



Instructor Guide

*Georgia Department of Technical
and Adult Education*

Skin, Diseases, Disorders



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Skin, Diseases, Disorders

Introduction

The flexible, waterproof, tough protective covering known as the skin is the largest organ in the body both by weight and surface area. Skin accounts for approximately 16% of the body's weight.

Healthy skin has a fine texture that is slightly moist, soft, and flexible. Varying in thickness, the skin is thinnest on the eyelids and thickest on the palms and soles. A callous can be caused by continuous friction on any part of the skin.

The skin has appendages that include the hair, sweat and oil glands, and the nails. Composed of the substance known as keratin, this protein gives the skin its protective ability. The skin is slightly acidic in pH, which enables good immunity responses to intruding organisms. Normally the skin separates the internal environment from the external. However skin diseases and infections can invade that barrier. For this reason, a thorough understanding of the histology of the skin and its diseases and disorders is needed for a better position to give clients professional advice.



Objectives

Upon completion of this course, trainees will be able to:

- Explain the structure and the composition of the skin.
- Identify the functions of the skin.
- Describe terms relating to skin disorders.
- Recognize which skin diseases/disorders may be dealt with in the salon and which should be referred to a physician.
- Identify online dermatology resources.

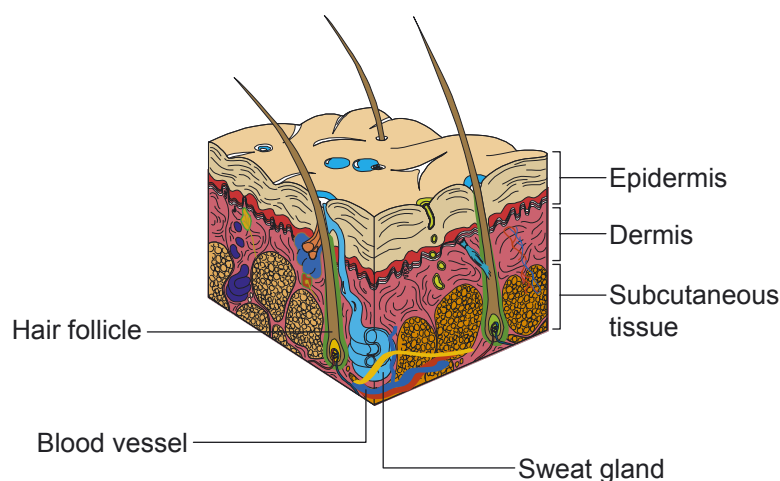


Anatomy and Histology of the Skin

The two major divisions of the skin are the dermis and the epidermis.

The outermost layer of the skin is the epidermis that is composed of sheets of dead cells that serve as the major waterproof barrier to the environment.

The epidermis is the visible layer of skin. This layer contains numerous nerve endings, but no blood vessels. The human epidermis is renewed every 15-30 days.



The epidermis consists of many layers. The stratum corneum is the outer layer that is often called the horny layer. Cells are continually being shed and replaced. This layer of skin for the most part is dead – it is composed of cells that are almost pure protein.

The stratum lucidum consists of translucent cells through which light can penetrate.

The stratum granulosum, known as the granular layer, consists of cells that resemble granules. These cells are transforming into a harder form of protein.



The stratum mucosum is also known as the basal cell layer. Basal cells are continuously being reproduced. It is the deepest layer of the epidermis. This layer also contains melanocytes that produce the coloring matter known as melanin and determines skin color. Melanocytes also react to ultraviolet rays to darken the skin for added protection.

The middle layer, the dermis, provides a tough, flexible foundation for the epidermis. In the dermis, body temperature is regulated by sweat glands and blood vessels. It also contains arrector pilli muscles, papillae, and hair follicles. Nerve endings send sensations of pain, itching, touch, and temperature to the brain. The skin is moisturized by oil glands that produce sebum.

The dermis consists of two layers. The papillary layer connects the dermis to the epidermis. Tactile corpuscles are nerve fiber endings that contain looped capillaries. Tactile corpuscles are responsible for the sense of touch. The papillary layer also contains some of the melanin.

The reticular layer is the deepest layer of the dermis. It contains fat cells, blood vessels, lymph vessels, oil glands, sweat glands, hair follicles, and arrector pilli muscles. The reticular layer supplies the skin with oxygen and nutrients.

