract healthy and resistant to infection.
- Promotes growth: Food sources include liver, dark green and deep yellow vegetables such as broccoli, collards and other green leafy vegetables, carrots, pumpkin, sweet potatoes, winter squash.

**b) Vitamin B Complex**




**i. Thiamin (B1)**

- Helps body cells obtain energy from food.
- Helps keep nerves healthy.
- Promotes good appetite and digestion. Food sources include: meat, poultry, fish, dried beans and peas, nuts, enriched and whole-grain breads and cereals.

Vitamin B1 (Thiamine) is found in fortified breads. and cereals, fish, lean meats and milk.

**ii. Riboflavin (B2)**

- Helps cells use oxygen to release energy from food.
- Helps keep eyes healthy and vision clear.
- Helps keep skin around mouth and nose healthy.

Food sources include: milk, liver, meat, poultry, fish, eggs and green leafy vegetables.

**iii. Niacin (B3)**

- Helps cells use oxygen to release energy from food.
- Maintains health of skin, tongue, digestive tract and nervous system.

Food sources include: liver, meat, poultry, and fish, peanuts and peanut butter, dried beans and dried peas, and enriched and whole-grain breads and cereals.

**iv. Pantothenic Acid (B5)**

- Aids in the metabolism of fat.
- Aids in the formation of cholesterol and hormones.

Food sources include: liverwurst, meats, poultry, egg yolk, wheat germ, rice germ, tomato paste, sweet potatoes, oatmeal and milk.

**v. Pyridoxine (B6)**

- Needed to help nervous tissues function normally.
- Helps to maintain the health of the skin and red blood cells.
- Assists in the metabolism of proteins, carbohydrates, and fats.

Food sources include: Liver, meats, cereals, vegetables and milk.

**vi. Biotin**

- Essential in the breakdown of carbohydrates, lipids, and proteins in the body. Food sources include: liver, kidneys, egg yolk, vegetables and fruits (especially bananas, grapefruits, watermelon, and strawberries).

**vii. Folate (Folic Acid or Folacin) B9**

- Helps body produce normal red blood cells.
- Helps in the biochemical reactions of cells in the production of energy.
- Reduces the risk of neural tube birth defects in newborns.

Food sources include: most enriched breads, flour, corn meal, pasta, rice and other grain products; vegetables; mustard and turnip greens; liver; citrus fruit juices; and legumes.

**viii. Cyanocobalamin (B12)**

- Necessary in the development of normal growth.
- Helps in the metabolism of folate.
- Helps protect against pernicious anemia. (Pernicious anemia primarily results from the body's inability to absorb vitamin B12. However, it can result from a deficiency of vitamin B12 in the diet.)

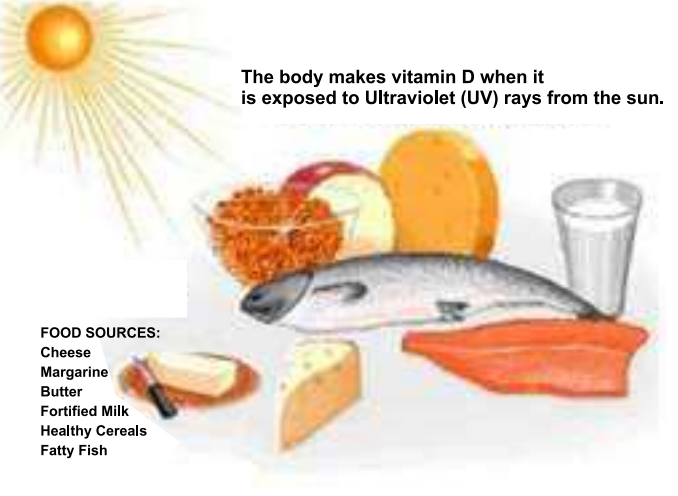
Food sources include: Liver, fish and seafood, meats, eggs, chicken, and milk.

**c) Vitamin C (Ascorbic Acid)**

- Helps form cementing substances such as collagen that hold body cells together, thus strengthening blood vessels and hastening healing of wounds and bones.
- Increases resistance to infections.
- Helps body absorb iron in the diet.
- Vitamin C is an essential compound of collagen, a protein found in the skin that gives it elasticity.

**Citrus fruits, green peppers, strawberries. tomatoes, broccoli and sweet and white potatoes are all excellent food sources of vitamin C (ascorbic acid)**

Food sources include: Grapefruit, grapefruit juice, honeydew melon, kiwi fruit, mango, orange juice, papaya, strawberries, asparagus, broccoli, brussels sprouts, cabbage, cauliflower, kale, sweet green sweet potato and red peppers.




**The body makes vitamin D when it is exposed to Ultraviolet (UV) rays from the sun.**

**e) Vitamin E**

- Active in maintaining the involuntary nervous system, vascular system, and involuntary muscles.

- Vitamin E is an antioxidant that also helps protect cells from free radicals. It works along with vitamin A for numerous skin benefits. This vitamin combination is often found in facial creams and other skin care cosmetics.

Food sources include: Vegetable oils, margarine (butter, cooking oil) made from vegetable oils.

**f) Vitamin K**

- Necessary for proper blood clotting.

Food sources include: Green leafy vegetables, milk, meat, eggs.

**5. Minerals** make 60 to 80% of all the inorganic material in our body. They can be further classified as micro-minerals and macro-minerals. Macro-minerals are minerals that your body needs in relatively large and steady doses. In contrast, trace minerals or micro- minerals are minerals that your body only needs in small amounts (usually less than 100 milligrams a day).

Macro-minerals are calcium, phosphorus, magnesium, sodium, chloride and potassium.

Micro-minerals are iron, zinc, copper, manganese, silica

**a) Calcium**

- Needed for bone rigidity.
- Helps in blood clotting.
- Aids in muscle contraction, normal nerve functions.

Food sources include: Milk (nonfat, low fat, and whole), yogurt, cheese, green leafy vegeatables such as kale, collards, mustard greens, and turnip greens.

**b) Phosphorous**

- Helps build strong bones and teeth.
- Aids in all phases of calcium metabolism.

Food sources include: Meat, poultry, liver, fish, eggs, milk, other dairy products, grain products, lima beans, legumes, nuts and seeds.

**c) Magnesium**

- Helps regulate body temperature, muscle contractions, and the nervous system.
- Helps cells utilize carbohydrates, fats, and proteins.

Food sources include: Green leafy vegetables, nuts (almonds, and cashews), meats, beef liver, salmon, cheddar cheese, milk, eggs, and dry beans and peas.

**d) Sodium, Chloride, Potassium**

**These three work together to:**

- Regulate the flow of fluids in the body.
- Help regulate the nervous system.
- Help regulate the muscle functions, including heart.
- Help regulate nutrient absorption in the cells.

Food sources include: Sodium and chloride are found in table salt. Potassium is found in meats, milk, bananas, leafy green vegetables and citrus fruits.

**e) Iron**

- Combines with protein in the blood to form hemoglobin.

Food sources include: Liver and other organ meats, egg yolks, dried legumes, ground beef, leafy green vegetables, shellfish, enriched breads, fortified cereals

**f) Zinc**

- Plays an important role in the formation of protein in the body, thus assists in wound healing, blood formation, and general growth and maintenance of all tissues.

Food sources include: Oysters, organ meats, beef, pork, chicken, turkey, wheat germ.

**g) Copper**

- Necessary in the formation of hemoglobin.

Food sources include: Liver, shell fish, nuts and seeds, prunes, whole-wheat grain and bran products, barley, lima beans, white and sweet potatoes, tomato juice, and turnip greens.

**h) Manganese**

- Necessary for normal development of bones and connective tissues.

Food sources include: Nuts, rice, whole grains, beans, and leafy green vegetables.

**i) Silica**

Silica (silicon dioxide) is a trace mineral found in the connective tissues (like the hair and skin) and is required in the body to keep nails, hair and skin in good health. It is also needed by the body to make collagen.

Food sources include: Cucumber, carrot, beetroot, pepper, raspberries

**j) Iodine**

- Needed by thyroid gland to produce thyroxine, which is essential for the oxidation rates of cells.

Food sources include: Iodized salt, ocean fish, seaweed, and milk.

**6. Water:** Water is the most important nutrient of all the nutrient groups. It is essential for life; it represents two-thirds of our body weight. It is the medium for all metabolic changes (digestion, absorption, and excretion). Helps transport nutrients and all body substances. Helps maintain body temperature and acts as a lubricant. Sources of water are drinking water, liquid foods, water in foods, and water released when carbohydrates protein, and fats are metabolized in the body.

| Nutrient | Beauty Benefits | Food Sources |
|---|---|---|
| Vitamin A | • Keeps skin soft and supple.<br>• Repairs skin cell and tissue.<br>• May help with acne control. | Yellow vegetables and fruits, apricots, carrots, spinach, pumpkin, cantaloupe, milk, yogurt, cheese |
| Vitamin C | • Helps counter the effects of sun damage, smoking exposure and pollution.<br>• Assists in collagen production, given skin strength and elasticity. | Broccoli, bell peppers, citrus fruits, kiwi, strawberries, cabbage, pineapple, tomatoes, dark-green leafy vegetables |
| Vitamin E | • Helps counter the effects of sun damage, smoking exposure and pollution.<br>• Improves skin texture and helps prevent wrinkles. | Almonds, avocadoes, peanuts, nuts, seeds, olives, asparagus, wheat germ, soybean and corn oils, dark-green leafy vegetables |
| Biotin | • Helps produce nails, skin and hair cells.<br>• Deficiency can cause dermatitis and hair loss. | Cooked eggs, rice bran, nuts, wheat germ, meats, oatmeal |
| Niacin | • Smoothes dry, flaky skin. | Meats, pork, poultry, fish, legumes |
| Selenium | • May help prevent skin cancer.<br>• Produces healthy skin cells. | Whole-grain products, seafood, meats, eggs |
| Copper | • Forms elastic fibers that support the skin structure. | Meats, nut, seafood, dried beans and peas |
| Zinc | • Can help control oil production and reduce acne lesions.<br>• A deficiency can bring on acne. | Wheat germ, meat, poultry, legumes, fish and seafood, whole grains, eggs |
| Essential Fatty Acids | • Helps produce the skin's healthy, natural oil barrier.<br>• Lubricates skin.<br>• A deficiency can result in white heads and inflammation. | Cold water fish, salmon, sardines, mackerel, flaxseed oil, safflower oil, canola oil, olive oil, walnuts |
| Antioxidants | • Anti-inflammatory properties protect the membranes of skin cells. | Green tea, blueberries, blackberries, strawberries |

By now we know the importance of various nutrients, vitamins, minerals. They help us in various body functions and play important role in living a healthy life. It is important that one should take the right amount of minerals and vitamins; otherwise it may lead to various disorders and diseases. The effects of nutrients are dose-dependent and shortages are called deficiencies. We can identify which nutrients we are not taking enough by carefully examine our body for relevant symptoms.

Malnutrition is the condition that results from eating a diet in which certain nutrients are lacking, in excess (too high an intake), or in the wrong proportions. The verb form is "malnourish"; "malnourishment" is sometimes used instead of "malnutrition". A number of different nutrition disorders may arise, depending on which nutrients are under- or over-abundant in the diet. In most of the world, malnutrition is present in the form of under-nutrition, which is caused by a diet lacking adequate calories and protein-not enough food, and of poor quality. Extreme undernourishment is starvation, and its symptoms and effects are inanition.

People who are malnourished may:

- not consume adequate calories and protein for growth and maintenance, such as undernutrition or protein–energy malnutrition (PEM)

- consume too many calories (over nutrition) have abnormal nutrient loss (due to diarrhoea or chronic illness) or increased energy expenditure (secondary malnutrition)

Undernutrition encompasses stunting, wasting, and deficiencies of essential vitamins and minerals (collectively referred to as micronutrients). The term hunger, which describes a feeling of discomfort from not eating, has been used to describe undernutrition, especially in reference to food insecurity.

The term "severe malnutrition" is often used to refer specifically to PEM. PEM is often associated with micronutrient deficiency. Two forms of PEM are kwashiorkor and marasmus, and they commonly coexist.

Kwashiorkor is mainly caused by inadequate protein intake resulting in a low concentration of amino acids. The main symptoms are edema (A condition characterized by an excess of watery fluid collecting in the cavities or tissues of the body), wasting (deterioration of an individual, usually with loss of strength and muscle mass; it may be accompanied by loss of appetite, which makes it worse), liver enlargement, hypoalbuminaemia (levels of albumin in blood serum are abnormally low.), steatosis (nfiltration of liver cells with fat, associated with disturbance of the metabolism), and possibly depigmentation of skin and hair. Kwashiorkor is identified by swelling of the extremities and belly (lower abdomen).

Marasmus is caused by an inadequate intake of protein and energy. The main symptoms are severe wasting, leaving little or no edema, minimal subcutaneous fat, severe muscle wasting, and non-normal serum albumin levels. Marasmus can result from a sustained diet of inadequate energy and protein, and the metabolism adapts to prolong survival. It is traditionally seen in famine, significant food restriction, or more severe cases of anorexia. Conditions are characterized by extreme wasting of the muscles and a gaunt expression.

Please look below for nutrient vs symptoms due to its deficiency.

| Nutrient | Symptoms |
|---|---|
| Vitamin A | Poor night vision; dry, rough, or cracked skin; dry mucous membranes including the inside of the eye; slow wound healing, nerve damage; reduced ability to taste, hear, and smell; inability to perspire; reduces resistance to respiratory infections |
| Vitamin D | In children: rickets (weak muscles, delayed tooth development, and soft bones, all caused by the inability to absorb minerals without vitamin D) Vitamin D |
| Vitamin E | Inability to absorb fat |
| Vitamin K | Blood fails to clot |
| Vitamin C | Scurvy (bleeding gums; tooth loss; nosebleeds; bruising; painful or swollen joints; shortness of breath; increased susceptibility to infection; slow wound healing; muscle pains; skin rashes) |
| Thiamin (Vitamin B1) | Poor appetite; unintended weight loss; upset stomach; gastric upset (nausea, vomiting); mental depression; an inability to concentrate |
| Riboflavin (Vitamin B2) | Inflamed mucous membranes, including cracked lips, sore tongue and mouth, burning eyes; skin rashes; anemia |
| Niacin | Pellagra (diarrhea; inflamed skin and mucous membranes; mental confusion and/or dementia) |
| Vitamin B6 | Anemia; convulsions similar to epileptic seizures; skin rashes; upset stomach; nerve damage (in infants) |

| Nutrient | Symptoms |
|---|---|
| Folate | Anemia (immature red blood cells) |
| Vitamin B12 | Pernicious anemia (destruction of red blood cells, nerve damage, increased risk of stomach cancer attributed to damaged stomach tissue, neurological/psychiatric symptoms attributed to nerve cell damage) |
| Biotinthan | Loss of appetite; upset stomach; pale, dry, scaly skin; hair loss; emotional depression; skin rashes (in infants younger than 6 months) |
| Calcium | Brittle nails. cramps, delusions, depression, insomnia, irritability, osteoporosis (with age, female capacity to absorb calcium reduces, therefore bones become susceptible to fracture), palpitations, peridontal disease, rickets, tooth decay |
| Chromium | Anxiety, fatigue, glucose intolerance, adult-onset diabetes |
| Copper | Anemia, arterial damage, depression, diarrhea, fatigue. fragile bones, hair loss, hyperthyroidism, weakness |
| Essential fatty acids | Diarrhea, dry skin and hair, hair loss, immune impairment, infertility, poor wound healing, premenstrual syndrome, acne, eczema, gall stones, liver degeneration |
| Iodine | Cretinism, fatigue, hypothyroidism, weight gain. goiter |
| Iron | Anemia, brittle nails, confusion, constipation, depression, dizziness, fatigue, headaches, inflamed tongue, mouth lesions |
| Magnesium | Anxiety, confusion, heart attack, hyperactivity, insomnia, nervousness, muscular irritability, restlessness, weakness |
| Manganese | Atherosclerosis, dizziness, elevated cholesterol, glucose intolerance, hearing loss, loss of muscle control, ringing in ears |
| Potassium | Acne, constipation, depression, edema, excessive water consumption, fatigue, glucose intolerance, high cholesterol levels, insomnia, mental impairment, muscle weakness, nervousness, poor reflexes |
| Selenium | Growth impairment, high cholesterol levels, increased incidence of cancer, pancreatic insufficiency (inability to secrete adequate amounts of digestive enzymes), immune impairment, liver impairment, liver impairment, male sterility |
| Zinc | Acne, amnesia, apathy, brittle nails, delayed sexual maturity, depression, diarrhea, eczema, fatigue, growth impairment, hair loss, high cholesterol levels, immune impairment, impotence, irritability, lethargy, loss of appetite, loss of sense of taste, low stomach acid, male infertility, memory impairment, night blindness, paranoia white spots on nails, wound healing impairment |

## Balanced Diet

A balanced diet is one that provides the body with all the essential nutrients, vitamins and minerals required to maintain cells, tissues and organs as well as to function correctly. A diet that is lacking in nutrients can lead to many different health problems ranging from tiredness and lack of energy to serious problems with the function of vital organs and lack of growth and development.

A balanced diet needs to contain foods from all the main food groups in the correct proportions to provide the body with optimum nutrition. The main food groups are Fruits & vegetables, Protein, Diary, Carbohydrates and fatty & sugary food. Every person is different and hence the correct diet for health may vary from person to person, however by following a diet that is varied, covers all foods groups and is low in undesirable nutrients such as sodium, saturated fats and sugar, you are well on your way to a healthy body.

## Guideline Daily Amounts (GDAs)

Nutritional needs vary depending on sex, size, age and activity levels. So use this chart as a general guide only. The chart shows the daily amounts recommended for a healthy, balanced diet for maintaining rather than losing or gaining weight. Typically women need fewer nutrients than men with the exception of salt and fibre.

**Guideline daily amounts**

| | Men | Women |
|---|---|---|
| Energy (kcal) | 2500 | 2000 |
| Protein (g) | 55 | 45 |
| Carbohydrates (g) | 300 | 230 |
| Sugar (g) | 120 | 90 |
| Fat (g) | 95 | 70 |
| Saturates (g) | 30 | 20 |
| Fibre (g) | 24 | 24 |
| Salt (g) | 6 | 6 |

## Main Food Group for Balanced Diet

All foods we eat fit into one of these five groups. These five groups, which we'll go into more detail about, are:

- Fruit & Vegetables
- Protein
- Dairy
- Carbohydrates
- Fatty & Sugary foods

## Fruit and Vegetables

**Why it's important:** Fruits and vegetables provide your body with lots of vitamins and minerals which are hard to come by in other areas of your diet. They also have a high water and low fat content so are a good choice for snacks.

**How much fruits and vegetables you need:** As you probably know, the general guideline is to eat at least five portions per day. These portions must be of five different fruits and vegetables to make sure that you get a variety of vitamins and minerals.

**How to bring it into your diet:** The easiest way to raise the amount of fruit and vegetables that you eat is to snack on them rather than chocolate and crisps. But as well as that, here are some simple ways to include fruits and vegetables in your diet;

- Glass of fresh fruit juice with your breakfast.
- Berries or other fruit sprinkled over your breakfast cereal.
- Portion of dried fruit as a mid-morning snack.
- A salad with lunch.
- A portion of steamed vegetables with your evening meal.
- Sweet fruit such as strawberries as a desert.
- Vegetable soups.

**Protein**

Why it's important: Protein's main function is for growth and repair, so it's required for hair and nail growth, repair of nerve cells, muscle growth and repair, and healing injuries.

**How much do you need:** The recommended daily amount of protein for an adult woman is 45g, and the recommended daily amount for an adult man is about 55.5g per day. If you regularly exercise or are trying to build more muscle, then more protein will be required in your diet. To make it easier to decide whether or not you are consuming enough protein, it's suggested that you eat 2-3 portions a day. Some examples of what is considered as a portion are: 100g meat, poultry or fish, 2 eggs, 3tbsp nuts, seeds or beans.

**How to bring it into your diet:** Here are some ways of increasing your protein intake;

- Spread peanut or almond butter over your toast at breakfast.
- Try sprinkling seeds or nuts over a salad for lunch handful of peanuts/ chana/ almonds/ walnuts/khakhra.
- Have a tuna sandwich with seeded bread at lunch.
- Try soy-based yogurts in place of what you usually buy.
- Always include a portion of meat/poultry/fish in your main meal.

**Dairy**

**Why it's important:** Dairy is a very good source of calcium. Calcium is important as it helps to promote strong bones and teeth. As well as this, it also regulates muscle contraction, which includes the heartbeat, so it's very important.

**How much do you need:** It's recommended for adults to aim for three portions of dairy per day. If you are worried about your fat-intake then opt for low-fat versions. Here are some ideas of what counts as a portion; 200ml milk, 250ml soya-milk with calcium, 30g cheese, 1 pot of yoghurt. Children and teenagers also need plenty of dairy in their diet since their bones are still developing.

**How to bring it into your diet:** If you want to increase the amount of calcium that you consume, then here are some ways of adding it to your diet;

- Obvious, but pouring milk over your cereal or oatmeal
- Some dried fruit contains small amounts of calcium so try sprinkling some over your cereal or eat a handful as a snack.
- Eat a spinach-based salad with toasted almonds or sesame seeds sprinkled over it.
- Have a cheese sandwich for a lunch on the go.
- Have a mug of warm milk, or hot chocolate made with milk before bed.

## Carbohydrates

**Why it's important:** Most carbohydrates provide a long lasting, slow release of energy which prevents an energy crash throughout the day. They are generally low in fat yet are still filling, which means you are less likely to snack on less healthy things in between meals. The best type of carbohydrates is whole-grain products. Whole grain is widely available in many types of carbohydrates, and their importance is becoming more widely known. Whole grain provides many useful nutrients which are stripped away in refined grains. They contain fibre which promotes a healthy digestive system, protein (which you already know the importance of), vitamins and minerals, and carbohydrate (mainly in the form of starch). They are also rich in anti-oxidants which prevent cancer, heart disease and diabetes.

**How much do you need:** It's recommended that about a third of each meal you eat should be carbohydrates of some sort. You should also be aware of which carbs you are choosing in order to get the most out of your portions. Eating too much will lead to weight gain, but gram carbohydrates contains fewer calories than fat and protein.

**How to bring it into your diet:** Each meal should be based on a complex carbohydrate, along with vegetables and protein. Here are some ideas on how to bring whole-grain into your daily diet;

- Look for whole-grain cereals such as porridge oats, or wholegrain bread to toast for your breakfast.
- At lunch opt for more protein than carbs as a large carbohydrate meal can leave you feeling sleepy.
- There are many ways of cooking potatoes to go with your evening meal, such as making wedges, mashing potato, boiling, roasting and even shallow frying.
- Switch from what you normally buy to whole grain pasta and rice instead of white.

**Fatty and sugary foods:**

While many people assume that fat and sugar should be cut out if you want to be healthy, this is wrong. It's important to include a little bit in your diet, it's just all about finding the correct balance. Besides, if you never treat yourself then one day you're going to binge on lots of unhealthy food, and that's really not good for you.

**Why it's important:** Fat is good for you in small amounts as it transports fat-soluble vitamins (A,D,E & K) around the body, and it also supplies essential fatty acids. These essential fatty acids have to be supplied through diet, and research suggests that they improve your immune system as well as heart health. Fat is stored under the skin as a fuel reserve, so it's good to have a bit there, especially as it also cushions your organs. You do need to be aware though, that too much fat will cause obesity- related diseases, so just consume it in moderation.

**How much do you need:** 1g of fat contains 9 calories, this means that it's really easy to over eat and gain weight when eating fatty foods, so you really should keep record of it. General guidelines suggest that fats should make up, at the most, 35% of the energy in your diet, and that saturated fats should cover less than 11% of your total energy intake, (this works out at 70-95g of fat per day at most). As for sugar, sugary food should only be eaten at mealtimes to prevent tooth decay, and other than naturally occurring sugars, you should attempt to reduce your intake as much as possible. Over-eating of sugary foods can lead to diabetes and obesity.

**How to bring it into your diet:** rather than listing ways to get a fatty diet, which we all know too well, we will discuss about the ways of reducing your fat/sugar intake, and ways of replacing your bad fats/sugars with better versions.

- Cook food with vegetable oil instead of butter or lard.
- Warm olive oil can be used on bread as a replacement for butter or margarine.
- Make a salad dressing out of virgin olive oil rather than using salad cream or mayonnaise.
- Find alternatives for your unhealthy snacks, you could snack on seeds, nuts, raw vegetables or fruit rather than chocolate or crisps.
- Grill meat and fish rather than frying it to reduce the fat content. When grilling meat you should make sure that there is drainage for the fat so that it doesn't stay in the meat.
- Look for lean meat in the supermarket and always cut off fatty excess on meat before cooking.
- Choose reduced-fat dairy produce.

**Sample diet: Normal human being diet plan**

| Meals | Time | What to have |
|---|---|---|
| **Before breakfast** | 7 a.m. - 8 a.m. | • (Within half hour of waking up) – Any mid-size fruit. (mango, apple, banana, bowl of papaya, muskmelon, watermelon, orange,) |
| **Breakfast** | 8 a.m. - 9 a.m. | • Serving of carbs with lean protein (museli/oat, poha, upma, sandwich, idli-sambhar, dosa, pancakes, sprouts salad) + milk products (Milk, cheese, curds) |
| **After Breakfast** | 10 a.m. - 11 a.m. | • Handful of peanuts/ chana/ almonds/ walnuts/khakhra etc. |
| **Lunch** | 12:30 p.m. - 1:30 p.m. | • 4 chapati/1 tbsp rice + 1 bowl dal/pulses + 1 bowl vegetable(leafy one is preferred) + few pieces of raw veggies (salad) 1 bowl curd/ 1 cup milk/ 1 cheese slice |
| **Afternoon snack** | 5:30 p.m. - 6:30 p.m. | • Brown bread sandwich/ khakhra with cheese spread/ dhokla / idli /plain dosa any fruit/ milk/ butter milk |
| **Dinner** | 8:30 p.m. - 9:30 p.m. | • 1-2 chapati / 1 tbsp long grain rice + dal + salad + 1 bowl veg. |
| **Before bed** | 10:30 p.m. - 11 p.m. | • 1 glass plain milk. |

**Nutrition value based on previous table**

| | |
|---|---|
| Energy | 2200 calories |
| Calcium | 1.1 gram |
| Iron | 43 milligram |
| Retinol (vitamin A) | 800 microgram |
| Thiamin (vitamin B1) | 1.9 milligram |
| Riboflavin (Vitamin B2) | 1.4 milligram |

## Different types of diet

A diet is not necessarily food which will help you lose weight. It merely means food which someone eats or need to eat to maintain the body mass as per their weight, age and height.

Alteration in diet plans is required to meet the daily requirement to maintain weight i.e. for weight gain or weight loss, to build muscles by a body builder and athlete, to gain more energy to keep up with sports activities by athletes

We will now discuss a few guidelines that one should follow for:

i. Weight gain

ii. Weight loss

iii. Sports or athletes diet

iv. Body building

Vitamin B1
is found in fort
and cereals, fish, lean meat

## Weight gain diet

A healthy diet is required if you are underweight. You would need to add more protein and carbohydrate in your diet to gain appropriate weight.

While there are numerous supplements in the market that might help increase daily caloric intake, they have no real benefits when compared to smart food and lifestyle choices, which are a healthier option in the long run.

1. **Choose dairy products, eggs, fish and meat over bread and vegetables.** Eat foods with high protein content such as beans, pulses and peas, and foods with high starch content such as potatoes, rice and tapioca.
2. **Eat snack more often.** Consume a lot of high-calorie snacks (not junk food) such as cheese sticks, milk shakes, muffins, dried fruits, yoghurt and breakfast bars. Also, eat larger portions and eat at least five meals a day.
3. **Drink a lot of fluids** that supply nutrients and calories like milk, fresh fruit juices and energy drinks.

4. **You need to exercise** really hard and intensely to gain muscle mass. Focus on free weight exercises (which do not require machinery) that target your large muscle groups. For example, you need dumbbells, not fancy gym machines. If you have a high metabolic rate -which means you expend a lot of energy even at rest-you need short intense workouts instead of long periods of low-stress activity.

5. **Be consistent.** It might take a long time, usually a few months, for the weight to actually show. Some people get frustrated and quit when they fail to see drastic results. But no weight gain program will work for you if you are not regular!

- **Remember:** Heredity does play a major role in determining your weight. Effective weight training and a smart diet can help you exceed your genetically predetermined weight, but only to a certain extent.

Here we present you with a diet chart that you may follow to put on extra weight:

**Sample Plan: Nutrition Chart to Gain Weight**

| Meals | Time | What to have |
|---|---|---|
| **Before breakfast** | 7 a.m. - 8 a.m. | • A cup of tea or cappuccino will full fat milk and sugar. |
| **Breakfast** | 8 a.m. - 9 a.m. | • Two multigrain breads with low fat butter and egg omelet.<br>• A bowl of corn flakes, oats, or porridge.<br>• Poha, upma or some daliya khichdi with lots of veggies.<br>• Two chapattis with a bowl of veggies or two stuffed paranthas.<br>• Fruits with a glass of fruit juice.<br>A glass of full fat milk with some health drink. |
| **After breakfast** | 10 a.m. - 11 a.m. | • A small bowl of rice with two chapattis. |
| **Lunch** | 12:30 p.m. - 1:30 p.m. | • A bowl of pulses (Masoor, moong, chana)<br>• A bowl of wet veg curry<br>Two chicken pieces, fish, eggs or paneer.<br>• Green salad comprising of cucumber, cabbage, radish, carrot and tomatoes. |
| **Afternoon snack** | 5:30 p.m. - 6:30 p.m. | • A small bowl of sweet curd.<br>• Vegetable or chicken soup with some butter. |
| **Dinner** | 8:30 p.m. - 9:30 p.m. | • Veg sandwich with cheese or mayo.<br>• Similar diet as lunch, avoid rice and go for dry veg curry. |
| **Before bed** | 10:30 p.m. - 11 p.m. | • A glass of milk |

## Weight Loss Diet

For weight loss, one should be eating a diet that minimizes starches, added sugars, and animal fat from meat and dairy foods. For rapid weight loss, focus on fruits, veggies, egg whites, soy products, skinless poultry breasts, fish, shellfish, nonfat dairy foods, and 95% lean meat.

1. **Avoid junk food:** Junk food from cookies to burger should be avoided. They have lot of calories. Eat lot of vegetables, fresh fruits, soups, sprouts, mixed salad greens with assorted raw vegetables (carrots, red cabbage, celery, broccoli, onion, etc.)
2. **Exercise every day**. 30 mins of brisk walk, jogging, dancing, cycling or aerobics.
3. **Include foods which burn fat for you.** There are many foods out there that are proven to help you to lose weight, foods such as chilli, green tea, berries and whole grain can help you by keeping your metabolic rate balanced.
4. **Drink more water**. But avoid taking water along with the meal.
5. **Don't skip meals.**

**Sample Plan: Nutrition Chart to lose Weight**

| Meals | Time | What to have |
|---|---|---|
| **Before breakfast** | 7 a.m. - 8 a.m. | • Lemon juice and honey in lukewarm water; this helps your body to get rid of harmful acids produced by the body. Choose any one or two from the following options |
| **Breakfast** | 8 a.m. - 9 a.m. | • Egg white omelet (2) + 2 slices of brown bread,<br>• Milk (Skimmed Milk) +Cornflakes/ Oats /Wheat bran<br>• Fruit salad / Sprouts.<br>• Vegetable Poha / Upma<br>• Skimmed milk cottage cheese + Brown Bread<br>• Take black coffee before the afternoon meal this helps in boosting metabolism. |

| | | |
|---|---|---|
| **After breakfast** | 10 a.m. - 11 a.m. | • Boiled / Roasted Chicken/ Soyabean (200 grams) +Brown Rice (½ plate) /Chapatti (1)<br>OR<br>• Boiled Dal +salad + Brown Rice (1/2 plate) / Chapatti (1-2)<br>AND<br>• Take Probiotic curd (100grams) as it helps in digestion. |
| **Lunch** | 12:30 p.m. - 1:30 p.m. | • Vegetable Daliya<br>• Take some citrus fruits to satisfy the hunger pangs in the evening, |
| **Afternoon snack** | 5:30 p.m. - 6:30 p.m. | • Green tea with two Marie Lite biscuit<br>• Boiled Channa<br>Choose any one or two from the following options |
| **Dinner** | 8:30 p.m. - 9:30 p.m. | • Boiled Soybean Nutrela/ soup + salad,<br>• Boiled Egg White (3) + Vegetable clear soup Chicken, vegetable or Tuna salad.<br>• Boiled Dal<br>• Vegetable Daliya |
| **Before bed** | 10:30 p.m. - 11 p.m. | • 150-200 ml of skimmed milk. |

## Diets for Athletes

Athletes' diets are typically different than the diets of people who are trying to maintain or lose weight. Athletes need proper nutrition to fuel their bodies, as well as the proper amount of calories necessary to provide energy for their heightened activity level. Different types of athletes may have different diet plans, but all need to follow basic nutrition fundamentals.

1. **Carbohydrates:** Carbohydrates give your body the energy it needs to be active. When you don't eat enough carbohydrates, your body can become exhausted during exercise. 55 and 60 percent of an athlete's diet should be made up of carbs. Avoid carbs that are high in sugar or made with refined flours. Avoid cakes and pastry.

2. **Protein:** Not required to follow a diet which is extremely high in protein. Just eat two or three servings of lean protein each day. Good choices include eggs, low-fat dairy products and lean meats, such as poultry or fish.

3. **Fat:** An athlete needs to consume an adequate amount of fat to prevent losing too much weight like unsaturated fats, such as those found in olive oil and avocados. Do not eat fatty foods right before practice or a game, because doing so may make you feel sick and tired.

4. **Water:** Water is an important nutrient for the athlete. Athletes should start any event hydrated and replace as much lost fluid as possible by drinking chilled liquids at frequent intervals during the event, exercise and practice.

**Body building diet:** Mostly it comprise of extremely high protein diet. Certain supplementary proteins are also taken to build muscles. But it can be dangerous. Such diets should be discussed and decided by gym trainer/dietician. Carbohydrates are also required as lot of energy is utilized while weight lifting and stretching exercises. However, more proteins diet is taken as it is required to gain body mass.

## Exercise

### Narrative

Rahul is a 15 year old boy. He is a very active and intelligent boy; he loves playing cricket and is very good at studies. Recently, Rahul started feeling very tired after playing cricket and hence is not able to pay attention to his studies; as a result his grades started going down. His worried parents consulted the local physician and it was found that he is suffering from Vitamin B deficiency! As we all just studied, Vitamin B helps our body absorb energy from the food we take. Although Rahul was taking food regularly he was not eating enough green leafy vegetables which is a rich source of Vitamin B, and hence his body was not able to absorb energy from the most of the foods he was taking. The physician recommended that, Rahul should take green leafy vegetables daily. Rahul did so and soon he was able to concentrate on his studies and get his grades back up to good standing and his overall appearance also improved.

## Assignment

Fill the below table as per your diet you took a day before and answer the questions

| Meals | Time | What to have |
|---|---|---|
| **Before breakfast** | 7 a.m. - 8 a.m. | |
| **Breakfast** | 8 a.m. - 9 a.m. | |
| **After breakfast** | 10 a.m. - 11 a.m. | |
| **Lunch** | 12:30 p.m. - 1:30 p.m. | |
| **Afternoon snack** | 5:30 p.m. - 6:30 p.m. | |
| **Dinner** | 8:30 p.m. - 9:30 p.m. | |
| **Before bed** | 10:30 p.m. - 11 p.m. | |

Based on the information filled by you answer few questions below:

Q1. Divide the list of foods into four main food groups

a. Fruit & Vegetables

b. Protein

c. Dairy

d. Carbohydrates

e. Fatty & Sugary foods

## A. Case based problem

**Case Study**

A 25 year old girl was experiencing joint pain and finding difficulty while walking or holding things (weak muscles). When she consulted a Doctor, he prescribed her vitamin D tablets and asked her to eat vitamin D rich food.

Q1. Why do you think Doctor prescribed vitamin D tablets?

Q2. If you were asked to have vitamin D rich food what natural source of food you would have taken?

## B. Project

Make a collage using pictures of different fruits, vegetables and food products and divide them as per the nutrients they provide.

**Assessment**

**Answer the following questions**

### A. Fill in the blanks

1. N_____ is known as the act or process of nourishing or of being nourished.
2. C_____ is the nutrient, which supply energy and fiber to the body.
3. Meat, poultry, fish, eggs, milk, curds, peas and nuts are the source for P_____.
4. Vitamin _____help keep mouth, nose, throat and digestive tract free from infection and promotes growth.
5. Exposure to sunlight is a source for vitamin _____.

### B. Short answer questions

Q1. What food should we eat to keep our nails, skin and hair healthy?

Q2. Differentiate between:

a) Micro minerals and Macro minerals

b) Vitamin A and Vitamin C

## C. Multiple choice questions

1. The percentage of total calories obtained from carbohydrates should be between-

   a) 15- 20%

   b) 20-35%

   c) 50-60%

   d) 5-10%

2. All are true about milk as a diet except-

   a) It is low in iron content but rich in calcium, sodium and potassium

   b) The major carbohydrate is lactose

   c) The chief proteins are caseinogens and lactalbumin

   d) It is rich in vitamin C and D but poor in Vitamin A and Riboflavin.

3. In a child suffering from marasmus which of the following clinical manifestation is not observed?

   a) Watery diarrhea with acid stools

   b) Subnormal temperature

   c) Visible peristalsis from thin abdominal wall

   d) Generalized edema.

4. A child has presented with growth retardation, inability to walk and bruises all over the body. Which of the following nutrients should be recommended as a supplement to the diet?

   a) Milk

   b) Egg yolk

   c) Citrus fruits

   d) Pulses

Q2. Differentiate between:

   a) Micro minerals and Macro minerals

   b) Vitamin A and Vitamin C

C. delayed wound healing

a) A & B

b) A & C

c) A,B & C

d) None of the above

6. Choose the symptoms caused by the deficiency of Vitamin C

A. Night blindness

B. bleeding gums with loosened teeth

C. delayed wound healing

a) A & B

b) B

c) A,B & C

d) A & C

7. Choose the reason for Anemia.

A. Deficiency of Vitamin B1

B. Deficiency of Iron

C. Not having enough green and leafy vegetable.

a) A & B

b) B & C

c) A,B & C

d) A & C

8. Choose the correct answer for overcoming Goiter

A. Should have carbohydrate rich food

B. Should have iodized salt to meet the daily requirement of iron

C. Should have iodized salt to meet the daily requirement of iodine

a) A & B

b) B & C

c) C

d) A & C

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Vitamin and minerals

b) Micro minerals and Macro minerals

c) Vitamin A and Vitamin C

**Part B**

Discussed in class the following:

a) What are six major groups of nutrients?

b) Why nutrients are important for our health?

c) Why mineral important for our health?

d) Why Vitamin C is important?

e) What nutrients are required to keep our nails, skin and hair health?

## Performance Standards

The performance Standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Identify the nutrient which is necessary for healthy skin. | | |
| Identify food sources for various nutrients required by human body | | |
| identify the nutrient deficit based on symptoms | | |
| Prepare a diet plan | | |

# Session – 3

## *Basic of Cosmetology*

### Relevant Knowledge

### Definition

Cosmetology is the study of cosmetics and their uses. The root word of cosmetology is "cosmetic," which is Greek in origin. Cosmetic comes from two Greek words, "kosmetikos," meaning skilled in adornment, and "kosmein," meaning to arrange, adorn.It is the study of hair, nail and skin care. It is the field for barbers, beauticians, make-upartists, manicurists, and estheticians.

History - Cosmetology dates back to ancient Egypt, with today's equivalent of makeup artists and wig stylists producing the look of darkly lined eyes and hair styles many associate with the ancient civilization. Earlier civilizations used cosmetics on nobility and the wealthy to indicate status. In today's society, cosmetics are available to everyone, regardless of wealth or social status.

