

MINNESOTA SCHOOL OF BEAUTY
REVIEW CHAPTER 11– PROPERTIES OF THE HAIR AND SCALP

1. The study of hair is known as **trichology**
2. The body can produce **11** of the 20 amino acids that make up hair and your diet must include the remaining essential amino acids:
3. A mature strand of human hair is divided into tow principal parts known as the **hair root and hair shaft**
4. A tube-like depression, or pocket, in the skin or scalp that encases the hair root is called the **follicle**
5. A thickened, club-shaped structure that forms the lower part of the hair root is called **bulb**
6. A small, cone-shaped elevation located at the bottom of the hair follicle is the **dermal papilla**
7. A small involuntary muscle attached to the underside of a hair follicle is the **arrector pili**
8. Oil glands of the skin, connected to the hair follicles, are known as **sebaceous glands**
9. Hair is composed of cells arranged in three layers which are **cuticle, cortex, medulla**
10. The cortex contains coloring matter in the form of minute grains of **melanin** or pigment:
11. Long, coarse, pigmented hair found on the scalp, legs, arms, and body is known as **terminal hair**
12. All hair follicles have the same structure and cycle though the same three phases, which are **anagen (grow) catagen (transition) telogen (resting)**
13. Hair that forms a circular pattern is called a **whorl**
14. Hair texture refers to the **thickness or diameter** of the hair
15. The ability of the hair to absorb moisture is called **porosity**
16. The ability of the hair to stretch and return to its original form without breaking is called **elasticity**
17. The loss of hair in round or irregular patches without inflammation is called **alopecia areata**
18. The technical term for hair that is in a dry brittle condition including formation of nodular swellings along the hair shaft is **trichorrhexis dodosa**
19. The chemical bond that joins amino acids to each other is called a **polypeptide bond**
20. Normal hair contains **51** percent of the element carbon:

MINNESOTA SCHOOL OF BEAUTY
REVIEW CHAPTER 11– PROPERTIES OF THE HAIR AND SCALP

21. Normal hair contains **21** percent of the element oxygen:
22. Normal hair contains **6** percent of the element hydrogen:
23. Normal hair contains **17** percent of the element nitrogen:
24. As newly formed cells mature, they fill up with a fibrous **protein** then move upward, lose their nucleus, and die. This process is called keratinization:
25. A side bond that is easily broken by strong alkaline or acidic solutions is called **an ionic** bond:
26. **melanin** is the tiny grains of pigment in the cortex that give natural color to the hair:
27. Pheomelanin provides natural hair color from **red and ginger** to yellow and blond tones:
28. The shape of the hair strand, described as straight, wavy, curly, or extremely curly, is known as **wave pattern**
29. The thickness or diameter of the individual hair strand is called **texture**
30. The number of individual hair strands on one square inch of the scalp indicates **hair density**
31. Short, fine, downy, un-pigmented hair is known as **vellus** hair:
32. **minoxidil** is a topical medication that is applied to the scalp twice daily and has been proven to simulate hair growth:
33. **finasteride** is an oral prescription medication for hair loss that is available to men only:
34. The technical term for gray hair is **canities**
35. The technical term for split ends is **trichoptilosis**
36. The technical term for beaded hair is **monilethrix**
37. A scalp condition characterized by red papules or spots at the opening of hair follicles is **monilethrix**
38. A contagious condition caused by a parasite infesting the hair and scalp is **pediculosis capitis**
39. An acute staphylococci infection of a hair follicle that produces constant pain is **furuncle**
40. The infestation of the hair and scalp with head lice is known as **pediculosis capitis**