Subcutaneous tissue is the fatty layer found below the dermis. It is also called the adipose or the subcutis tissue. It varies in thickness according to age, sex, and general health of the individual. The subcutaneous tissue contains fats for energy, gives smoothness and contour to the body, and acts as a protective cushion for the outer skin. Arteries and lymphatics maintain circulation to the body.



Nerves of the Skin

Sensory nerves are receptors and send messages to the brain causing reactions to heat, cold, touch, pressure, and pain.

Motor nerve fibers, attached to the hair follicles, are distributed to the arrector pilli muscles which may cause goose flesh when you are frightened or cold.

The secretory nerve fibers regulate the excretion of perspiration from the sweat glands and regulate the flow of sebum to the surface of the skin.

Glands of the Skin

There are two types of duct glands contained in the skin that pull out minerals from the blood to create new substances. The sudiferous glands are the sweat glands and the sebaceous glands are the oil glands.

Sweat glands excrete perspiration. This secretion is odorless when excreted, but in a short period of time produces an offensive odor due to the bacteria on the skin's surface feeding on the fats of its secretion. Perspiration is controlled by the nervous system. About 1-2 pints of liquid containing salts are excreted daily through the sweat pores in the skin. The sweat glands consist of a coiled base or fundus and a tube-like duct that ends at the skin surface forming the pores. Sweat glands are more numerous on the palms, soles, forehead, and armpits. Body temperature is regulated by the sweat glands that also aid in the elimination of waste.

Oil glands secrete sebum through little sacs whose ducts open in to the hair follicles. These glands are found in all parts of the body with the exception of the palms and soles. The oily substance produced by the oil glands is called sebum. Sebum lubricates the skin and preserves the pliability of the hair. When the duct becomes clogged with hardened sebum, a blackhead is formed.



Nourishment of the Skin

Blood and lymph circulate through the skin providing nourishment essential for growth and repair of the skin, hair, and nails.

Functions of the Skin

The major functions of the skin are sensation, heat regulation, absorption, protection, excretion, and secretion. The functions of the skin can easily be remembered using the acronym: SHAPES

S – ensation – response to heat, cold, pressure, and pain

H – eat regulation – maintains body temperature of 98.6

A – bsorption - substances can enter the body through the skin and affect it to a minor degree

P – rotection – from bacterial invasion

E – xcretion – sweat glands excrete perspiration

S – ecretion - sebum is secreted by the sebaceous glands



Terminology

Dermatology	study of the skin, its nature, functions, and treatment
Dermatologist	a medical skin specialist
Disease	a pathological condition of the body, organ, or mind making it incapable of carrying on normal functions
Disorder	abnormal condition usually not contagious
Immunity	freedom from or resistance to disease
Integumentary system	one of the 10 systems of the body; pertains to the skin, its appendages and functions
Pathology	study of disease
Etiology	study of the causes of diseases
Trichology	study of hair
Diagnosis	recognition of a disease by its symptoms
Prognosis	foretelling of the probable course of a disease
Objective symptom	visible symptom
Subjective symptom	symptom that can be felt by client, but not by observation
Acute	rapid onset with severe symptoms of short duration



Chronic	long duration, usually mild, but often recurring
Infectious	invasion of body tissue by bacteria that cause disease
Contagious	communicable; by contact
Occupational	due to certain kinds of employment
Seasonal	influenced by weather
Parasitic	caused by vegetable or animal parasites
Pathogenic	produced by disease causing bacteria
Systemic	due to over or under functioning of the internal glands
Venereal disease	acquired by sexual contact
Epidemic	emergence of a disease that affects a large number of people simultaneously
Allergy	reaction due to extreme sensitivity to normally harmless substances
Inflammation	skin disorder characterized by redness, pain, edema, and heat
Rhytidectomy	face lift
Blepharoplasty	eyelid surgery
Chemical peel	chemical solution applied to skin areas causing a mild, controlled burn of the skin



Rhinoplasty	plastic surgery of the nose
Mentoplasty	chin surgery
Dermabrasion	sandblasting irregularities of the skin
Injectable fillers	tiny injections of collagen to soften wrinkles
Retin-A	prescription cream used in the treatment of acne



Diseases and Disorders

In a salon, you will come in contact with diseases and disorders of the skin and its appendages: the hair and nails. Your license requires you to be responsible for the recognition of potentially infectious diseases. Some disorders can be treated in cooperation with and under the supervision of a physician.