Cosmetology has developed into a career that requires educational experience and certification to legally practice. Cosmetology is the study of beauty treatment for skin, hair, and nails. Branches of specialty include hairstyling, skin care, cosmetics, manicures/ pedicures, and epilation. Many chemicals in salon products pose potential health risks. The majority of which are not well regulated. Examples of hazardous chemicals found in common treatments (i.e. hair coloring, hair straightening, perms, relaxers, Keratin treatments, Brazilian blowouts and nail treatments) include dibutyl phthalate, formaldehyde, lye (sodium hydroxide), ammonia and coal tar. It is important to understand these risks and take appropriate measures to reduce exposure.

### Chemistry as Applied to Cosmetics

Cosmetics are classified according to their chemical and physical structure and by the characteristics by which they are recognised. It is necessary for the cosmetologist to know what type of cosmetic is being used what are the desirable qualities in the product and what effects to expect. He must have a rough knowledge of how they are prepared and commonly used terms in relation to cosmetics.

Physical and Chemical Classification of Cosmetics

1. Powders
2. Solutions
3. Soaps
4. Emulsions — oil in water or water in oil
5. Suspensions
6. Ointments

1. **Powders** are a uniform mixture of organic inorganic and coloured substances finely mixed with perfume and sometimes colour to a consistancy that has no gritty particles.

2. **Solutions**

**Solute** is a substance dissolved for making a solution. May be solid, liquid, or gas.

**Solvent** is a liquid is used to dissolve the solute.

**Solutions** are permanent and clear mixtures produced by dissolving a solute in a solvent. A good solution should not separate into separate surfaces of solute and solvent on standing. It is usually easy to prepare solutions in a warm solvent compared to a cold one. Solutions may be filtered if they are cloudy.

## Types of Solvents

**Water** is a universal solvent. It is the most commonly used, dissolves more substances than any other. For cosmetics usually sterile and filtered water is used. Alcohol is used in many cosmetics as a solvent. Since alcohol and ammonia evaporate on exposure to atmosphere, they should be kept in a cool place with tightly fitted corks. Substances that evaporate are known as volatile substances, acetone, ammonia, alcohol are common example. Glycerine is commonly used too.

Sometimes water and oil are used in the same substance as solvents but they do not mix easily. They are known as immiscible (do not mix). Substances that mix easily like glycerine and water are known as miscible (mixable).

**Types of Solutions** -Depending on the quantity of the solute in the solvent, solutions can be referred to as:

- Weak solutions or dilute solutions.
- Concentrated solution with large amount of solute.
- Saturated solutions when the solute content is to its maximum.

3. **Soaps-**Soaps are compounds of an alkali and fat or oil. Common alkalies used are potassium hydroxide for soft soap and sodium hydroxide for hard soap. Commonly used fats are lard, palm oil, coconut oil, neem oil, olive oil and groundnut oil. In fact, list of oils is exhaustive. Glycerine soaps are gentle. The amount of free alkalies in a soap determines the harshness or softness of a soap. Sulphonated oils make detergent type of soaps.

4. **Emulsion -** Emulsions are permanent mixture of two or more immiscible substances like water and oil. Depending on the amount used, they are classified as water in oil or oil in water emulsions. To keep the emulsion stable a binder (gum) or a emulsifier (soap) is used. Wax is used as a thickening agent. Most creams fall into this category. Creams can be thick or thin depending on the amount of wax and the proportion of water and oil used.

5. **Suspensions -** These are mixtures of immiscible substances. In a suspension, the fluid and solid substance separate and have to be shaken every time before use. Common example is calamine lotion. Suspensions are not filtered and are not permanent mixtures like the other products. Some skin lotions specially those for acne fall into this category.

6. **Ointments -** Ointments are not commonly used in cosmetics. They are more a part of the medicinal applications. Common base products used are lard, petroleum jelly and wax. No water is added. Medicinal agents are added. The melting point of a ointment should be below the body temperature. Variations of ointment like preparations that are used in cosmetics are:

**Sticks -** Mixtures of oils, waxes, petroleum, glycerine with colour and perfume are poured into a mould and allowed to solidify. Their consistancy is harder than ointments. Common examples are lipsticks and stick eye shadows. Pastes are soft moist cosmetics with a cream like consistency. Oil, glycerine water colour and gum or mucilage are common ingredients like cream eye Shadows and cream rouge, make up sticks as well as concealing pastes.

**Mucilages** are mixtures of natural or synthetic gums with water. These are used for hair setting jels and lotions. Gums are mixed with alcohol for making hair sprays.

## Commonly used Cosmetics

For Hair:

1. Shampoos
2. Hair setting jells and lotions
3. Hair spray
4. Hair conditioners
5. Hair colouring products
6. Hair lightening products
7. Hair straightening products
8. Hair curling or perming products
9. Hair tonics
10. Hair dressings or brilliantines
11. Hair oils

For Face:

1. Cleaning lotions
2. Creams
3. Astringents
4. Toners
5. Moisturisers
6. Acne lotions and creams
7. Face masks and packs
8. Skin bleaches

For Make-up:

1. Make-up base, foundation cream
2. Rouge
3. Powder
4. Eye shadows
5. Eye liners and pencils
6. Eye mascara

For the Body:

1. Bath soaps
2. Bath oils and salts
3. Deodarants
4. Hand and body lotions

For the nails:

1. Nail polish remover
2. Cuticle softner
3. Cuticle cream
4. Nail whitners
5. Nail polishes
6. Nail tips
7. Acrylic nails

## Commonly used Cosmetics for Hair

Shampoos are of two types:

a) Soap shampoos are made up of combination of alkaline with fat or oil. They are not suitable for use when hard water is being used.

b) Detergent shampoos — Modern shampoos are based on sulphated fatty alcohols and sulphonated fatty alcohol esthers. Common products in this line are:

i) Triethanomelamine laural sulphate

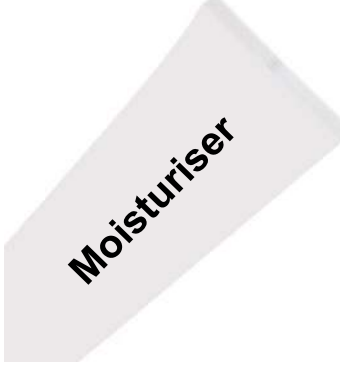
ii) Sodium laural sulphate

iii) Monoethanolarnine laural sulphate

Sodium chloride is added for viscosity. Other additives in a shampoo are clarifiers or opacifiers, thickening and pearling agents, perfume, colour, gums, moisturisers, bactericides and pH balancers.

Types of shampoos:

1. Powder
2. Paste
3. Cream
4. Lotion
5. Antidandruff
6. Shampoo with conditioner
7. Lightening and stripping shampoos
8. Shampoos with a rinse (colour)



## Hair Conditioners and Rinses

Rinses are mixtures of water with a mild acid or a coating agent.

a) **Acids rinses** are helpful in removing the soap scum from the hair and making the hair look shiny and healthy. Common ingredients used are citric acid, tartaric acid, acetic acid and lactic acid. Sometimes acid rinses are used as neutralising agents after a procedure where alkaline product has been used.

b) **Cream Rinse** — They are cream like substances that stick to the hair and smoothen out the cuticle layer, making combing out process easier by reducing the tangles in the hair. Cream rinses are applied on the hair after a shampoo and then rinsed out. Common ingredients in a cream rinse may be quaternary ammonium compounds (Quats) or cetrimide.

c) **Acid Balanced Rinses** — Because of an acid balance, these rinses do not strip out the colour but help to close the cuticle after a colouring treatment. The pH of these rinses is nearer the hair pH.

d) **Colour Rinses** — These rinses are temporary colours which are used from shampoo to shampoo. The colour effect is very mild. Common colour rinses used are for dulling or brightening (blue or violet) rinses. They are also used in between the colouring treatments till the hair is grown enough for a retouch.

e) **Medicated Rinses** — These are used only for correcting medical conditions such as dandruff.

f) **Lightening Rinses** — A small amount of brightening or lightening effect is produced by using henna rinse or a hydrogen peroxide rinse for brightening up the dull colour of the hair or lightening up to give highlights.

**Conditioners** — They are designed to coat the hair. There are many types of conditioners in the market. Common ingredients contained in them are antioxidants and acids in mild forms along with lanolin, cholesterol moisturisers, sulphonated oils, vegetable oil and hydrolysed protein (Keratin). Combinations differ with the requirement and with different manufacturers. Although conditioners are useful normally for damaged and dry hair, they are of special use after chemical services to replace and repair some of the oils removed and damage done to the hair because of the chemicals and process used. There are many types of conditioners available in the market. Most of them fall into the following categories:

1) **Timed Conditioners** — These conditioners are allowed to stay on the hair for 1-5 minutes and then rinsed off. These conditioners have an acid PH and add natural oils and moisture to the surface of the hair. They do not penetrate the hair.

2) **Moisturising Conditioners and Oil Conditioners** — They usually contain either glycerine or oils which coat the hair.

3) **Conditioners with Setting Lotions** — These conditioners contain resins or proteins which coat the hair and give it body and stiffness for styling. They are not rinsed off like the other conditioners.

4) **Protein Reconstructors** — Whether a damaged hair can be reconstructed is a very debatable point. But these conditioners contain hydrolysed human protein (Keratin) in small quantities. The conditioners are designed to pass through the cuticle, penetrate into the cortex and replace the keratin which has been lost. They are used on damaged hair after a chemical service as well as on damaged hair before a service making itmore suitable for the process. They are supposed to increase elasticity, improve porosity and generally improve the texture.

5) **Neutralizing Conditioners** — These conditioners have an acid PH and are used to neutralise the alkaline reaction created by other hair products. Along with improving the hair, they also help to reduce scalp irritation produced by the alkaline solutions. They are usually allowed to stay on the hair for 1 to 5 minutes. They do not contain any protein because protein can reverse some of the processes of perming and straightening for which these conditioners are used.

6) **Others** — In India, henna is commonly used as a conditioner. If curds are added to henna and the application time reduced or if an egg is added, it becomes a conditioner. Curds prevent the uptake of colour. Henna gives shine and bounce to hair. Some synthetic gums and polymers have recently come into the market which coat the hair and stick to it making it strong and thicker. Some of them are fixed on the hair by giving heat (making the client sit under a dryer) and are claimed to last for 3 to 4 weeks (cellophanes).

**Hair Colouring Products**

The composition and chemistry of hair dyes is a vast subject. There are many types of hair colours in the market.

a) **Temporary hair colours** — These are certified colours and are used from wash to wash. They do not penetrate the hair cuticle but coat it on the surface. They come as rinses, washes and sprays.

b) **Semi permanent colours** — These last from 4 to 6 weeks. They are also aniline derivative tints but are less alkaline than the permanent tints. The colour molecules are comparatively larger. They enter through 'the opened (because of alkaline) imbrications of the cuticle layer and coat the cortex and the cuticle. An acid rinse is used to close the imbrications and trap the colour molecules after the tint.

c) **Vegetable dyes** — The most common among these is henna. Henna contains lawsone which gives colour to the hair. Unfortunately the colour given by henna is not natural but gives orange tones. It works well for giving highlights and brightening up of dull hair. The colour lasts from 4 to 6 washes. Other products which are added to give darker colour to henna are amla powder, bark of walnut tree and katha. Some companies add pyrogallic acid (metallic salt) to henna with some colours. In the states you can get various shades of henna because of these additions. But in India, only the leaves are used with additives of tea or coffee, amla and lemon or tamarind and egg.

d) **Metallic hair dyes** — These are a variety of permanent hair colouring. They contain metallic salts of lead, copper bismuth silver or cobalt. The colour is deposited on the hair shaft. Their use is very limited for two reasons:

i) They can produce serious skin reactions as well as systematic poisoning in susceptable subjects.

ii) They are not compatible with hydrogen peroxide. So hair that has metallic tint becomes unsuitable for other permanent tints and chemical services which poses a great restriction.

e) **Permanent hair dyes** — These are the most important for us as they are the most widely used today. They are convenient to use, last longer and leave the hair natural looking. They come in a wider range of colours and give more choice to fashion conscious people. Aniline tints are derivatives of coal tar products. The active ingredient is para-Phenylene-diamone. These tints are composed of very tiny colourless molecules which do not find any difficulty in passing through the cuticle which has been softened with an alkaline medium. A developer, usually hydrogen peroxide is added just before the application of the tint. Inside the cortex, with the action of the peroxide or by the process of oxidation, the molecules of colour become giant molecules which get trapped into the cortex and cannot come out. These colour molecules, form bonds with the keratin chains in hair but do not join the H bonds or the S bonds as a result of which, it is possible to give chemical services on tinted hair.

f) **Compound dyes** — They are combination of metallic salts and vegetable dyes. These are hot used in a salon because they make the, hair unsuitable for other chemical services as hydrogen peroxide and metallic salts are not compatible. Some companies do make these for home use. These are useful for people who are allergic to para or aniline tints. These dyes do not give the same natural finish to the hair instead they make the hair look dull and greyish.

7. **Hair Oils** — As opposed to the rest of the world, oil plays an important part in an Indian's life. Majority of the Indians use oil regularly for their hair. Some people use it before a bath and others after a bath. Different oils are used in different parts of India. Coconut oil tops the list. Til oil, mustard oil, groundnut oil are other oils used. In ayurveda, a lot of herbs are used to make special oil for preventing the hair fall and greying. Commonly used ingredients for these oils are Brahmi, amla, cactus, habiscus flowers, maka, roots of badh tree and many others. No other country produces as many hair oils as India.

**Cosmetics for the Face**

**Cleansing creams and lotions**— cleaning creams are of two types:

a) Emulsified or cold cream.

b) Liquifying or anhydrous.

**Ernulsified cleansing creams** — Contain from 25% to 70% water, bees wax, mineral oil, stearic acid, lanolin glycerine and preservatives mainly used for dry skins.

**Liquifying creams** — They contain mineral oil, paraffin, petrolatum and waxes and a small amount of water. This cream melts quickly, does not penetrate the skin and is useful for oily skins.

**Cleaning lotion or milk** — The ingredients are the same as creams but come in diluted form with the addition of sulphonated oils. They are good for oily skins and are convenient to use. They do not leave the skin greasy as they contain less amount of oil compared to the creams.

**Sample diet: Normal human being diet plan**

| Meals | Time | What to have |
|---|---|---|
| **Before breakfast** | 7 a.m. - 8 a.m. | • (Within half hour of waking up) - Any mid-size fruit. (mango, apple, banana, bowl of papaya, muskmelon, watermelon, orange) |
| **Breakfast** | 8 a.m. - 9 a.m. | • Serving of carbs with lean protein (museli-oat, poha, upma, sandwich idli-sambhar, dosa, pancakes, sprouts salad) + milk products (Milk, cheese, curds) |
| **After Breakfast** | 10 a.m. - 11 a.m. | • Handful of peanuts/chana/almonds/ walnuts/khakhra etc. |
| **Lunch** | 12:30 p.m. - 1:30 p.m. | • 4 chapati/1 tbsp rice + 1 bowl dal/pulses+1 bowl vegetable (leafy one is preferred) + few pieces of raw veggies (salad) 1 bowl curd/1 cup milk/1 cheese slice |
| **Afternoon snack** | 5:30 p.m. - 6:30 p.m. | • Brown bread sandwich/khakhra with cheese spread/dhokla/idli/ plain dosa any fruit / milk / butter milk |
| **Dinner** | 8:30 p.m. - 9:30 p.m. | • 1-2 chapati / 1 tbsp long grain rice + dal + salad + 1 bowl veg. |
| **Before bed** | 10:30 p.m. - 11 p.m. | • 1 glass plain milk |

## Cosmetics for Make-up

**Foundation Cream** — Vanishing cream base with a little extra glycerine, titanium dioxide, and colouring added are used as foundation creams. There are different shades available to suit different skin tones. Sometimes certain skins show allergy to the colouring agents and start getting pigmentation. These people should be advised to use a vanishing cream instead. Foundation creams are available as:

a) Sticks for oily skins

b) Lotions for normal skins

c) Creams for dry skins

**Rouge** also known as cheek colour are used to impart fresh and rosy healthy look to the skin. They are available in different forms.

**a) Powder rouge** — to a composition of face powder, colour and binder are added and made into a cake form. Most packs come in 3 shades — one for high lightening, one for colour and one for shadowing.

**b) Paste cheek colour or rouge** — mainly used for dry skins contains fat, waxes and colour.

**c) Liquid rouge** — Liquid rouges are combinations of colour mixed with glycerine alcohol and wax into a water base. They spread more easily and look more natural.

**d) Cream rouge** has a petroleum base with waxes, lanolin and colour. This is used for very dry skins. The colour of the rouge should fall into the natural skin tones and key (colour key I or II). The blush produced by rouge should not be so dark as to look artificial.

**Powder** — The most universally used cosmetic. Almost everyone uses a powder. A good powder should possess the following characteristics:

**a) Covering power** — It should have good covering power to remove shine, skin defects and enlarged pores. Zinc oxide titanium dioxide and kaolin are used for improving the covering power.

**b) Adherency** — Should adhere and stay well on the skin. Zinc and magnesium stearate give these qualities to the powder.

**c) Slip** — should slide and spread smoothly and evenly on the skin. Should not look patchy.

**d) Absorbancy**— Should be able to absorb sweat and sebaceous secretions. Precipitated chalk and magnesium carbonate give secretions. Precipitated chalk and magnesium carbonate give these qualities.

**e)** Should be harmless to the skin. Should be discreet, almost invisible and yet give asubtle glow and smoothness to the skin.

**f)** The colour added should be uniform and not patchy.

**g)** Should have a very mild and pleasant perfume so that it does not clash with the other cosmetics used.

**Powders are available in different forms.**

| | | | |
|---|---|---|---|
| a | Face Powder | Titanium dioxide, Zinc oxide, kaolin, magnesium oxide, talc and colour, Zinc stearate, starch | Used as a complete make up. Since it is a combination of foundation cream and powder |
| b | Cream powder | Vanishing cream base with the addition of powder and colour | Used as a complete makeup since it is a combination of foundation cream and powder |
| c | Compact face powder | To the face powder a binding agent is mixed usually tragacanth mucilage | Easy to carry. The cake should not break easily but come off easily on the puff. |
| d | Cake make-up | Some compacts contain glycerine and Are used as a complete make oils withup. Water is used on the sponge. | waxes or a dehydrated cream withThese are more popular for colourstage make-up. |

## Eye Shadows

Eye shadows are used to give background, depth, emphasis and correction of defects. Lots of shades are available in different forms. The colour pigments are held in either a powder, fatty base or a cream base. They may contain luminating or translucent qualities. Shell powder in a very fine form is used for giving this quality. A wide variety of shades, colours are available in eye shadows which have to be matched with the colour key of the skin, the colour of the eyes and the colour of the outfit worn. They may be used in the same colour tone or contrasts. The eye shadows come in various forms —

**a)** **Powder eye shadow** — Powder base with the colour and titanum dioxide and Zinc oxide for giving better adherency. They come as a cake fitted into flat container or as powder. Lanolin esters are used for making the or as powder. Lanolin esters are used for making the cakes.

b) **Cream eye shadows** — May be emulsion type or liquifying cream. Non fatty creams can be packed in tubes or flat containers. Anhydrous cream bases may be used consisting of lanolin, beas wax and microcrystalline wax with a petroleum base and colour.

c) **Stick eye shadows** — Similar process of packing as lipsticks. Lusture pigment added to these gives better translucent qualities compared to other forms of eye shadow.

d) **Water colour, eye shadows** — These are the latest in the market. They come in boxes which look exactly like Water colour painting boxes and the method of use is also the same. The colour is diluted with water and applied with a brush. There are certain advantages with this type of eye shadow. It is possible to make the desired colour by mixing two or more colours, so even a few basic colours are sufficient in your kit. They are easy to carry around as the danger of spilling and the cakes breaking is not there. Their spreading is even, but they do not smudge. It is possible to change their intensity of colour by the desired amount of dilution.

e) **Eye shadow pencils** are available in many colours. They have the advantage that the shadows can be applied in thin lines when so desired. The pencils consist of the same ingredients as the sticks. Since they are covered and not exposed to air they last a long time without getting spoilt.

## Eye Liners

Eye liners are used for eccentuating the eyes, liners usually come in:

a) **Pencils** — Wax base with colour. Can also be used for darkening the eye brows. They come in black and dark brown colour. They give a very mild line.

b) **Liquid eye liners** — The suspension of pigment in a film forming material which dries up quickly. They come in black, brown and dark blue shades. Some companies make water proof eyeliners that do not come off with water and tears. They are specially useful in film and television make up and for brides because of this quality.

c) **Kohl** — Very widely used in India. It is made by burning castor oil and camphor and collecting their soot which is again mixed with butter or castor oil. The disadvantage with this is that it spreads too much. It is available in small flat containers as well assticks.

d) **Surma** — Antimony or lead powder ground finely is used very widely tor lining the eyes in most parts of India. Although it has the advantage of looking natural and not spreading too much, its use is a debatable point by the chemists. Lead and antimony are harmful to the body ¡f absorbed. Gritty particles ¡n the surma might damage the eyes by producing scarring.

## Mascara

Mascara is used to darken the eye lashes. Black is the colour usually available. It comes in various forms:

a) **Cake mascara** — Dehydrated cream into which colour pigment has been added. Water is used for moistening and a brush is used for the application.

b) **Cream mascara** — Vanishing cream base with the colour pigment.

c) **Liquid mascara** — is the most commonly used. Alcohol, resin and colour pigment are the ingredients. Some form of mucilage is used for giving coating and thickening effect. Waterproof mascaras contain water repelent substances and are very popular. Mascara bottles come with round brushes which help the mascara to be applied in a roll on movement hence the name 'roll on mascara'. Although mascara is available in black, dark blue, dark green and dark brown colours, black is the most commonly used.

## Eye make up removers

These are mixtures of low viscosity oils like, light mineral oil and fatty acid esters like Iso-propyl-myristate. They may come in me form of oils, creams or pre- soaked cotton pads packed in plastic bags.

## Cosmetics for Body Care

**Bath Soaps -** Bath soaps are a daily necessity and are used by everyone without exception. An alkali usually sodium hydroxide is mixed with an oil or fat to make a soap. Bath soaps are usually alkaline. The amount of free alkali present ¡n the soap will determine the harshness of the soap. It is better to use soaps with the least amount of free alkali. Fats like cocoa butter or lanolin are added to make superfatted soaps for dry skins. Transparent soaps contain glycerine, alcohol and sugar and are useful for normal skins. Medicated soaps may contain phenol, creasol or neem oil. Sulphur soaps are useful for acne.

**Bath salts** — Contain carbonates or phosphates of sodium with perfume and colour. They soften and perfume the water.

**Bath oils** — Contain sulphonated oils or sulphated fatty alcohol with colour and perfume. Although known as bath oils, they are drying to the skin. In case of dry skins it is better to massage the body with vegetable oils before the bath.

**Deodarants** — They come in various forms

**a)** Deodarant powder — powder — boric acid astringent and antiseptics.

**b)** Deodarant cream — To a vanishing cream base, an astringent and an antiseptic is added.

**c)** Astringent lotion — Contains glycerine, water, alcohol, astringent and an antiseptic.

**d)** Deodarant sticks — These are the most commonly used. They come in roll on sticks and are convenient to carry. Tney consist of waxes and an astringent usually Zinc sulphocarbonate. They destroy the odour but do not stop the perspiration.

**e)** Creams and liquids — Some of them contain very strong astringents and inhibit the production of sweat. They should not be used.

**Hand and Body Lotions**

Hand and body lotions and creams are used to replace the oil and moisture lost by repeated washing and prevents further absorption by the atmosphere. The common ingredients used are mineral oil, petroleum jelly, lanolin, glyceryl monostearate, glycerine, sorbitol and an antiseptic and perfume. For healing of cracks, urea and allantoin are added to creams for the hands and feet. Most of these creams are oil in water emulsions.

Certain creams with silicones are made as protective creams and are used as a protection while doing rough work. Silicones and plasticizers make a protective layer on the skin and are water repellent.

## Nail Products

Nail polish — In the true sense, nail polish is a powder to be rubbed on the nail to give them shine and smoothness. They are compounds of stannic oxide, talcum, zinc oxide, kaolin and precipitated calcium carbonate and are applied with a chamois pad. The powders may be mixed with water and bromo acid to make a aquous solution. These polishes are no more in use and what are known as nail polishes today are really nail laquers which give colour and a coating film to the nail. The basic ingredients are nitro- cellulose resins, platiciser and solvent. Ethyl alcohol, ethyl acetate and toluene are good solvents. A good polish should dry quickly, give a smooth film and not chip easily. Today fashion includes metallics and frosted nail polishes. Pearling agents and gloss and shine producing agents are added for this purpose. The colours available are of a very wide range. Colourless polishes form the base coat and plastic or acrylic substances form the top coat.

**Nail polish remover**

Solvents used for making nail polish are also good nail polish removers but used alone0 they have unpleasant odours and are very expensive. Usually acetone is added to Ethyl acetate and butyl acetate along with perfumes. These solvents are fast evaporating chemicals and take away the natural grease from the nail leaving it dehydrated. To conteract this effect, certain oils and waxes are added to the nail polish remover, usually castor oil, glycerine or a wax. In the West- artificial nail tips, and acrylic nails are in fashion. Acetone based removers are used for removing these nails. However, acetone polish remover becomes incompatible for the same reason. Non-acetone removers are available in the market. These contain propyl alcohol in place of the acetone and can also be used as thinners for hardened nail polishes.

**Cuticle softner**

There are many types of softners available in the market. The purpose of using these is to soften the tissue so that it can be removed easily. They usually contain a small percentage of sodium hydroxide or potassium hydroxide in a cleansing milk base.

**Cuticle cream**

These creams have lanolin and oils in a petroleum base. They are used to treat dry skin and nails. Sometimes when the nails are excessively dry and the person gets hang nails because of dry skin, oil menicures are advised vegetable oils or cuticle creams or lotions are warmed and the nails are soaked in them instead of the soap water solution. Massage follows cleaning or manicure is done afterwards.

**Nail whiteners**

They are used as pastes or creams. Same products as for bleaching of the skin are used. Hydrogen peroxide is the active ingredient. Generally whitening is limited to the free edge.

**Nail tips and Acrylic nails**

In the West, these are the craze today. They require a lot of practice and skill before you can work on them. They are not practical for the Indian scene of today because most of us use our hands for a lot of rough and dirty work. These nails not only limit the ease of working, Infectious are common with these and they need to be looked after constantly. Tips are attached with the help of specially formulated glues. They are made up of hard plastics. Acrylics consist of a powder with a solvent. A small bit is mixed and taken at a time since they dry fast. The nail is created bit by bit and then filed smooth. Both types of artificial nails need to be filled every two weeks because of the gap occuring between the new growth and the artificial nail. It is in these gaps that the bacteria flourish.

## Exercise

### A. Assignment

1) Pavitra has spots and marks on her cheeks. What are the cosmetics you will use to make her cheeks look even complexion?

### B. Project

Collect the cosmetic paper cut outs and classify it according to their physical and chemical categories as powder, solution, soap, emulsion, suspension and ointment. Also write its uses. Make a scrap book of the same and display at least 20 different cosmetics.

**Example:**

a


**Name of the cosmetic : Shampoo**

Purpose of the cosmetic: Used for removing dust, dirt & oil from hair.

Cosmetic category: Solution

## Assessment

**Answer the following questions**

**A. Fill in the blanks**

1. C_____ are mixtures of chemical compounds used to enhance the appearance or odor of the human body some being derived from natural sources, many being synthetic.
2. Calamine lotion is an example for S_____.
3. _____ is compound of alkali and fat or oil.
4. Most of the creams are type of E_____.
5. F_____ is available in the form of powder, liquid or cream form.

**B. Differentiate between the following:**

1. Solution and solvent
2. Emulsion and suspension
3. Cream and lotion
4. Identify the following cosmetics and answer the following questions appropriately:

a. Name of the cosmetic: _____

Purpose of the cosmetic: _____

Cosmetic category: _____

b. Name of the cosmetic: _____

Purpose of the cosmetic: _____

Cosmetic category: _____

c. Name of the cosmetic: _____

Purpose of the cosmetic: _____

Cosmetic category: _____

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Solution & solvent

b) Emulsion and suspension

c) Cream and lotion

**Part B**

Discussed in class the following:

a) What are the different types of powder used in makeup?

b) What types of eye liner are safe to use?

c) What is a use of foundation?

d) What are the basic ingredient of shampoo and conditioner?

**Performance standards**

The performance standards may include, but not limited to:

| **Performance standards** | **Yes** | **No** |
|---|---|---|
| Identify the cosmetics used for body care | | |
| Identify the cosmetics used for face care | | |
| Identify the cosmetics used for make up | | |
| Identify the cosmetics used for hair care | | |

# Session – 4

## *Introduction to Wellness*

### Relevant Knowledge

### Meaning of Wellness

Wellness is maximum health potential. It is generally used to mean a healthy balance of the mind, body and spirit that results in an overall feeling of well-being. Most people do not value wellness until they lose it.

Wellness is important because of its numerous and well-documented linkages to health and to personal, academic and professional success. Those of us interested in wellness have common philosophies and attitudes about life. These include, a positive attitude, a diet that enhances nutrition and is relatively free of junk food, adequate physical exercise, proper rest, productive work, and service to others.

Wellness benefits students by increasing retention, decreasing absenteeism, and promoting academic and personal success. Wellness benefits faculty, staff and retirees by reducing illness, enhancing work environments and optimizing personal and professional performance.

The state or condition of being in good physical and mental health: "stress affects every aspect of wellness Wellness is a state of optimal well-being that is oriented toward maximizing an individual's potential. This is a life-long process of moving towards enhancing your physical, intellectual, emotional, social, spiritual, and environmental well-being.

It takes more than physical exercise to maintain good health. Balance is the key to leading a healthy lifestyle. Wellness is the dynamic process of becoming aware of, taking responsibility for, and making choices that directly contribute to one's well being and that of the common good. It is the integration of body, mind and spirit and the ongoing development of one's own meaning in life.

**Physical Wellness** means respecting and taking care of your body. It is applying your knowledge, motivation, and skills toward enhancing personal fitness and health. It is making healthy and positive choices regarding a variety of issues including nutrition, physical activity, sexuality, sleep, the use of alcohol and other drugs, self-care, and the appropriate use of health care systems.

One can achieve it through Exercise, Yoga, gyms, aerobics, different dance style, Ayurveda, diet, food habit, and overall physical hygiene.

**Spiritual Wellness** is the quest for meaning, value, and purpose resulting in hope, joy, courage and gratitude. It encourages one to develop a personal faith and to seek God in all things. It is the discovery and incorporation of a personal set of values and beliefs that defines the person, places the individual in relation to the larger community, and engages a faith that promotes justice.

One can achieve it through meditation and yoga.

Meditation means to drop everything which is in one's memory and to come to a state where only consciousness remains, where only awareness remains. Meditation can help us in many ways. It will help us in improving one of the wellness dimensions i.e. Spiritual wellness. Meditation helps us by providing peace of mind and happiness by brining body, mind and spirit in harmony.

Helps discover our purpose in life by providing the deeper understanding of yourself and other. It increases our compassion, acceptance of oneself, forgiveness by widening and deepening capacity for love. It creates deeper level of spiritual relaxation as we build deeper relationship with god. It changes our attitude and help in growing wisdom as we discover power and consciousness beyond our ego.

**Environmental Wellness** is an awareness of the precarious state of the earth and the effects of your daily habits on the physical environment. It is respect for God's creation and the beauty and balance of nature. Environmental wellness involves maintaining a way of life that maximizes harmony with the earth and minimizes harm to the environment. It includes being involved in socially responsible activities to protect the environment "Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviors.

**Emotional Wellness** is striving to meet emotional needs constructively. It is the ability to respond resiliently to emotional states and the flow of life events. It is realistically dealing with a variety of situations and learning how your behaviors, thoughts, and feelings affect one another and your decisions. It is taking responsibility for your own behavior and responding to challenges as opportunities. An emotionally well person is self-aware and self accepting while continuing to develop as a person. Emotional wellness is the ability to form interdependentrelationshipsbasedonmutual commitment, trust, honesty, and respect.

One can achieve it through positive thinking, mental health, therapies, stress management, anger management

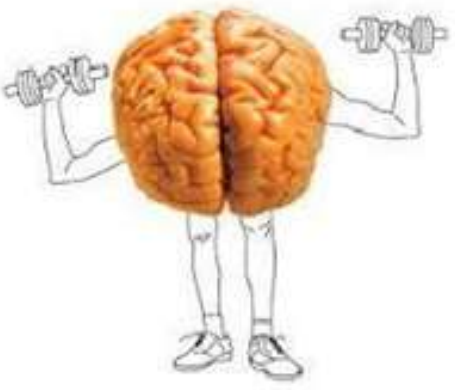
**Social Wellness** means contributing to one's human and physical environment for the common welfare of, and social justice within, one's community. It includes promoting a healthy living environment, encouraging effective communication and mutual respect among community members, and seeking positive interdependent relationships with others. It is being a person for others and allowing others to care for you. It is also recognizing the need for leisure and recreation and budgeting time for those activities. Social Wellness refers to one's ability to interact with people around them. It involves using good communications skills, having meaningful relationships, respecting yourself and others, and creating a support system that includes family members and friends.

One can achieve it through Time management, planning, self-assessment.

**The process of social wellness?**

- Do I plan time to be with my family and friends?
- Do I enjoy the time I spend with others?
- Are my relationships with others positive and rewarding?
- Do I explore diversity by interacting with people of other cultures, backgrounds, and beliefs?

**Mental Wellness:** Mental health is a positive attribute and something we all have. Mental wellbeing describes the way we think and feel about ourselves and others, our confidence, and our ability to control things in our life. Mental wellness cannot be separated from physical and spiritual wellness. The three works together to produce the very concept of wellness.



Like physical health, we need to protect our mental wellbeing. In promoting our mental wellbeing - for example, by promoting physical activity and providing opportunities for relaxation and social activities - we can increase our resilience to cope with life's difficulties and ability to enjoy life.

## Exercise

Do the following exercise to assess your overall wellness.

A) Read each statement and use the rating scale of 0 to 5 to mark the response that is best suited to you at this time.

| Rating Scale | Meaning |
|---|---|
| 0 | No, Never |
| 1 | Almost never, rarely (Less than 10% of the time) |
| 2 | Sometimes, maybe (Approximately 25% of the time) |
| 3 | Often (Approximately 50 % of the time) |
| 4 | Very often, usually (Approximately 75 % of the time) |
| 5 | Almost always (90% of the time or more) |

| **Physical Wellness** | **Rating Scale** | | | | | |
|---|---|---|---|---|---|---|
| 1. I eat balanced and regular meals including fresh foods and healthy snacks. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. I engage in vigorous exercises such as brisk walking, cycling etc. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. I get 7-8 hours of sleep each night. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. My body heals itself quickly when I get sick or injured. | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. I have lots of energy and can get through the day without being overly tired. | 0 | 1 | 2 | 3 | 4 | 5 |
| Total Score (add all the ratings you gave for each question) | Total Score_____ | | | | | |

| **Emotional Wellness** | **Rating Scale** | | | | | |
|---|---|---|---|---|---|---|
| 1. I laugh often about things that happen in my life. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. I express my feelings without feeling silly. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. I don't get angry easily | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. I feel positive about things | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. I enjoy spending time without planned or structured activities and make the effort to do so. | 0 | 1 | 2 | 3 | 4 | 5 |
| Total Score (add all the ratings you gave for each question) | Total Score_____ | | | | | |

| **Social Wellness** | **Rating Scale** | | | | | |
|---|---|---|---|---|---|---|
| 1. I take time for fun and leisure. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. I have friends to celebrate with in good times and to call when I am feeling low. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. I have a satisfying and fulfilling relationship with my family. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. I express my emotions -laughoften, cry when I express my emotions -laughoften, cry when | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. I consider/respect the feelings of others and do not act in hurtful or selfish ways. | 0 | 1 | 2 | 3 | 4 | 5 |
| Total Score (add all the ratings you gave for each question) | Total Score_____ | | | | | |

| **Spiritual Wellness** | **Rating Scale** | | | | | |
|---|---|---|---|---|---|---|
| 1. I forgive myself for making mistakes and from such experiences. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. I take time for silence and solitude and to reflect on what is important to me. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. I try to demonstrate genuine respect for the spiritual beliefs and traditions of other cultures. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. I take time to enjoy nature and the beauty around me. | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. I try to relate to myself, to my community, and to my planet in a non-harmful way. | 0 | 1 | 2 | 3 | 4 | 5 |
| Total Score (add all the ratings you gave for each question) | Total Score_____ | | | | | |

| Spiritual Wellness | Rating Scale | | | | | |
|---|---|---|---|---|---|---|
| 1. I forgive myself for making mistakes and from such experiences. | 0 | 1 | 2 | 3 | 4 | 5 |
| 2. I take time for silence and solitude and to reflect on what is important to me. | 0 | 1 | 2 | 3 | 4 | 5 |
| 3. I try to demonstrate genuine respect for the spiritual beliefs and traditions of other cultures. | 0 | 1 | 2 | 3 | 4 | 5 |
| 4. I take time to enjoy nature and the beauty around me. | 0 | 1 | 2 | 3 | 4 | 5 |
| 5. I try to relate to myself, to my community, and to my planet in a non-harmful way. | 0 | 1 | 2 | 3 | 4 | 5 |
| Total Score (add all the ratings you gave for each question) | Total Score_____ | | | | | |

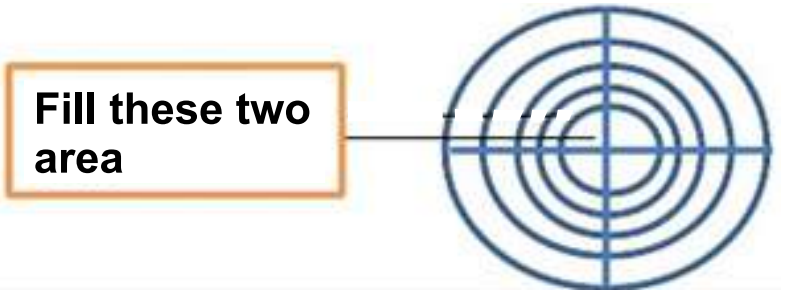
**Record the final rating of each dimension of the wellness and convert it into points as per the score range. E.g. If total score is 6 than give one points to it as per the score range –points table below.**

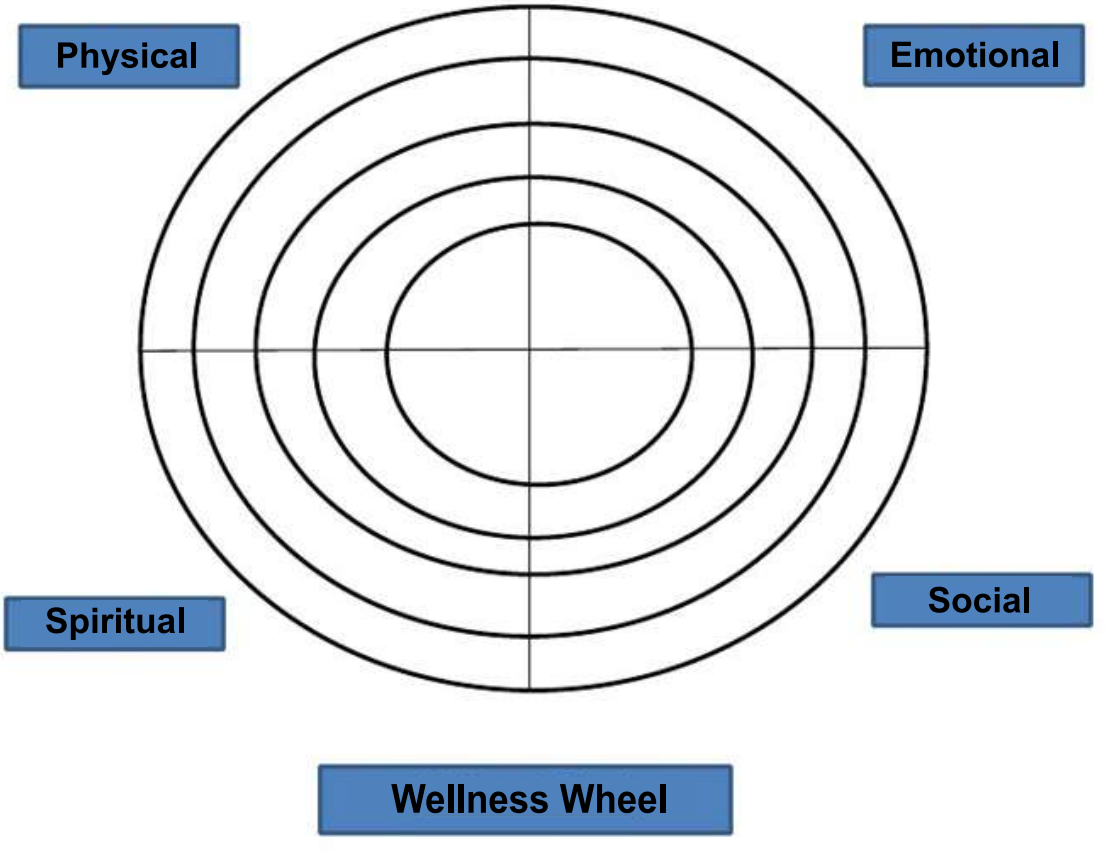
| Score Range | Points |
|---|---|
| 0-2 | 0 |
| 3-7 | 1 |
| 8-12 | 2 |
| 13-17 | 3 |
| 18-22 | 4 |
| 23-25 | 5 |

| Dimension of wellness | Points |
|---|---|
| Physical | |
| Emotional | |
| Social | |
| Spiritual | |

## B. Wellness Wheel

Color the portion of each wedge between the center of the wheel and the curved lineusing differentcolors using the points of each dimension of wellness. Eg. If you score 2 points in physical wellness then color two wedges of the circle in physical segment.