MINNESOTA SCHOOL OF BEAUTY
REVIEW -CHAPTER 15– SCALP CARE, SHAMPOOING, & CONDITIONING

1. Water is called the **universal** solvent because it is capable of dissolving more substances than any other solvent:
2. The water treatment that causes matter to sink to the bottom is called **sedimentation**
3. The water treatment in which water passes through a porous substance, such as filter paper or charcoal, is known as **filtration**
4. The process of heating water so it becomes a vapor, then condensing the vapor so that it collects as a liquid is called: term used for measuring the strength of an electric current is **distillation**
5. Rain water or chemically softened water is considered to be **soft** water:
6. Water that contains minerals that lessen the ability of soap or shampoo to lather readily is considered to be **hard** water:
7. The main ingredient in all shampoos is **water**
8. The hydrophilic end of a surfactant molecule is considered to be **water attracting**
9. The lipophilic end of a surfactant molecule is considered to be **oil-attracting**
10. A shampoo that is balanced to the pH of skin and hair, or 4.5 to 5.5 is known as **acid-balanced**
11. Protein and **biotin** are two examples of condition agents that boost shampoos so they can meet current grooming needs:
12. Medicated shampoos contain special chemicals that are effective in reducing excessive **dandruff**
13. A shampoo used for oily hair and scalp that washes away excess oiliness while keeping the hair from drying out is called **balancing**
14. A shampoo that contains an acidic ingredient to cut through product buildup that can flatten hair is known as **clarifying**
15. Conditioners that are heavier and creamier than instant conditioners and have a longer application time of 10 to 20 minutes are called **moisturizers**
16. Conditioners designed to penetrate the cortex and reinforce the hair shaft from within are called **protein** conditioners:

MINNESOTA SCHOOL OF BEAUTY
REVIEW -CHAPTER 15– SCALP CARE, SHAMPOOING, & CONDITIONING

17. When brushing hair, brushes made with **natural** bristles are most highly recommended:
18. When brushing the hair prior to a shampoo, you should brush the hair by **rotating brush by turning wrist slightly**
19. The two basic requisites for healthy scalp are cleanliness and **stimulation**
20. The first step in giving a scalp massage requires cupping the head in one hand while grasping the **base of skull** and rotating head gently:
21. An important thing to remember when giving a shampoo is **proper posture**
22. If rinsing conditioner in less than one minute, the client may be **properly reclined**
23. How does a highly alkaline shampoo affect tinted hair **causes color to fade**
24. Detangling of the hair begins at **the hair ends at nape**
25. When manipulating the scalp during a shampoo work in a back –and-forth movement beginning **at the front hairline**

CHAPTER

1

Properties of the Hair and Scalp

Chapter Outline

Why Study Properties of the
Hair and Scalp?