Skin Conditions /Descriptions

**WARNING: NEVER TRY TO DIAGNOSE A DISEASE;
ALWAYS REFER TO A PHYSICIAN.**

NOTE: COLOR CHANGES, A CRACK ON THE SKIN, A TYPE OF THICKENING, OR ANY DISCOLORATION, RANGING FROM SHADES OF RED TO BROWN AND PURPLE TO ALMOST BLACK, MAY BE SIGNS OF DANGER AND SHOULD BE EXAMINED BY A DERMATOLOGIST.

**CAUTION: DO NOT TREAT OR REMOVE
HAIR FROM MOLES.**

Condition/ Disease/Disorder

Description

Pigmented Lesions

Lentigo	small, yellow to brown spots
Chloasma	moth patches, liver spots = increased deposits of pigment
Naevus	birthmark (portwine or strawberry) small-large malformation of skin due to pigmentation or dilated capillaries
Leucoderma	abnormal light patches due to congenital defective pigmentations
Vitiligo	acquired condition of leucoderma-may affect skin or hair



Cysts	sac-like, elevated (usually round) area, contains liquid or semi-liquid substance-when a follicle ruptures deep within the dermis & irritating oil & dead cells seep into the surrounding tissues-often cause acne pits
Pimples	follicle filled with oil, dead cells, & bacteria-inflammation causes white blood cells to rush to fight bacteria creating a pus

Disorders of the Sudoriferous Glands

Bromidrosis	osmidrosis=foul-smelling perspiration
Anhidrosis	lack of perspiration
Hyperhidrosis	excessive perspiration
Miliaria Rubra	prickly heat-eruptions of small red vesicles accompanied by burning & itching-caused by excessive heat

Hypertrophies

Keratoma	callus-superficial, round, thickening of the epidermis caused by friction (inward growth is called a corn)
Mole	a small, brown spot-believed to be inherited-may be flat or deeply seated-pale tan-brown or bluish black
Verruca	wart, a viral infection of the epidermis-benign



Primary Skin Lesions

Macule	small, discolored spot or patch on the skin's surface, neither raised nor sunken-ex: freckles
Papule	small elevated pimple containing no fluid, but may have pus note: yellow or white fatty papules around the eyes indicate an elevated cholesterol level-refer to a physician (xanthelasma).
Wheal	itchy, swollen lesion that lasts only a few hours-ex: mosquito bite
Tubercle	solid lump larger than a papule-projects above the skin or lies with-sized from pea to hickory nut
Tumor	external swelling-varies in size, shape & color
Vesicle	blister with clear fluid-lie within or just beneath the epidermis-ex: poison ivy
Bulla	blister containnig a watery fluid-larger than a vesicle
Pustule	elevation with inflamed base, containing pus

Secondary Skin Lesions

Scale	accumulation of epidermal flakes, dry or greasy-ex: abnormal dandruff
Crust	accumulation of serum & pus-mixed with epidermal material-ex: scab



Excoriation abrasion produced by scratching or scraping-ex:
raw surface after injury

Fissure crack in the skin penetrating into the dermis

Ulcer open lesion on skin or mucous membrane,
accompanied by pus & loss of skin depth

Acne Scars

Ice Pick Scar large, visible, open pores that look as if the skin
has been jabbed with an ice pick-follicle always
looks open-caused by deep pimple or cyst

Acne Pit Scar slightly sunken or depressed appearance-caused
by pimples/systs that have destroyed the skin &
formed scar tissue

Acne Raised Scar lumpy mass of raised tissue on the surface of the
skin-caused where cysts have clumped together

Contagious Disorders

Tinea	ringworm, due to fungi
Tinea Capitis - Ringworm of Scalp	(plant or vegetable
Tinea Sycosis - Barber's Itch	parasites) -small reddened
Tinea Favosa - Honeycomb Ringworm	patch of little blisters that
Tinea Unguium - Ringworm of Nails	spread outward and heal in
Athlete's Foot - Ringworm of Feet	the middle with scaling



CAUTION! NEVER ATTEMPT TO DIAGNOSE BUMPS, LESIONS, ULCERATIONS, OR DISCOLORATIONS AS SKIN CANCER, BUT YOU SHOULD BE ABLE TO RECOGNIZE THE CHARACTERISTICS OF SERIOUS SKIN DISORDERS AND SUGGEST THAT THE CLIENT SEE A PHYSICIAN OR DERMATOLOGIST.