When you have completed your wellness wheel, study its shape and balance and answer the following questions.

i) How smoothly your wellness wheel would roll after coloring it as per the scores? Do you think that is it a perfect round shape and will roll?

ii) How do you feel about the shape and size of your wellness wheel?

iii) In which area of your life are you most well?

iv) In which area are you least well?

v) What improvements would you like to see in your wellness wheel? How can you achieve these?

## Assessment

**Answer the following questions**

**A. Differentiate Between**

a) Physical and Mental wellness

b) Social and Emotional wellness

## Checklist of Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Spiritual and social wellness.

b) Physical and mental wellness.

**Part B**

Discussed in class the following:

a) What is the importance of physical wellness?

b) What is social wellness?

c) How mental wellness help achieve your goals?

d) How meditation can help you achieve mental and spiritual wellness?

**Performance standards**

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Assess their own overall wellness | | |
| Identify the activities which helps in improve the particular dimension of wellness | | |

## Suggested Reading

**Books**

- Milady's Standard Fundamentals for Estheticians, 9th edition
- The Beauty Detox Solution: Eat Your Way to Ra…(Kindle Edition) by Kimberly Snyder
- Eating for Beauty [Kindle Edition]David Wolfe(Author)

**Websites**

http://www.wikipedia.org/

## Glossary

**Session-1**

1. **Adipocytes -** A cell specialized for the storage of fat, found in connective tissue.
2. **Appendages -** A projecting part of an organism, with a distinct appearance or function.
3. **Conscious -** Aware of and responding to one's surroundings; awake.
4. **Dermis -** The skin. The thick layer of living tissue below the epidermis that forms the true skin
5. **Gland -**An organ in the human or animal body that secretes particular chemical substances for use in the body or for discharge into the surround.
6. **Invasion -** An incursion by a large number of people or things into a place or sphere of activity.
7. **Lipids -** Any of a class of organic compounds that are fatty acids or their derivatives and are insoluble in water but soluble in organic solvents.

8. **Lymphatic** – A vein like vessel conveying lymph in the body.
9. **Malfunction -** (of a piece of equipment or machinery) Fail to function normally or satisfactorily.
10. **Neurotransmitters -** A chemical by which a nerve cell communicates with another nerve cell or with a muscle.

    - A chemical substance that is released at the end of a nerve fiber by the arrival of a nerve impulse and causes the transfer from a neuron to a target cell across a synapse.
11. **Nourishment -** The substances necessary for growth, health, and good condition.
12. **Pathogen -** A bacterium, virus, or other microorganism that can cause disease.
13. **Perceptual -** Of or relating to the ability to interpret or become aware of something through the senses.
14. **Radicals -** A person who advocates thorough or complete political or social reform.

    - A group of atoms behaving as a unit in a number of compounds.
15. **Self-awareness -** Awareness of your own individuality.
16. **Subcutaneous -** Situated or applied under the skin: "subcutaneous fat".
17. **Toxins -** An antigenic poison or venom of plant or animal origin, esp. one produced by or derived from microorganisms.

**Session-2**

1. **Aiding -** Help, assist, or support (someone or something) in the achievement of something.
2. **Appetite -** A natural desire to satisfy a bodily need, esp. for food.

**Session-3**

1. **Adhere -** to stay attached; stick fast; cleave; cling (usually followed by to).
2. **Blemishes-** A small mark or flaw that spoils the appearance of something.
3. **Emollients-** A preparation that softens the skin.
4. **Estheticians-** A person who is knowledgeable about the nature and appreciation of beauty, esp. in art.
5. **Exfoliation-** the peeling off in flakes or scales of bark or dead skin; "exfoliation is increased by sunburn".

6. **Flaws-** A mark, fault, or other imperfection that mars a substance or object.
7. **Humectants-** A substance, esp. a skin lotion or a food additive, used to reduce the loss of moisture.
8. **Matte finish-** Gloss is an optical property describing the ability of a surface to reflect light into the specular direction.
9. **Pore size-** The pore size of a membrane gives an indication of the median or mean size of the pores on a membrane surface.
10. **Towelettes-** A small paper or cloth towel, usually pre-moistened in a sealed package, used for cleansing.

**Session-4**

1. **Enhances -** Intensify, increase, or further improve the quality, value, or extent of.
2. **Fatigue -** Extreme tiredness, typically resulting from mental or physical exertion or illness.
3. **Resilience -** the physical property of a material that can return to its original shape or position after deformation that does not exceed its elastic limit.
4. **Retention** – The continued possession, use, or control of something.

# UNIT-2

## INTRODUCTION TO HAND CARE

The human hand is a miraculous body part that serves us extremely well in many ways. With our hands we can gather information by touching the object. Hands help us in grasping, throwing and clenching. Such important features give the human an opportunity to create tools, machines, building and many other useful things. Human hand is also a means of communication and one can express their emotions or thoughts through hand gestures. Therefore, it is very important to keep our hand clean and beautiful.

The most common way germs are spread is through hands. Germs are often harmless but they can also cause illnesses such as colds, flu, and other infections. You will learn the technique of washing your hands properly which is the single most important thing you can do to help reduce the spread of infections and help protect you, your family and those around you.

In this Unit you will learn about arms and hand anatomyin brief. You will also learn about the most common hand and nails diseases and it causes.

### Terms to Know

**Anatomy** is a branch of biology and medicine that considers the structure of living things. Evolution is the change in the inherited characteristics of a biological population over successive generations.

**Disease:** The term disease broadly refers to any condition that impairs normal function, and is therefore associated with dysfunction of normal homeostasis. Commonly, term disease is used to refer specifically to infectious diseases, which are clinically evidentdiseases that result from the presence of pathogenic microbial agents, including viruses, bacteria, fungi, protozoa, multicellular organisms, and aberrant proteins known as prions.

**Illness:** Illness and sickness are generally used as synonyms for disease. However, this term is occasionally used to refer specifically to the patient's personal experience of their disease.

**Disorder** is a functional abnormality or disturbance. Medical disorders can be categorized into mental disorders, physical disorders, genetic disorders, emotional and behavioral disorders, and functional disorders. The term disorder is often considered more value-neutral and less stigmatizing than the terms disease or illness, and therefore is preferred terminology in some circumstances. However, the term disorder is also used in many other areas of medicine, primarily to identify physical disorders that are not caused by infectious organisms, such as metabolic disorders.

**Symptom and Sign:** A symptom can more simply be defined as any feature which is noticed by the patient. A sign is noticed by other people. It is not necessarily the nature of the sign or symptom which defines it, but who observes it. A feature might be a sign or a symptom, or both, depending on the observer(s). For example, a skin rash may be noticed by either a healthcare professional as a sign, or by the patient as a symptom. When it is noticed by both, then the feature is both a sign and a symptom. Some features, such as pain, can only be symptoms, because they cannot be directly observed by other people. Other features can only be signs, such as a blood cell count measured in a medical laboratory.

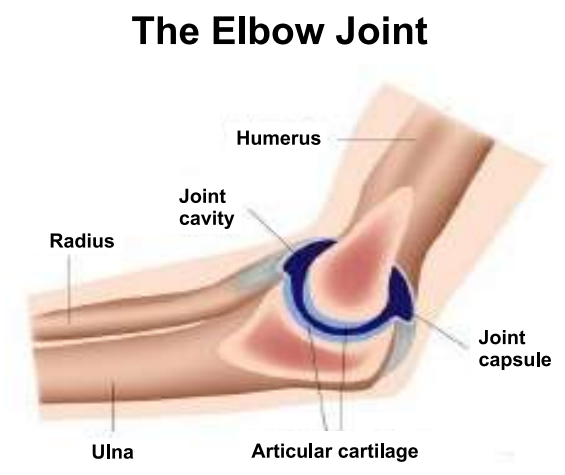
# Session – 1

## *Arm and Hand Bone Structure*

### Relevant Knowledge

### The Hand

Few structures of the human anatomy are as unique as the hand. The hand needs to be movable in order to position the fingers and thumb. Adequate strength forms the basis for normal hand function. The hand also must be coordinated to perform fine motor tasks with precision. The structures that form and move the hand require proper alignment and control in order for normal hand function to occur.




The anatomy of the arm consists of only three bones but a number of muscles, tendons, and nerves. At the end of the forearm are the metacarpal bones, which make up the wrist joint and attach the hand to the arm. The arm connects with the shoulder at the scapula, and in between are several long bones and large muscles that allow the arm to move and flex.

The arm consists of the following bones:

### Humerus

**Humerus:** The largest bone of the upper arm. The lower end connects with the two bones of the lower arm (radius and ulna).

**Radius:** One of the bones of the forearm. The upper end is small and forms a part of the elbow joint. The lower end is large and forms a part of the wrist joint.

**Ulna:** One of the bones of the forearm, on the little-finger side of the forearm, that forms with the humerus the elbow joint and serves as a pivot in rotation of the hand.

**Beauty and wellness of the arm:** To keep hand muscles free from bad circulation:

The best cure is a daily circulation booster treatment, in your bath use a loofah, coarse bath mitt, stiff circulation brush and a good lathering soap. Rub up and down your arms. This treatment also helps to remove dead cells on the arms.

Nourish well: Lubricate problem areas on your upper arms with a good nourishing cream and knuckle it in, working up from your wrist to your shoulder line. Then smooth on hand or body lotion, stroking it on until it is completely absorbed.

Fruits and vegetables which contains the Vitamin A which is good for Arm muscles, tendons and bones: Grapefruit, Guava, Mango, Papaya, Tomatoes, Watermelon carrots, milk and cheese, egg yolks.

The hand is composed of many different bones, muscles, and ligaments that allow for a large amount of movement and nimbleness. There are three major types of bones in the hand itself, including the following:

Phalanges. The 14 bones that are found in the fingers of each hand and also in the toes of each foot. Each finger has three phalanges (the distal, middle, and proximal); the thumb only has two.

Metacarpal bones. The five bones that compose the middle part of the hand. Carpal bones. The eight bones that create the wrist. The carpal bones are connected to two bones of the arm, the ulna bone and the radius bone.

Ligaments are tough bands of tissue that connect bones together. Two important structures, called collateral ligaments, are found on either side of each finger and thumb joint. The function of the collateral ligaments is to prevent abnormal sideways bending of each joint.

Ligaments hold your bones together, reinforcing your joints. Several ligaments attach your upper arm bone, or humerus, to your shoulder blade, while others attach the lower end of the humerus to the bones of your forearm. Many muscles attach to the humerus, enabling your arm to move freely in all directions: up, down, backward, forward and side to side. Other muscles of your arm are responsible for moving your elbow.

Brachioradial muscle

The arm is divided by a fascial layer (known as lateral and medial inter muscular septa) separating the muscles into two osteofascial compartments: the anterior and the posterior compartments of the arm. The fascia merges with the periosteum (outer bone layer) of the humerus. The compartments contain muscles which are innervated by the same nerve and perform the same action.

Two other muscles are considered to be partially in the arm:

- The large deltoid muscle is considered to have part of its body in the anterior compartment. This muscle is the main abductor muscle of the upper limb and extends over the shoulder.
- The brachioradialis muscle originates in the arm but inserts into the forearm. This muscle is responsible for rotating the hand so its palm faces forward (supination).

## Muscles of the shoulder Arm and Hand

Deltoid – It is large, thick, and a triangular shaped muscle which covers the upper arm and shoulder. It lifts, extends and rotates the arm.

Biceps – It has two heads and covers the front of the upper arm, it raises the forearm and turns the palm outward.

Triceps – It is a three headed muscle and covers the whole of the back of the arm. It extends the forearm forward.

Pronators – This is the most important muscle of the forearm and turns the hand so that the palm faces backward and downward.

Flexors

Supinators – It Cover the forearm, turns the hand so that the pal faces forward.

Extensors – Muscles of forearm, strengthen the wrist and hand and fingers to form a straight line.

## Flexors

Flexors – Forearm muscles that bend the wrist. Adductors – Adductors at the base of fingers and thumb, draw fingers together.

Abductors – Abductors at base of fingers and thumbs, separate the fingers.

## Beauty and Wellness

The shoulder is the most moveable and unstable joint in the body. The "ball" in the upper arm is actually larger than the socket that holds it, and with the range of motion being so great, it is susceptible to injury.

To remain stable, it must be kept in place by muscles, ligaments, and tendons. Therefore, it is very important to make sure these soft tissues are strengthened to keep the shoulder strong, flexible, more coordinated, and conditioned to handle stress.

There are many daily activities that use the shoulder muscles: lifting groceries, any type of manual labour, household chores, raking leaves.

Important small muscles that surround the shoulder joint are called the rotator cuff muscles. They are the key muscles that keep the joint functioning properly. Weakness in any of the four muscles can cause instability, which can lead to numerous injuries.

Exercises that strengthen the shoulder and the rotator cuff muscles can be done at home, work or the gym. The rotator cuff muscles are very small, so be careful not to use too much weight or do too many repetitions. Also, it is important to keep a balance between the front and rear rotator cuff muscles.

Keeping these muscles strong and healthy is essential to maintaining your independence. Toning your upper body can also help you to have a slimmer physique.

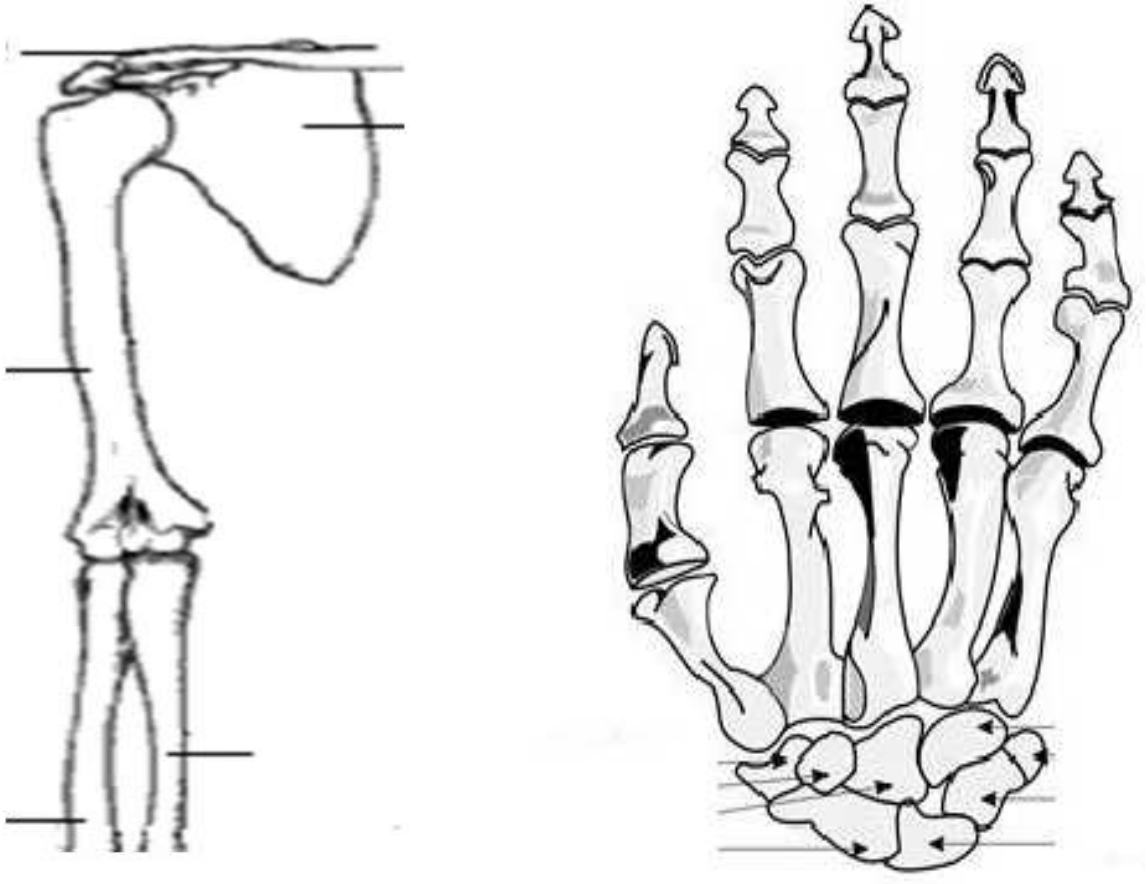
## Exercise

### A. Activity

Color the diagram with color given in the table for the type of bone.

| Bone name | Color |
|---|---|
| Proximal Phalanges | Blue |
| Metacarpals | Black |
| Distal Phalanges | Green |
| Intermediate Phalanges | Yellow |
| Carpals | Red |
| Humerus | Purple |
| Radius | Brown |
| Ulna | White |

**Figure of Arm Bones**



**B. Case based Problem**

**Case Study**

1. 15 years boy met with the road accident and his arm got injured. Orthopedic doctor examined the boys arm X-ray and found a hair line fracture on carpal bone. Doctor prescribed the pain killer, calcium supplements and Vitamin complex tablets. He was asked to take rest for six weeks.

Answer the following question based on the above mentioned case:-

a. Do you think elbow joint will allow the hand to be move towards and away from the body?

b. If yes, then why do you think so? And what part of hand he will not be able to move and how it will impact in his daily activities?

c. If no, then why do you think so?

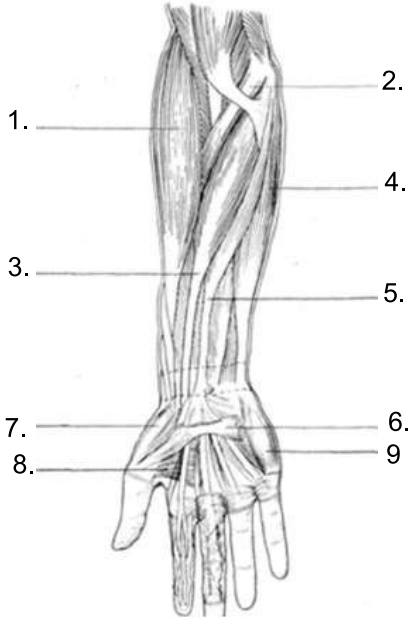
d. What nutrients and mineral will help in speedy recovery?

## Assessment

**Answer the following questions**

**A. Draw a well labeled diagram of arm bones.**

**B. Label the muscles in the diagram below:-**




**C. Differentiate between the following:**

a. Humerus and Ulna

b. Biceps and Triceps

c. Elbow and Wrist

**D. Fill in the blanks:**

1. At the end of the forearm are the _____, which make up the wrist joint and attach the hand to the arm. (Metacarpal bones, Carpal bones, Scapula)

2. The _____ is largest bone of the upper arm. (Ulna, Radius, Humerus)

3. The arm is divided by a _____ layers separating the muscles into two osteofascial compartments. (Fascial, Flexors, Deltoid)

4. _____ is large, thick, and a triangular shaped muscle which covers the upper arm and shoulder. (Bicep, Flexors, Deltoid)

5. _____ is the muscles which is responsible for rotating the hand. ( brachioradialis muscle, deltoid muscle)

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

(a) Bicep muscles and Triceps muscles

(b) Ulna and Humerus

(c) Elbow and Wrist

**Part B**

Discussed in class the following:

a) What all bones together make our hand?

b) What is the function of carpal bones?

c) What is the importance of brachioradialis muscle?

d) Where bicep and triceps muscles are located in human body?

**Performance standards**

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Identify bones of the arms | | |
| Identify muscles present in the arms | | |

# Session – 2

## *Nail Structure*

**Relevant Knowledge**

**Purpose**

One of the evolutionary gifts that have been passed on to us from our Hominid lineage is the use of our hands. Along with the social requirement, the usage of tools taught the four legged primitive man to stand on two limbs. Human hands became more sophisticated with time and age. Today, our hands play a multi-functional role apart from the primitive clutching task. The nail, which is a part of our hands, performs the function of extended precision grip, like pulling out a splinter in one's finger, peeling an orange or removing the protective plastic from a bottle or jar. It also shows the health of a person.

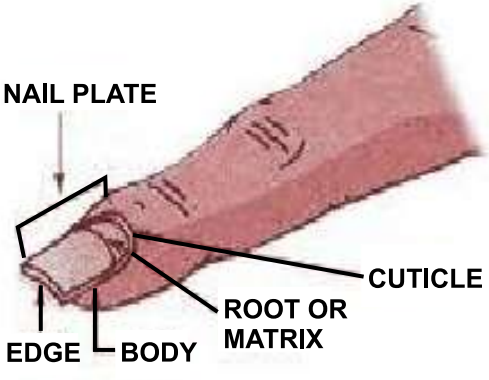
A healthy finger nail protects the distal phalanx, the fingertip, and the surrounding soft tissues from injuries. It also serves to enhance precise delicate movements of the distal digits through counter-pressure exerted on the pulp of the finger. The nail, acts as a counterforce when the end of the finger touches an object, thereby enhancing the sensitivity of the fingertip, even though there are no nerve endings in the nail itself.

It is important to know the structure of nails to understand the process of its care.

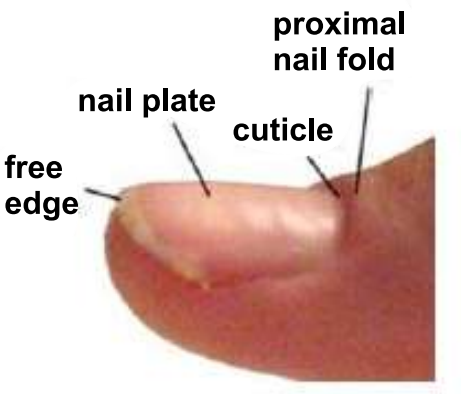
Now let's understand the structure of nail.

**Nail Plate**

The nail plate is the actual fingernail, made of translucent keratin. The pink appearance of the nail comes from the blood vessels underneath the nail. It is actually a hard, protective structure constructed of layers of keratinised cells and forms the visible portion of the nail.



The end portion of the nail plate extends over the tips of fingers or toes and is called the free edge. The structure of the nail is divided into six specific parts - the root, nail bed, nail plate, eponychium (cuticle), perionychium, and hyponychium. Each of these structures has a specific function, and if disrupted can result in an abnormal appearing fingernail.

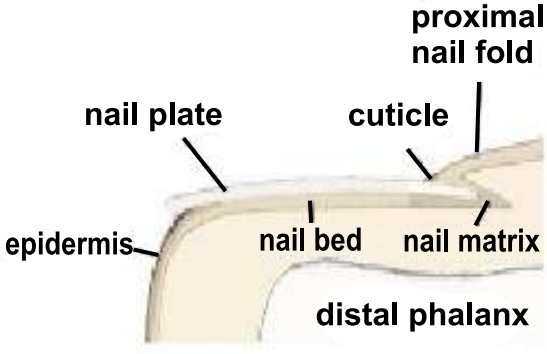



**Cuticle**

The cuticle of the fingernail is also called the eponychium. The cuticle is situated between the skin of the finger and the nail plate fusing these structures together and providing a waterproof barrier.

**Nail Bed**

The nail bed is part of the nail matrix called the sterile matrix. The nail bed contains the blood vessels, nerves, and melanocytes, or melanin-producing cells. As the nail is produced by the root, it streams down along the nail bed, which adds material to the under surface of the nail making it thicker. It is important for normal nail growth that the nail bed be smooth. If it is not, the nail may split or develop grooves that can be cosmetically unappealing.

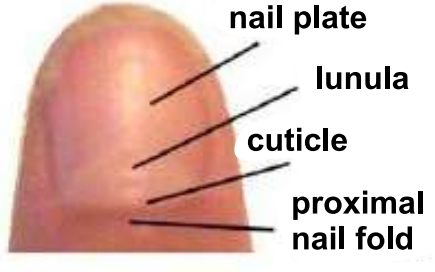



**Perionychium**

The perioncyhium is the skin that overlies the nail plate on its sides. It is also known as the paronychial edge. The perionychium is the site of hangnails, ingrown nails, and an infection of the skin called paronychia.

**Hyponychium**

The hyponychium is the area between the nail plate and the fingertip. It is the junction between the free edge of the nail and the skin of the fingertip, also providing a waterproof barrier.



**Nail Root**

The root of the fingernail is also known as the germinal matrix. This portion of the nail is actually beneath the skin behind the fingernail and extends several millimetres into the finger. The fingernail root produces most of the volume of the nail and the nail bed.

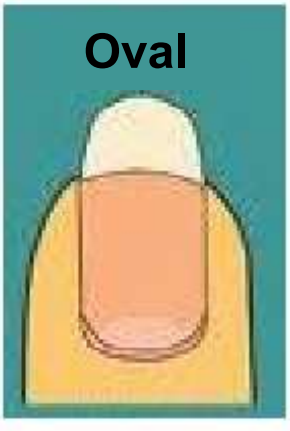
## Chemical Composition of Nails

The chemical composition of nails remains same as follows

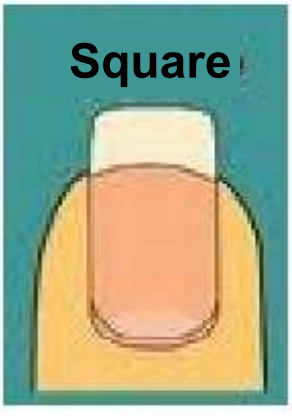
- Main chemical component consists of hard keratin which is high in sulphur compared to keratins of skin.
- High glycine-tyrosine rich matrix protein. 18% water, lipid content <5%.
- Rigidity depends upon arrangement of cells, their adhesions and the orientation of the keratin fibres.
- It is independent of chemical composition or calcium content.

## Shapes of Nails

The shapes of nails for hands and feet can be classified as:




**Oval:** The tapered side walls of the oval create an elegant shape for women. Oval shapes flatter both wide and narrow nail beds, and add length with a graceful tip. Beware—oval nails tend to break easily because the rounded edges weaken the nail bed. To achieve the perfect oval shape, file side walls straight to make sure they're even. Then, shape the side walls into a rounded oval, making sure the angles are even on each side.

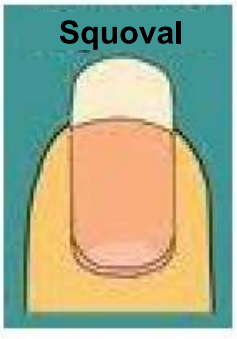



**Square:** With strong side walls and sharp or rounded tips, this is the classic French manicure shape. The square is ideal for a bigger nail bed (it tends to make smaller nail beds look shorter and wider). To create this timeless shape, file the side walls straight and make sure they're perpendicular to the free edge of the nail. Once you've got the perfect square, angle your emery board and bevel the nail.

**Point/Almond:** The pointed nail is a popular style for acrylic and nail art designs, especially in Eastern Europe and Asia. This extreme shape can actually slenderize and lengthen the fingers. Like the oval, this style breaks easily because you've filed down the strongest area of the nail bed.

**Square Oval (Squoval):** Combining the elegance of the oval with the strength of the square, the squoval is a popular nail shape for most fingers. First begin with a square with straight and even side walls. File the corners until your free edge is rounded and beveled. Remember, you still want strong side supports—don't go too file-happy.

**Round:** As one of the most conservative shapes of the bunch, the round shape is ideal for men and those who like to maintain short nails. This shape is flattering for wide nails, and gives the illusion of a thinner nail bed. File the side walls straight like a square, then round the free edge into that perfect swooping circle.

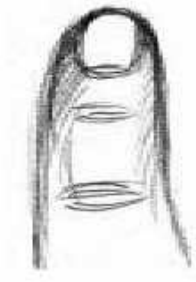



There are 4 basic fingertip types: rounded (conic), square, spatulate and pointy.

## Shape of Fingers

### Rounded finger

The Rounded finger is rounded at the end. Most people have rounded (conic) tip types.



**Fun Fact:** If you have rounded fingers than it is more likely that you are creative, expressive, impulsive, think and act quickly and sympathetic to others.

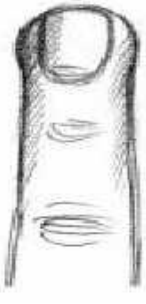
### Pointed finger

The Pointed finger appears tapered toward the end.

Fun Fact: If you have pointed fingers than it is more likely that you are highly creative, energetic, imaginative and spiritual with a passion for art and beauty and you enjoy communicating with others.

### Square finger

The square shape is leveled across the top and it is in square shape at the top of the finger.



Fun Fact: If you have square fingers than it is more likely that you are practical, logical, Hard-working and down-to-earth.

### Spatulate finger

The Spatulate finger widens toward the tip, almost as if the finger were being flattened out by being pressed against a hard surface.

Fun Fact: If you have spatulate fingers than it is more likely that you are adventurous, adaptable, ambitious and inventive.

Maintaining strong and healthy nails is not so difficult if you know your nail type. Each nail type is unique and needs to be taken care accordingly. Knowing your nail type will also help you to go for the right treatment if you have any nail-related problems. There are five different types of nails: dry, brittle, damaged, soft and normal nails.

**Dry nails**

- Dry nails appear dull and lack luster.
- They may have superficial ridges and flaking free edges.
- They may peel easily.
- Cuticles are very dry.

One of the common causes of dry nails is exposing your nails to harsh environmental conditions which draw out moisture from your nails. Cold weather conditions and frequent use of nail polish remover can also dehydrate your skin. All these will make your nails flake as your nail plate becomes thinner and weaker. If you have dry nails, the best way to treat them is by rehydrating your nails. You can apply vitamin E oil or wear a moisturizing base coat regularly to nourish the nails. Moisturizing will help prevent flaking of the free edges. Avoid frequent change of soaps and/or hand wash.

**Brittle nails**

- Brittle nails are very hard.
- They would break or crack very easily.
- They lack flexibility and moisture. If you press the sides of your nail together, brittle nail would not bend.
- They usually have a thicker nail plate and tend to curve as they grow longer.

The main cause of brittle nails is believed to be frequent hand washing and drying. Exposure to household cleaning products may also contribute to brittle nails as these products diminish moisture in your hands. Apply a moisturizing cream every time when you wash your hands. You can wear hand gloves when engaging in activities that are rough on your nails. Over-the-counter creams may also help. Consult your doctor for the right moisturizing cream every time when you wash your hands. You can wear hand gloves when engaging in activities that are rough on your nails. Over-the-counter creams may also help. Consult your doctor for the right treatment.

**Damaged nails**

- Damaged nails flak or split easily.
- Nails are very thin and weak.
- They have a very slow growth or appear not to grow at all.
- The free edges of your nails may disintegrate when you try to file them.

Damaged nails are caused due to severe dehydration. Constant nail biting over a period of time, medication, underlying disease, nail elongation techniques, etc. may lead to damaged nails.

Make sure that you moisturize your nail at the beginning of manicuring to hydrateand nourish your nails to prevent them from flaking when it is filed later on. Regular use of cuticle oil also will help. Try using gloves while doing house hold chores.

**Soft nails**

- Your nails bend easily at the slightest touch.
- Nails rarely grow past your fingertips.
- Nails split and peel easily.

One of the most common causes of soft nails is exposure to water. Excess use of detergents and other chemical products also affect your nails. Rubbing of essential oils on the nail may be beneficial in treating soft nails.

Wear gloves while washing and avoid long soaks in strong detergents. Applying hand cream after washing your hands is also recommended.

**Normal nails**

- Normal nails appear pink and shiny.
- They look strong and healthy.
- They have a normal growth and grow easily.
- They will bend slightly when you press.

To maintain healthy nails, do moisturize them regularly by using hand creams and avoid excessive exposure to water and harsh detergents.

The overall growth of the nail within one month is approximately 3mm vary from person to person. To completely outgrow a nail can take up mentioned, growth rate does vary from person to person, there are many factors such as; weather, health, age and a well-balanced diet. The na faster in our early years, reaching its peak around the age of 10-14 an gradually slows down, as we get older. Growth is accelerated in the su pregnancy and during sleep. Poor blood circulation, malnutrition, cert medications can slow down the growth rate. Each nail grows at a diffe smallest nail that we often refer to as our "pinkie" is the in fact the sl thumbs. The index finger generally grows at an accelerated rate in com others.

Brittle nails tend to have a low water content. The water content will of the nails. Water content can vary from 10% to 30%. Nail varnishes an loss of water and encourage flexibility.

Nail care and nail art has become an important aspect of the professional beautician industry. A beautician who specializes in dealing with care and maintenance of finger nails is call as a Nail Technician. Taking care of your nails is as important as taking care of your skin in order to look beautiful and great. Having good nails can make your feet and hands look beautiful. Just applying a nail enamel or colour does not make your nails look great. They need to be naturally good looking and having a manicure and pedicure helps in keep your nails clean, hygienic and healthy. A good nail technician would know what nail shape.

## Exercise

**Answer the following questions**

a) How fast human nail grows?

b) How root of the nails are protected?

c) A person was asked by his friends to take care of his nails as he had the habit of biting them. That person never bothered to do anything about it as he assumed that his nails are healthy and biting nail won't affect them. If you were that person then what all you will you have examined in your nails before coming to the conclusion that your nails are healthy?

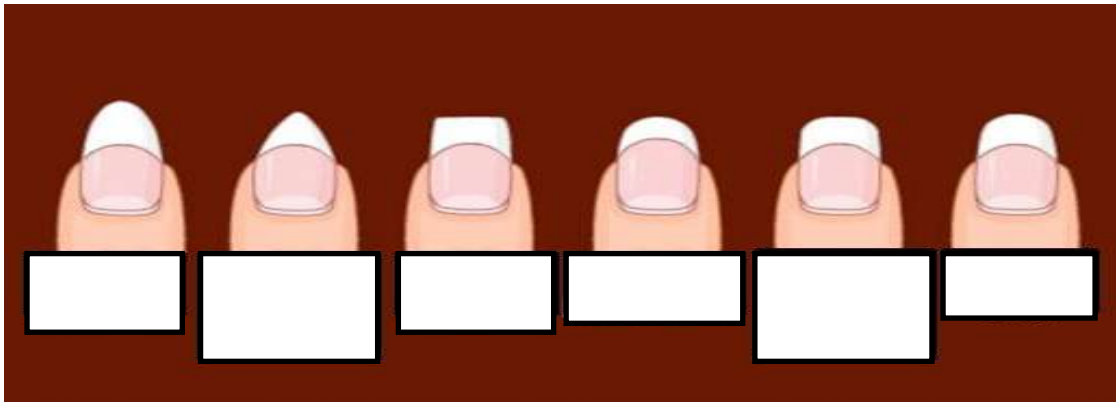
## Assessment

**Answer the following questions**

### A. Short Answer Question

Q1. Draw a well labeled diagram of a nail structure.

Q2. Name the shapes of nails shown in the images below



## B. Differentiate Between

a. Round fingers and pointed fingers

b. Square nail shape and oval nail shape

c. Soft nails and Dry nails

d. Damaged nails and Brittle nails

## C. Scenario based questions

Answer the following questions based on the scenario given below:-

a. A house maid, who works 10 hours a day in a kitchen, had hard nails which tend to break and curve when it grows longer. If she press both the end of the nails than it would not bend.

i) What is the type of nail does this maid has?

ii) How did you come to the above conclusion?

iii) Why did she develop such nails?

iv) What are the precautions she should take while working?

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Round fingers and pointed fingers

b) Square nail shape and oval nail shape

c) Soft nails and Dry nails

d) Damaged nails and Brittle nails

**Part B**

Discussed in class the following:

a) What are the characteristics of healthy nails?

b) Which vitamins and mineral can help in maintaining healthy nails?

c) Why it is important to learn about finger shapes and nails shapes?

**Performance standards**

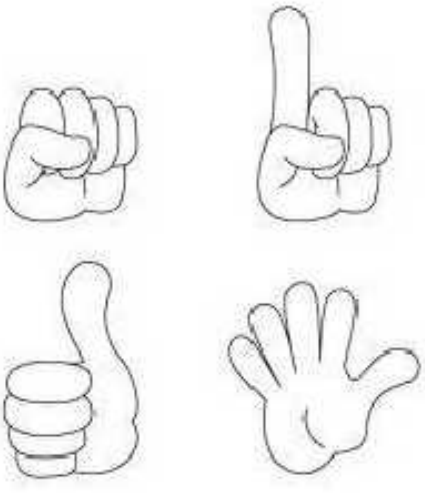
The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Identify nail shapes | | |
| Identify finger shapes | | |
| Analyze the nails and categorize into five types i.e. normal, dry, brittle, damaged and soft | | |

# Session – 3

## *Hand Skin and Finger Nail Diseases*

**Relevant Knowledge**



Like your face, your hands function as bridges to the world. You shake hands when you meet or greet someone for the first time and when you seal a connection. Your hands express your affection to those you love. They soothe sad children and those suffering from illness. Maybe you "talk" with yours. In any case, whenever you're interacting with others, your hands will probably spend some time in the contact.

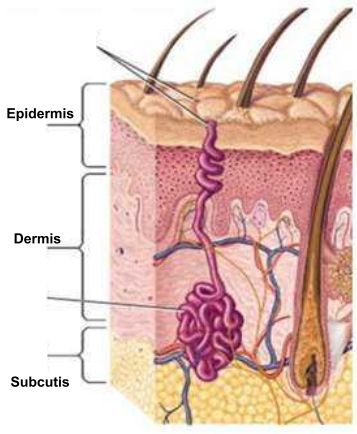
The problem is that your hands are also essential tools. You use them for complex work and lowly chores. And everyone is always telling you the importance of washing your hands. In the course of a day, your hands are exposed to all sorts of germs, dirt, harsh substances, sunlight and more. To make matters worse, the frequent washing that's designed to keep your hands sanitary also can keep them dry, cracked and wrinkled.

If neglected, your hands' skin may end up needing medical help. That said, your fingernails (and your spirits) might benefit from a professional manicure now and then. Taking good care of your hands doesn't have to be a major production. There are things you can do every day to help your hands look and feel good. Develop a good routine and give your hands a helping hand.

Because of their role and function as human tools, the hands are particularly exposed to exogenous factors in the course of daily work in the house, school, playground and garden. Because of this, the skin of the hands is markedly different from the skin of the other body areas. The skin of the palms is, again, completely different from that of the back of the hands.

When we look at the back of the hand, it is obvious that

the skin is especially thin. This is because the subcutis has hardly any fatty tissue. In contrast, the palms (palmus manus) and especially the balls of the thumbs are well padded with tissue insensitive to pressure. Here, the subcutaneous fatty tissue is especially thick and rich in fatty and connective tissue.




The lack of hair on the palms means there is also a lack of lipid-providing and moisture-binding sebum. On the back of the hands, which has only a few fine hairs, the density of sebaceous glands is also much lower than on other parts of the body. The hands are consequently less protected from external influences, especially lipid-depleting ones.

Unlike the sebaceous glands, the sweat glands on the palms show a higher density than in other skin areas. There is a shortage of some natural moisturizing factors (NMF) and protecting lipids. In addition, the protective acid mantle of the hands is deficient in important pH-stabilizing,lipid-providing and moisture-binding components secreted by the sebaceous glands.