Structure of the Hair

Chemical Composition of Hair

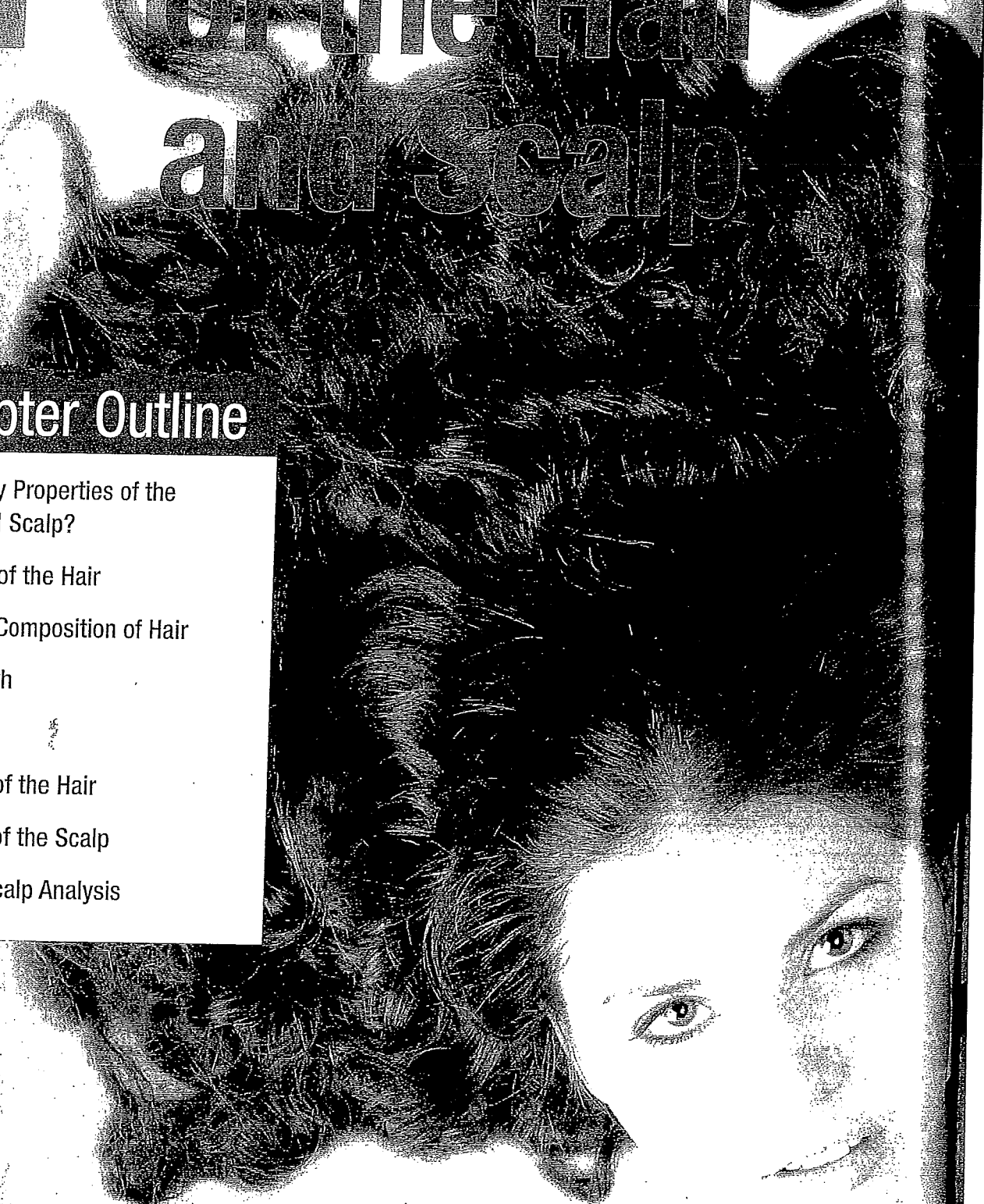
Hair Growth

Hair Loss

Disorders of the Hair

Disorders of the Scalp

Hair and Scalp Analysis



Review Questions

1. Name and describe the five main structures of the hair root.
2. Name and describe the three layers of the hair shaft.
3. Explain the process of keratinization.
4. What are polypeptide chains?
5. List and describe the three types of side bonds. Indicate whether they are strong or weak and why.
6. Name and describe the two types of melanin responsible for natural hair color.
7. Name and describe the two types of hair and their locations on the body.
8. What are the three phases of the hair growth cycle? What occurs during each phase?
9. What is the reason for normal daily hair loss?
10. What are the most common types of abnormal hair loss?
11. What are the only two hair loss treatments approved by the FDA?
12. Name the two main types of dandruff. Can either one be treated in the salon?
13. Which hair and scalp disorders cannot be treated in the salon?
14. What four factors about the hair should be considered in a hair analysis?

Chapter Glossary

alopecia	Abnormal hair loss.
alopecia areata	Autoimmune disorder that causes the affected hair follicles to be mistakenly attacked by a person's own immune system; usually begins with one or more small, round, smooth bald patches on the scalp.
alopecia totalis	Total loss of scalp hair.
alopecia universalis	Complete loss of body hair.
amino acids	Units that are joined together end to end like pop beads by strong, chemical peptide bonds (end bonds) to form the polypeptide chains that comprise proteins.
anagen phase	Also known as <i>growth phase</i> ; phase during which new hair is produced.
androgenic alopecia	Also known as <i>androgenetic alopecia</i> ; hair loss characterized by miniaturization of terminal hair that is converted to vellus hair; in men, it is known as male pattern baldness.
canities	Technical term for gray hair; results from the loss of the hair's natural melanin pigment.
carbuncle	Inflammation of the subcutaneous tissue caused by staphylococci; similar to a furuncle but larger.
catagen phase	The brief transition period between the growth and resting phases of a hair follicle. It signals the end of the growth phase.
COHNS elements	The five elements—carbon, oxygen, hydrogen, nitrogen, and sulfur—that make up human hair, skin, tissue, and nails.
cortex	Middle layer of the hair; a fibrous protein core formed by elongated cells containing melanin pigment.