Extremely Serious Disorders-Skin Cancers

Basal Cell Carcinoma	least malignant-most common skin cancer-characterized by light or pearly nodules & visible blood vessels
Squamous Cell Carcinoma	scaly, red papules-blood vessels are not visible-more serious than basal cell
Malignant Melanoma	most serious-characterized by dark brown, black, or discolored patches on the skin
Tumor	abnormal growth of swollen tissue

Nail Diseases/Disorders

Onychophagy	nail biting
Onychogryposis	overcurvature of the nail-clawlike
Pterygium	sticky overgrowth of the cuticle
Eggshell Nail	extremely thin nail
Leuconychia	white spots under the nail plate



Paronychia	bacterial inflammation of tissue (perionychium) around the nail
Tinea Corporis	ringworm of the hand
Tinea Pedia	ringworm of the foot
Aggnail	hangnail
Onychia	an inflammation somewhere in the nail
Onychocyanosis	blue nail (usually caused by poor circulation)
Hematoma Nail	bruised nail (usually caused by a hammer or slammed door)
Tinea Unguium	onychomycosis-ringworm of the nail
Onychorrexix	split or brittle nails with a series of lengthwise ridges
Beau's Lines	ridges/corrugations/furrows
Onychatrophia	atrophy or wasting away of the nail
Onychocryptosis	ingrown nail
Onychauxis	overgrowth of the nail plate
Onychosis	any nail disease
Onychophosis	accumulation of horny layers of epidermis under the nail



Hair Disease/Disorders

Pityriasis Capitis Simplex	dry dandruff
Pityriasis Capitis Steatoids Seborrhea Oleosa = Oily Dandruff	greasy dandruff
Trichoptilosis	split hair ends
Trichorrehexis Nodosa	knotted
Tinea Favosa	honeycomb ringworm
Tinea Capitis	ringworm of the scalp
Tinea Sycosis	barber's itch
Androgenetic Alopecia	common hereditary hair loss
Alopecia Adnata	loss of hair shortly after birth
Alopecia Areata	hair loss in patches
Alopecia Follicularis	hair loss caused by inflammation of hair follicles
Alopecia Prematura	hair loss early in life
Alopecia Senilis	hair loss from old age
Alopecia Totalis	hair loss from entire scalp
Alopecia Universalis	hair loss from entire body



Traction/Traumatic Alopecia	patchy hair loss sometimes due to repetitive traction on the hair by pulling or twisting
Postpartum Alopecia	temporary hair loss at the conclusion of pregnancy
Telogen Effluven	hair loss during the telogen phase of the hair growth cycle
Canities	gray hair
Pediculosis Capitis	headlice
Monilithrix	beaded hair
Fragilitis Crinium	brittle hair
Hirsuties/Hypertrichosis	superfluous hair, excessive
Scabies	contagious disease caused by the itch mite
Impetigo/Infantigo	highly contagious bacterial infection, usually staphylococcal
Discoid Lupus Erythematosus (DLE)	chronic autoimmune disorder, causes red often scarring plaques, hair loss, & internal effects
Keloids	forms when excess collagen forms at the site of a healing scar-overhealing
Asteatosis	excessive dry skin



Websites: Online Dermatology Resources

<http://tray.dermatology.uiowa.edu/DermImag.htm>

<http://www.medic.mie-u.ac.jp/derma/world/worldd1.html>

<http://www.skin-information.com/>

<http://www.skin-disease.com/>

<http://www.skin-cancers.net/>

<http://www.age-spot.com/>

<http://www.i-wrinkle.com/>

<http://www.i-wrinkle.com/>

<http://www.asds-net.org> American Society of Dermatologic Surgery

<http://www.aad.org> American Academy of Dermatology