On the palms, the pronounced horny layer is rich in epidermal lipids, while on the back of the hands there is an undersupply of lipids due to the reduced density of sebaceous glands. The resulting weakened formation of the hydrolipid films means the hands dry out very rapidly when overtaxed. With frequent use of alkaline soaps, the pH (i) of the hands can quickly fallinto a critical range. The amount of moisture in hand skin is 5 times smaller than in face skin. Production of protective lipid layer in hand skin is 10 times small

Let us look at different kind of hand skin and nail diseases

**Hand Skin and Nail Diseases**

Although not an official category of psoriasis, nail psoriasis is a manifestation of psoriasis that affects up to half of all individuals with psoriasis elsewhere on the body. The condition can often be confused with fungal infections and other infections of the nail.

**Nail Psoriasis**

**Nail psoriasis** can cause nail pitting, grooves, discoloration, loosening or crumbling of the nail, thickened skin under the nail, and colored patches or spots under the nail. There is no cure for psoriatic nails, but some treatments may improve the health and appearance of nails.

**Causes**

The causes of nail psoriasis are unknown. It has been suggested that fungi may play a role.

**Symptoms**

- Translucent discolouration in the nail bed that resembles a drop of oil beneath the nail plate.
- Thickening of the nail (normally at the tip) with ridges, pits and discolouration.

**Hand eczema** (also known as hand dermatitis) is a common condition affecting up to 10% of the population.

## Hand Eczema

### Causes

Hand Eczema results from a combination of factors, both internal (e.g. your genetic make-up), and external (e.g. contact with irritants and allergens such as chemicals). The irritant nature of some chemicals means that hand eczema is particularly common in people with jobs involving cleaning, catering, hairdressing, healthcare and mechanical work. It is an inflammatory condition and is not contagious, but it can still have a major effect on people's work, social lives and self-esteem.

### Symptoms

The main symptoms of hand eczema include one or more of the following:

- Redness (erythema)
- Itching
- Pain
- Dryness, to the point of peeling and flaking
- Cracks (fissures)
- Blisters (vesicles)

## Hives on Hands

Many people get hives on their hands from the top to the palms of their hands. Hives on hands are itchy, red, raised welts on the surface of the skin that seem to appear out nowhere. They are usually brought on by an allergic reaction to something that has made contact with your hands. In response, your immune system sends out histamine into your blood stream to fight off the allergens you have come in contact with. Hives on hands are curable 95% of the time with the right hives treatment.

**Causes**

Hives on hands can be caused by certain fabrics, hand lotions, soaps, shampoos, detergents, sunlight (see sun hives), insect stings or bites, cold or hot temperatures, and handling or eating certain foods (such as egg white for my toddler). The most common foods that cause an allergic reaction are tree nuts, peanuts, milk, eggs, tomatoes, berries, wheat and soy. Most hives on hands goaway within a time frame of a few hours to a couple of days. However, there are chronic cases that last longer than 6 weeks, and these cases are normally idiopathic. This means that there is normally not a cause found for the hives on hands.

**Symptoms**

The most common hives on hands symptoms:

- Itchy raised, red welts on the surface of hands that may swell up into red or skin colored welts (known as wheals) with clearly defined edges.
- Wheals have the tendency to appear quickly and fade away over time.
- Hives on hands can spread to other regions - especially if the reaction is caused by an allergen touching your skin. This is exactly what happens when my toddler touches egg whites.
- Hives on hands have been known to change shape and even merge into large areas of raised red skin.
- They can disappear and reappear within minutes, hours or days depending on the allergen exposure.

**Vitiligo**

**Vitiligo** is a condition in which you lose the pigment of your skin. **Pigment** causes skin color and is produced by cells called "melanocytes." Another word for pigment is "melanin."

Most people with vitiligo lose pigment in patches of normally pigmented skin, which is replaced by flat white patched with irregular borders. This loss of pigmentation can occur in small patches, on one side of the body or in large areas covering over 50% of the body. These patches are usually areas of your body that are exposed to the sun, such as your hands, face, arms, and feet, but the genitalia can also be affected.

Vitiligo can be treated, but not cured. You will need to manage the disorder throughout your life. The National Vitiligo Foundation estimates that 0.5 to one percent of the general population suffers from vitiligo.

The condition is not contagious, does not cause pain, and is not medically dangerous. Vitiligo affects males and females of all races equally. However, the loss of pigment, called depigmentation, is more noticeable in people with dark skin.

**Causes**

The exact cause of vitiligo is unknown; however, links exist between vitiligo and other autoimmune diseases, such as alopecia areata, hyperthyroidism, Addison's and the genetic disease pernicious anemia.

Researchers think that vitiligo could be an autoimmune response, meaning that the body attacks itself. In this case, your body destroys its own melanocytes so that the pigment is lost.

Vitiligo also appears to be an inherited condition. Up to 30 percent of people who have vitiligo have a family member with the same condition

**Symptoms**

The main symptoms of vitiligo are:

- Pigment loss that produces milky-white patches (depigmentation) on your skin Other less common signs may include:
- Premature whitening or graying of the hair on your scalp, eyelashes, eyebrows or beard Loss of color in the tissues that line the inside of your mouth (mucous membranes)
- Loss of or change in color of the inner layer of your eye (retina)
- There are five types of warts. Each type appears on a different part of the body and has a distinct appearance.

**Common warts**

usually grow on your fingers and toes but can appear elsewhere. They have a rough, grainy appearance and a rounded top. Common warts are grayer than the surrounding skin.

**Causes**

Common warts are caused by a virus and are transmitted by touch. Children and young adults are more likely to develop common warts, as are people who have weakened immune systems. Common warts usually disappear on their own, but many people choose to remove them because they find them bothersome or embarrassing.

**Symptoms** of Common warts are:

- Small, fleshy, grainy bumps
- Flesh-colored, white, pink or tan
- Rough to touch

## Periungual Warts

Periungual warts grow under and around the toenails and fingernails. They can be painful and affect nail growth.

### Causes

Periungual warts just like other forms of warts are caused by the HPV virus. HPV is a highly contagious virus that enters the body through cuts, scrapes, and abrasions. In the case of periungual warts, they enter through the broken skin of people who tend to bite, tear, and pick at their nails. The broken skin makes it extremely easy for the HPV virus to move in and take root. The warts develop on the toenails of people most commonly that have come into contact with people or objects that are carrying the virus.

One thing to remember is that with the biting of fingernails you are running the risk of transferring the HPV virus from the nails to your mouth and contracting an oral wart virus, which can lead to many more complications.

### Symptoms

Once periungual warts reach the size of a pea they are easy to spot. They tend to take on cauliflower appearance, spread quickly, and form in clusters surrounding the nails or under the nail itself. You will first notice the rough small raised bumps but if the warts are left untreated, they will become painful. This is especially true in small children who contract the virus. The larger the lesions the more the plate of the nail with lift causing pressure and pain. If left untreated for long the nail will start to detach. In rare cases, this can leave scarring and irreversible damage to the nail bed.

**Fungal nail infections :** There are many different causes of fungal nail infections, and each cause has a treatment of its own. Although many of the causes of onychomycosis are preventable, some risk factors increase the likelihood of developing it. You are more likely to develop a fungal nail infection if you:

- have diabetes
- have a disease that affects the blood vessels
- are an older woman
- wear artificial nails
- swim in a public swimming pool
- have a nail injury
- have moist fingers or toes for an extended time
- have a weakened immune system
- wear closed shoes, such as tennis shoes or boots

## Fungal Nail Infections

**(onychomycosis)**

Fungal infections affect toenails more commonly than fingernails.

Fungal nail infections are treatable in most cases; however, the fungus can return after treatment or cause future complications.

**Causes**

A fungal nail infection occurs from the overgrowth of fungi in, under, or on the nail. Fungi thrive in warm, moist environments, so this type of environment can cause them to naturally overpopulate. The same fungi that cause jock itch, athlete's foot, and ringworm can cause infection in the nails.

Fungi that are already present in or on your body can cause nail infections. If you have come in contact with someone else who has a fungal infection, it may have spread to you. Because fungi prefer damp, dark conditions, fungal infections occur more often on the toenails than the fingernails. When your feet are inside shoes, it can create a dark and moist environment for fungi to thrive.

If you get a manicure or pedicure at a nail salon, be sure to ask how and how often the staff disinfects their tools. Tools, such as emery boards and nail clippers, can spread fungal infections from person to person if they are not sanitized.

**Symptoms**

The most common symptom of a fungal nail infection is the nail becoming thickened and discoloured: white, black, yellow or green. As the infection progresses the nail can become brittle, with pieces breaking off or coming away from the toe or finger completely. If left untreated, the skin can become inflamed and painful underneath and around the nail. There may also be white or yellow patches on the nail bed or scaly skin next to the nail. There is usually no pain or other bodily symptoms, unless the disease is severe. People with onychomycosis may experience significant psychosocial problems due to the appearance of the nail, particularly when fingers –which are always visible – rather than toenails are affected.

## Exercise

### A. Assignment

1) Match the following:

| | |
|---|---|
| Nail psoriasis | Milky white patches |
| Dryness, cracks and blisters | Fungal nail infection |
| Vitiligo | HPV virus |
| Periungual warts | Hand eczema |
| Over growth of fungi on nail | Nail pitting, grooves and discolouration |

2) Case scenario:

a) A 30 year old house wife Sneha had a nail condition. She had nail thickening, translucent discolouration resembling an oil droplet beneath the nail bed. When she told this to her Reema, Reema told her this may be Periungual warts. Based on the case scenario answer the following:

1) Do you think Reema's diagnosis of the medical condition is correct?

2) If no, then looking at the symptoms, diagnose the problem?

3) What caused the above condition?

b) An office boy has dried, itchy, red rash on both hands which was reduces on holidays. One day while working his coworker noticed this and told him that, this may be because of his frequent contact with chemicals.

1) What is the medical condition mentioned in the above scenario?

a) Hand hives

b) Hand warts

c) Hand eczema

d) None of the above

2) How did you come to the above conclusion of the medical condition?

## Assessment

**A. Identify The Disease And Fill In The Following:**

1) Name of the disease _____

a. Causes:

b. Symptoms:

2) Name of the disease _____

a. Causes:

b. Symptoms:

3) Name of the disease _____

a. Causes:

b. Symptoms:

**B. Differentiate Between**

a) Hand eczema and Nail psoriasis

**Checklist for Assessment Activity**

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between:

a) Hand eczema and Nail psoriasis.

b) Vitiligo and Common warts.

**Part B**

Discussed in class the following:

a) Why is it important for a beautician or nail technician to know about hand and nail diseases?

b) What are the causes and symptoms of nail psoriasis?

c) What are the causes and symptoms of hand eczema?

**Performance standards**

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Identify the common hand skin diseases | | |
| Identify the common finger nail diseases | | |

## Session – 4

### *Hand Care and Nail Care*

**Relevant Knowledge**

Beautiful, well-kept and delicate hands are important. Hands tell you a number of things about yourself. Hands tell you how you lead your life and how you take care of your body and skin. It is said that the hands tell you how old a woman is. No matter how old you are, your hands tell an observer a lot about yourself as a person. Dressing up in fancy clothes is of no use if you do not take care of your hands and feet. While speaking or communicating with others you use your hands to express yourself, emphasize a point etc. Hands play an important role in communication. It is a part of the body that you use the most, you cook with them, get dressed with them, write with them, empathize with them and shake others hands when you meet them. Take good care of your hands and treat them well as they are essential for your existence.

You have been asked to clean your hands when you come back after playing, after using toilet, when we eat. WHY?

Whatever we touch in playground, bathroom and any other public place, we bring millions of germs with us. We can unknowingly become infected simply by touching our eyes, nose, or mouth. And once we're infected, it's usually just a matter of time before the whole family comes down with the same illness.

Good hand washing protects against the spread of many illness – from common cold to more serious illness such as meningitis, flu, hepatitis and most types of infectious diarrhea.

When should we wash our hands?

- Before, during, and after preparing food
- Before eating food
- Before and after caring for someone who is sick
- Before and after treating a cut or wound
- After using the toilet
- After blowing your nose, coughing, or sneezing
- After touching an animal or animal waste
- After touching garbage

**Correct Way to Wash your Hands**

Good hand hygiene is one of the first lines of defense against new and emerging infections. One of the basics of good hand hygiene is hand washing, so will learn the detail procedure for daily hand washing.

Step-1. Wet both hands with running water before applying soap.

Step-2. Apply soap to the hands.

Step-3. Rub your palms together, spreading soap on to the palms of both hands.

Step-4. Place the palm of the right hand over the back of the left hand and rub. Same with the left hand over the right.

Step-5. Place both hands together with the interlaced. Rub backwards and forwards.

Step-6. The back of the fingers on both hands should then develop ensuring adequate soap is spread to this area.

Step-7. Using rotational rubbing. The right thumb should be cleaned and vice versa

Step-8. Use rotational rubbing to clean th palm of each hand again.

Step-9. Ensure that the wrists of both hands are cleaned using rotational rubbing.

Step-10. Rinse the hands under running water to remove all traces of soap.

Step-11.Use a clean brush to scrub your nails hard, and all over-including underneath your nails. When you're finished, wash your hands to get rid of the soap and dirt, pat your hands dry.

Step-12. Dry your hands thoroughly until no wetness remains.

Taking regular care of your hands is very important as it protects your hands against infections and diseases. Hand care is essential as it help keeps the skin on your hands healthy, soft, and gives your hands good appearance

## Hand Care Process

To keep your hand beautiful, you should follow proper hand care process at least once in a week. It will remove any dead skin on the hand and can help you maintain beautiful neat nails. Hand care has following steps:

1. Cleansing: Remove dirt from hand, remove nail paint and soaking will soften your nails.
2. Nail cutting and filling: Help in getting proper shape and size to nails.
3. Scrubbing: Help remove dead skin
4. Moisturizing: Keep hand hydrated and soft

## Tools and Equipment required for Hand Care

Below listed are the tools and equipment required to take care of your hand.

1. Luke warm water in a bowl to soak your hands
2. Shampoo to clean your nails. Dispense small quantity of shampoo in bowl of luke warm water in which you will soak your hand.
3. Two dry towels
4. Nail polish remover to remove any nail polish on your hand. Nail polish is removed with nail polish remover or nail pads, which is an organic solvent, but may also include oils, scents and coloring. The most common type of nail polish remover contains the volatile organic compound acetone. It is powerful and effective, but is harsh on skin and nails, which can even make them more brittle. It can also be used to remove artificial nails, which are usually made of acrylic.

5. Nail cutter- A nail clipper (also called a nail trimmer or nail cutter) is a hand tool used to trim fingernails, toenails and hangnails

6. Nail file - A nail file is a tool used to gently grind down and shape the edges of nails. Nail files may either be emery boards, ceramic, glass, crystal, plain metal files or metal files coated with corundum (sapphire). Emery boards ar used extensively than any other filer.

7. Moisturizer lotion or cream - Hand creams are moisturizing cream for the hands. Lotions are applied to external skin with bare hands, a clean cloth, cotton wool or gauze.

## Step by Step process to hand Care

Steps for regular hand clean up: Use warm water and a soap that is antibacterial. Make sure the water isn't boiling hot! But use as hot of water as you can stand, because this helps with the process of killing germs. Start by rinsing your hands and then applying a pearl size amount of soap. Rub your hands together for at least 20 seconds. And remember to put some effort into it! Rub between your knuckles, on the back of your hands, etc.

Step-1 Prepare your nails. Remove nail paint using nail remover. Soak your nails for a few minutes before you cut them, as this softens them up and makes them easier to trim. This will also help avoid splitting your nails.

Step-2 Cut your nails. Cut and file nails using nail clippers and trim your nails. Don't cut them too short, you should be able to see at least a little of the white tip, all the way across. Using a nail file, file the nail and create a smooth and clean shape. Gently drag the file across the nail, rather than pushing it. Excessive force or sawing back and forth will weaken the nails and cause them to break. Pivot the hand with the file through each stroke to make a smooth curve rather than angles. Do not file them too short; just clean up any points or roughness left by the clippers. Avoid filing wet nails because this can cause splitting of nails.

Step-3 Wait for your nails to dry. Wait for a little bit until your nails are dry and are no longer soft. Filing wet nails will leave you with jagged, rough nails when they dry, and may also cause your nails to split and crack.

Step-4 File your nails. Use a nail file to shape your nails, and to make sure the edges of the nail are smooth. File the nail and create a smooth and clean shape. File from the outside of the nail towards the center of the nail going from each side inward, but not going back and forth. Sawing the file back and forth instead of in one direction will tear and break your nails. Make sure to let the file form your desired shape as you continue filing. Pivot the hand with the file through each stroke to make a smooth curve rather than angles. Do not file them too short: just clean up any points or roughness left by the clippers.

Create different nail shapes by filing:

**Step-1. Square nail shape:** The square nail shape is one of the strongest nail shapes you can have because the full width of the nail remains at the free edge. However, this shape isn't usually flattering on shorter nails as it can make hands look blunt and heavy; the square shape is best used to draw attention to longer nails.

To create this shape: hold your nail file at a 90° angle perpendicular to the finger and file straight across in one direction.

**Step-2. Squoval nail shape :**The squoval nail shape is the generally the most popular nail shape, as well as the most universally flattering shape. The nail is still able to maintain most of its natural strength but the corners are slightly rounded for a softer, more feminine appearance.

To create this shape: first start by following the directions for creating the square shape. Once you're satisfied, you'll want to hold your file at a 65° angle and carefully round the corners. As you move your file from the corner to the middle of your nail, work your file from the 65° angle to a 90° angle.

**Step- 3. Oval/ rounded nail shape:** This is a more traditional nail shape but it's still very popular. The tip is rounded instead of squared but the sides of the free edge are able to grow straight, which maintains the strength and structure of the nail.

To create this shape: allow the sides of your nails to grow straight but hold your file at approximately a 40° angle and round only the tip of the free edge.

Note: When filing, always file gently in one long stroke, from the side to the center of the nail. Use the coarse, shaping side first if you need to remove more nail. Then use the finer-grade shaping side to smooth your nails out.

**Do's and Don'ts in nail filing**

- Be firm but not too forceful when you file your nails. If you apply to much pressure to your nails when you file them, you may damage the nail wall.
- If you're going for that perfect smooth nail, start with a rough grit and move towards a fine grit.
- File of any uneven pieces with the rougher section of the emery board.
- Once you're done filing, you can use the file to remove any excess skin from under the fingernails.

**Step-4. How to choose a nail shape:** To choose the correct nail shape, take a look at the shape of your cuticles. If they're rounded, a round nail shape will be flattering for you. And vice versa, if your cuticles are more squared, then the square or squoval shape will be flattering for you. Of course, you can choose to have whichever nail shape you prefer; this tip will just help you make a decision if you're not sure which shape to opt for.

Your nails should be slightly triangle or oval and not pointed, when finished. This will keep them from breaking. Nails can weaken if you file too low into the corners and sides, too.

**Step-5** Use a brush to scrub your nails hard, underneath your nails. Wash your hands to get rid of the soap and dirt. Apply scrub on hands. Rub it nicely and give a gentle massage for 5 mins. It will help in removing the dead skin. Rinse it with water.

**Step-6** Pat your hands dry.

**Step-7** Apply hand cream or lotion- Take a lotion or hand cream and massage it into your hands. If you have very dry skin use an intensive lotion, if not use normal hand cream. Be sure to rub it into and around your nails and let it soak in for 30 minutes or longer.

## Exercise

### Case based problem

Following is the case report of a 10 year old patient named Raghav.
Study the report and answer the questions mentioned after the report.

Name of the patient: Raghav Age: 10 Sex: M

Problems told by the patient: Periodic bouts of diarrhea, itching around anal area, alternating with constipation, loss of weight, cough, fever and small no. of white colored warms.

Notes by a doctor: Child looks underweight, skinning and thin. Inputs from parents are that boy eats well and play cricket daily.

Diagnose: Intestine parasite – threadworm

Treatment: Anti-worm medicine, paracetamol, educated the child on proper hand wash practices

**Answer the following question**

Q1. What could have caused this problem?

Q2. How could have he avoided this problem? Explain

## Project

Scrap book

- Collect the paper cut outs of the tools and materials required for basic hand care. (e.g. Moisturizer, towel etc)
- Paste the tools and materials pictures in a scrap book.
- Paste them in order of their utilization in hand cleaning process, E.g. First step requires water to wet the hand and then soap is required. Then paste water picture first and then soap picture.

## Assessment

**A. Short Answer Questions**

Q1. What are the importance of following steps:

a. Nail filing

b. Moisturizing

Q2. A 15 year old girl was cleaning her hand. She did manage to cut the nails without any trouble, however while filing she broke her nail from the edge?

a. What precaution did she would have followed while cutting her nails?

b. What could have been the reason that she broke her nail while filing?

**B. Differentiate between the following:**

a. Hand cleaning and hand care

b. Nail cutter and nail filer

c. Summarize the basic hand care process.

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Hand cleaning and hand care

b) Nail cutter and nail filer

**Part B**

Discussed in class the following:

a) Why is it important to follow the 6 steps of hand wash?

b) What is correct procedure to cut nails?

c) What are the precautions one should take while cutting nails using nail cutter?

d) What are the precautions one should take while filing?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Demonstrate the technique of hand wash | | |
| Perform the basic hand care technique | | |
| Perform nail cutting using nail cutter | | |
| Perform basic nail filing | | |
| Perform nail filing to obtain a desired shape | | |
| Apply nail paint | | |

## Suggested Reading

### Books

- Anatomy & Physiology For Dummies by Janet Rae-Dupree, Pat DuPree

### Websites

- http://www.wikipedia.org/
- http://www.nails-care.com/2010/01/tips- for-filing-nails.html

## Glossary

### Session-1

1. **Collateral Ligaments -** In anatomy, a ligament is the fibrous tissue that connects bones to other bones and is also known as articular ligament, articular larua, fibrous ligament, or true ligament.
2. **Fascia -** A wooden board or other flat piece of material covering the ends of rafters or other fittings.
3. **Instability -** Lack of stability; the state of being unstable
4. **Lathering -** Cause (soap) to form a frothy white mass of bubbles when mixed with water.
5. **Repetitions -** The action of repeating something.
6. **Scapula -** either of two flat triangular bones one on each side of the shoulder in human beings.

### Session-2

1. **Clutching-Grasp** or seize (something) tightly or eagerly.
2. **Counterforce-** A contrary or opposing force, tendency, etc.
3. **Disrupted-Interrupt** (an event, activity, or process) by causing a disturbance or problem.
4. **Distal phalanx-In** human anatomy, the distal or terminal phalanges (singular phalanx) are the terminal limb bones located at the tip of the digits (i.e. fingers and toes).
5. **Elegance -** a refined quality of gracefulness and good taste
6. **Flatter -** Lavish insincere praise and compliments upon (someone), esp. to further one's own interests.
7. **Grooves -** A long, narrow cut or depression, esp. one made to guide motion or receive a corresponding ridge.
8. **Splinter -** Break or cause to break into small sharp fragments.
9. **Streams -** Run or flow in a continuous current in a specified direction.
10. **Swooping -** Move rapidly downward through the air: "the aircraft swooped in to land".
11. **Translucent -** Allowing light, but not detailed images, to pass through; semitransparent.

**Session-3**

1. **Germs -** A microorganism, esp. one that causes disease.
2. **Lather -** A frothy white mass of bubbles produced by soap or a similar cleansing substance when mixed with water.
3. **Meningitis -** Inflammation of the meninges caused by viral or bacterial
4. **Nail Buffer -** Nail buffing is the act of polishing the nail using buffers of successively finer grit in order to make it look more consistent and shiny.
5. **Sudsy Water -** Sudsy water is water that has soap suds in it. This is usually dish washing water.

**Session-4**

1. **Abrasive -** A substance used for grinding, polishing, or cleaning a hard surface.
2. **Corundum -** Extremely hard aluminum oxide, used as an abrasive. Ruby and sapphire are varieties of corundum.

# UNIT–3

## INTRODUCTION TO FOOT CARE

### Introduction

Our entire body is supported by our legs. We use our legs to stand up in class, walk to school, run to catch the bus, jump over compound walls, kick a football, play cricket and for a wide variety of other sports and for recreation. Our ability to stand upright is one of the key factors in enabling us to do most of the things we do on a regular basis.

Evolution has provided the human body with two distinct features: the specialization of the hands for visually guided movement and the legs development into a mechanism specifically adapted for efficient walking and running. While the capacity to walk upright is not unique to humans, other primates can only achieve this for short periods and at a great expenditure of energy. The human legs are exceptionally long and powerful as a result of their exclusive specialization to support and locomotion — many of the leg's muscles are also adapted to stand upright, most substantially the gluteal muscles, the extensors of the knee joint, and the calf muscles. Being able to stand upright on legs; enabled our ancestors to move away from the forests and explore new lands and countries, it freed up their arms to carry things, it also freed up the hands to make tools. It allowed the body to get higher off the ground enabling us to see better and kept us cooler. . Come! Let us learn more about this important part and the how to keep it well and beautiful.

**Terms to Know**

**Skeleton** is the body part that forms the supporting structure of an organism. There are two different skeletal types: the exoskeleton, which is the stable outer shell of an organism, and the endoskeleton, which forms the support structure inside the body.

**Musculoskeletal** system is an organ system that gives animals the ability to move using the muscular and skeletal systems. The musculoskeletal system provides form, support, stability, and movement to the body.

**Mechanism** is the involuntary and consistent response of an organism to a given stimulus.

**Energy** is the strength and vitality required for sustained physical or mental activity.

**Exercise** is an activity requiring physical effort, carried out esp. to sustain or improve health and fitness.

**Propulsion** is the action of driving or pushing forward.

**Sensation** as the processing of senses by the sensory system.

**Design** is a plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is built or made.

**Shape** is the external form or appearance of someone or something; To give a particular form to; create.

# Session – 1

## *Leg and Foot Anatomy*

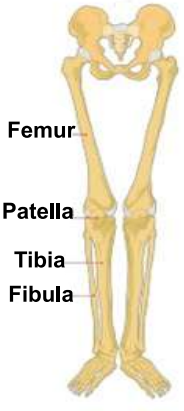
### Relevant Knowledge

#### The Leg

The leg is the entire lower portion of our body which includes the foot, thigh and the hip. We use our legs to stand, walk, run, jump, and kick and for a wide variety of other activities such as sports and for recreation.

It is important to understand the various bones, joints and muscles that make up our leg; as this knowledge will further help us understand nails, nail shapes, skin diseases and about massaging specific muscles and bones of the leg. The knowledge provided in this chapter will be a base to understand and apply massage techniques, reflexology, pedicure and nail art which will be covered in Level 2,3, and 4.

#### Bones




The long thigh bone is called the Femur, it connects to the pelvis to form the hip joint and then extends down to meet the Tibia.

The Tibia is the shin bone.

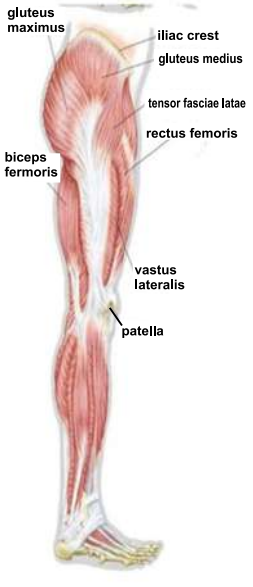
The Fibula is the smaller rear calf bone.

The Patella; also known as the knee cap is the bone in the front of the knee. The Patella connects the Femur to the Tibia.

The Tibia and the Fibula provide support for both the calf muscles and the Achilles tendon.

#### Muscles

The hip muscles can flex (bring the leg up toward the body), extend (move the leg backward away from the body), abduct (move the leg out to the side of the body), adduct (move the leg toward the midline of the body), and internally and externally rotate the leg.




The primary muscles surrounding the knee joint are the quadriceps muscles on the front of the thigh, the adductor muscles on the inside of the thigh, the hamstring muscles on the back of the thigh, and the tensor fasciae latae and iliotibial band on the outside of the thigh.

Muscles of the upper leg will bring the other parts of the lower leg upward.

The **lower-leg muscles** can act on the ankle and either dorsiflex (bring the toes towards the nose) or plantarflex (point the toes down). They can also act at the foot and either invert (move the foot toward midline) or evert (move the foot away from the body).

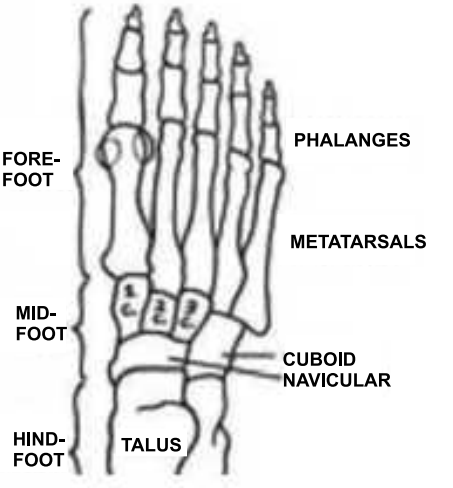
The **calf muscles** are a two-part structure, the larger gastrocnemius and the underlying soleus muscle. These are connected to the knee joint at one end, and through the Achilles tendon are joined to the calcaneus, the heel bone. The calf muscles and the Achilles working in concert link the flexing and extending motions of the knee to the movements of the ankle and the foot.

**Joints**

The hip is a ball-and-socket joint where the head of the femur (ball) fits deeply and snugly into the acetabulum (socket) of the pelvis. This perfect fit gives the hip joint a great degree of stability. Because it is such a large and stable joint, it helps dissipate the forces that come from weight-bearing activities.

The knee joint consists of the femur, the tibia, and the patella (kneecap). The knee joint is the hinge mechanism that initiates the propulsion of the lower leg. A flex of the hinge, powered by the hamstring and quadriceps, when one of the lower leg anatomical parts is not capable of a proper response, the entire structure is compromised.

The skeletal components of the knee joint are the protective patella, or kneecap, the femur, or thigh bone, connected at the joint to the tibia, the shin bone, and the fibula, which are the long bones of the lower leg. The integrity of the knee joint is secured by the sets of ligaments connecting the three bones, as well as through the stabilizing effect of knee cartilage.




The lower-leg bones, the tibia and fibula, also help to form the ankle joint.

The human foot and ankle is a strong and complex structure containing exactly 26 bones, 33 joints (20 of which are actively articulated), and more than a hundred muscles, tendons, and ligaments.

The foot can be subdivided into the **hindfoot**, the **midfoot**, and the **forefoot**:

The hindfoot is composed of the talus (or ankle bone) and the calcaneus (or heel bone). The two long bones of the lower leg, the tibia and fibula, are connected to the top of the talus to form the ankle. Connected to the talus at the subtalar joint, the calcaneus, the largest bone of the foot, is cushioned inferiorly by a layer of fat.

The five irregular bone soft he mid foot, the cuboid, navicular, and three cuneiform bones, form the arches of the foot which serves as a shock absorber. The midfoot is connected to the hind- and fore-foot by muscles and the plantar fascia.

The forefoot is composed of five toes and the corresponding five proximal long bones forming the metatarsus. Similar to the fingers of the hand, the bones of the toes are called phalanges and the big toe has two phalanges while the other four toes have three phalanges. The joints between the phalanges are called interphalangeal and those between the metatarsus and phalanges are called metatarsophalangeal (MTP).

Both the midfoot and forefoot constitute the dorsum (the area facing upwards while standing) and the planum (the area facing downwards while standing).

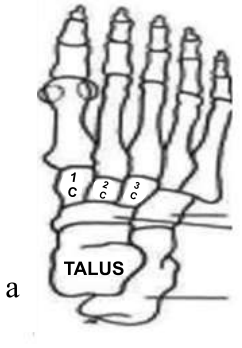
**Narrative**

14 year old Prakash, was a very active and fun loving young boy, but he was very mischievous too! He loved jumping the walls around the homes of his neighbors and steal mangoes and other fruits from them. One day Prakash started experiencing acute pain in his right leg and foot. He found it very difficult to run or jump, even walking had become difficult. He also noticed a mild swelling on his right foot. A visit to the doctor showed that he had sprained his ankle; the doctor prescribed some medicines, bandaged his right ankle and advised Prakash to be very careful while playing outdoors, he educated Prakash about the anatomy of the leg and told him to be very careful while playing. From them onwards Prakash stopped jumping the neighborhood walls, and he was able to walk and run normally thus being able to maintain his health and exercise regularly.

## Exercise

**A. Assignment**

Q1 Label the picture below appropriately:




a

b

Q2 Answer the following questions which are based on the scenario below:

Scenario: 45 years old woman named, Sheila, had pain in her knee and lower back. As she was a firm believer of Ayurveda she used Ayurvedic pain relief oil. It helped her for few days but later the pain become sever. She got all the possible test done and X-ray of lower leg reviled weakening and thinning of bones. Doctor told her that she is suffering from osteoporosis and she is obese.

a) What could have cause knee pain?

b) How age is responsible for osteoporosis?

c) What precaution she should have taken to avoid osteoporosis?

## Assessment

**Answer the following questions**

**A. Fill In The Blanks**

1. The long thigh bone is called the _____.
2. The _____joints connects the Femur to the Tibia.
3. The hip is a _____joint.
4. The lower-leg bones, the tibia and fibula, also help to form the _____.
5. The human foot and ankle is a strong and complex structure containing exactly _____.
6. The foot can be subdivided into the _____ and _____.
7. The bones of the toes are called _____.

**B. Short Answer Questions**

1. Name the major leg bones in human body?
2. Name the major leg muscles and their main function?
3. List the major leg joints in human and their purpose in movement?

**C. Differentiated Between:**

1) Femur and tibia.

2) Hind foot and forefoot

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Femur and tibia

b) Hind foot and forefoot

**Part B**

Discussed in class the following:

a) What is the importance of muscles in movement?

b) What is the importance of joints in movement?

c) How bones and muscles coordinate together in movement?

d) Describe the different parts of foot?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Identify the leg bones | | |
| Identify the muscle joints | | |
| Identify the leg joints | | |

## Session – 2

# *Foot Skin and Nail Diseases*

### Relevant Knowledge

### Foot Skin Diseases

The foot is often the first place some diseases or a sign or symptom of others appear. This is because of the foot's distance from the central circulation, the heart and its constant exposure to pressures from the ground and the weight of the body. As we learnt in Session 1 of Unit 3, the foot may look simple but it is a complex structure with 26 bones, 33 joints, numerous muscles, nerves and different ligament types. Any part of the foot can be affected. Some foot diseases may present with just a mild ache, but other foot diseases can be very serious and limit ability to walk or bear weight. Hence it is important for us to learn about some common foot skin diseases, their causes and symptoms.

### Athlete's Foot

Athlete's foot is also known as 'ringworm of the foot' and 'tinea pedis' is a fungal infection of the skin that causes scaling, flaking, and itch of affected areas.

Causes - It is caused by fungi in the genus Trichophyton. While it is typically transmitted in moist communal areas where people walk barefoot, such as showers or bathhouses, the disease requires a warm moist environment, such as the inside of a shoe, in order to incubate. Because of this the fungus only affects approximately 0.75% of habitually (frequently) barefoot people.

Symptoms - Athlete's foot causes scaling, flaking, and itching of the affected skin. Blisters and cracked skin may also occur, leading to exposed raw tissue, pain, swelling, and inflammation. Secondary bacterial infection can accompany the fungal infection, sometimes requiring a course of oral antibiotics.

## Plantar Warts

Plantar warts grow on the soles of the feet. Unlike other warts, plantar warts grow into your skin, not out of it. You can tell if you have a plantar wart if you notice what appears to be a small hole in the bottom of your foot that is surrounded by hardened skin. Plantar warts can make walking uncomfortable.

Causes- Plantar warts are benign epithelial tumors generally caused by infection by the human papilloma virus. The virus attacks compromised skin through direct contact, entering through possibly tiny cuts and abrasions in the stratum corneum (outermost layer of skin). After infection, warts may not become visible for several weeks or months. Because of pressure on the sole of the foot or finger, the wart is pushed inward and a layer of hard skin may form over the wart. A plantar wart can be painful if left untreated.

Symptoms - Small, fleshy, grainy lesions, or growths, on the soles of your feet. Hard, thickened skin (callus) over a well-defined "spot" on the skin, where a wart has grown inwards. Black pinpoints, which are commonly called "wart seeds" but are actually small, clotted blood vessels. Pain or tenderness when walking or standing.

## Ingrown Toenails

Ingrown toenails occur when the edges or corners of the nail grow into the skin next to the nail. Your big toe is most likely to get an ingrown toenail.

For the most part, you can treat ingrown toenails at home. However, sometimes they cause complications that could make medical treatment necessary. You are at higher risk of such complications if you have diabetes or other conditions that cause poor circulation.

Anyone can get an ingrown toenail. They occur in both men and women. Ingrown toenails may be slightly more common in teenagers, who tend to have sweatier feet. Older people may also be at higher risk, because toenails thicken with age.

Causes - Many things can cause an ingrown toenail. Common causes include: Cutting toenails incorrectly: The toenail should be cut straight across. Angling the sides of the nail can encourage the nail to grow into the skin. Irregular, curved toenails. Footwear that places a lot of pressure on the big toes: Pressure can be from shoes that are too tight, narrow, or flat for your feet. Socks and stockings that are too tight can also lead to ingrown toenails. Toenail injury. Poor posture. Improper foot hygiene, where feet aren't kept dry and clean.

Symptoms - Pain and tenderness in your toe along one or both sides of the nail. Redness around the toenail. Swelling of the toe around the nail. Infection of the tissue around the toenail.

## Corns And Calluses

Corns and calluses are the terms given to patches of hard, thickened skin. These can be located anywhere on your body, but they are typically found on your feet.

Corns are small, round circles of thick skin. They can develop on any area of your foot, but they are most commonly found on the tops and sides of your toes and on the sole of your foot. They occur more frequently on bony feet that lack cushioning.

Calluses are rough, very hard patches of skin. They are usually found on the heel or the ball of your foot, but they can also be found on your hands and knuckles. Calluses are usually bigger than corns and have a yellow color. They lack well-defined edges and may lack sensitivity compared to the rest of the foot.

Causes - Corns and calluses are both caused by friction and pressure. They are usually a protective reaction to prevent damage or blistering of the skin.

The most common cause of corns and calluses is ill-fitting shoes. Shoes that do not fit correctly or are too tight are likely to rub against your skin, causing friction. Excessive amounts of walking or running in well-fitting shoes can also cause corns and calluses, as can standing up for very long periods. Other possible causes of corns and calluses include manual labor, bunching of your socks or the lining of your shoes, not wearing shoes, or taking part in athletic events that put pressure on the feet.

Some people are more likely to get corns and calluses than others. People with bunions or hammertoes tend to be more prone than others. People who walk with overpronation (ankles roll inward too much) or oversupination (ankles roll outward too much) also tend to be more frequent sufferers. People who have damaged sweat glands, scars, or warts on their feet are also more likely to develop corns and calluses.

Symptoms - You may have a corn or callus if you notice: A thick, rough area of skin. A hardened, raised bump. Tenderness or pain under your skin. Flaky, dry or waxy skin.

## Exercise

### Narrative

Suraj was a very friendly 14 year old boy; he was a very clever and intelligent boy. He loved playing for long hours in school and on the streets near his house on Saturdays and Sundays. Recently Suraj started noticing; scaling, flaking, and itching on his left foot. Over time, his foot started paining and there was some mild swelling too. Suraj being the clever fellow that he is; went to the local library and read some books about foot skin disorders. He realized that his foot was showing the typical symptoms of 'Athlete's foot' and found out that the reason he had developed Athelet's foot was because of sweat build up in his shoes due to long hours of playing. From then onwards Suraj paid extra attention to cleaning his feet, and dried his feet thoroughly, thus avoiding sweat buildup; soon enough his feet were back in good health; thus contributing to his happiness and improved his overall wellbeing.

Justify the following statements are true or false:-

i) A person suffering from athlete foot disease should not shower barefoot in public bathrooms. (True/False)

ii) Calluses are rough, very hard patches of skin caused by bacterial infection. (True/False)

iii) The toenail should not be cut straight across. (True/False)

iv) Intake of food which is contaminated by human papilloma virus can cause planter warts. (True/False)

## Assessment

**Answer the following questions**

**A. Fill in the blanks**

1. _____ is a fungal infection of the skin that causes scaling, flaking, and itch of affected areas. (Planter warts, Athlete's foot )
2. Athlete's Foot is typically transmitted in _____ communal areas where people walk barefoot, such as showers or bathhouses. (Dry, Moist)
3. Plantar warts grow on the _____ of the feet.