Chapter Glossary

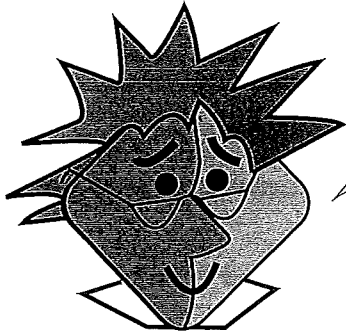
cowlick	Tuft of hair that stands straight up.
cysteine	An amino acid joined with another cysteine amino acid to create cystine amino acid.
cystine	An amino acid that joins together two peptide strands.
disulfide bond	Strong chemical side bond that joins the sulfur atoms of two neighboring cysteine amino acids to create one cystine, which joins together two polypeptide strands like rungs on a ladder.
fragilitas crinium	Technical term for brittle hair.
furuncle	Boil; acute, localized bacterial infection of the hair follicle that produces constant pain.
hair bulb	Lowest part of a hair strand; the thickened, club-shaped structure that forms the lower part of the hair root.
hair cuticle	Outermost layer of hair; consisting of a single, overlapping layer of transparent, scale-like cells that look like shingles on a roof.
hair density	The number of individual hair strands on 1 square inch (2.5 square centimeters) of scalp.
hair elasticity	Ability of the hair to stretch and return to its original length without breaking.
hair follicle	The tube-like depression or pocket in the skin or scalp that contains the hair root.
hair porosity	Ability of the hair to absorb moisture.
hair root	The part of the hair located below the surface of the epidermis.
hair shaft	The portion of hair that projects above the epidermis.
hair stream	Hair flowing in the same direction, resulting from follicles sloping in the same direction.
hair texture	Thickness or diameter of the individual hair strand.
helix	Spiral shape of a coiled protein created by polypeptide chains that intertwine with each other.
hydrogen bond	A weak, physical, cross-link side bond that is easily broken by water or heat.
hydrophilic	Easily absorbs moisture; in chemistry terms, capable of combining with or attracting water (water-loving).
hydrophobic	Naturally resistant to being penetrated by moisture.
hypertrichosis	Also known as <i>hirsuties</i> ; condition of abnormal growth of hair, characterized by the growth of terminal hair in areas of the body that normally grow only vellus hair.
keratinization	Process by which newly formed cells in the hair bulb mature, fill with keratin, move upward, lose their nucleus, and die.
lanthionine bonds	The bonds created when disulfide bonds are broken by hydroxide chemical hair relaxers after the relaxer is rinsed from the hair.
malassezia	Naturally occurring fungus that is present on all human skin, but is responsible for dandruff when it grows out of control.

Chapter Glossary

medulla	Innermost layer of the hair that is composed of round cells; often absent in fine and naturally blond hair.
monilethrix	Technical term for beaded hair.
pediculosis capitis	Infestation of the hair and scalp with head lice.
peptide bond	Also known as an <i>end bond</i> ; chemical bond that joins amino acids to each other, end to end, to form a polypeptide chain.
pityriasis	Technical term for dandruff; characterized by excessive production and accumulation of skin cells.
pityriasis capitis simplex	Technical term for classic dandruff; characterized by scalp irritation, large flakes, and itchy scalp.
pityriasis steatoides	Severe case of dandruff characterized by an accumulation of greasy or waxy scales mixed with sebum, that stick to the scalp in crusts.
polypeptide chain	A long chain of amino acids linked by peptide bonds.
postpartum alopecia	Temporary hair loss experienced at the conclusion of a pregnancy.
proteins	Long, coiled complex polypeptides made of amino acids.
ringed hair	Variety of canities characterized by alternating bands of gray and pigmented hair throughout the length of the hair strand.
salt bond	A weak, physical, cross-link side bond between adjacent polypeptide chains.
scutula	Dry, sulfur-yellow, cup-like crusts on the scalp in tinea favosa or tinea favus.
side bonds	Bonds that cross-link the polypeptide chains together and are responsible for the extreme strength and elasticity of human hair.
telogen phase	Also known as <i>resting phase</i> ; the final phase in the hair cycle that lasts until the fully grown hair is shed.
terminal hair	Long, coarse, pigmented hair found on the scalp, legs, arms, and bodies of males and females.
tinea	Technical term for ringworm, a contagious condition caused by fungal infection and not a parasite; characterized by itching, scales, and, sometimes, painful lesions.
tinea favosa	Also known as <i>tinea favus</i> ; fungal infection characterized by dry, sulfur-yellow, cup-like crusts on the scalp called scutula.
trichology	Scientific study of hair and its diseases and care.
trichoptilosis	Technical term for split ends.
trichorrhexis nodosa	Technical term for knotted hair; it is characterized by brittleness and the formation of nodular swellings along the hair shaft.
vellus hair	Also known as <i>lanugo hair</i> ; short, fine, unpigmented downy hair that appears on the body, with the exception of the palms of the hands and the soles of the feet.
wave pattern	The shape of the hair strands; described as straight, wavy, curly, and extremely curly.
whorl	Hair that forms in a circular pattern on the crown of the head.