   (Nails, Sole)
4. _____ occur when the edges or corners of the nail grow into the skin next to the nail. (Corn, ingrown nails)
5. Corns and calluses are both caused by _____ and _____. (friction and pressure, cutting and scraping)

**B. Differentiate between:**

1. Callus and corn
2. Athlete foot and planter warts

**C. Identify the disease and fill in the following:**

Name of the disease _____

a. Causes:

b. Symptoms:

2) Name of the disease _____

a. Causes:

b. Symptoms:

## CHECKLIST FOR ASSESSMENT ACTIVITY

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Plantar warts and Athlete's foot

b) Callus and corn

**Part B**

Discussed in class the following:

a) What is ingrown nail?

b) What are the various causes of corns?

c) What are the ways of treating athlete's foot?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Identify the common foot diseases | | |

# Session – 3

## *Foot Care and Nail Care*

### Relevant Knowledge

Your feet are two of the most used parts of our body. Have you ever given a thought, what would happen to your feet with all the walking and running? This will leave your feet with dead cell accumulation and dirty. This being said, you should make sure to give your feet the attention and care they deserve very often. Taking good care of your feet will prevent you from getting foot conditions such as Athlete's foot or other fungal infections. No matter what the season is, it is always important to keep your feet and toenails in good condition.

How to get a clean and healthy foot by clean-up process? By including the following steps in your daily cleansing routine you will get clean and healthy feet. Methods to cut down on odour and to obtain clean feet are discussed in the following steps:

**Healthy Foot Clean-up Process**

**Step-1 : Be clean:** Bathe your feet every day in soap and water. Just letting the shower water splash on them isn't good enough. Lather them thoroughly with soap and scrub them with loofahs. Make sure to clean the entire part of your foot, not just your toes. Scrape under the toenails as well.

**Step-2 : Scrub of the dead skin:** Use a pumice stone to scrub of the dead skin formed under your feet. Give gentle strokes underneath your feet. This will make your feet soft.

**Step-3 : Keep your toenails trimmed and clean:** Use a nail brush to clean in between the gaps of nail. Toenails are hiding places for bacteria. Trim down or shape your nails daily to keep it clean as well as beautiful.

**Step-4 : Dry your feet completely when you're done:** Don't forget to dry between the toes, and be sure to wash out the yellow/black toe jam. Leftover moisture is a breeding ground for bacteria, which causes odour.

**Step-5 : Moisturize and massage your feet briefly after a shower:** Once you are out of shower make sure to moisturize your feet and massage it. This will leave your feet soft.

**Foot And Nail Care Tips**

Now we all know how to care for our feet. Let us now learn about few tips to avoid foot problems, like dead cell accumulation, callus, corns, cracks etc.

**Care tips for foot and nail diseases:** You must have noticed the buildup of dead skin along your pressure points such as the heels, toes and bony areas of feet. This is calluses and corns. These are common if you wear sandals or flip-flops because of the repeated friction of your foot moving around in the shoe.

We can eliminate these pesky spots by using a pumice stone or foot file every day after showering and slather on over-the-counter creams that contain lactic acid to hydrate and exfoliate skin. Always make sure to avoid medicated callus and corn remover pads, though, because they can actually burn and further aggravate your skin.

**Care tips for foot and nail in winter:** Most of you must have faced feet problems with change in season. In winter, our feet get dried up and in rainy season, feet gets dirty when we step out in rain. What can we do to avoid this?

Simple and easy ways to fight winter problems are as follows:

a) Applying winter care moisturizer twice every day.

b) Wrap each foot in a cloth soaked in cold water for 30 - 45 seconds. You could alternatively use two washcloths.

Massage the foot when wrapped with cloth and also after removing the cloth with foot lotion or cream.

c) Wear socks after moisturizing at night to keep your feet warm.

d) Wash shoes or insoles. Some insoles or shoes, especially sneakers, may be washable. Be sure to dry them completely before wearing them.

**Care tips for foot and nail in monsoon**

We all love rain and enjoy monsoon. But monsoon affects your feet adversely if you do not take care of them.

a) During monsoon when we go out, dirt gets clogged in the nails and feet. As prevention from foot diseases make sure to wash your feet once you get back home. Lather up with soap, and pay extra attention to the spaces in between the toes and nail.

b) Wipe the feet gently with a towel afterward.

c) Give your feet a pedicure every two weeks.

**Care tips for foot and nail in summer:** During summer, your feet are constantly visible due to footwear choices such as sandals and slippers, so it would be a good idea to keep them looking fabulous and presentable. But the question is how? Instead of normal moisturizer cream or lotion use a sun protected lotion when you step out in sun. This will help you protect your feet for blazing sun rays.

**Exercise**

**Narrative**

There was a teenage boy in a village who was very happy with himself. Nobody did complain about his smelly feet. The very harsh foot odor did bother him. His sheep did smell the same even as those two cows he had.

He fell in love with a woman he met on New Year's Eve when going to town with his neighbor. She was a nice lady and he would do everything to keep her. But she was a little bit reserved to him. At one day he asked her what the reason was of her behavior and then she mentioned his awful smelly feet smelling the same as his sheep.

People were complaining about his feet and his girlfriend couldn't take this severe smell any longer. He had to do something to this smell or he would lose her. His friend from the town advised him to take good care of feet and gave him the instructions on how to take care of his foot. He followed his friend's advice.

After six days a big wonder happened. And within a few days his problems vanished as snow before sun. His feet were odorless. He thanked god and his friend; he was free from having this awful smell. From that moment on, his girlfriend came back to him and appreciates what he did for her.

## Exercise

### A. Scenario based question

**Answer the below mentioned questions based on scenario:**

**Scenario**

As soon as Suresh enters the room and opens his shoes Rita's olfactory senses catches something unpleasant. She thought something has died in her house. After much inspection she found that the source is from a person, who is very much alive, Suresh. "Your feet is smelling, Suresh." "I'll just keep my feet under the running tap and the smell will be gone," Suresh casually replied.

i) Imagine that you are Rita. What will you explain to Suresh

### B. Project

Scrap book

- Collect the paper cut outs of the tools and materials required for basic hand care. (e.g. Moisturizer, towel etc)
- Paste the tools and materials pictures in a scrap book.
- Paste them in order of their utilization in hand cleaning process, E.g. First step requires water to wet the hand and then soap is required. Then paste water picture first and then Soap picture.

## Assessment

**Answer the following questions**

### A. Arrange the steps in Correct order by giving the number in bracket:

( ) Dry your feet completely.

( ) Scrub of the dead skin.

( ) Bathe your feet every day in soap and water.

( ) Gather all the materials and tools required.

( ) Moisturize and massage your feet.

( ) Keep your toenails trimmed and clean.

### B. Short Answer Questions

1. Why is it important to scrub the foot heel?
2. List the precautions while filing and cutting the nails

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Foot care process in winter and in monsoons

b) Scrubbing and moisturizing

**Part B**

Discussed in class the following:

a) Why is it importance to keep foot clean?

b) What are reasons to keep foot clean in different seasons?

c) What are important steps involved in foot cleaning process?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Demonstrate the process of foot clean up | | |
| Perform toe nail cutting and filing in different shapes | | |
| Apply nail paint on toe nail | | |

**Suggested Reading**

**Books**

- Anatomy & Physiology For Dummies
- Milady's Standard Fundamentals for Estheticians, 9th edition

## Glossary

**Session-1**

1. **Calcaneus -** The large bone forming the heel.
2. **Femur -** The bone of the thigh or upper hind limb, articulating at the hip and the knee.
3. **Gastrocnemius -** The chief muscle of the calf of the leg, which flexes the knee and foot.

4. **Iliotibial band -** The iliotibial tract or iliotibial band is a longitudinal fibrous reinforcement of the fascia lata.
5. **Ligaments** – A short band of tough, flexible, fibrous connective tissue that connects two bones or cartilages or holds together a joint.
6. **Navicular -** A boat-shaped bone in the ankle or wrist, esp. that in the ankle between the talus and the cuneiform bones.
7. **Phalanges -** A group of people or things of a similar type forming a compact body or brought together for a common purpose.
8. **Soleus muscle -** soleus: a broad flat muscle in the calf of the leg under the gastrocnemius muscle.
9. **Subtalar Joint -** In human anatomy, the subtalar joint, also known as the talocalcaneal joint, is a joint of the foot. It occurs at the meeting point of the talus and the calcaneus.
10. **Tendon -** A flexible but inelastic cord of strong fibrous collagen tissue attaching a muscle to a bone.

**Session-2**

1. **Beveled-** Reduce (a square edge on an object) to a sloping edge
2. **Conservative-** Holding to traditional attitudes and values and cautious about change or innovation, typically in politics or religion.
3. **Femininity-** A characteristic or trait traditionally held to be female.
4. **Keratin cells-** A tough, insoluble protein substance that is the chief structural constituent of hair, nails, horns, and hooves.
5. **Methotrexate-** A synthetic compound, $C_2OH_{22}N_8O_5$ that interferes with cell growth and is used to treatment of psoriasis, certain cancers, and certain inflammatory diseases such as rheumatoid arthritis.
6. **Microbial-** A minute life form; a microorganism, especially a bacterium that causes disease. Not in technical use.
7. **Mumps-** Mumps is a relatively mild short-term viral infection of the salivary glands that usually occurs during childhood. Typically, mumps is characterized by a painful swelling of both cheek areas, although the person could have swelling on one side or no perceivable swelling at all.
8. **Psoriasis-** A skin disease marked by red, itchy, scaly patches.
9. **Slenderize-** Make (a person or a part of their body) appear more slender, Lose weight; become slim.

**Session-3**

1. **Blisters -** A small bubble on the skin filled with serum and caused by friction, burning, or other damage.
2. **Lesions -** A region in an organ or tissue that has suffered damage.

**Session-4**

1. **Accumulation -** The acquisition or gradual gathering of something.
2. **Aggravate -** Make (a problem, injury, or offense) worse or more serious.
3. **Blazing -**Burn fiercely or brightly
4. **Breeding -** The mating and production of offspring by animals.
5. **Calluses -** A thickened and hardened part of the skin.
6. **Pesky Spots** – Troublesome, Annoying

# UNIT–4

## INTRODUCTION TO FACE AND BEAUTY CARE

### Introduction

The face is the first part of the body we notice whenever we meet any person, whether it is our friends, our parents, our neighbors or even total strangers. We express our love, affection, care, concern, sadness, anger and several other emotions through our face; the face is a powerful tool of expression. Our face contains a number of features, such as our mouth through which we communicate with everyone around us, our eyes which enable us to see the world around us, our ears which help us hear what people around us are speaking about and our noses with which we can smell what is cooking in the kitchen.

Our face is what is presented first to anyone who meets us, and taking good care of our face is of utmost importance. Having a presentable appearance gives us the ability and confidence to mingle with society, meet new people, go to new place and so on. Knowledge of the skin type on our face, problems that could affect the skin on our face, and basic methods of taking care of our face is becoming increasingly important in today"s world. Gaining this knowledge will not only help us keep up our appearance but will also give us the confidence of stepping into the adult world. Come! Let us learn more about this most important part of the body and how to keep it well and beautiful.

### Terms to Know

**Expression** may be a verbal and non-verbal behavior that communicates emotion; Facial expression, a movement of the face that conveys emotional state.

**Presentable** is defined as clean, well-dressed, or decent enough to be seen in public.

**Pigmentation** is the coloring of a person's skin, esp. when abnormal or distinctive.

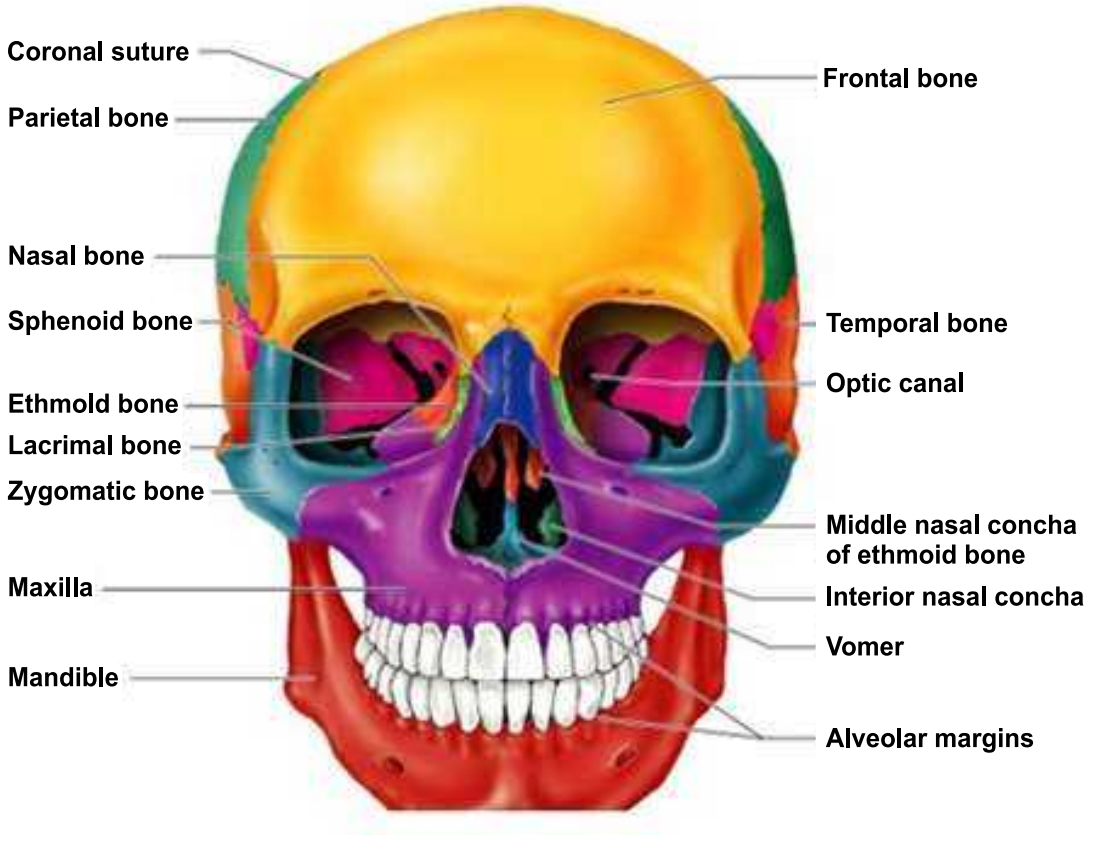
## Session – 1

## *Face and Neck Anatomy*

### Relevant Knowledge

### The Face

The face is the front part of the head that houses the sense organs of vision (eyes), smell (nose), mouth (taste) and the jaws. Learning about the anatomy of the face and the neck is significant for understanding the behaviors, functions, and appearances of humans. An understanding of the anatomy will give us further knowledge about the muscles and bones in the face and neck, paving the way to learn topics such as face shapes, facial skins and its types, facial skin problems and face care all of which are presented in the subsequent session of this unit.

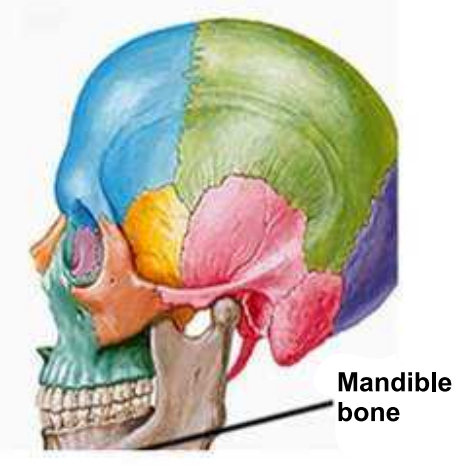



The human skull includes 14 bones. The important facial bones from the point of beauty and wellness are:

The Mandible, Maxilla, Zygomatic, Lacrimal, Vomer and Sphenoid bones.

The mandible or lower jaw bone is the largest and strongest facial bone and forms the lower jaw.

## Mandible or Lower Jaw Bone



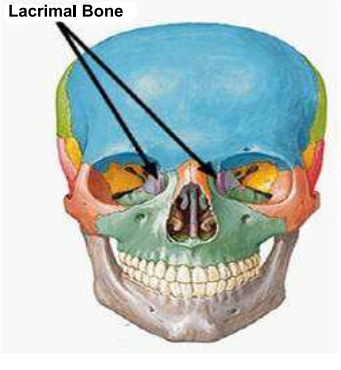
## Maxilla or Upper Jaw Bone

The Maxilla or upper jaw bone forms the upper jaw.

## Zygomatic Bones

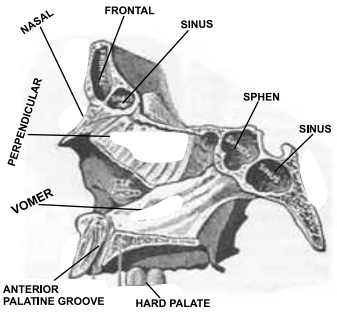
The Zygomatic bone (cheekbone, malar bone) is a paired bone which articulates with the maxilla, the temporal bone, the sphenoid bone and the frontal bone.

## Lacrimal Bone



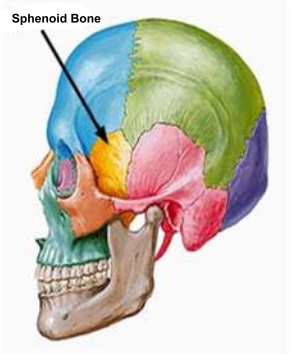

The lacrimal bone is a small and fragile bone at the inner orbit of the eye through which the lacrimal duct runs.

## Vomer Bone



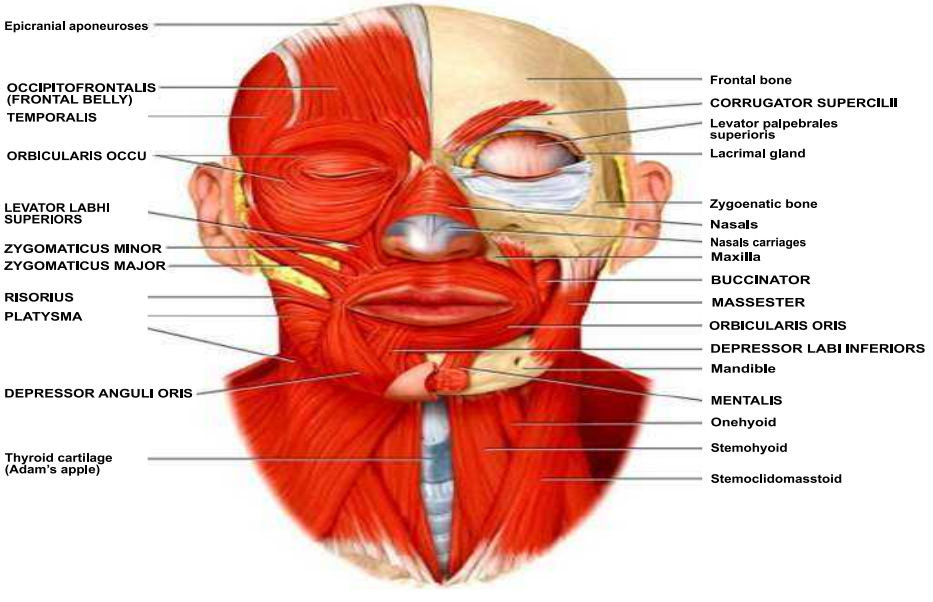

The vomer bone is a single bone in center of the nasal cavities.

## Sphenoid Bone




The sphenoid bone is an unpaired bone situated at the front middle of the skull in front of the temporal bone and basilar part of the occipital bone.

## Facial Muscles

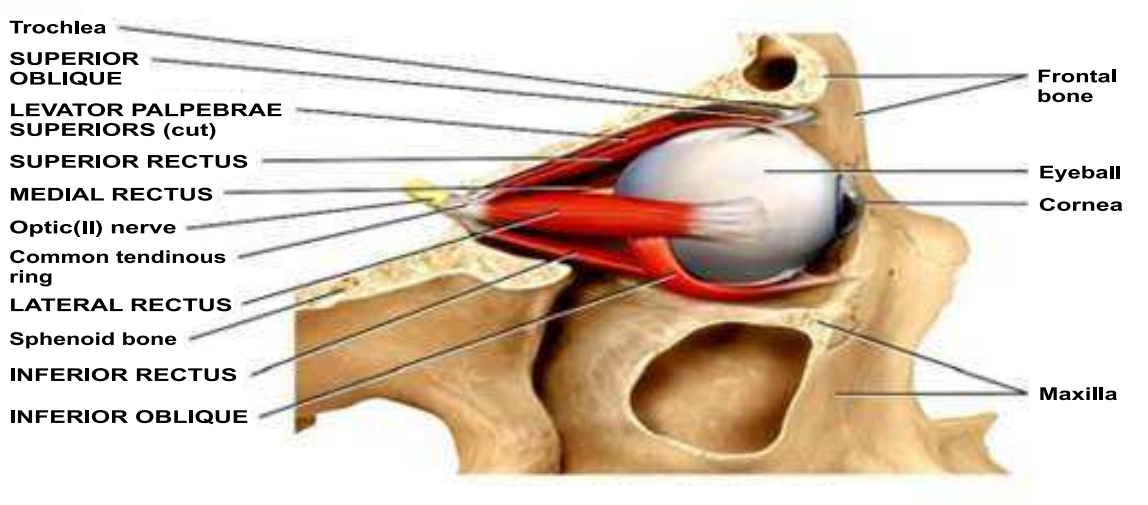



a) Anterior Super facial view b) Anterior deep view

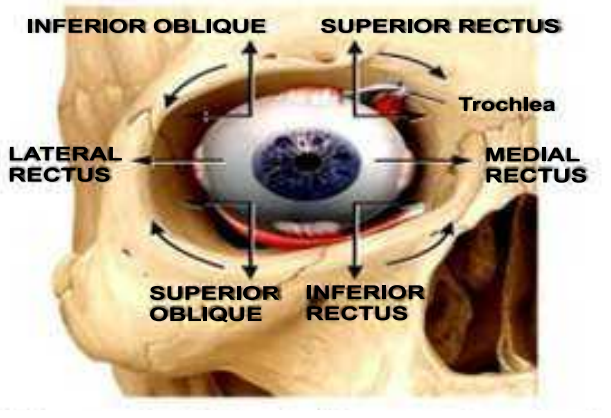
They muscles of the face lie within the subcutaneous layer and usually originate in the fascia or skull bones and insert into the skin.

Because of their insertions, the muscles of facial expression move the skin rather than a joint when they contract.

## Facial Muscles that move the Eye balls and eye lids




(a) Lateral view of right eyeball

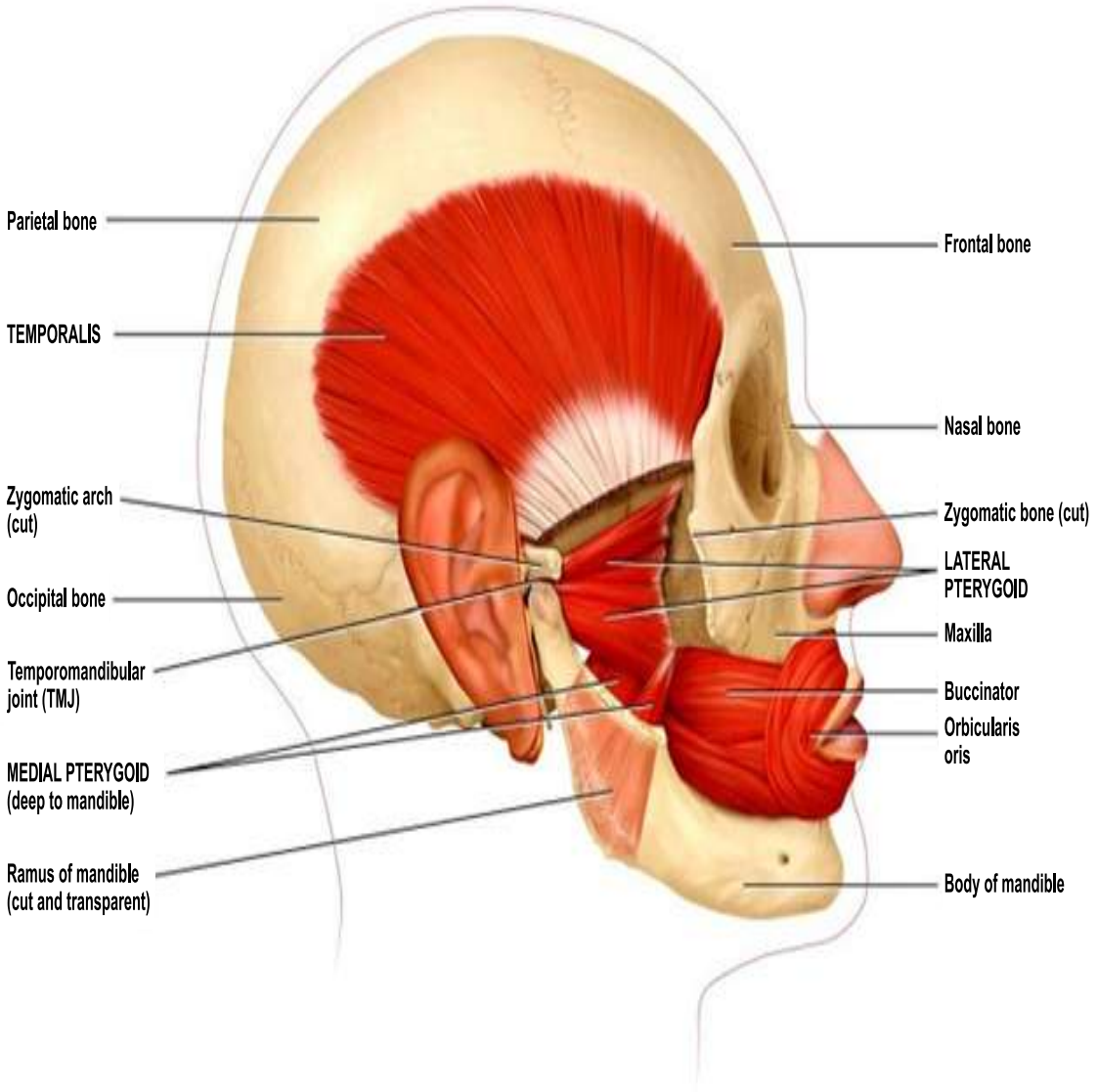



(b) Movements of right eyeball in response to contraction of extrinsic muscles

Six extrinsic eye muscles control movements of each eyeball. They are called extrinsic because they originate on the outside of the eyeballs in the bony orbit and insert on the outer surface of the sclera.

Those muscles with the word "rectus" in their name have obvious actions (the inferior rectus muscle moves the eye inferiorly so that you would be looking downward). The actions of the two oblique muscles cannot be deduced from their names.

## Facial Muscles that Move Mandible (Jaw)



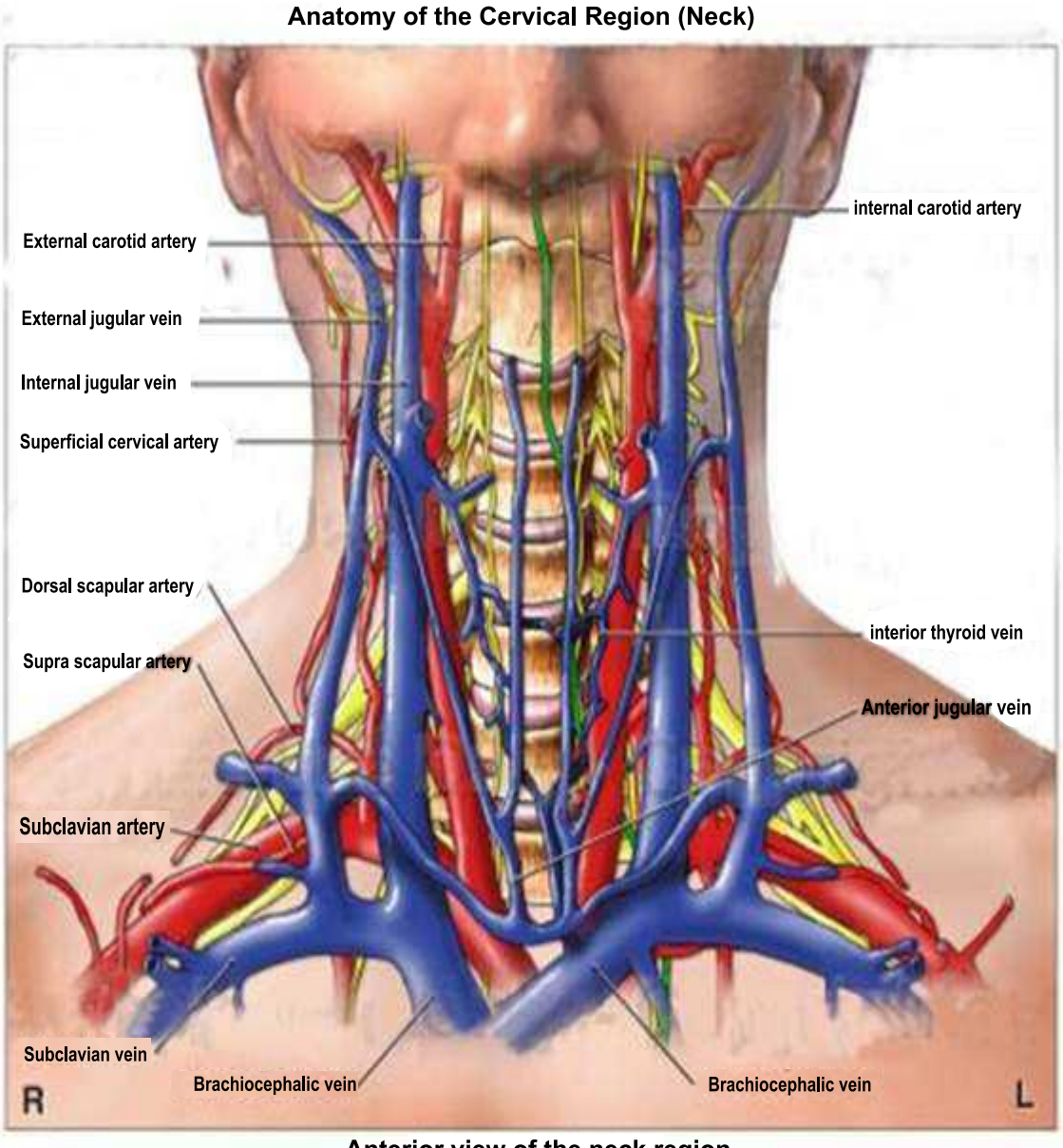

**Right lateral superficial view**

Four pairs of muscles move the mandible, and are known as „muscles of mastication".

The masseter, temporalis, and medial pterygoid account for the strength of the bite.

The medial and lateral pterygoid muscles help to chew by moving the mandible from side to side. Additionally, these muscles protract (protrude) the mandible.

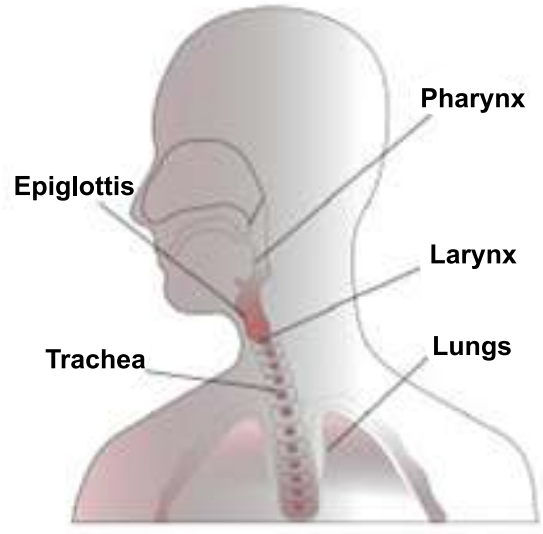
## Anatomy of the Neck




Anterior view of the neck region

The neck is the part of the body, on many terrestrial or secondarily aquatic vertebrates, that distinguishes the head from the torso or trunk. The neck supports the weight of the head and protects the nerves that carry sensory and motor information from the brain down to the rest of the body. In addition, the neck is highly flexible and allows the head to turn and flex in all directions.

## Throat




The throat is the anterior part of the neck, in front of the vertebralcolumn. Itconsistsof the pharynx and larynx. An important feature of the throat is the epiglottis, a flap which separates the esophagus fromthe trachea andprevents inhalation of food or drink.

The throat contains various blood vessels, various pharyngeal muscles, the trachea (windpipe) and the esophagus. The hyoid bone and the clavicle are the only bones located in the throat of mammals.

## Adam's Apple

The Adam's apple (technically known as the laryngeal prominence) is a feature of the human neck and refers to the lump or protrusion that is formed by the angle of the thyroid cartilage surrounding the larynx.

The structure of the laryngeal prominence forms a bump under the skin. It is larger in adult men, in whom it is usually clearly visible and palpable. In women, the bump is much less visible and is hardly perceived on the upper edge of the thyroid cartilage.

The meeting point of the two portions of the cartilage generally forms an acute angle (of about 90°) in men, while in women, an open arc (of about 120°).

## Face Shape

## Relevant Knowledge

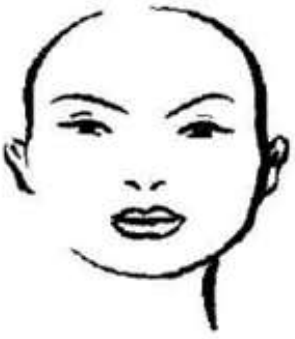
### Introduction

Face shape is the most important factor in determining the hairstyle, makeup, even to determine the style of eyebrows and others. An oval face is the most suitable for any hairstyle. Why face shape is very important? Apart from the viewpoint of the makeup, the importance of face shape if examined from a scientific standpoint is that, face shape is the first variable to calculate the Proportion, of makeup based on face.

### Common Face Shapes

The oval-shaped face is only slightly narrower at the jaw line than at the temples, with a gently rounded hairline.

The oblong shaped face is long and slender, about the same width at forehead and just below cheekbones. Oblong faces may have a very narrow chin or a very high forehead.



The round shaped face is full-looking face with a round chin and hairline. Widest point is at the cheeks and ears on women with round.

A square-shaped face is strong, square jaw line and usually and equally square hairline.

The heart-shaped face is wide at the temples and hairline, narrowing to a small delicate chin.

The triangular-shaped face is the reverse of the heart-shape. It has a dominant jaw line with narrowing at the cheek bone and temples.

The diamond-shaped face is a cross between heart and a dramatic oval face shape. A diamond face is widest at the cheekbones, and narrow equally at the forehead and jaw line. A diamond face is balanced and dramatic.

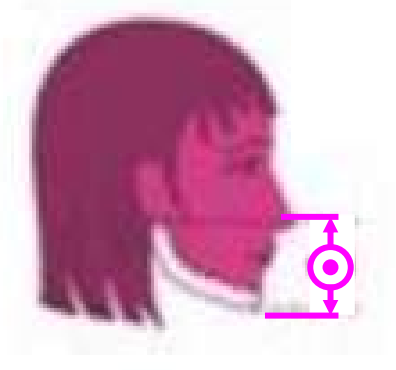
**Identifying Face Shape**

There are lots of suggestions on how to figure out what shape you are. These include everything from outlining your face on a mirror with lipstick to draping your face shape with a towel and asking others to help you guess. But, there is actually a scientific way to find your face shape with great accuracy.

Measure it with a tape measure or ruler. You will take the following measurements:

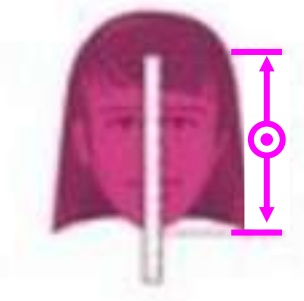
Measure your face across the top of your cheekbones. Write down the measurement on a piece of paper.

Measure across your jaw line from the widest point to the widest point. Write down the measurement.



Measure across your forehead at the widest point. Generally the widest point will be somewhere about halfway between your eyebrows and your hairline. Write down the measurement.

Measure from the tip of your hairline to the bottom of your chin.



And now the shape of your face is as follows

- Oval: If length is equal to one and a half times the width.
- Round: If your face is as wide as it is long. This may vary a little but generally the measurement is close.
- Oblong: If your face is longer than it is wide.
- Heart: If your face is narrow at jaw line, wide at cheekbones/and or forehead.
- Square: If your face is about as wide as it is long.
- Triangular: If your face is narrower at the temples and is wider at the jaw bone.
- Diamond: If your face is widest at cheekbones, and if narrow forehead and jaw line of about equal widths.

**T-Zone Face**

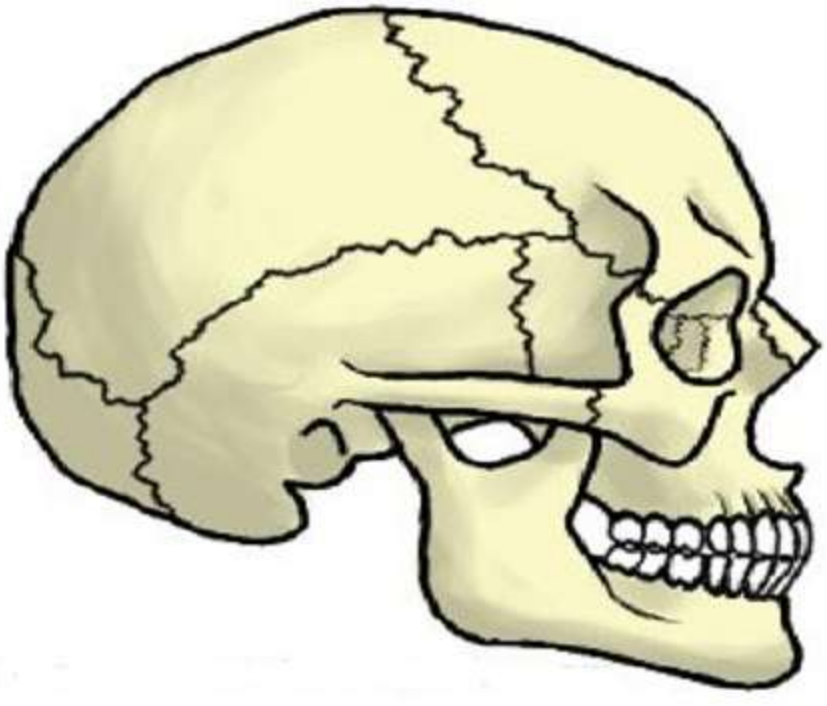
1. T-shape crosses the forehead and runs down the side of the nose and onto the chin.
2. The pores within the T zone are larger than elsewhere on the face.
3. It has Sheen across the forehead, on the sides of the nose and on the chin.
4. The skin outside the T zone may be normal or dry.

**Exercise**

**A. Assignment**

1) Colour the picture according to the bone colour mentioned below:

| | |
|---|---|
| Mandible bone | |
| Frontal bone | |
| Temporal bone | |
| Zygomatic bone | |
| Sphenoid bone | |



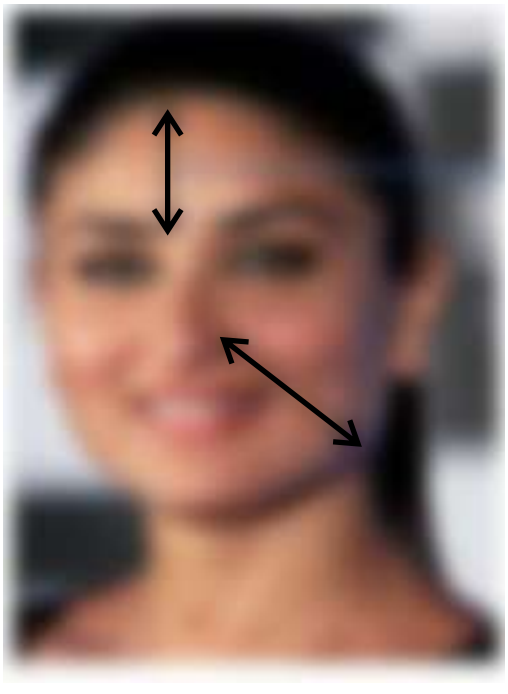
2) Match the following:

| | |
|---|---|
| Nasalis muscle | Holds the cheek to the teeth during chewing and aids in smiling |
| Occipitofrontalis muscle | Fully developed and prominent in adult men and not in women |
| Buccinator muscle | Flaring of the nostrils |
| Temporomandibular joint | Serves for facial expressions |
| Adam's apple | Jaw movements |

**B. Project**

Collect the face picture of different celebraties. Paste all the pictures in scrapbook. Identify the face shapes of each celebraty and label the charectristics which helped you concled the face shape.