Chapter 7

TRICHOLOGY



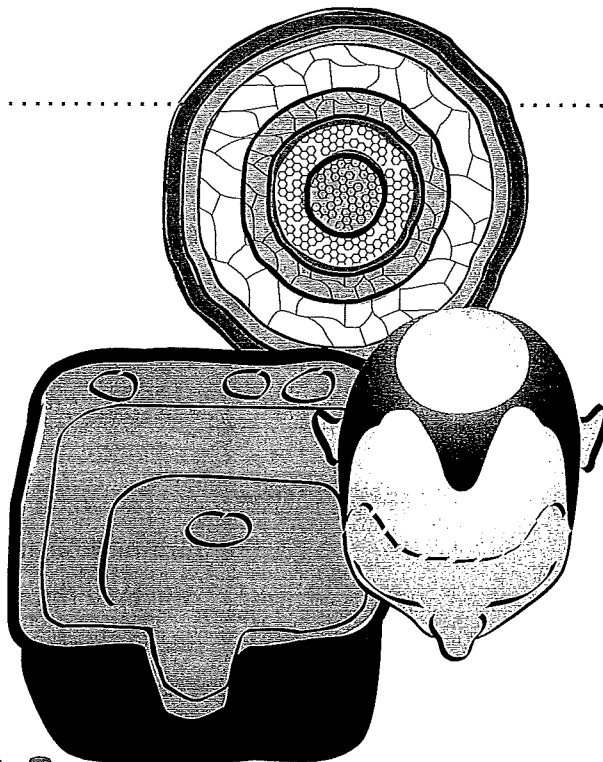
Look for patterns in everything you learn... these patterns are the keys to understanding.

VALUE

Your shampoo and massage ability increases as you learn more about hair theory and care.

Knowledge of the study of hair + care and skill during shampoo and massage = quality salon services

**BIG
IDEA**



PLAN

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Common Hair Conditions

Fill in the missing elements for the following charts.

	ALSO KNOWN AS	CAUSE/TREATMENT
Broken Hair	Abraided	From excessive stretching, chemical treatment
Split Ends	Fragilitis Crinium and trichoptilosis	Protein conditioner to seal or cut ends off
Matting	Pilica Polonica	Mass of hair strands tangled together; cut hair
Nodules	Trichorrhesis Nodosa	Caused by poorly performed chemical services
Canities	Gray or white hair	Congenital or illness
Ringed Hair		Alternating bands of gray and dark exist
Hypertrichosis	Hirsuties	Abnormal coverage of hair on the body; tweeze, electrolysis, wax
Monilethrix		Conditioning treatments may be given

Common Scalp Conditions

	MEDICAL TERM	DESCRIPTION	TREATMENT
Disorders			
Psoriasis	Psoriasis	Thick, crusty patches of red irritated scalp	refer client to physician
Dandruff	Pityriasis	Overabundance of epithelial cells	medicated shampoo, high frequency
Dry Dandruff	Pityriasis Capitis Simplex	Dry epithelial cells attached to scalp (itchy)	mild shampoo, antiseptic
Greasy or Waxy Dandruff	Pityriasis Steatoides	Epithelial cells combine with sebum	medical treatment
Itch Mite	Scabies	Red and watery vesicles or pus filled areas	refer client to physician
Head Lice	Pediculosis Capitis	Infestation on the scalp	Refer client to physician
Diseases			
Ringworm	Tinea	Red circular patch of small blisters	Refer client to physician
Ringworm of the Scalp	Tinea Capitis	Enlarged, open hair follicles surrounded by red spots	Refer client to physician
Honeycomb Ringworm	Tinea Favosa	Dry, yellow, encrusted areas on the scalp	Refer client to physician