For example :



Widest point of hairline is smaller than widest point of jawline

a. Face shape: Square

b. How did you conclude the face shape?

The widest points of the jaw are slightly wider than the widest points of your hairline.

## Assessment

**Answer the following questions**

**A. Fill in the blanks**

1. The M_____ or lower jaw bone is the largest and strongest facial bone and forms the lower jaw.
2. The muscles of the face usually originate in the _____.
3. The medial and lateral _____ muscles help to chew by moving the mandible from side to side.

**B. Differentiate between the following:**

a. The mandible and the maxilla.

b. Round and oblong face shapes

c. Heart and diamond face shapes

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between:

a) The mandible and the maxilla

b) Round and oblong face shapes

c) Heart and diamond face shapes

**Part B**

Discussed in class the following:

a) Why is it important to know about skull bones?

b) Which are the different facial muscles?

c) How to determine the face shapes?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Identify the bones of the skull | | |
| Identify the facial muscles | | |
| Identify the skull joints | | |
| Analyze the different shapes of face & categories into round, oval, square, heart, triangular, oblong and diamond shape | | |

## Session – 2

### *Facial Skin and its Types*

#### Relevant Knowledge

Skin type changes from person to person. Try analyzing your skin. What do you think your skin type is? Everyone's skin is normal to them, but in order to care for diverse skin types, we often group people into some skin categories. Determining your skin type is an important step in knowing how to treat your skin, what products to use, and how to have a perfect skin.

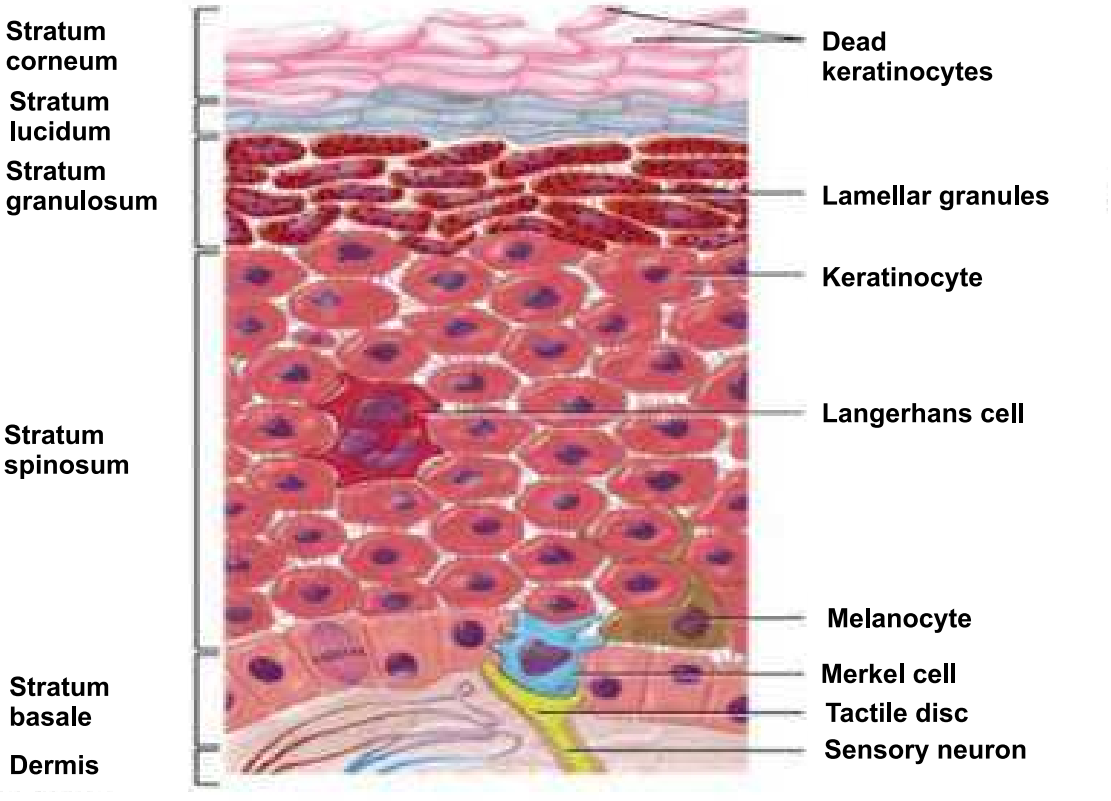
#### Facial Skin Structure

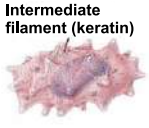
We all know that the skin is one of the largest organs in our body in surface area and weight. From session 1 unit 1, you know skin structure its main components. Skin consists of two layers: the epidermis and the dermis. Beneath the dermis lies the hypodermis or subcutaneous fatty tissue. One of the main functions of a skin is to provide a barrier between inside body and exterior environment. Wounding affects all the functions of the skin. Severely damaged skin may heal by forming scar tissue. Different part of face has different skin thickness. Now you may have a question why this happens? For that you have to go deep into the subject. For time being let us just learn about the variation in skin thickness.

**Epidermis:** The epidermis is the outermost layers of the skin. It forms a protective barrier over the body's surface, responsible for keeping water in the body and preventing pathogens from entering, and is a stratified squamous epithelium, composed of proliferating basal and differentiated suprabasal keratinocytes. The epidermis also helps the skin regulate body temperature. The table below gives the skin thickness on the different parts of a face.

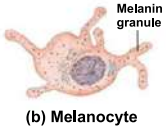
| Face portion | Thickness |
|---|---|
| Upper lip | 0.83 mm |
| Lower lip | 0.82 mm |
| Chin | 1.15 mm |
| Upper Eye lid | 04 mm |
| Lower Eye lid | 0.8 mm |
| Upper Eye lid | 1.03 mm |
| Cheek | 1.03 mm |
| Nasal tip | 1.22 mm |
| Nasal dorsum | 0.73 mm |
| Neck | 0.6 mm |

Epidermis consists of four cells; Keratinocytes, melanocytes, Langerhans and merkel cells.



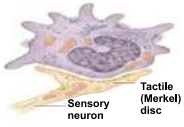



(a) Keratinocyte



(b) Melanocyte

(c) Langerhans cell



(d) Merkel cell

a) Keratinocytes are the major cells, constituting 95% of the epidermis. The primary function of keratinocytes is the formation of a barrier against environmental damage such as pathogens (bacteria, fungi, parasites, and viruses), heat, UV radiation and water loss.

b) Melanocytes are melanin-producing cells located in the bottom layer of the skin's epidermis. Melanin is the pigment primarily responsible for skin color.

c) Langerhans cells are dendritic cells (antigen-presenting immune cells) of the skin and mucosa, and contain large granules called Birbeck granules. They are present in all layers of the epidermis, but are most prominent in the stratum spinosum.

d) Merkel cells are found in large numbers in touch-sensitive sites such as the fingertips and lips. They are closely associated with sensory nerves and involved in light touch sensation

**Dermis:** Dermis is the layer of skin beneath the epidermis that consists of connective tissue and cushions the body from stress and strain. The dermis provides tensile strength and elasticity to the skin through an extracellular matrix composed of collagen fibrils, micro fibrils, and elastic fibers, embedded in proteoglycans.

**Sebaceous glands:** The sebaceous glands are microscopic glands in the skin that secrete an oily/waxy matter, called sebum, to lubricate and waterproof the skin and hair. There are several related medical conditions, including acne, sebaceous cysts, hyperplasia, sebaceous adenoma and sebaceous gland carcinoma.

## Face Skin Types

Now you know about your skin structure. But what do you know about your skin type? You must have heard about people talking about skin types. What are the different skin types? Knowing your skin type is the chief way you can ensure your skin feels and looks its best. Skin can be divided into mainly 5 types: They are as follows:

- Normal skin
- Dry skin
- Oily skin
- Combination skin
- Sensitive skin

**Normal skin**

Normal skin is often referred to as balanced, because it is neither too oily nor too dry. Normal skin has a good oil- water balance. It contains sufficient moisture and sebum production. Generally, this skin displays little to no breakouts or clogged pores, and pore size ranges from small to medium. This skin type can fluctuate a little more oily or dry, especially depending on season, but overall it is a very balanced complexion.

Normal skin characteristics are as follows:

- Small or medium pore size;
- Moisture content is good;
- Skin texture is even, neither too thick nor too thin;
- Colour is healthy (because of good blood circulation);
- Skin is firm to touch.
- Skin pigments are even-coloured and free from blemishes.

## Dry skin

Dry skin is lacking in either sebum or moisture, or both. Because sebum limits moisture loss by evaporation from the skin, skin with insufficient sebum rapidly loses moisture. The resulting dry skin is often described as dehydrated.

Dry skin is characterized by:

- Small tight pores, Flaky skin.
- Redness, uneven pigmentation and visible dry patches
- Poor moisture content
- Fine texture and skin looks thin
- Tendency to sensitivity shown by broken capillaries
- Signs of premature ageing are common, especially around eyes, mouth and neck.

## Oily skin

Oily skin is caused by over-active sebaceous glands that produce a substance called sebum, a naturally healthy skin lubricant. When the skin produces excessive sebum, it becomes heavy and thick in texture. Oily skin is typified by shininess, blemishes and pimples. The oily- skin type is not necessarily bad, since such skin is less prone to wrinkling, or other signs of aging, because the oil helps to keep needed moisture locked into the epidermis.

Oily skin is characterized by:

- High moisture content, shiny patches, large open pores and coarse skin texture.
- Sallow skin caused by sebum holding dead cells on surface.
- Blocked pores leading to blackheads
- Good skin tone by grease protecting skin from dryness
- Certain skin disorders may be apparent – comedones, pustules, papules, milia.

## Sensitive Skin

Sensitive skin is be caused by dry skin that has been either neglected or treated harshly, or reactions to foods or cosmetics.

Sensitive skin is characterized by:

- Redness on touch
- Broken capillaries, especially on the cheeks
- Feels tight and uncomfortable on application of products
- High colouring and easily flushes for no apparent reason
- Feels warm to touch and superficial flaking
- Black skins turn darker if they are sensitive
- Skin produces more sebum to protect, causing further oiliness/combination skin problems

## Combination Skin

Combination skin as the name suggest is combination oily and dry skin. There are two Combination types we cater for, and those are skins that lean towards a more dry combination skin type and those that lean towards a more oily combination skin type.

Combination skin is characterized by:

- A T-shape of oily skin that crosses the forehead and runs down the side of the nose and onto the chin

\• The pores within the T zone are larger than elsewhere on the face

- A sheen across the forehead, on the sides of the nose and on the chin
- A tendency to congestion of the pores within the T zone
- The skin outside the T zone may be normal or dry
- There is uneven pigmentation

## Pigmentation

You might have heard about pigmentation a lot by now. What is pigmentation and how is it related to beauty? Skin pigmentation is primarily regulating the amount of ultraviolet radiation penetrating the skin, controlling its biochemical effects. Human skin is colour is affected by the pigment Melanin. Melanin is brown in color and present in the epidermis. The skin color of people with light skin is determined mainly by the bluish-white connective tissue under the dermis and by the haemoglobin circulating in the veins of the dermis. The red color underlying the skin becomes more visible, especially in the face, when, as consequence of physical exercise or the stimulation of the nervous system (anger, fear), arterioles dilate. Keratin pigment is yellow to orange in color. It is present in the stratum corneum and fat cells of dermis and superficial fascia. Hemoglobin (also spelled haemoglobin) is found in blood and is not a pigment of the skin but develops a purple color. Natural skin color can darken as a result of tanning due to exposure to sunlight. Skin color adapts to intense sunlight irradiation to provide partial protection against the ultraviolet fraction that produces damage and thus mutations in the DNA of the skin cells.

## Steps to Identify Skin Types

- **Wash Your Face.** Wash with a gentle cleanser and pat dry. Remove make-up. This cleans away oils and dirt that may have accumulated during your day, giving your skin a fresh start.
- **Wait an hour.** During this time, your skin should return to its natural state, the characteristics of which will determine your skin type. Act normally and, please, don't touch your face.

- **Dab your face with a tissue.** Pay attention to the 'T-zone'--the area of your forehead and nose.

- **Determine your skin type.** Skin falls into four types--normal, oily, dry and combination.
- **Normal** skin shows neither oil nor flaking skin. It should feel supple and smooth.

- **Oily** skin is characterized by the grease on the tissue. It is also common for a person with oily skin to have large pores and a shine.
- **Dry** skin may feel taut or show flakes of dead skin. It is associated with small pores. Moisturizing is important for this skin type.
- **Combination** skin is most common. It exhibits traits of all three of the above skin types. Usually, the skin is oily in the T-zone and normal to dry elsewhere.

## Exercise

### A. Project

**Survey**

Do a survey of at least 30 people; make a list of their face skin type, complexion and explanation on how you concluded the skin type and complexion. (Hint: Make a checklist)

**Scrap book**

Prepare a scrap book collecting pictures of people with different complexion.

**Assessment**

**Answer the following questions**

### A. Scenario based questions

1. Sheerya is 19 year old girl. Her skin reacts to common household products or cosmetics or temperature changes. "The skin becomes red or inflamed, and has a burning or stinging sensation."

   a. What kind of skin does Shreeya has?

   b. How did you come to the above conclusion?

   c. How should she be taking care of the condition?

2. Rahul is a 17 year handsome guy. One day when he was getting ready he found out that, he has spot breakouts and a greasy complexion. This affected his self-confidence.

   a. What kind of skin does Rahul have?

   b. What are the characteristics of this kind of skin type?

   c. What causes this?

   d. Suggest remedies to help Rahul?

**B. Differentiate between the following:**

a. Epidermis and dermis.

b. Keratinocytes and melanocytes.

c. Oily skin and dry skin.

## Checklist For Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Epidermis and dermis

b) Keratinocytes and melanocytes

c) Oily skin and dry skin

**Part B**

Discussed in class the following:

a) What are the functions of the four cells of the epidermis?

b) Why is it important to identify different skin types?

c) What causes oily skin?

d) What are the characteristics of dry skin?

e) What is pigmentation?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Illustrate the skin structure | | |
| Analyse the different skin types | | |
| Identify the various skin complexion | | |

# Session – 3

## *Face Skin Problems*

### Relevant Knowledge

**Face Skin Problems**

The face is the part of our body which is most exposed to the elements. The face is almost always exposed to dust, dirt, sun, wind and water. Since we rarely cover our faces plenty of germs and dirt can get deposited on our facewhich is the cause of most skin diseases. Hence it is important for us to learn about some common skin diseases, their causes and symptoms as understanding these topics will act as a base knowledge for the next session „ face care".

**Acne**

Acne - The skin has tiny holes called pores that that can become blocked by oil, bacteria, and dirt. When this occurs, a pimple or "zit" may develop. If the skin isrepeatedly affected by this condition, it might lead to acne. Acne is one of the most common skin problems. Although acne is not a life-threatening condition, it can be painful, particularly when it is severe. It can also cause emotional distress. Acne that appears on the face can impact self-esteem and, over time, may cause permanent scarring. Fortunately, there are effective treatments for this condition that reduce both the number of pimples you get and the chance for scarring to occur.

**Causes -** Acne occurs when the pores on the skin become blocked with oil, dead skin, or bacteria. Each pore on the skin is the opening to a follicle. The follicle is made up of a hair and a sebaceous (oil) gland. The oil gland releases sebum (oil), which travels up the hair, out of the pore, and onto your skin. The sebum keeps skin lubricated and soft; Acne development may be because of one or more problems in this lubrication process.

An overabundance of oil, a pore clogged by dead skin cells, and bacteria all contribute to the development of pimples. A zit appears when the bacteria grows in the clogged pore and the oil is unable to escape.

**Symptoms -** Non-inflammatory lesions

Comedones (whiteheads and blackheads) are created when the openings of hair follicles become clogged and blocked with oil secretions, dead skin cells and sometimes bacteria. When comedones are open at the skin surface, they're called blackheads because of the dark appearance of the plugs in the hair follicles. When comedones are closed, they're called whiteheads—slightly raised, skin-colored bumps.

**Symptoms -** Inflammatory lesions

1. Papules are small raised bumps that signal inflammation or infection in the hair follicles. Papules may be red and tender.
2. Pustules (pimples) are red, tender bumps with white pus at their tips.
3. Nodules are large, solid, painful lumps beneath the surface of the skin. They're formed by the buildup of secretions deep within hair follicles.
4. Cysts are painful, pus-filled lumps beneath the surface of the skin. These boil-like infections can cause scars.

**Large Pores**

Large Pores appear as openings in the surface of your skin and are usually most apparent in the T-zone - the forehead, nose and chin.

**Causes -** Pore size is largely fixed and determined by genes, and may become larger with age or repeated sun exposure. Pores can also appear larger and more noticeable when they become clogged with dirt, oil and dead skin cells; it is important to make an effective cleansing and exfoliation regimen essential to keep pores clean and minimizing their appearance.

**Symptoms -** Appearance of large pores on the face; which become larger with age.

## Under Eye Dark Circles

Under eye dark circles Under eye dark circles also known as Periorbital dark circles are dark blemishes found under the eyes.

**Causes -** Under eye dark circles are attributed to a number of factors such as:

1. Heredity - In most cases, the dark circles under the eyes are blood vessels that can be seen through the skin. The skin around the eyelids (periorbital skin) is the thinnest skin in the body (around 0.5 mm thick compared with 2mm in other areas). Like varicose veins, dark circles under the eyes are usually an inherited trait. When blood passes through the large veins close to the surface of the skin, it can produce a bluish tint. The more transparent the skin—also an inherited trait—the darker the circles appear. In people with a deep-set bone structure, shadowing can also contribute to the dark color under the eyes.
2. Allergies, asthma, and eczema - Any condition that causes the eyes to itch can contribute to darker circles due to rubbing or scratching the skin around them. Hay fever sufferers in particular will notice under-eye "smudges" during the height of the allergy season. Some food allergies can also cause the area under the eyes to appear darker.
3. Medications - Any medications that cause blood vessels to dilate can cause circles under the eyes to darken. Because the skin under the eyes is very delicate, any increased blood flow shows through the skin.
4. Anemia - The lack of nutrients in the diet, or the lack of a balanced diet, can contribute to the discoloration of the area under the eyes. It is believed that a lack of mineral iron can cause dark circles as well. Iron deficiency is the most common type of anemia and this condition is a sign that not enough oxygen is getting to the body tissues.
5. The skin can also become more pale during pregnancy and menstruation (due to lack of iron), allowing the underlying veins under the eyes to become more visible.
6. Fatigue - A lack of sleep can cause paleness of the skin, allowing the blood underneath the skin to become
7. Liver problems - Dark circles under eyes can be symptom of liver disease.
8. Age - Dark circles are likely to become more noticeable and permanent with age. This is because as people get older, their skin loses collagen, becoming thinner and more translucent. Circles may also gradually begin to appear darker in one eye than the other as a result of some habitual facial expressions, such as an uneven smile.

**Symptoms -** Dark coloured patches under the eyes

**Sunburn**

Sunburn is a form of radiation burn that affects living tissue, such as skin, that results from an overexposure to ultraviolet (UV) radiation, commonly from the sun. The skin usually turns red after prolonged exposure to the sun.

**Causes -** Sunburn is caused by UV radiation, either from the sun or from artificial sources, such as welding arcs, the lamps used in sunbeds, and ultraviolet germicidal irradiation. It is a reaction of the body to the direct DNA damage, which can result from the excitation of DNA by UV-B light. This damage is mainly the formation of a thymine dimer. The damage is recognized by the body, which then triggers several defense mechanisms, including DNA repair to revert the damage and increased melanin production to prevent future damage. Melanin readily absorbs UV wavelength light, acting as a photoprotectant. By preventing the disruption of bonds that higher energy photons can produce, it inhibits both direct alteration of DNA, and generation of free radicals, thus indirect DNA damage.

**Symptoms**

1. Red, sore skin (erythema)
2. Skin that is warm and tender to the touch
3. Flaking and peeling skin after a number of days (usually 4-7 days after exposure)

**Wrinkles**

A wrinkle, also known as a rhytide, is a fold, ridge or crease in the skin.

**Causes -** Wrinkles are a natural part of aging, but they're most prominent on sun-exposed skin, such as the face, neck, hands and forearms. Although genetics are the most important determinant of skin structure and texture, sun exposure is the major contributor to wrinkles. Environmental exposure, such as to heat, wind and dust, as well as smoking, also may contribute to wrinkling.

**Symptoms -** Wrinkles are the lines and creases that form in your skin. Some wrinkles can become deep crevices or furrows and may be especially noticeable around your eyes, mouth and neck.

**Cold Sores**

Cold sores are red, fluid-filled blisters that appear near the mouth or on other areas of the face. In rare cases, cold sores may appear on the fingers, nose, or inside the mouth. There is no cure for cold sores, and infections tend to reoccur without warning. Sores are contagious and may persist for more than one week.

**Causes -** Herpes simplex type 1 virus usually causes cold sores, and herpes simplex type 2 virus generally causes genital herpes. The actual sores are similar in appearance for both forms of the virus.

It is possible (though rare) for herpes simplex type 1 to cause sores on the genitals, and for herpes simplex type 2 to cause sores on the mouth.

Visible sores are contagious, but herpes may be spread even when sores can"t be seen. You can catch the herpes simplex virus by coming in contact with infected individuals. This may happen through kissing, sharing cosmetics, or sharing food.

**Symptoms**

1. Tingling and itching-Many people feel an itching, burning or tingling sensation around their lips for a day or two before cold sore blisters erupt.
2. Blisters-Small fluid-filled blisters typically break out along the border where the outside edge of the lips meets the skin of the face, although the blisters can also occur around the nose or on the cheeks.
3. Oozing and crusting-The small blisters may merge and then burst, leaving shallow open sores that will ooze fluid and then crust over.

Symptoms can vary, depending on whether this is your first outbreak or a recurrence.

## Psoriasis

Psoriasis is an uncomfortable, unsightly skin condition, it is an often painful and intensely itchy chronic autoimmune disease that appears on the skin it is considered to be one of the most common autoimmune disorder.

**Causes -** Some people inherit genes linked to psoriasis, but most develop the condition suddenly due to a number of psoriasis triggers. There is no single cause or cure for psoriasis.

**Symptoms -** Psoriasis signs and symptoms can vary from person to person but may include one or more of the following:

1. Red patches of skin covered with silvery scales
2. Small scaling spots (commonly seen in children)
3. Dry, cracked skin that may bleed.
4. Itching, burning or soreness.
5. Thickened, pitted or ridged nails.
6. Swollen and stiff joints.

## Rosacea

Rosacea is a chronic condition characterized by facial erythema (redness) and sometimes pimples.

There are four subtypes of rosacea. Each subtype has its own set of symptoms. It is possible for an individual to have more than one subtype of rosacea at a time. Typically, rosacea affects only skin on your nose, cheeks, and forehead. Flare-ups often occur in cycles. This means that you will experience symptoms for weeks or months at a time, the symptoms will go away, and then they will return.

Rosacea affects around one in 10 adults and usually first appears by age 20.

Types of Rosacea

1. Subtype one, known as erythematotelangiectatic rosacea (ETR), is associated with facial redness, flushing, and visible blood vessels.
2. Subtype two, papulopustular (or acne) rosacea, is associated with acne-like breakouts and often affects middle-aged women.
3. Subtype three, known as rhinophyma, is a rare form that is associated with thickening of the skin of your nose. It usually affects men and is often accompanied by another subtype of rosacea.
4. Subtype four is ocular rosacea, and its symptoms are centered on the eye area.

**Causes -** The cause of rosacea has not been determined. It may be a combination of hereditary and environmental factors. It is known that some things may make your rosacea symptoms worse. These include: eating spicy foods, drinking alcoholic beverages, having the intestinal bacteria Helicobacter pylori, a skin mite called demodex and the bacterium Bacillus oleronius it carries, the presence of cathelicidin (a protein that protects the skin from infection)

**Symptoms -** small, red, pus-filled bumps on the skin that are present during flare-ups.

**Flat warts**

Flat warts usually grow on the face, thighs, or arms. They are small and not immediately noticeable. Flat warts have a flat top, as if they have been scraped. They can be pink, brownish, or slightly yellow.

**Causes -** Flat warts are caused by human papillomavirus (HPV). Viruses generally grow in warm and moist areas so human skin which as mucosal surface is ideal for their growth. Once the HPV finds the right place for its survival it begins to grow and divide rapidly. HPV is a contagious virus that spreads easily either by direct or indirect contact.

**Symptoms -** HPV remains dormant for a long duration inside the host. Once the infection occurs it might take up to a year for the warts to become visible. These are tiny outgrowths that are flesh in color, have flat tops and smooth texture. They generally invade the skin from cuts and abrasions which means that you will find them appearing near the scratches. Though they may grow prominently on the face and around the neck area, they can grow on hands as well. Generally the areas that are shaved very frequently like the mens face and womens legs are more prone to HPV infection. Flat warts develop in clusters, usually painless and can be very unattractive.

**Filiform warts**

Filiform warts grow around your mouth or nose and sometimes on your neck or under your chin. They are small and shaped like a tiny flap or tag of skin. Filiform warts are the same color as your skin.

**Causes -** Filiform warts are caused by the HPV virus just as all other warts are. The HPV virus is started when it works its way through a cut, scratch, and abrasion and multiplies rapidly and causes skin cells to grow just as quickly. It thrives in the warmth and moistness of the epidermis, which results in the rapid multiplication of the skin cells than push upward and outward. This explains the branched and stalks like appearance of the filiform warts.

**Symptoms -** Filiform warts grow so rapidly that it is highly unusual for them not to be seen by the human eye. However, an early symptom of the wart is a itching in the area where the wart is forming. Once the wart is large, enough it will be easy to see. Then they spread very quickly and can bleed if in a spot where there is a lot of friction such as rubbing one"s eyes. They can grow individually but this rarely happens. They tend to form in clusters just because they spread so quickly.

While they are not life threatening, filiform warts can become painful because of their very nature and the places that they form in.

## Exercise

### Narrative

Shilpa was an attractive 14 year old school girl. She was very smart and confident. Recently Shilpa started noticing bumps on her face which were red in colour and tender to touch. Pretty soon the bumps started spreading all over her face. This embarrassed her a lot and she started losing her confidence and even started avoiding her classmates and started skipping school. Her concerned mother advised her to apply some face creams but the bumps still didn't go away. Later on Shilpa and her mother decided to go to the doctor. The Doctor diagnosed her problems as "Acne". The doctor advised Shilpa that Acne is a very common problem among teenagers her age, and recommended her to clean her face regularly ensuring that the pores on her face are not clogged with oil and dirt. Shilpa followed the doctor"s advice and soon enough the Acne bumps started going away and her face was clear and smooth as before. Shilpa regained her confidence and beauty and started going back to school and met all her friends which also contributed to her overall wellbeing.

### A. Activity

### Poster making activity

Total strength of class is divided into five groups and they will be provided with chart paper, color paper, sketch pens, glue, and scissors.

Group-1 will discuss about acne of face skin problems and will put their thoughts on chart paper and will present the same in front of class.

Group-2 will discuss large pores and under eye dark circles of face skin problems and will put their thoughts on chart paper and will present the same in front of class.

Group-3 will discuss sun burns and wrinkles face skin problems and will put their thoughts on chart paper and will present the same in front of class.

Group-4 will discuss cold sores and psoriasis faces skin problems and will put their thoughts on chart paper and will present the same in front of class.

Group-5 will discuss rosacea fusiform warts and flat warts of face skin problems and will put their thoughts on chart paper and will present the same in front of class.

## Assessment

**Answer the following questions**

**A. Scenario based question**

Veena is a college student; she used to travel on her scooter mostly. She has lot of pimples on her face. This is occurred repeatedly. She used to feel embarrassed to go in front of anyone, because of this.

1. What is the problem with Veena's skin?
2. What might have caused pimples on her face?
3. How can acne be prevented?

**B. Fill in the blanks**

1. _____ occurs when the pores on the skin become blocked with oil, dead skin, or bacteria.
2. When _____ are open at the skin surface they're called blackheads.
3. Any medications that cause blood vessels to_____can cause circles under the eyes to darken.
4. _____ is caused by UV radiation, either from the sun or from artificial sources, such as _____ arcs etc.
5. _____ are the lines and creases that form in your skin due to aging.
6. _____are red, fluid-filled blisters that appear near the _____ or on other areas of the face.

**C. Differentiate between**

1. Rosacea and cold sores.
2. Acne and large pores

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Rosacea and cold sores

b) Acne and large pores

**Part B**

Discussed in class the following:

a) Why is it important to identify common face skin problem?

b) What are the causes and symptoms of acne?

c) What are the causes and symptoms of under eye darkening?

d) What are the causes and symptoms of wrinkles?

e) What are the causes and symptoms of Tan?

**Performance standards**

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Identify the common facial skin problems i.e. Acne, dark circle, Tan, wrinkles and large pores | | |

## Session – 4

### *Face Care*

**Relevant Knowledge**

**Why a Skin Care Routine Is Important?**

What is Face Care? And why is it important? Have you given a thought why people, especially girls spend a lot of time in front of mirror? Why does it become difficult for you to step out of your home when there is a pimple which is bothering you? Clean and healthy skin helps develop positive self-esteem and confidence. Face care is the maintenance and treatment of the face skin. Your face is the first part of the body you look every day and it is certainly what others see in you first when you meet them. This is the main reason why most of the people spend a lot more money on cosmetics than food.

We all love to be recognized as a person with clear skin without any dark spots, pimple or black heads etc. it is not difficult to get a clear face. By following a good clean up routine and healthy food habit you will be able to accomplish the same. A healthy looking skin will boost your confidence as well. As teenagers you most have noted few changes in your body. So in order to cover those changes which affect your skin outburst, skin routines are very important along with the food habits. As you grow up, your skin also ages with you. It is difficult to fight age but we can always take measures to reduce its visibility.

## Daily Facial Cleaning Routine

You must have heard most skin care experts recommending three steps skin care regimen, once or twice daily, to maintain healthy, glowing skin. These are cleansing, toning and moisturizing. A sensible skin care regimen does not have to be time intensive but rather a part of the flow in your daily routine.

It may appear to be a burden at first but once you see theimprovements in your skin you will be more inclined to follow this skin care regimen as a normal part of your daily routine just like brushing your teeth.

### Cleansing

What is Cleansing? As the name indicates it is a cleaning procedure. Cleansing is the process of removing dirt, oil and makeup from the skin surface. It is necessary for all skin irrespective of their differences. A cleanser can be anything from mild soap, a gentle exfoliate, rich cleansing cream or foaming cleanser. But it is always recommended to use a face cleanser according to your skin type. Whichever type you choose, apply it to the skin with the pads of the fingers (not fingernails), using small circular motions, gently spread the cleanser over the surface of the skin. You can also use a facial brush, cloth, or sponge to apply cleansers.

### Toning

Toning is the process in which a toner or astringent is applied on skin to reduce the size of pores and remove excess oil. After cleansing the skin, next step is always toning. A toner is a product designed to remove leftover makeup or oil residues from pores and to tone and prepare the skin for a moisturizer. Select a toner that corresponds to your skin type and avoid toners that contain alcohol; these can cause skin to become too dry and can get skin irritations.

### Moisturizing

Moisturizing the skin is the final basic step in facial skin care routine. Use a product containing moisturizing oils, distillates, anti-oxidants, nutrients and essential oils to prevent moisture loss. Choose a moisturizer that suits your skin type and one that has as many, if not all, natural ingredients as possible. Remember your skin absorbs everything put on it even if it's not natural.

Apply a light moisturizer in the mornings with a sunscreen to protect your skin for the day. At night, use a light or rich cream depending on your skin type.

Your night time moisturizer should be capable of repairing and nourishing your skin while you sleep. Be careful not to apply an excessive amount of moisturizer at night; the skin needs to breath during sleep. If your skin looks and feel greasy when you wake up, avoid moisturizing your skin during night.

**Additional Care - Use of Sunscreen, Exfoliate, Facial Steam**

**Use Sun-Screen**

The skin care you're doing can go waste if you don't have the habit of using sun-screen lotion. Yes, the UV Rays of the Sun adversely affect our skin, even causing skin cancer. It is important to make a protection shield on your skin while going out. Skin care is not only about doing cleansing, scrubbing and moisturizing, but it's also about maintaining. Apply sun-screen lotion daily on exposed parts of the body on daily basis to avoid tanning.

Note: Moisturize the skin before applying sunscreen.

**Exfoliate**

Daily care includes cleansing, toning and moisturizing that will help you keep the face clean. However, over a period of time our upper most layer of skin only consist of dead cells. It is important to remove the dead skin as it will act as a barrier between the live skin and nourishment that you trying to provide through moisturizing. Dead skin is little hard to be removed by cleansing process and it gives roughness, dryness and dullness to the skin.

**Method**

Exfoliation is the process of dead skin removal using a scrub. Twice a week or more often for oily skin types, use an exfoliating cream or scrub to slough off dead skin cells and unclog your pores. You must get rid of the dead skin on your face and keep your pores clean, only then will your beautiful new skin reveal itself and heal itself.

## Facial Steam

If you want beautiful, clear, healthy looking skin this should become an important part of your routine Steam as we all know helps in opening your pores. Steam baths your skin twice or thrice a month, after you cleanse and/or exfoliate. This will deep cleanse the pores and stimulate circulation. People with oily skin can steam more regularly than people with dry or sensitive skin.

To create a steam facial,

- Boil 1.5 cup of water
- Put boiling water in a big bowl.
- Place it on a table.
- Seat at a table with the bowl of water in front of you. Place a towel over your head, covering it and the bowel to make a tent.
- Allow the steam to caress your face and neck area.
- Lift one edge of the towel if you get too warm.
- Enjoy the steam for about 10 minutes
- Follow with a toner and moisturizer.

## Exercise

### Narrative

Mary is excited about her 14th birthday party and wants her best friend "Sarah" to come little early, so that she can take Sarah's advice in choosing the dress. Mary called Sarah over the phone and asks her to come early. Sarah sounded bit reluctant at the beginning of the conversation. She eventually informs Mary that she will not be able to come to her birthday party. Dishearten Mary bangs the phone annoyingly. Sarah calls her back and apologies for earlier conversation. Then Sarah explained Mary the reason for not attending the occasion. Mary, the daughter of beautician was not so amused to know the reason and convinced Sarah to come early at her place. Sarah visited the place at 4 PM and saw Mary's mother with few cosmetics and a book. Mary's mother explained the reasons of PIMPLE at such age and gave her the confidence to attend the party. She also told Sarah that they should not be embarrassed of it and should follow basic face care process. Then Mary's mother camouflaged the pimple using few cosmetics. Sarah with great courage attended the party and had really good time. She followed Mary's mother advice and within 4 days pimple was gone.

**A. Scenario based questions**

**Answer the following question based on scenario below.**

**Scenario:** There was a young woman who used to ride her scooty to the office from home every day. One day her colleagues started noticing that her skin is becoming dull and dark. She realized that she needs to do something about her skin condition.

a) What could be the reason for her skin becoming dull and dark?

b) What should she do to solve her skin problem?

c) Once her skin is back to normal, how should she maintain it?

**B. Assignment**

a) Arrange the pictures below in the correct sequence:

## Assessment

**Answer the following questions**

**A. Fill in the blanks**

1. _____ is the process of removing dirt, oil and makeup from the skin surface.
2. _____ is the process in which a toner or astringent is applied on skin to reduce the size of pores and remove excess oil.
3. After _____ the skin, next step is always toning.
4. _____ is the process of dead skin removal using a scrub.
5. One should avoid toners that contain _____.
6. One should apply _____ daily on exposed parts of the body on daily basis to avoid tanning.

**B. Short answer questions**

1. What is a toner?
2. Explain the process of day and night moisturizing of face.

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Toning and moisturizing

b) Cleansing and exfoliating

**Part B**

Discussed in class the following:

a) Why is it important to keep our face clean?

b) What are the steps to create a steam facial?

c) What is the process of Exfoliation?

**Performance standards**

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Perform basic CTM process – Cleaning, toning and moisturizing | | |
| Perform Basic facial | | |

## Suggested Reading

**Books**

- Anatomy & Physiology For Dummies
- Milady's Standard Cosmetology, By Margrit

**Websites**

- http://www.wikipedia.org/

## Glossary

**Session-1**

1. **Basilar -** Of or situated at the base of something, esp. of the skull, or of the organ of Corti in the ear.
2. **Extrinsic Eye Muscles -** The extraocular muscles are the six muscles that control the movements of the (human) eye.
3. **Laryngeal -** Of or relating to the larynx: "the laryngeal artery".
4. **Mandible -** The jaw or a jawbone, esp. the lower jawbone.
5. **Nasal Cavities -** (nasal cavity) either of the two cavities lying between the floor of the cranium and the roof of the mouth and extending from the face to the pharynx.
6. **Occipital Bone -** The bone that forms the back and base of the skull, and through which the spinal cord passes.
7. **Palpable -** Capable of being handled, touched, or felt.
8. **Prominence -** The fact or condition of standing out from something by physically projecting or being particularly noticeable.
9. **Draping -** Adorn, cover, or wrap (someone or something) loosely with folds of cloth: "the body was draped in a blanket".

10. **Slender -** (of a person or part of the body) gracefully thin.

**Session-2**

1. **Basal-** Forming or belonging to a base.
2. **Beneath-** Extending or directly underneath something.
3. **Congestion-** clogging in a blood vessel, duct, or other body part due to an accumulation of fluid, mucus, etc.
4. **Mucosa-**The mucous membrane, or the thin layer which lines body cavities and passages.
5. **Proliferating -** To grow or multiply by rapidly producing new tissue, parts, cells, or offspring.
6. **Proteoglycans -** A compound consisting of a protein bonded to glycosaminoglycan groups, present esp. in connective tissue.
7. **Sebum -** An oily secretion of the sebaceous glands.
8. **Sheen -** A soft luster on a surface.

**Session-3**

1. **Blisters -** A small bubble on the skin filled with serum and caused by friction, burning, or other damage.
2. **Clogged -** Fill or block with an accumulation of thick, wet matter.
3. **Clusters -** A group of similar objects growing closely together.
4. **Collagen -** The main structural protein found in animal connective tissue, yielding gelatin when boiled.
5. **Contagious -** (of a disease) Spread from one person or organism to another by direct or indirect contact.
6. **Dormant -** (of an animal) having normal physical functions suspended or slowed down for a period of time; in or as if in a deep sleep.
7. **Germicidal -** bactericidal: preventing infection by inhibiting the growth or action of microorganisms.
8. **Inherited -** Derive (a quality, characteristic, or predisposition) genetically from one's parents or ancestors.
9. **Paleness -** lividness: unnatural lack of color in the skin (as from bruising or sickness or emotional distress).
10. **Smudges -** A blurred or smeared mark on the surface of something.
11. **Trait -** A distinguishing quality or characteristic, typically one belonging to a person.
12 **Translucent -** (of a substance) allowing light, but not detailed images, to pass through; semi-transparent.
13. **Zit -** A pimple on the skin.

**Session-4**

1. **Distillates-**A liquid condensed from vapour in distillation, a purified form.
2. **Regimen-**A prescribed course of medical treatment, way of life, or diet for the promotion or restoration of health.
3. **Slough-**The dropping off of dead tissue from living flesh.
4. **Tanning-**Browning of the skin by exposure to sun and weather.

# UNIT–5:

## INTRODUCTION TO HAIR CARE

### Introduction

Hair is important to the appearance of men and women. There is hair on all the major visible surfaces of the body. It is also the only body structure that is completely renewable without scarring.

Today everybody is becoming conscious of their hair and has started to take interest to know different ways to build and maintain it, for one to look beautiful.