Chapter 7: Trichology

HAIR CARE

pages 191-196

Hair Loss

Normal Hair Loss

40 - 100 strands a day

Androgenetic Hair Loss

Androgenetic Alopecia

Alopecia or excessive hair loss

A combination of heredity, hormones and age which causes shrinking of follicles

Males

Known as male pattern baldness

Females

Thinning of the hair

Other Types of Hair Loss

Postpartum alopecia - temporary hair loss

Alopecia areata - sudden loss of hair; irregular patches

Other Types of Hair Loss

Telogen Effluvium - premature shedding of hair

Traction or traumatic alopecia - hair loss from pulling or twisting

Hair Loss Treatments



1. FDA approved products
2. Products that provide ideal environment for new growth
3. Surgical options
4. Wigs, toupees, hair additions, weaving
5. Cosmetic hair thickeners

1
2
3
4
5
6
7

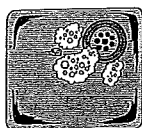


Chapter 7: Trichology

DRAPING, SHAMPOOING AND SCALP MASSAGE

pages 197-201

Purpose of Shampooing



Draping Theory



Shampooing and Conditioning Theory

Water

Soft

Hard

To cleanse the scalp and hair by removing dirt, oils and product build-up

Prior to hair care services; to protect client's skin and clothing

Performed before most services except before certain color and chemical services

Generally preferred for shampooing, rain water or chemically treated water

Contains minerals, does not allow shampoo to lather freely

Brushing and Combing

- Removes tangles
- Stimulates blood circulation
- Removes dust, dirt and build up

Scalp Massage Theory

Important Steps

- Involves manipulations performed on the scalp for relaxation
- Establish a soothing or stimulating rhythm
- Maintain contact with the client throughout the manipulations
- Manipulations with firm, controlled movements
- Keep fingernails at a moderate length

1

2

3

4

5

6

7



Chapter 7: Trichology

DRAPING, SHAMPOOING AND SCALP MASSAGE

pages 201; 214-215

Five Basic Manipulations of Massage

MOVEMENT	EFFECT
Light, gliding strokes or circular motions made with palm	Relaxing, soothing
Light or heavy kneading and rolling of the muscles between the thumb and fingers	Deep stimulation of muscles, nerves and skin glands
Light tapping or slapping movements applied with the fingers	Deep stimulation of muscles, nerves and skin glands
Circular movement with no gliding used on scalp or with a facial	Stimulates nerves and increases circulation
Shaking movement	Highly stimulating
Directions: Using the words in the Jump-Start-Box, fill in the blanks for the conditions in the left-hand column.	

Effleurage

Petrissage

Tapotement

Friction

Vibration

Aromatherapy

Normal Hair

Oily Hair and Scalp

Dry Hair and Scalp

Oily Dandruff

Alopecia (Hair Loss)



Rosemary	Chamomile	
Patchouli	Cedarwood	Clary Sage
Ylang Ylang	Sandalwood	Lavender
Lemon	Rosemary	Thyme
Cedarwood		
Sandalwood	Bay	Lavender
Clary Sage	Rosemary	

JUMP-START BOX

Rosemary	Thyme	Patchouli
Clary Sage	Cedarwood	Chamomile
Lavender	Lemon	Bay
Sandalwood	Ylang Ylang	

1

2

3

4

5

6

7

TALKING POINTS

Your next challenge is to be ready to talk about some of the important ideas in this chapter. Follow the directions listed next to each box. Then practice talking about your ideas with others.

1. Hair follicle forms from a cluster of cells
 2. Works its way down into the lower layer of skin
 3. Cell cluster pulls upper layer down creating a pocket
- Stages of growth are anagen or active stage, catagen or transition stage and telogen or resting stage

Describe the process of hair follicle formation and the stages of hair growth.

Medulla - central core - no importance (sometimes is absent)
Cortex - 2nd layer - pigment and strength (elasticity)
Cuticle - outer covering of hair shaft

Explain the three layers of hair and their importance to cosmetologists.