Hair care is an overall term for parts of hygiene and cosmetology involving the hair on the human head. Hair care will differ according to one's hair type and according to various processes that can be applied to hair. All hair is not the same; indeed, hair is a manifestation of human diversity.

Everybody wants beautiful, healthy hair and skin. For most people, grooming and maintenance of hair and skin is a daily process. The demand for products that improve the look and feel of these surfaces has created a huge industry.

**Terms to Know**

**Hygiene** is a Condition or practices conducive to maintaining health and preventing disease, esp. through cleanliness: "poor standards of food hygiene".

**Cosmetology** is a professional skill or practice of beautifying the face, hair, and skin.

**Manifestation** is an event, action, or object that clearly shows or embodies something, esp. a theory or an abstract idea: "manifestations of global warming".

**Good grooming** is commonly used to refer to a person's appearance. It is made up of personal hygiene, tidy hair, appropriate dressing for an occasion.

**Maintenance** is the process of maintaining or preserving someone or something, or the state of being maintained: "the maintenance of democratic government".

**Versatile** is able to adapt or be adapted to many different functions or activities.

**Scalp** is the skin covering the head, excluding the face.

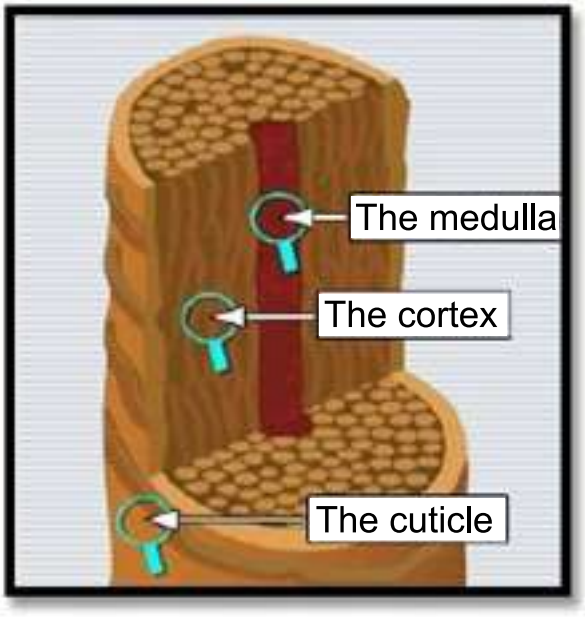
# Session – 1

## *Hair Structure and Growth*

### Relevant Knowledge

**Structure Of Hair**

The hair can be divided into two parts, the root and shaft. The root part of hair is in the skin (epidermis) of scalp. A pouch like structure called follicle surrounds the hair root. The base of hair root is in the shape of a bulb. Capillaries and nerve fibers indent this bulb. The cells in the center of bulb divides, the newly divided hair cells push the previous cells up. The cells, which move upwards, die slowly forming hard hair shaft.




Hair is composed primarily of proteins (88%). These proteins are of a hard fibrous type known as keratin. The hair shaft has three layers the cuticle, medulla and cortex.

Each hair is made up of three layers. The outside layer, the Cuticle, is thin and flat. The middle layer, the Cortex, is the strong, main part of the air. The central layer, the medulla, runs finely through the middle.

a) **Cuticle:** This is the outermost layer. It consists of a single, overlapping layer of scale-like cells that overlap like the shingles on a roof. It acts as a protective shield to the hair shaft and is coated with sebum, a natural lubricant. Sebum is what gives hair its natural sheen.

b) **Cortex:** the cortex is the main part of the hair, lying underneath the cuticle. The cortex determines the strength, elasticity and texture of the hair. It accounts for 90% of the hair's weight. If the cortex is damaged it will appear fragile and weak and will break easily.

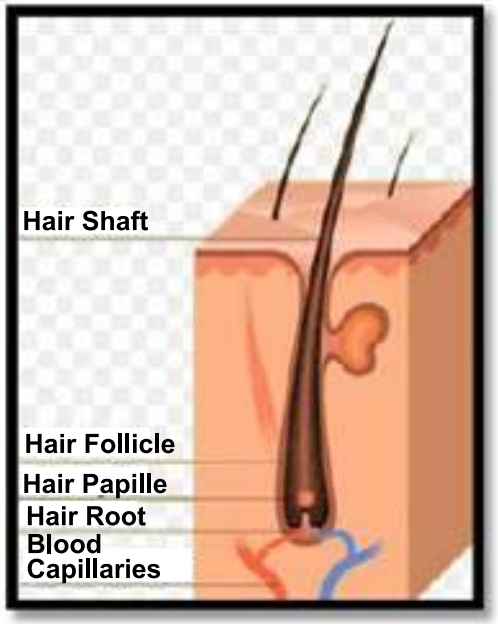
c) **Medulla:** The medulla is the innermost layer that is sometimes called the marrow of the hair shaft.

d) **Hair Root:** The hair root is that portion of the hair found beneath the skin surface. This portion of the hair enclosed within the follicle.

e) **Hair Shaft:** The hair shaft is that portion of the hair extending above the skin surface.

f) **Hair Follicle:** The hair follicle is a tube- like depression or pocket in the skin or scalp encasing the hair root. Follicles vary in depth, depending upon the thickness and location of the skin. There is a follicle for every hair. The funnel shaped mouths of hair follicles are favorite breeding places for gems, sebum, and dirt.

h) **Hair papilla:** The hair papilla is a small, cone-shaped elevation at the bottom of the hair follicle that fits into the hair bulb. Within the hair papilla is a rich blood and nerve supply, which contributes to the growth and regeneration of the hair. As long as the papilla is healthy and well nourished, it produces hair cells that enable new hair to grow.




While hair contains water, lipids, traces of mineral elements and melanin , it is keratin which is its main constituent. Its organisation within the cortex is so reminiscent of a rope or a cable that it is almost worrying.

Hair is incredibly strong. Each hair can withstand the strain of 100 grams, meaning that an average head of 120,000 hairs could cope with 12 tons, if the scalp were strong enough! Performance which is due to the amazing way the keratin is organised in the cortex.

Keratin is the essential component of hair. It is a protein formed by the combination of 18 amino acids , among which cysteine deserves special mention, being rich in sulphur and playing an important role in the cohesion of the hair. It is produced by the keratinocytes.

## The Hair Growth Cycle

A single strand of hair does not grow continuously throughout its life. Hair follicles grow in repeated cycles. One cycle can be broken down into three phases.

1. Anagen – Growth phase
2. Catagen – Transitional phase
3. Telogen – Resting phase

Each hair passes through the phases independent of the neighboring hairs.

Anagen

**Anagen Phase - Growth Phase**

Approximately 85% of all hairs are in the growing phase at any one time. The Anagen phase or growth phase can vary from two to six years. Hair grows approximately 10cm per year and any individual hair is unlikely to grow more than one meter long.

Catagen

**Catagen Phase - transitional phase**

At the end of the Anagen phase the hairs enters into a Catagen phase which lasts about one or two weeks, during the Catagen phase, the hair follicle shrinks to about 1/6 of the normal length. The lower part is destroyed and the dermal papilla breaks away to rest below.

Telogen

**Telogen Phase - resting phase**

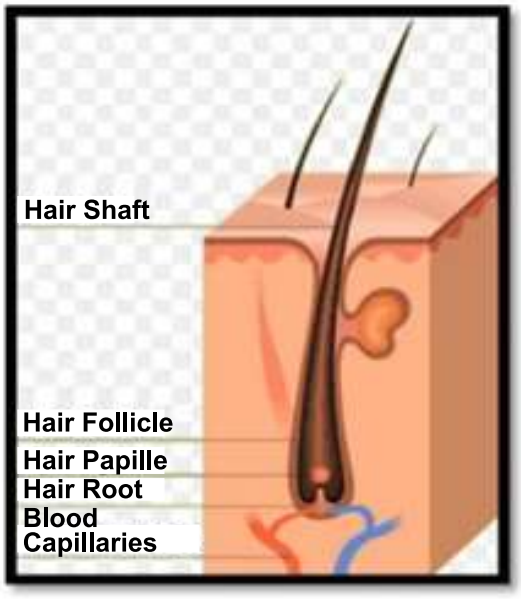
The resting phase follows the catagen phase and normally lasts about 5-6 weeks. During this time the hair does not grow but stays attached to the follicle while the dermal papilla stays in a resting phase below. Approximately 10-15 percent of all hairs are in this phase at a one time.

At the end of the Telogen phase the hair follicle re-enters the Anagen phase. The dermal papilla and the base of the follicle join together again and a new hair begins to form. If the old hair has not already been shed the new hair pushes the old one out and the growth cycle starts all over again.

## Exercise

### A. Project

Prepare a model of hair structure (shaft or root) showing all the important parts. You may use different materials like thermocol, plaster of paris etc.

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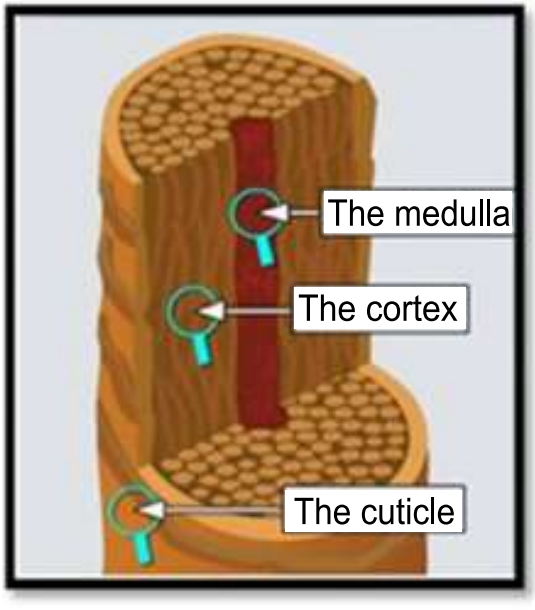



## Assessment

**Answer the following questions**

### A. Fill in the blanks

1. Hair is divided into two parts, the _____ and _____.
2. A pouch like structure called _____ surrounds the hair root.
3. The three layers of the hair shaft are called the _____ and the _____.
4. _____ is the transitional phase of the hair.
5. The _____ is a small, cone-shaped elevation at the bottom of the hair follicle that fits into the hair bulb.
6. The _____ determines the strength, elasticity and texture of hair.
7. The _____ is the portion of the hair enclosed within the follicle.
8. Hair is primarily composed of protein scalled _____.

### B. Short answer questions

1. How do hairs grow?
2. Differentiate between anagen and catagen.
3. Draw the structure of the hair and name the different parts.

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) The root and the shaft of the hair

b) The Anagen (Growth) phase and the Telogen (resting) phase of the hair growth cycle

**Part B**

Discussed in class the following:

a) Why is it important to know the structure of hair?

b) What is hair made of?

c) What are the stages of hair growth?

**Performance standards**

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Diagrammatically represent the hair structure | | |
| Identify the different stages of hair growth | | |

# Session – 2

## *Hair Types and its Characteristics*

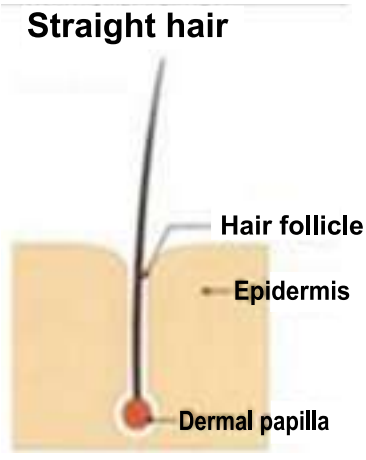
### Relevant Knowledge

Hair can vary in shape, length, diameter, texture, and color. The cross section of the hair may be circular, triangular, or flattened, influencing the curl of the hair.

Hair varies from person to person. In addition, different hairs from one location on a person can vary. Further, hair varies from region to region on the body of the same person. One of the ways in which hairs from the different parts of the body are distinguished is their cross-sectional shape. Head hair is generally circular. Eyebrows and eyelashes are also circular but often have tapering ends. Beard hairs tend to be thick and triangular. Body hair can be oval or triangular.

The benefit of knowing your specific hair type is finding products best suitable for your hair. As human ages, the density of hair decreases.

## Hair Shape



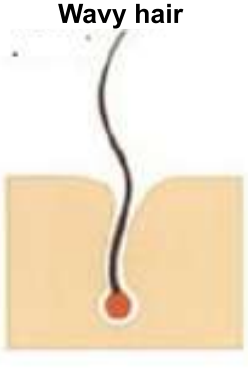

The shape of the follicle, genetics, and the distribution of keratin along the hair shaft determines the shape and texture of the hair. The more elliptical the follicle the curlier the hair, and the more evenly distributed the keratin the stronger and smoother the hair. Cell growth in the papilla also plays an important part of hair shaping; if the cell growth is greater on one side than on the other, it creates an uneven shape, the hair bends naturally to the shorter side, creating natural curl.

**a) Straight:** Straight hair grows from follicles that are almost circular in shape lack a curl pattern. Straight hair can range from thick, shiny and resilient to coarse frizzy and lacking luster. The lack of curl pattern can make Straight hair difficult to style.

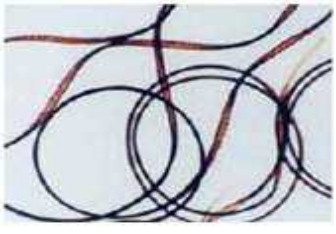
**b) Curly Hair:** Curly hair grows from follicles that are flat on one side and oval on the other. This makes the hair grow in an "S" or "ribbon" shape. Curly hair is generally stronger than Kinky hair; it is prone to both dryness and an over production of natural oils that move more easily along the hair shaft and can make manageability and styling a challenge.

**c) Kinky Hair:** Kinky hair grows from an elliptical shaped follicle in springy corkscrews close to the head. Kinky hair has fewer hair shafts than other types of hair; it is more fragile because of the many turns in the shaft that weaken the overlapping proteins. The beauty of Kinky hair is its ability to hold its shape.

**d) Wavy Hair:** Wavy hair grows from follicles that are less elliptical with a keratin distribution that is more even. The hair is stronger because there are fewer twists in the shaft. It can range from fine texture to coarse, easy to style to difficult to manage. Natural oils travel easily along Wavy hair, which can make the hair greasy.



**Comparision Of Some General Physical Characteristics Of Hair From Different Races**

| Race | Appearance | Pigment Granule | Other |
|---|---|---|---|
| European | Generally straight or wavy | Small and evenly distributed | Color may be blond, red, brown, or black. |
| Asian | Straight | Densely distributed | Shaft tends to be coarse and straight.<br><br>Thick cuticle<br>Continuous medulla. |
| African | Kinky, curly, or coiled  | Densely distributed, clumped, may differ in size and shape | — |

## Hair and Different Texture

Texture refers to the thickness or fineness of hair and the feel of the hair. Thickness depends on the diameter of the hair. Hair can be coarse (thick) medium, thin and wiry. This is influenced by the thickness of the cortex and the number of cuticle layers.

**Fine Hair** is soft and shiny and often goes limp or flat. It is close to the resolution of the human eye, about as fine as we can see. Hair thickness varies from person to person, day to day, year to year.

**Medium Textured Hair** is stronger, feels thicker, and holds its shape well. Medium textured hair is more versatile, allowing the person's bone structure to determine the style. If the ends of the hair feel coarse and dry, conditioning is required.

**Coarse Hair** is dry, bulky, and wiry and lacks shine. Rich conditioning is required, and controlling the bulk with the proper cut is important.

## Hair Type

**Normal Hair:** Normal hair will appear shiny but won't feel greasy. This type of hair is easy to manage and stays good-looking for even after a week after washing. Normal hair requires less attention than the other types. Just use shampoo, conditioner, and oil at regular intervals and in a balanced way.

**Dry Hair:** Dry hair is hair that does not have enough moisture and oil to maintain its normal sheen and texture. When hair is dry it tends to feel rough and unmanageable.

**Causes of Dry Hair**

- Harsh environment conditions like extreme cold, heat, and wind etc, leads to dry hair.
- A personal care product rich in chemicals causes dry hair.
- Excessive blow drying or frequent use of heat treatments could also lead to loss of hydration from hair.

**Prevention of Dry Hair**

1. Dry hair needs extra nourishment.
2. Regular oiling is prevents Dry hair
3. Eating well, exercising regularly, and getting enough sleep may help in preventing dry hair

**Oily Hair:** Oily hair, most often accompanied by excessively oily skin, is caused when there is an over secretion of sebum oils by the sebaceous glands which lie just under the layers of skin.

**Causes of Oily Hair**

- Genetic predisposition towards greasy, oily scalp that migrates through the hair.
- Normal hair without genetic predisposition towards greasiness that is treated with improper hair care products which cause oily/ greasy scalp with or without oily/greasy strands.
- Lack of regular and consistent hair cleansing which results in the build-up of toxins, dirt and other substances resulting in greasy strands.
- Oily scalp is also caused by hormone imbalances, many of which emerge as a result of adolescence, pregnancy, consumption of hormone-related medicines including birth control and steroids, as well as various adrenal or pituitary conditions.

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**Prevention of Oily Hair**

- Oily hair should be washed more frequently -preferably, every alternate day, so that the dirt and grease cannot accumulate.
- Do apply conditioners near the scalp. Only apply to the middle or ends and keep away from the top of your head.
- Wash hair in hot water

**Mixed Hair:** Mixed or Combination type hair will show both the characteristics of dry and oily hair. Combination hair will need separate attention to the scalp and hair ends. Wash your head often but also apply oil and conditioner to the hair ends. If possible, get the hair ends trimmed regularly to avoid split ends.

Use warm water when shampooing, nor hot water. Avoid using a special shampoo for oily hair. You must use a shampoo for normal hair. Do not use too much shampoo. Take a little or half of the measuring, tap-tap on the roots, and let the foam flow to the ends of the hair. Use a conditioner on the hair shaft, not the roots. Rinse hair until completely clean after shampooing.

**Hair color** is the pigmentation of hair follicles due to two types of melanin: eumelanin and pheomelanin. Generally, if more eumelanin is present, the color of the hair is darker; if less eumelanin is present, the hair is lighter. Levels of melanin can vary over time causing a person's hair color to change, and it is possible to have hair follicles of more than one color.

## Hair Pigment

**Black hair** Black hair is the darkest color. It has large amounts of eumelanin and is less dense than other hair colors. It can range from soft black to blue-black or jet-black. This color is very common in India.

**Brown hair** Brown hair is characterized by higher levels of eumelanin and lower levels of pheomelanin. Of the two types of eumelanin (black and brown), brown-haired people have brown eumelanin; they also usually have medium-thick strands of hair. Brown-haired people are often known as brunette. Brown hair is a dominant trait. This color is also very common in India.

**Blond hair** Blond (or blonde) hair ranges from nearly white (platinum blond, tow-haired) to a dark golden blond. Strawberry blond, a mixture of blond and red hair, is a much rarer type containing the most amounts of pheomelanin. Blond hair can have almost any proportion of pheomelanin and eumelanin, but both only in small amounts. More pheomelanin creates a more golden blond color, and more eumelanin creates an ash blond. Blond hair is most commonly found in Northern and Eastern Europeans and their descendants but can be found spread around most of Europe.

**Auburn hair** Auburn hair ranges along a spectrum of light to dark red- brown shades. The chemicals which cause auburn hair are eumelanin (brown) and pheomelanin (red), with a higher proportion of red-causing pheomelanin than is found in average brown hair. It is most commonly found in individuals of Northern and Western European descent.

**Chestnut hair** Chestnut hair is a hair color which is a reddish shade of brown hair. In contrast to auburn hair, the reddish shade of chestnut is darker. Chestnut hair is common among the native peoples of Northern, Central, Western, and Eastern Europe.

**Red hair** Red hair ranges from light strawberry blond shades to titian, copper and less commonly "true" red. hair has the highest amounts of pheomelanin, around 67%, and usually low levels of eumelanin. At 1-2% of the population, it is the least common hair color in the world. It is most prominently found in Scotland and Ireland.

**Grey and White Hair** It is due to a lack of pigmentation and melanin. The clear hairs appear as gray or white because of the way light reflects from the hairs. Gray hair color typically occurs naturally as people age. For some people this can happen at a very young age (for example, at the age of 10). The same is true for white hair. In some cases, gray hair may be caused by thyroid deficiencies, Waardenburg syndrome or a vitamin B12 deficiency.

## Hair Coloring

Application of dyes enhances appearance and styling. Hair coloring may be grouped according to how long they remain on the hair. There are –

a) Temporary colorings – applied as hair lotions, sprays and creams

b) Semi permanent coloring – applied as creams and rinses

c) Permanent coloring – applied as tints

Different coloring products

a) Vegetable Coloring They are made from flowers, stems, or barks of various plants.

b) Heena – is made from the powdered leaves of Egyptian privet. It adds red color to hair. It is acidic because of presence of chlorophyll.

c) Camomile – made from chamomile flowers, having yellow pigment and gives yellow surface color to hair.

d) Indigo – made from leaves of indigo plant and gives blue black color.

**Walnut** – made from outer shell coverings and gives yellow brown color.

Mineral Coloring

These are divided into two group –

1. Metallic dyes – are not used in parlour
2. Aniline derivatives - are made from compounds found in crude oil. These dyes penetrate the cortex of the hair as a small molecule. They are then treated with an oxidizing agents such as hydrogen peroxide. This make them combine large molecules which remains 'trapped' in the cortex. Shampooing cannot wash them out.

**Using Hydrogen peroxide**

It is one of the most commonly used oxidizing agents. It can be mixed with creams and liquid tints. The mixture, first penetrates the cuticle. In the cortex, the natural pigment is bleached and the color is oxidized. The tint becomes lock in the cortex.

**Choosing color**

The choice of color depends on the following important factors –

1. **Client requirement:** Think of client's age, lifestyle, job, fashion and dress sense. Younger client may want bright colors.

   Old client may wish to cover the fact that their hair is going grey.

2. **Natural hair color:** See the base color of client's hair. This will help to understand whether the desired color will be achieved or not.

3. **Client skin color:** Color of skin tends to blend the hair color. A deep red color would clash a ruddy complexion for example; blonde, cool tints would look odd against dark skin.

4. **Hair texture:** The thickness or fineness of the hair affects the absorption of coloring chemicals. Fine hair will tint more rapidly than thick hair.

5. **Condition & porosity of hair:** Porous hair will absorb tints quickly and porosity depends on the general condition of the hair. Hair with smooth cuticle may absorbs fewer tint.

6. **Coloring product used:** Test on the hair will indicate which products may be used.

**Preparation**

1. Protecting covering for client and therapist
2. Barrier creams to protect the skin around the hair line
3. Gloves
4. Bowl and brush applicator
5. Tail comb and clips for sectioning
6. Cotton, to soak excess tint
7. Chosen product

**Mixing of color**

1. Don't mix the color unless you are ready to start.
2. Once mixed, it need to be used immediately.
3. Mix the color carefully, measuring amounts accurately.
4. If proportion are wrong, results may not be achieved.

**Application**

1. Drape the client for a hair coloring service. Slide a towel down from the back of the client's head and place lengthwise across the client's shoulders. Cross the ends of the towel beneath the chin and place the cape over the towel. Fasten the cape in the back. Fold the towel over the top of the cape and secure in front. Shampoo and towel dry the hair.
2. Place the bowl of color near client, to minimize the risk of dripping on her or on the floor. Use the provided protective gloves. Cover any surface around you that might get dye on it and put newspapers on the floor. Have paper towels nearby to deal with spills. Also have a towel you DON'T love, best if it is dark in color, that you can put over your shoulders and use to dry your hair after you rinse the dye out - because even if you rinse the dye out thoroughly, some may get on the towel.
3. Before applying dye to hair, coat your hairline, ears and neck with Vaseline or a lip balm, this prevents staining!.

4. Mix the dye together. Depending on the dye you're using, you might have to mix it with developer. It's generally included in the kit but it might not be. If you're dying your hair a darker shade, use 10%. If you're dying it one or two shades lighter, use 20%. If you're dying it more than 5 shades lighter, use 30% developer.

5. Make section of hair, and apply with the brush. Apply the dye to your hair in sections. Use the handle of your brush to separate your hair in squares and pin them separately. Try to make the sections small enough so the dye will seep through all of it. Use hair clip to tie the hair section. Be sure to coat all your hair so that it doesn't come out streaky. Work the dye in well so that you do more than simply color the top layer of your hair. Once you have covered all the sections, work the dye through your hair as if you're using shampoo.

6. Work methodically, from nape upwards. Grey mostly appears at root level. Apply henna / dye color slightly above the root of hair. Godrej mehendi is one of the safest option to cover grey and can be applied directly on the roots.

7. Distribute color evenly covering every section
8. Monitor processing time after application is completed. Time must be accurate.
9. Remove stains from skin, if any. Without disturbing the dye on your hair, wipe excess dye off of your neck and forehead with a paper towel.
10. Wash the hair and dry it with towel.

## Hair Coloring Safety Precautions

1. Perform a patch test twenty-four to forty-eight hours prior to each application of aniline-derivative haircolor. Apply haircolor only if the patch test is negative.
2. Do not apply haircolor if abrasions are present on the scalp.
3. Do not apply haircolor if a metallic or compound haircolor is present.
4. Do not brush the hair prior to applying color.

5. Always read and follow the manufacturer's directions.
6. Use cleaned and disinfected applicator bottles, brushes, combs, and towels.
7. Protect your client's clothing with proper draping.
8. Perform a strand test for color, breakage, and/or discoloration.
9. Use an applicator bottle or bowl (glass or plastic) for mixing the haircolor.
10. Do not mix haircolor until you are ready to use it; discard leftover haircolor.
11. Wear gloves to protect your hands.
12. Do not permit the color to come in contact with the client's eyes.
13. Do not overlap during a haircolor retouch.
14. Use a mild shampoo. An alkaline or harsh shampoo will strip color.
15. Always wash hands before and after serving a client.

**Test To Determine Hair Type**

Do the following steps:

- Wash your hair with shampoo the day before.
- Take a tissue paper and press in the middle of the head and behind the ears.
- If you find oil on the tissue paper that means you have oily hair, but if not, your hair type is dry.

**Following theory may be used to judge the type of hair**

- Peoples who have normal skin, they will have a normal hair too.
- A person who has dry skin may have dry hair.
- A person who has oily skin tends to have oily hair.
- If you have oily scalp and hair shaft is dry then you combination hair.

**Straight Hair:** Straight hair grows from follicles that are almost circular in shape lack a curl pattern. Straight hair can range from thick, shiny and resilient to coarse frizzy andlacking luster. The lack of curl pattern can make Straight hair difficult to style.

**Curly Hair:** Curly hair grows from follicles that are flat on one side and oval on the other. This makes the hair grow in an "S" or "ribbon" shape. Curly hair is generally stronger than Kinky hair; it is prone to both dryness and an over production of natural oils that move more easily along the hair shaft and can make manageability and styling a challenge.

**Kinky Hair:** Kinky hair grows from an elliptical shaped follicle in springy corkscrews close to the head. Kinky hair has fewer hair shafts than other types of hair; it is more fragile because of the many turns in the shaft that weaken the overlapping proteins. The beauty of Kinky hair is its ability to hold its shape.

**Wavy Hair:** Wavy hair grows from follicles that are less elliptical with a keratin distribution that is more even. The hair is stronger because there are fewer twists in the shaft. It can range from fine texture to coarse, easy to style too difficult to manage. Natural oils travel easily along Wavy hair, which can make the hair greasy.

## Narrative

Sharon was a young, smart looking 15 year old boy, studying in 8th standard. His hair was always oily and this was frustrating to his parents. Furthermore, he used to eat a lot of oily food. Few friends of him started teasing him about his hair condition. This was an embarrassing situation to him. He had no idea how to overcome this problem. Finally he was starting looking for a solution to his problem on Internet. He found an article on Hair types and prevention. He read it carefully and was later able to identify his hair type and started choosing the right product best suitable for his hair.

## EXERCISE

### A. Project

**Scrap book**

Collect pictures of different natural hair colour and shape from magazines, newspaper etc and make a collage of it.

**Survey**

Do a survey of at least 30 people; make a list of Hair types, texture, shape and colour and explanation on how you concluded it.

See below for sample checklist which can help in survey.

1. Is your hair shiny not greasy, fine texture to coarse and easy to style? (Y/N)

   (If the answer for the above question is yes then you have straight normal hair)

2. Is your hair unmanageable, lack moisture, and grow in an "S" or "ribbon" shape. (Y/N)

   (If the answer for the above question is yes then you have dry curly hair)

3. Does your hair feels quite heavy on the head and is unpleasantly sticky to the touch, more fragile and elliptical shaped. (Y/N)

(If the answer for the above question is yes then you have oily and kinky hair)

**Assessment**

**Answer the following questions**

**A. Match the Following**

| | |
|---|---|
| Wavy hair | Straight Densely distributed |
| Coarse hair | Fine as we can see |
| Asian | Kinky, curly, or coiled |
| African | Natural oils travel easily |
| Fine hair | Dry, bulky, and wiry and lacks shine |

**B. Differentiated between**

1. Oily and Dry Hair
2. Frizzy and Curly Hair
3. Fine Hair and Coarse Hair
4. European and Asian Hair

**Checklist For Assessment Activity**

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Oily and dry hair

b) Frizzy and curly hair

c) Fine Hair and Coarse Hair

d) Blond hair and Grey/White Hair

e) European and Asian Hair

**Part B**

Discussed in class the following:

a) Why is it important to know about hair texture and shapes?

b) What are the natural hair colours?

c) How to identify the types of hair?

d) What are the precautions while coloring hair?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Identify the types of hair shapes and texture. | | |
| Identify natural hair color. | | |
| Identify the types of hair | | |
| Perform hair coloring using henna | | |

# Session – 3

## *Common Hair and Scalp Problems*

## Relevant Knowledge

Many people have hair or scalp problems. Hair may fall out, break off, or grow slowly. Dandruff or an itching or peeling scalp may cause discomfort and embarrassment. Hair and scalp problems can be upsetting, but they usually are not caused by serious medical problems.

Damage to hair can occur in various ways either, due toloss of vital constituents like proteins & lipids. The visual signs of damage include loss of hair shine, split ends, lack of volume and lightness with a tendency to 'fly away'. The tactile signs of damage include lack of softness and smoothness and such hair tends to break easily.

**Hair growth is affected by following**

- **Ethnic origin**
- **Hereditary factors** – your hair growth cycle is programmed into your genes. For example, if everyone in your family has curly hair, you will probably have curly hair too.
- **Medication** – this can affect the hair growth and may have long-term effects.
- **Medical treatment** – this can significantly change many original factors of hair growth. For example, chemotherapy will cause the hair to fall out and regrowth may have a different colour or texture.

## Scalp Problems

Diseases of the scalp are more common than those of the hair. In fact most problems with the hair are a result of scalp disorders. These can be divided into 2 groups:

1. Non-Infectious
2. Infectious

**Non-Infectious scalp problems are as follows:**

**Alopecia** — is the most common complaint found especially in men. Although the causes and etiology are the same, total baldness although common among men is rare among women. Men start the complaint with a receding forehead whereas women start thinning of hair in the parietal area. Normal hair fall should not be confused with excessive fall. Normal hair fall is about forty to hundred hair a day, loss is generalised all over the scalp and most hair are replaced with a new hair. If a woman complains of finding hair on her pillow 'in the mornings and the loss is more in front and top, she is heading for the type of alopecia or thinning found in women. Majority of these people start with seborrhoic conditions when the hair starts being excessively oily and sticky. The cause is believed to be over active sebaceous glands as a result of harmonal imbalance.

There are different types of alopacias.

- **Alopecia Totalis -**This condition is rare and is characterised by total loss of hair all over the body.
- The cause is not known and is believed to be metabolic.
- **Alopecia Senilis-**Loss of hair in old age. The loss is permanent and sets in gradually.

**Alopacia Areata -** it is the sudden falling of hair in round patches in various sizes starting from ½" to 3" inch patches. The area of hair loss is slightly depressed, smooth and pale compared to the rest of the scalp. The cause is not exactly known but is believed to be of nervous origin leading to lack of blood supply to the area. Sometimes anaemia, scarlet fever, typhoid fever, influenza syphillis and nervous shocks may result in alopecia areata.

**Alopecia Prematura** — This form of baldness occurs before the age of forty. It starts with an extra oily scalp. The hair that is shed is replaced with a weaker hair till ¡t gradually disappears. The thinning is more in front and top. The cause is believed to be hormonal. Hot spicy and oily food and humid climates are believed to be contributing factors. It may be a result of hormonal treatments specially thyroid and Contraceptive pills and testosterone. Diseases like typhoid and scarlet fever also cause permanent hair fall but the hair fall ¡n these cases is more generalised than localised.

**Dandruff-** Opinions about the causative factors for dandruff differ. Some people believe it to be caused by an organism and consider it to be infectious. Others say that it is not infectious and is only a result of excessive shedding of the epithelial tissue.

The possible causes may be:

- Dryness of the scalp caused by the use of harsh shampoos.
- Shampoo not being rinsed out thoroughly leading to a dry skin.
- Lack of proper nourishment leading to a slow metabolism.
- Worry and tension leading to lack of blood supply to the scalp.
- General ill health.

- Excessive sweating if not washed frequently leaves a film of the urea and salt excreted in sweat on the scalp. This results in a dry and flaky scalp. Extra dry weather and over exposure to the sun cause a dry scalp.
- Use of certain drugs and medicines causes hyperacidity leading to an extra dry and flaky skin.
- Organisms causing infection are believed by some to be the cause of dandruff.

There are two types of dandruff.

**Dry Dandruff:** White tiny scales keep coming off the scalp while combing and cause itching of the scalp.

**Mild cases** of dandruff are when the dandruff is visible the day before you are to wash your hair but disappears after the hair has been washed.

**Severe cases** of dandruff are when the dandruff does not disappear even after the hair has been washed.

**Greasy or Oily Dandruff:** The scalp is excessively oily and flat flakes larger than the dry ones are present. They do not shed off easily. When lifted, there may be a watery discharge and the surface underneath may be raw. This type of dandruff has almost always the infection factor present.

**Areas** — Scalp is the main area of dandruff, but even the eyebrows may have dandruff. Smaller rash like eruptions are seen on the forehead and the skin under the eyebrows is flaky and sensitive. After tweezing or threading it looks raw. Dandruff may get severally infected and cause a condition of dermatitis and on the face, it may lead to pimples.

## Psoriasis

Excessive flat silvery scales which are dry and not painful are present. They do not come of easily. Psoriasis can occur anywhere on the body but is more common on the scalp, neck and back. The cause is not known. Various theories have been tested and now it is believed to be of metabolic origin although this theory has also not been proved fully. This is a non- infections disease and a cosmetologist may work on these clients. The treatment is medical. Ointments containing coal tar products have been found useful. Neuropsychological factors have been known to excellarate the situation. Tranquilising treatments have also been tried by some.

## Seborrhoea

This term is used to describe the excessive secretion of sebum by the sebaceous glands producing a condition called seborrhoeicoleosa. It may produce large greasy skin scales called scurf which is a form of oily dandruff. Causative factors may be hormonal, general ill-health, poor diet and lack of proper blood supply. The condition starts with extra oily, lank and greasy skin and hair. Care should be taken to treat this condition by keeping the scalp clean. Frequent hair washes with milder shampoos will keep the scalp clean and oil free. Hot water should not be used for washing the hair. Umbrella or a cap should be used while going into the sun. Fats and spices should be cut out from the food.

## Dermatitis

Dermatitis means simple inflammation and reddening of the skin. Non-infectious forms of dermatitis may be caused by allergy, physical or chemical action. Contact dermatitis ¡s the term used for the condition which is caused by chemicals or cosmetics. Infection may be a cause in some types of dermatitis. Simple allergic dermatitis may get infected by various types of bacteria. This condition should be looked into by a doctor.

## Eczema

This is another disease which is believed to be caused by allergy. It may be caused by the reaction of the body to physical, Chemical or bacterial irritants. Treatment should be given by a doctor only.

## Infectious Diseases of the Scalp

## Boils

Usually caused by staphylococci, it is infection of the hair follicle. There may be just one odd boil or there may be multiple boils covering the whole scalp as well as the body. It is an acute pustular condition and is very painful. The condition is treated by a doctor with internal and external medicine combine

## Impetigo

It is a condition caused by either staphylococci or streptococci or both. It starts with small red Spots which break and form a yellow crust. It spreads fast and ¡s very irritating causing a lot of discomfort. The treatment given by the doctors is systematic and the condition improves fast.

## Narrative

Sandhya was a beautiful young girl studying in 9 th standard and was very good at studies. She had Hair and scalp problems and was upsetting her very much. Due to this she was not able to concentrate much on her studies as hitching was bothering her. Later she noticed hair fall than normal. Then she decided to learn what caused her this problem. She went to the library and visited medical section and selected book on Hair and scalp problem .

Finally she was able to understand the cause for her hair fall and made a visit to right doctor. As instructed by the doctor she selected the right product. Now she is free from all of her hair & scalp problem and getting prepared well for her next exam.

## Exercise

### A. Assignment

**1. Match the following:**

| | |
|---|---|
| Boils | Eczema |
| Excessive shedding of the epithelial tissue | Inflammation and reddening of the scalp |
| Physical, Chemical or bacterial irritants | Excessive secretion of sebum |
| Dermatitis | Infection of the hair follicle |
| Seborrhoea | Dandruff |

**2. True or false**

1. Boils is a non-infectious scalp disease. (T/F)
2. Scalp psoriasis is curable. (T/F)
3. Non-infectious forms of dermatitis may be caused by allergy, physical or chemical action. (T/F)
4. Dryness of the scalp caused by the use of harsh shampoo is one of the reason for dandruff. (T/F)
5. Sudden falling of hair in round patches in various sizes starting from ½" to 3" inch patches is a symptom for seborrhea. (T/F)
6. Dandruff is contagious. (T/F)
7. Dandruff is caused by a dry scalp. (T/F)

## Assessment

**A. Multiple choice questions (tick the right answer)**

1. Androgenic alopecia is the medical term for...

a. Male-pattern baldness ☐

b. Sudden baldness ☐

c. Gradual baldness ☐

d. Premature baldness ☐

**2. A cause of non-scarring hair loss/ alopecia is…**

a. Alopecia areta ☐

b. Lupus erythematosus ☐

c. Cytoxis drugs induced ☐

d. Trauma ☐

**3. Psoraisis**

a. Nothing to do with food ☐

b. Can be worse with drugs ☐

c. Can be treated with uv therapy ☐

d. Is infectious ☐

**B. Scenario based questions**

1. Seema is in her 30s and she's starting to lose her hair falling of hair in round patches.

a. Does Seema have any medical condition?

b. If yes what?

c. How did you conclude the same?

**C. Identify the disease from the picture given below and explain how you concluded the same.**

a.

b.

**D. Differentiate Between**

1. Non-infectious and infectious scalp problems
2. Dry dandruff and Greasy/Oily dandruff
3. Scalp psoriasis and scalp eczema

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Non-infectious and infectious scalp problems

b) Dry dandruff and Greasy/Oily dandruff

c) Scalp psoriasis and scalp eczema

**Part B**

Discussed in class the following:

a) What are the factors which affects hair growth?

b) What are the common hair problems?

c) What are the causes and symptoms of dandruff?

d) What are the causes and symptoms of hair fall?

e) What are the preventive measures to treat dandruff?

f) What are the preventive measures to treat hair fall?

g) What are the preventive measures to treat damaged hair?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Examine the hair to identify the common hair issue i.e. hair fall, oily hair and damaged hair. | | |
| Analyze the scalp to identify dandruff, alopecia and eczema | | |

# Session – 4

## *Hair Care*

### Relevant Knowledge

**Hair Care:** Regular hair care is required to ensure that hair remains healthy and clean without showing any signs of breakage, hair fall or dandruff. Brushing helps to stop dirt from building up in your hair by cleaning much of the dirt out. It also makes it easier for the oils in your hair to go down the shafts of your hair. Washing helps clean your hair of germs and dirt better than brushing alone. Washing keeps your hair healthy.

We have about 100,000 hairs on our heads. Each hair shaft has three layers, with the cuticle, or outside layer, protecting the two inner layers.

Shiny hair is a sign of health because the layers of the cuticle lie flat and reflect light. When the scales of the cuticle lie flat they overlap tightly, so the inner layers are well protected from heat, sun, chlorine, and all the other hazards that can come from living in our environment.

When hair is damaged, though, the scales may separate and hair can become dry. Because the scales on dry hair don't protect the inner two layers as well, hair can break and look dull.

The type of hair a person has — whether it's straight or curly — can also affect how shiny it is. Sebum, which is the natural oil on the hair, covers straight hair better than curly hair, which is why straight hair can appear shinier.

### Caring For Hair

How you take care of your hair depends on your type of hair, your lifestyle, and how you style your hair. Your hair type: People with dry, curly hair have different hair care needs than people with straight, fine hair. But all hair needs to be treated gently, especially when it's wet. Wet hair can stretch, making it more vulnerable to breakage or cuticle damage. That's why using a hot blow- dryer (or other heat styling products) on very wet hair can damage it. Long, high heat causes bubbles to form in the hair shaft, which causes them to break easily.

Some people find that their hair gets oily in their teen years. That's because the hair follicles contain sebaceous glands that make sebum, which moisturizes the hair and skin. During adolescence, the sebaceous glands may become overactive due to hormone changes during puberty, producing more oil than needed. As with acne, oily hair is usually a temporary part of puberty.

Many teens care for oily hair by washing it once a day-or more if they're active. As long as you treat your hair gently when it's wet, frequent washing shouldn't harm it. If you have acne, it's a good idea to keep the hair around your face clean so hair oils don't clog your pores.

If you're washing your hair every day or more, it may be better to choose a mild shampoo instead of a shampoo designed for oily hair. For some people — especially people with fine, fragile, or combination hair (hair that's oily at the crown but dry on the ends) — shampoos for oily hair can be too harsh. If you have oily hair and want to use a conditioner, choose one that's made for oily hair.

If your hair is dry, it's a good idea to wash it less frequently. Some people only need to wash their hair once a week — and that's fine. Many people who have curly hair also have dry hair. Curly and dry hair types are usually more fragile than straight hair, so you'll need to be especially careful about using heat styling products. Shampoos made for dry hair and hair conditioners can help.

Hair can be maintained by following these simple practices:

**Nourishing**

Nourishing is the process of moisturizing and stimulating the scalp to ensure blood flow and to prevent dryness of the scalp which is considered the root cause of most scalp and hair problems.

Nourishing is best done with a scalp massage; it releases tension in the forehead and scalp areas, stimulating mental function. It is a great way to help the circulation to the scalp and can serve as one part of a total nutrition and hair care regime to keeping hair in good shape.

**Scalp massage technique:**

a) **Place the fingers of both hands on your forehead.**

They should meet one another at an imaginary center line of your forehead. Rest the thumbs on your temples; they will provide support.

b) **Apply Pressure.** Make the pressure firm but light, as you press, then release.

c) Keep moving this position up and onto the scalp, bit by bit, repeating the pressure/release movement.

d) At the top of your head, apply pressure to your head. This is located about three quarters of the way on the top of your scalp.

e) Shift your fingers slightly further up your forehead nearer to the hairline and raise your thumbs with them. Repeat the press and release movement.

f) Move down the back of your scalp now. As before, continue moving the fingers down in the same position, while moving the support thumbs down at the same time

g) Once you have reached the base of your skull, return to the front. This time, position your hands about half an inch either side of the mid-line of your head (in other words, this time your fingers won't be meeting but have a gap either side of the imaginary line across your forehead)

h) Do the press and release movement as before in this new position, moving up and then down the scalp as before.

i) Return and repeat. This time, make the gap between your fingers and the center line of your head 1 inch either side. Your fingers should now be almost on the sides of your head.

j) Again, do the press and release movement in this new position.

## Shampooing

Shampooing is the important procedure of cleaning both the hair and the scalp, shampooing removes dirt, grease and any other matter that coats the hair and scalp like hair spray, setting lotion, chemical solutions, shampooing is essential in preparing the hair for other processes, shampoos come in various forms, including creams, semi-liquids and gels.

**Shampooing Technique**

a) Prepare hair by combing & disentangling.

b) Thoroughly wet the hair.

c) Apply shampoo, first into the palm of the hand. Distribute it evenly over the hair and scalp.

d) With clawed fingers, massage the scalp in a circular manner. Cover the whole scalp.

e) Rinse the hair thoroughly.

f) If necessary, apply more shampoo and repeat the process.

g) Finally rinse all traces of lather from the skin and hair.

## Conditioning

Conditioning is a great way to put moisture back into the hair, strengthen elasticity, and helps with overall health of hair and scalp. It is important to condition hair after every wash, as it prevents dryness and breakage from occurring.

**Conditioning technique**

1. Before conditioning makes sure the hair is washed.
2. Apply a deep conditioner that contains ingredients such as, coconut oil, olive oil, or avocado oil. These three oils are the only oils that can actually penetrate the hair shaft.
3. Apply the conditioner to the hair only; ensure that conditioner is not applied to the scalp. (Important tip: If conditioner reaches the scalp it leads to oil build up on the scalp which might lead to dandruff.)
4. Rinse off conditioner with cold water. Rinsing with cold water will close the hair's cuticle which will help the strands retain all the moisture.
5. After applying conditioner cover hair with a shower cap or plastic bag and add heat.

### Hair Care Tips

- Do a gentle scalp massage prior to shampooing hair.
- Use a little plant oil such as sesame, olive or jojoba to massage scalp.
- Wear a hat in the sun to protect hair and scalp from sunlight.
- Keep hair combs, brushes and tools clean.
- Avoid wearing hair tightly clipped back in barrettes or hair ties so to avoid damaging the hair.
- Avoid excessive use of chemical sprays and drying shampoo.
- Do not use very hot or very cold water to shampoo hair.
- Give hair a rest by not shampooing and blow-drying every day.
- Do a warm hair oil treatment weekly to condition your hair and soothe and nourish your scalp.
- Use essential oils to add additional benefits of cleansing and conditioning hair and scalp.
- Try not to blow-dry your hair often. The heat can damage it.

## Narrative

Ramya was a beautiful young girl studying in 8$^{th}$ standard in a small village. She was very beautiful and fair, except her hair condition was getting worse day by day. She was very busy with her studies and due to this she avoided taking bath every day. Due to this dirt and germs got accumulated in her hair. Then her hair condition was very bad. She was upset about this and could not do well in her exam. Later she realized that taking proper care of hair is very important along with her studies.

## Head Massage

### Relevant Knowledge

Head massage is quick and effective for relieving tension, stress, and pain from a headache. It will revitalize the mind and body and allows having a better positive attitude.

Head massage can be given in 7 simple steps as described below:

**Step-1:** Massage the scalp with the pads of your fingers in a circular motion. Make sure you cover the whole head, covering the whole scalp several times.

**Step-2:** Grab large sections of hair in your hand, while maintaining your knuckles in contact with the scalp. Gently pull on the hair and release. Repeat with all the hair on the scalp.

**Step-3:** Place your thumb pads just above the middle of each eyebrow. Steady the head with your rest of your fingers. Press the thumbs as you move them up and over the forehead and releasing as you reach the hairline of the scalp. Using the thumbs again, stroke across the forehead starting at the mid line, out from the center.

**Step-4:** With your fingers locate the dimples behind the ears. Apply pressure for a few seconds then release. Repeat this 3 times.

**Step-5:** Lift the head and neck gently and slowly roll toward the left, hold for 1 second and release. Repeat to the right.

**Step-6:** Cup both hands under the neck. Gently lift the head and hold for a stretch for a couple of seconds.

**Step-7:** Apply gentle but firm pressure to the occipital hollows at the base of the skull using your fingers.

## Exercise

### A. Activity

**Role Play** (Role play is a technique in which several individuals or a small group of participants act out a real-life situation in front of the group.)

Prepare one script for a role play. Scenario should be based on one of the following:

a) Scalp massage technique

b) Hair care process

c) Head massage.

Script should include the demonstration of correct procedure.

5 best scripts will be recognized by the teacher and small group of students (including you) will have to act it out in front of class.

## Assessment

**Answer the following questions**

### A. Arrange the steps in correct order by giving the numbers in bracket

1. Name of the technique/process: _____

( ) Press and release pressure, while moving your finger move up and then down the scalp.

( ) Make the gap between your fingers and place it on the center line of your head, 1 inch either side. Your fingers should now be almost on the sides of your head.

( ) Return to the front, Place fingers which and won't be meeting but have a gap either side of the imaginary line across your forehead.

( ) Move down the back of your scalp reaching the base of the skull.

( ) Shift your fingers slightly further up your forehead nearer to the hairline and raise your thumbs with them.

( ) At the top of your head, apply pressure to your head.

( ) Place the fingers of both hands on your forehead and move your hand upward while you massage gently.

2. Name of the technique/process: _____

( ) Wet the hair

( ) Apply conditioner on the hair shaft.

( ) Rinse the hair thoroughly.

( ) Prepare hair by combing & disentangling.

( ) Rinse the conditioner with cold water

( ) Use shampoo to massage the scalp in a circular manner. Cover the whole scalp.

( ) Apply nourishing oil and massage the scalp.

**B. Justify the following statements Are true or false:**

i) Nourishing is best done with a scalp massage. (True/False)

ii) Shampooing is the important procedure of oiling hair.
(True/False)

iii) It is important to rinse off conditioner with cold water.
(True/False)

iv) It is good to apply conditioner to the scalp/root of the hair.
(True/False)

**C. Short Answer Questions**

1. Summarize the scalp massage technique.
2. Summarize the hair care tips given in this chapter.

**D. Differentiate Between**

a) Nourishing and Conditioning

b) Scalp massage and head massage

## Checklist for Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Nourishing and Conditioning

b) Scalp massage and head massage

**Part B**

Discussed in class the following:

a) Why is it important to nourish your hair before shampooing?

b) Why is it important to condition your hair after shampooing?

c) Why conditioner should not be applied directly on the scalp?

d) What are the benefits of scalp massage?

e) What are the benefits of head massage?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Perform scalp massage | | |
| Perform shampooing and conditioning as per hair and scalp type | | |
| Perform head massage | | |

## Suggested Reading

**Books**

- Hair care: an illustrated dermatologic handbook by Zoe Diana Draelos

## Glossary

**Session-1**

1. **Encasing -** Enclose or cover in a case or close-fitting surround
2. **Filamentous -** thin in diameter; resembling a thread.
3. **Follicles -** A small secretory cavity, sac, or gland, in particular.
4. **Fragile -** (of an object) easily broken or damaged.
5. **Marrow -** A soft fatty substance in the cavities of bones, in which blood cells are produced (often taken as typifying strength and vitality).
6. **Pouch -** A small bag typically carried in a pocket or attached to a belt.
7. **Shingles -** An acute, painful inflammation of the nerve ganglia, with a skin eruption often is forming a girdle around the middle of the body.
8. **Transitional -** of or relating to or characterized by transition.

**Session-2**

1. **Adrenal-**Hormone, adrenal gland's secretions.
2. **Corkscrews-**A device for pulling corks from bottles, consisting of a spiral metal rod that is inserted into the cork and a handle that extracts it.
3. **Descendants-**A person, animal, or plant whose descent can be traced to a particular individual or group.
4. **Greasiness-**consisting of or covered with oil.
5. **Predisposition-** A liability or tendency to suffer from a particular condition, hold a particular attitude, or act in a particular way.
6. **Prone-** Likely to or liable to suffer from, do, or experience something, typically something regrettable or unwelcome.
7. **Parietal Area -** The parietal lobe is a part of the brain positioned above (superior to) the occipital lobe and behind (posterior to) the frontal lobe.
8. **Pills -** A small round mass of solid medicine to be swallowed whole.
9. **Pustular -** (pustule) a small inflamed elevation of skin containing pus; a blister filled with pus.
10. **Reddening -** Make or become red: "bare arms reddened by sun.
11. **Syphillis -** A chronic bacterial disease caused by the spirochete Treponema pallidum.
12. **Tendency -** An inclination toward a particular characteristic or type of behavior.
13. **Testosterone -** A steroid hormone that stimulates development of male secondary sexual characteristics, produced mainly in the testes.

**Session-3**

1. **Causative -** Acting as a cause.
2. **Contraceptive -** A device or drug serving to prevent pregnancy.
3. **Embarrassment -** A feeling of self-consciousness, shame, or awkwardness
4. **Entangled -** Cause to become twisted together with or caught in.
5. **Erruption -** An appearance of a rash or blemish on the skin. Such a rash or blemish.
6. Frizzy - Formed of a mass of small, tight curls or tufts: "frizzy red hair".
7. **Inflammation -** A localized physical condition in which part of the body becomes reddened, swollen, hot, and often painful.

**Session-4**

1. **Adolescence -** The period following the onset of puberty during which a young person develops from a child into an adult.
2. **Clawed -** (of an animal or person) scratch or tear something with the claws or the fingernails.
3. **Clog -** Fill or block with an accumulation of thick, wet matter
4. **Cuticle -** The outer layer of living tissue, in particular.
5. **Disentangling -** Free (something or someone) from an entanglement; extricate. Remove knots or tangles from (wool, rope, or hair).
6. **Stimulating -** Raise levels of physiological or nervous activity in (the body or any biological system).
7. **Strands -** A single thin length of something such as thread, fiber, or wire, esp. as twisted together with others: "a strand of cotton".
8. **Knuckles-** A part of a finger at a joint where the bone is near the surface, esp. where the finger joins the hand.
9. **Occipital-** Any of several parts of the occiput, especially the occipital bone.
10. **Revitalize-** Restore strength; "This food revitalized the patient".

# UNIT–6:

## INTRODUCTION TO HAND ART

**Introduction**

The Unit – "Introduction to hand art" is created to provide all the skills and knowledge required for a person to become a mehendi artist and to begin a career in nail art.

You will learn how to apply mehendi and basic care that needs to be taken while and after applying mehendi. Mehendi artists are in great demand as women in India like to apply mehendi in many occasions like marriage, festivals and ritual. You will learn the skills to apply mehendi and one can create different designs. To become successful mehendi artist, one needs to practice a lot.

This unit is also a one step towards becoming a nail artist. We have discussed few nail art techniques that is an important for a person to master before taking the advance level of nail art. One can create unique designs and can enjoy accessorizing their nails. Creating beautiful nails is one of the most popular trends in beauty therapy. Whether for a wedding, everyday wear or to improve weak or bitten nails. The expert services of skilled Nail Technicians are in demand in a growing number of nail bars, beauty salons, health clubs and spas.

**Terms To Know**

**Graying -** (esp. of hair) Become gray with age of a person or group become older.

**Enamel -** An opaque or semi-transparent glassy substance applied to metallic or other hard surfaces for ornament or as a protective coating.

**Susceptible -** Likely or liable to be influenced or harmed by a particular thing.

**Dabbing -** Press against (something) lightly with a piece of absorbent material in order to clean or dry it.

# Session – 1

## *Mehendi*

### Relevant Knowledge

Henna is a flowering plant and the sole species of the Lawsonia genus. The powdered leaves of a tropical shrub (Henna Plant) can be used as a dye to colour the hair and decorate the body.

**History**

The Henna tradition is as old as 9000 years. It was used as cosmetics in ancient Egypt and is universally popular in society today. Unlike many other old customs and social practices, henna, has survived the turbulence of history. Ancient cultures like the ones in Middle East, India and Africa made a ritual out of Mehendi and have contributed to making it one of the most traditional forms of Body art.

It is believed that the practice of Mehendi started out as an answer to the need for 'Personal air-conditioning' in the warmer regions. When the desert people of the warm desert regions of Rajasthan, Punjab, and Gujarat became aware of Henna's cooling properties, they dipped their hands and feet in a mud or paste made with the crushed leaves of the plant. Even when the paste was scraped off, they noticed, as long as the color remained visible, their body temperatures stayed low. Eventually some women grew tired of bright red palms and got more creative in terms of the application of the henna starting with big dot like patterns and then eventually making more intricate designs, which still had the same cooling effect but was more pleasing to the eye.

### Benefits of Henna

Henna is used to cool the scalp and remove excessive heat from our body. It is effectively used to treat prickly heat. It is used to bring down high fevers and is very effective against sunstroke. Wound can be healed by applying a paste of pure henna with water.

Henna also helps to heal burns. Apply paste of pure henna with water on the burns. You will get immediate relief and the chances of infection are reduced. Henna also heals chronic wounds and ulcers.

Henna is used to apply beautiful designs on the palms. It is also used to color nails and apply temporary tattoos on the body.

Henna is used in hair treatment as it is a natural hair color and an excellent hair conditioner. Henna cleanses the scalp and adds body and bounce to the hair. It doesn't disturb the natural acid-mantle of the scalp and keeps the scalp healthy.

Here is a list of benefits of using henna.

- Cools the scalp and removes excessive heat from the body.
- Helps reduce headaches, aches and pain.
- Helps in restful sleep
- Improves blood circulation
- Detoxifying
- Antiseptic, astringent, antibacterial, antifungal,
- Fights infection
- It helps to cure acne, boils, burns, warts, athletes foot.
- Helps cure dandruff
- Prevents premature graying
- Promotes hair growth and prevents hair loss and thinning.

## Art of Applying Mehendi

Before we start applying henna paste we should follow these pre care instructions

1. Make a smooth henna paste by sifting the dry henna powder to remove any debris and adding to it a hot mixture of tea or coffee and mustard oil until it has a mud-like firmness.
2. After the paste is ready take a plastic cone with a very fine key-hole at the end. Pour the paste into the cone and tie the broader end with a rubber band.
3. Hold the cone in the right hand and gently squeeze the paste on the palm and start making patterns.
4. Keep the palm horizontal and let the patterned-paste rest on it till dry.

5. Leave it on for as long as it takes to get the stains deeper.
6. When it is almost dry, dab a piece of cotton in sugar and lemon solution and apply lightly on the designs so it further darkens to a reddish-brown hue that can last for weeks.
7. After 2-4 hours wash off the hands with plain water or for darker colour keep it overnight and next morning rub of the dried mehendi by rubbing palms together and then apply mehendi oil on palm.

## Care Instructions

Henna looks different on everyone. Colour of Henna depends on body chemistry, temperature and area where it has been applied. Drier skin on the hands and feet stains much darker than the softer skin on the upper arm or back. Henna stains are darkest during the first 7-10 days, and then gradually fade.

The following are post care instructions should be followed to ensure nice stain:

1. Leave paste on as long as possible. It is recommended to leave the paste on at least 5-6 hours or more. Leave paste on overnight for best results. The longer the paste stays on the skin, the darker the stain will be.
2. Heat and moisture helps in developing the stain. The warmer the body temperature, the faster the henna will stain. If you are in cold area then drink something hot before you start. Gently steaming the area while the paste is on also helps.
3. Wrap it up. You can wrap the area with an elastic bandage, paper medical tape or toilet paper. Wrapping isn't required but it helps conserve heat and moisture, which help to make the stain darker. Also protects sheets if paste is left on overnight. If you want to use plastic wrap, be sure to wrap with toilet paper first to soak up any perspiration and to prevent smudges.
4. Remove the paste without water DO NOT USE WATER!! You can use lemon juice or olive oil to remove the paste. You can also gently scrape the paste off or let it fall off naturally. Try not to get the area wet for at least 6-12 hours after paste removal although waiting for 24 hours is best. The longer you prevent the area from getting wet with water, the better. Design will be bright orange at first and then gradually darken to brown. Henna stains take 48 hours to develop.
5. Moisturize Apply some kind of natural oil or butter after the paste is removed to protect henna design and prevent exfoliation. A lot of store bought moisturizers contain chemicals that can prematurely lighten the stain, so it's best to use something natural.

6. Avoid Friction Exfoliation of the skin is what causes henna to fade. Excess washing and friction from clothing will make the stain fade faster. The less you touch the area, the better. Wear gloves when washing dishes if the design is on your hand.

## Designs for Palm

A full hand design, either palm or back with the help of henna paste looks always trendy. While Arabic henna designs are usually large, floral patterns on the hands, Indian mehendi involves fine, thin lines for lacy, floral and paisley patterns covering entire hand and also forearms.

These shapes can be combined to create a very intricate pattern and a very beautiful henna design on palm. The various mehendi designs meant for hands include flower arches, henna web, flower net, flowery trails, lucky lotus, leaves chains etc. While decorating an entire hand, one can start where it is most comfortable, depending on the design. Common starting points are the line where the fingers bend bordering the palm, the wrist, or the center of the palm. It is usually easiest to begin by covering the palm, and then doing the fingers.

## Types of Mehendi

According to different cultural background mehendi (henna) can be divided into several types. Most famous types of mehendi designs are Pakistani Arabic, Indian and African. Designs from these diverse regions can easily be differentiated. Here are their individual features that will help you in identifying the type of design.

### Pakistani Mehendi Designs

Pakistani mehendi designs are a merger of complex versions of Arabic and Indian mehendi designs. These designs are also much detailed and are worn by brides on mehendi, wedding. Even children wear simple version of these mehendi designs on Eid festival.

## Indian Mehendi Designs

Indian mehendi are the most popular designs are very diverse. They range from simple designs to complex. Simple designs have a big dot or a figure in back of hand (dorsal) or in the center of palm. Finger tips are also covered by henna. This design is very easy and can easily be mastered by armatures. After some practice this design won't take you more than a couple of minutes. Moving towards complex mehendi patterns we see highly detailed and fine designs. Such designs are sketched on important occasions like wedding, nikka etc. Such designs are hard to master and they can take hours just to finish one hands design. Mostly such mehendi designs are worn by Indian brides.

## Arabic Mehendi Designs

Compared with the complex Indian mehendi designs, Arabic designs are much simpler. Arabic designs mostly consist of leaves, veins, flowers etc. These designs are perfect candidate if you want to extend the design from hand to arm or from foot to leg.

Another distinguishing feature of Arabic designs is that the shapes are not filled, they are just outlines. These designs also partially cover your hands or feet. These designs consume less amount of mehendi and are easily dried which means that you don't have to wait!

## African Mehendi Designs

Just like the Arabic counterparts these mehendi designs are also not filled. These designs are simple geometric shapes, consisting on lines, squares and dots. The space between the lines is not as much as that of Arabic designs. These designs cover your hands, arms like a fine mesh.

## Exercise

### A. Assignment

1) List five benefits of Henna.

### B. Project

Create 5 innovative mehendi designs for hand and foot. Use minimum 1 A4 sheet per design. Describe the inspiration for each design, if any.

## Assessment

**Answer the following questions**

### A. Short answer questions

1. Explain post care tips after applying mehendi.
2. Differntiate between Arabic and african mehendi designs
3. What are the benefits of using henna?
4. Explain in brief the art of applying mehendi/henna on the palm.

## Checklist For Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Pakistani mehendi and Indian mehendi designs

b) Arabic and African mehendi designs

**Part B**

Discussed in class the following:

a) What are the benefits of Henna?

b) What are the steps of preparing henna?

c) How to apply Henna on the palm?

d) What care to be taken after application of henna?

e) What are the types of mehendi designs?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Perform the application of mehendi | | |
| Demonstrate the after-care process of mehendi | | |

# Session – 2

## *Nail Art*

**Relevant Knowledge**

Nail art is a practice of decorating fingernails and is a fun way to brighten up your daily look or accessorize occasional outfits. Nail art designs can be very simple to very stylish.

Nail art is a step beyond a typical nail polishing. Nail art allows the wearer to personalize their nails to coordinate with their clothes, makeup, shoes and accessories. Often times, nail art may include use of elements like crystals, stickers, glitter, multicolored polishes, graphic designs, fabrics and lace. Nail art can be applied to any type of nail, either natural or artificial.

Although nail polish and nail brushes are available for home manicures, doing intricate nail art on your own fingernails can be quite difficult. Many women go to specialized nail salons to get nail art done.

In this session, we will learn the simple and easy way to do nail art. We will cover the advance nail art in coming levels.

Intricate nail art is quite popular in Japan, but now the nail art trend has spread worldwide. 3000 years Before Christ the Chinese used enamel on their fingers. They applied the substance and left it to sit for several hours, the result; a pink finish on their nails. This was the beginning of nail art and the earliest records. The Indians also practiced nail art in a similar period using a dye derived from the Henna plant. Egyptians were another civilization that used nail art early on. The color of ladies nails were used to identify what class in society you were in. The higher class wore deep shades of red and lower classes wore pale shades. Another mother of nail art was the Inca civilization who actually painted images of eagles on their fingertips.

## Basic Nail Art Kit

Basic nail art kit contains various tools and materials as mentioned below:-

**1. Nail Polish**

The essentials are: a base coat (to prevent nail discoloration and allow your nail polish to glide on smoothly), nail polish, and a top coat (to ensure your nail polish lasts for more than a day).

**2. Nail Dotters**

Nail dotters help create dot and circle patterns. They come in variety of sizes. These tools are made of metal and susceptible to rusting.

**3. Nail Strippers**

These are nail polishes that come with a long, thin brush rather than the usual flat and broad ones. They are used for painting lines and adding random flicks of colour. They are so easy to use and very versatile.

**4. Nail Art Brushes**

The main types of brushes for nail art are fan-shaped brushes, flat brushes, flat angled brushes, thin brushes and long stripers.

**5. Stationary Tape**

Using tape you can create many different geometric and s tr-iped designs. Stationery tape is one of the best tools EVER for nail art. Any sort of normal scotch tape is fine. They are greatly used for creating neat lines and geometric shapes. Just cut the tape into the desired strip/shape, paste it onto your nail and paint over.

## Tips to use Nail Dotter Tool

Find a plastic sheet and drop a few blobs of nail polish onto it. Dip the round nib of your dotter into the polish. Try doing a few dots on the sheet till you get the right size and consistency that you want. Do the same onto the surface of your nail. Be careful not to use too much pressure that may cause the dots to look deformed. Remember to clean them after use and dry thoroughly.

### Tips to use Stationery Tape

- Always make sure that your base nail polish is thoroughly dry though.
- Cut the tape before you start painting your nails so you avoid smudging when you try to cut it with wet nails.
- Paste the tape somewhere where it'll be easily removable so that you don't get them stuck when you want to paste them on your nails.
- If you mess up, you don't have to start from scratch again. Use a nail art brush and touch up where necessary.

## Nail Art Techniques And Design

Three techniques have been developed for beginner to get their understanding on the art of creating designs using nail paint and decoratives for nail art.

A. Dotting technique – Using nail dotter

B. Sponging techniques – Using sponge

C. Water Marbling techniques

To begin with we can learn designs like flower patters, polka dots design, patterns created by sponges and pasting glitters or stickers.

Types of polish

1. Base Coat - This type of nail polish is a clear colored polish formula that is used specifically before applying nail polish to the nail. Base coats come in plain and ridge-filler varieties. Ridge-filling base coats are thicker than regular base coats. They fill in any lines, ridges and grooves to give the nails a smoother looking appearance. Many base coats are fortified with substances such as protein, vitamin E or calcium. These ingredients help keep nails healthier and prevent breaking, splitting and peeling. This is especially helpful for those with dry or brittle nails. By applying Base Coat, the polish forms a smooth surface by filling in ridges that can appear on unhealthy nails. There are two types of base coat: one is a normal formula where the consistency can be compared to regular nail polishes; the other is thicker in consistency, best for people with thinner nails, or who have deeper ridges. This helps fill in the gaps for a smooth surface. Base coat creates a barrier by protecting it

from damages such as peeling and staining, especially red nail polishes, a pigment that tends to stain the nail yellow. A base coat helps the polish stick to your nail more easily. A base coat also creates a barrier that helps protect your nails from the damaging effects of nail polish. It prevents staining and peeling, and it will give your polished nails a more even texture. After the base coat dries (and it should dry relatively quickly), apply two coats of colored nail polish rather than one, to give the nails a richer look. If you want to skip the colored polish altogether, you can use a base coat on its own to make the nails look shiny but natural.

2. Gel - This type of polish usually last two weeks longer than normal nail polishes. It is set under Ultraviolet (UV) light to seal the polish on to the nail, a process known as "curing." Gel lasts the longest and is the mos tpreferred type of polish.
3. Top Coat - This type of nail polish is a clear colored polish formula that is used specifically after applying nail polish to the nail. It forms a hardened barrier for the nail to prevent chipping, scratching and peeling. It strengthens the nail and forms a glossy and shiny finishing touch to the nail. It is recommended that those who enjoy nail art to apply top coat to preserve the design for a longer period of time.

### Application of base coat

Start by applying a clear base coat. First, take a good amount of polish on the brush and apply a coat right in the centre of the nail. Take some more polish on the brush and apply coats on the two sides of the nails. Make sure that the entire nail is covered in these 3 swipes. Never keep on repainting the nail, it thickens the polish and you may smudge it. Let the base coat dry completely.

### Application of colour nail polish

After the base coat is done, apply the colour of your choice to the nail. Apply it in similar fashion, first in the centre of the nail and then on the sides. Once all your nails are done, wait for it to dry. If the colour that you've applied is really light, it needs another coat. So apply the second coat and make sure it dries.

### Application of top coat

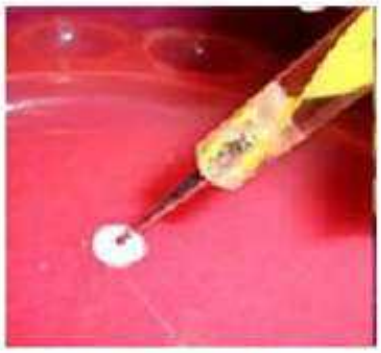
Apply a top coat and let it dry. If you want to, you can apply a fast-setting top coat (available in beauty stores) and make sure it sets really soon. If you don't have a top coat, dip your fingers in ice cold water. This sets the nails polish and gives it a nice shine.

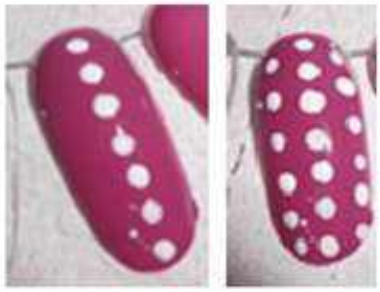
**Tips**

1. If you've got some nail polish on your cuticles, fingers or anywhere else, don't worry. Dip a cotton swab in some nail polish remover and gently remove the extra polish. This will make sure your nail polish job is clean and neat.
2. After you are completely done with applying nail polish, you can dip your nails in cold water; this helps a lot because it hardens the nail polish and stays neat.
3. If you have long nails, try applying a lighter color. Medium length and short nails look good with dark color.

A. Dotting technique: Dot Patterns are created by using nail dotter to give the effect of dots. One can create flower using dots or polka dot pattern.

## Steps to create polka dot design





**Preparation**

1. Remove old polish: Make sure you're starting with a clean slate by removing any old polish that's still lingering on your nails.

2. Trim and file your nails: Shape your nails to make them uniform and neat. Try not to trim them too short. It's better to have more space to work with.

Step-1: Apply your basecoat and let it dry completely and then apply your base color color

Step-2: Take your contrasting color (White is most suitable color) on a rough plate or on foil paper.

Step-3: Take your dotting tool and dip it in the color.

Step-4: Now using your dotting tool, add dots to your nails. Start from middle of your nail for neater look.

Step-5: Now add dots to the left and right side of yournails and let your dots dry completely. Seal it with top coat.

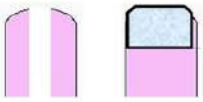
Be innovative and use different colors for dots and create new patterns and designs

Tip: One can create flowers using nail dotter. All you need to do is, put one dot in center and few dots around it like a petals surrounds the center part of the flower. And we can use toothpick as nail dotter also. You can paste decoratives, glitters and stickers to enhance the design.

## Steps to create designs using strips

Step-1: Apply your base coat and let it dry completely and then apply your base color.

Step-2: Cut the strip out of thick paper sheet or use tape as described in tool kit.



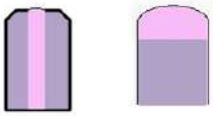
Step-3: Place the paper strip in the center or paste the tape which should cover the upper half of the nail.

Step-4: Take your contrasting color. Apply, it where the strip or tape is not pasted

Step-5: Now let it dry.

Step-6: Remove the strip.

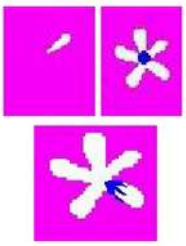
Step-7: If it appears messy, you can always use more paint to create a clean design. Don't forget to seal the design with top coat.



Tips: You can create different shapes using strips, like it can be in arc shape, thin rectangle, circle, etc. Be innovative and create different patterns. You can also try more than two paints. You can paste decoratives, glitters and stickers to enhance the design.

## Tips to create flower, heart and decoratives

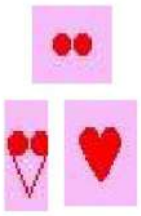
### To create flower



Take your brush and gently paint a little line, imitating a petal. If you want it to be easier, load your brush a little heavy, then place your tip down, flat on the nail, so the imprint of the brush shape is left. Do this 5 times, for 5 petals.

Paint a dot in the center of the petals After painting the petals in one colour, take your brush, wet the tip and dip it carefully into a darker or lighter colour. Very slowly and gently, starting from the center of the flower, slide the brush tip down the side of the petal, stopping about halfway. You should be creating a thin line of colour. Repeat until thin lines have been created across the whole petal, it usually takes about 3-4 lines for me. You can paste rhinestone in the center of the flower.

### To create heart



- Paint 2 dots, next to each other.
- From the outside of each dot, draw a diagonal line to form v-shape.
- Fill in the space inside the V.
- With little paint, give outline to the upper part of the heart and try giving the appropriate curve shape.

### Adding rhinestones, bullion, etc.

You will need: Rhinestones, bullion etc, Cocktail stick. Apply base coat, wet the end of a cocktail stick. Place the wet end of the stick onto a rhinestone or whatever you want to place on the nail. Carry it over to where you want it on the nail and place down. Press the end of the stick onto hard. Repeat if you want more rhinestones etc. Apply 2 coats of Topcoat.

## B. Sponging technique

Things you need

Two colors of nail paints and a top coat, sponge, a plastic sheet and toothpicks.

### Steps to create sponge effect

Step-1: Using the lightest of the two colors, paint your nails and wait for it to dry completely.

Step-2: On a flat surface, pour a generous amount of the colours right next to each other on to the plastic. Make sure they're just about touching at the edges.

Step-3: Using a toothpick, swirl the two colours together in where they meet. The area where they mix will determine the length of the graduation. So if you want a long graduation, mix a bigger section of the colours. If you want less of a fade, just mix them together a tiny bit.

Step-4: Take your sponge and dab it directly down on to the polish a few times.

Step-5: Dab the sponge directly down on to your nail. Keep dabbing lightly and moving it very slightly up and down your nail. (You can repeat this step as many times as you need to. Just make sure each layer is completely dry before sponging again otherwise you will start smudging the bottom layers and ruin the whole thing.)

Step-6: Add a topcoat. The sponging makes this design very bumpy so you may need a couple of topcoats just to even out the surface.

Step-7: Clean up all the excess using a brush dipped in acetone or polish remover. Don't forget to seal the design with top coat. Finally the design is all done.

**C. Water Marbling techniques**

Water marble nail means nail decorations created by the method of water marble nail art technique. The technique consists of dropping nail lacquers into clean water creating a pattern or design of the resulting art on the surface; which is then transferred to your nails. It can also be embellished with various drawings in the top layer on the water. This is a very famous, popular nail art.

**To create design with water marbling techniques**

Things required:

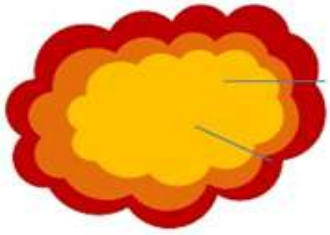
2-3 different colour polishes (Avoid glitters and frosted varnishes), Cup, Water, Newspapper, Few cocktail sticks, Nail warmish remover, base and top coat.

**Procedure**

Step-1: Lay newspaper down on a table or flat surface, and set the glass of water on top.

Step-2: Paint the nails to be marbled WHITE with white nail enamel, don't forget to apply base coat first.

Step-3: Take your first desired colour, drip a drop of enamel onto the surface of the water in the glass. Wait for it to spread out across the water, then add the 2nd colour onto the middle of the first colour. Wait for the colour to spread out, and drip the 3rd colour in.



Step-4: Taking a toothpick, gently swirl the polishes to make patterns. Swirl slowly and gently. Don't the touch the edge of the glass.

Or

Using the toothpick, pull the paint from center to outward. Don't the touch the edge of the glass.

Keep pulling the polish/paint, until you like the design

Step-5: Apply Vaseline or taPe to cover the surrounded part of nail.

Step-6: Dip your nail/fingertip into the area of polish you desire, take the toothpick, swoosh the polish on the water to one side, and remove your finger.

Step-7: Clean off polish from the toothpick with the tissue, and remove ALL traces of polish from the water, to do so you blow lightly on any water droplets.

Step-8: Repeat steps 3-6 for each nail.

Step-9: Take a cotton bud or cotton wool ended stick, dip in nail varnish remover and remove all traces of polish from the skin.

Step-10: Apply top coat.

Different designs that can be created with this technique.

More techniques to create designs and nail extension technique will be covered in advance nail art unit, which will be covered in upcoming levels.

## Career In Nail Art Field

Nail art is becoming a rage in India, especially in metropolitan cities. More and more women are becoming conscious of their looks and nails. Many professional nail salons are coming up that require well-trained nail technicians who can do nail art and can apply nail extensions. From manicure, pedicure, to jewel and precious stone attachments the Nail art is becoming a serious business. Now days, we have saloons dedicated only to nail work and art. It is a high paying career that too without much education one can become a nail technician.

## Narrative

Priya is a 16 year old girl. She is a very intelligent and active girl in her class. She was very interested in all types of cultural activities as well as academicals like quiz, essay competition etc.

She once had a cultural competition held at her school for designing their nails using nail art technique. Then she suddenly remembers that one of her neighbors is an expert in designing nail arts.

She immediately rushed to her neighbors place, soon after coming from school and learned how to design Nail Art. Priya designed a beautiful nail art to her nails and won the competition. She thanked and gave a chocolate to her neighbor for teaching her such a beautiful art of designing nails.

## Exercise

**A. Assignment**

1. List the nail art tools.
2. Describe dotting technique

**B. Project**

Create 5 innovative nail art designs on artificial nail. Explain the technique used for creating the designs.

## Assessment

**Answer the following questions**

**A. Short answer questions**

1. Describe water marbling technique.
2. What is nail art.

3. Describe the components of basic nail art tool kit

## Checklist For Assessment Activity

Use the following checklist to see if you have met all the requirements for assessment activity.

**Part A**

Differentiated between

a) Nail dotter and nail striper.

b) Sponging technique and water marbling technique.

**Part B**

Discussed in class the following:

a) What is nail art?

b) What are the techniques used in nail art for beginners?

c) What are the steps of creating designs using Dotting technique?

d) What are the techniques involved in performing Sponging technique and water marbling technique?

## Performance standards

The performance standards may include, but not limited to:

| Performance standards | Yes | No |
|---|---|---|
| Perform Dotting nail art technique, | | |
| Perform Sponging nail art technique | | |
| Perform water marbling nail art technique | | |

## Suggested Reading

- Nail Art by Pansy Alexander
- The Complete Nail Technician by Marian Newman
- Milady Standard Nail Technology

## Glossary

**Session-1**

1. **Floral -** Of flowers: "celebrations of the season's floral abundance".

- Decorated with or depicting flowers: "a floral pattern".

2. **Fundraisers -** (fundraiser) someone who solicits financial contributions.
3. **Intricate -** Very complicated or detailed.
4. **Lacy -** Made of, resembling, or trimmed with lace: "a lacy petticoat".
5. **Lawsonia Genus -** A tree or shrub (Lawsonia inermis) of the Middle East, having fragrant white or reddish flowers. A reddish-orange dyestuff prepared from the dried and ground leaves of this plant, used as a cosmetic dye and for coloring leather and fabrics.

**Session-2**

1. **Glide -** Move with a smooth, quiet continuous motion.
2. **Blobs -** A drop of a thick liquid or other viscous substance.
3. **Lingering -** Lasting for a long time or slow to end.
4. **Dabbing -** Press against (something) lightly with a piece of absorbent material in order to clean or dry it.
5. **Bumpy -** (of a surface) Uneven, with many patches raised above the rest.

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