DISORDER	DESCRIPTION	CAUSE
Broken Hair	abraded	excessive stretching
Split Ends	small cracks in cuticle	brittle condition
Matting	tangled hair strands	excessive hair lightening
Nodules	lumps or swelling of shaft	chemical, mechanical or inherited
Canities	grayness or whiteness	illness, nervousness or heredity
Ringed	alternating bands of gray and dark	
Hypertrichosis	abnormal coverage of hair	
Monilethrix	beads or nodes on hair shaft	

Discuss the eight common hair disorders and their causes.

THE CHALLENGE

Now it's time to see how well you know your new material. First answer these questions. Then use the Memory Box that follows to check yourself. Look up each answer on the corresponding page in the *Salon Fundamentals* textbook. Check "got it" for all correct answers and "not yet" for all incorrect responses. Using the "Know Chart," record all of your correct responses in the "I Know" column. After correcting incorrect answers, record all of your corrected responses in the "I Need to Study" column. That way you know exactly what to review before continuing in this Guide.

1. What are the three major layers of the hair? _____
2. Hair is primarily made of _____, which is made from the linking together of _____.
3. What three factors dictate why everyone's hair is so different, even though all hair is primarily made of the same thing?

4. TRUE FALSE The cuticle is the protective part of the hair shaft and is made up of a harder protein than the cortex.
5. The size, type and distribution of _____ will determine the natural color of hair.
6. _____ is the brown/black in color and _____ is the red in color.
7. During your professional analysis of a client's hair fiber, a number of observations will alert you to possible problems you might encounter as you service the hair. List seven of these observations. _____

8. TRUE FALSE A dryer or a curling iron could cause the hair to become brittle and the cortex of the hair could melt
9. The most common form of hair loss is androgenetic alopecia. What are some of the other types of hair loss?

10. TRUE FALSE The FDA has ruled that products claiming hair regrowth or hair loss prevention cannot be marketed without prior FDA review and approval.

1

2

3

4

5

6

7

MEMORY BOX

got it	1. page 182
not yet	
got it	2. page 183
not yet	
got it	3. page 184
not yet	
got it	4. page 185
not yet	
got it	5. page 186
not yet	
got it	6. page 186
not yet	
got it	7. page 189, 190
not yet	
got it	8. page 190
not yet	
got it	9. page 195
not yet	
got it	10. page 195
not yet	

KNOW

CHART

I Know:

1. medulla, cortex, cuticle
2. protein, amino acids
3. heredity, environment, products or appliances used
4. TRUE
5. melanosomes
6. eumelanin, pheomelanin
7. broken hair, split ends, matting, nodules, canities, ringed hair, hypertrichosis, monilethrix
8. TRUE

I Need to Study:

9. postpartum alopecia, alopecia areata, telogen effluvium, traction or traumatic alopecia
10. TRUE

SHOW YOU KNOW...

The chapter you just reviewed, "Trichology," offers information to assist you in reaching the level of performance indicated by this Industry Standard:

Consult and provide services in a safe environment while using a variety of salon products that can be marketed to the client.

Show You Know...

Pair up with a partner and show you know how to shampoo by providing a shampoo service on each other for evaluation. Shown below is a score sheet to use for each other. Score 1 point for each area successfully completed by your partner. Show you know by earning all 10 points!

1st Partner

- ___ You were welcomed with a warm greeting and handshake.
- ___ You were properly draped for the shampoo service.
- ___ Communication was professional, friendly and pertained to the service.
- ___ Examination of your scalp and hair was performed prior to the service.
- ___ Your hair was brushed and tangles were removed comfortably.
- ___ Water temperature and pressure was comfortable.
- ___ The massage manipulations were performed in a comfortable, confident manner.
- ___ Concern was exhibited to not allow your face or clothing to become wet.
- ___ Thorough lathering and rinsing procedures were followed.
- ___ Your hair was adequately towel-dried and detangled following the service.
- ___ Total Points

2nd Partner

- ___ You were welcomed with a warm greeting and handshake.
- ___ You were properly draped for the shampoo service.
- ___ Communication was professional, friendly and pertained to the service.
- ___ Examination of your scalp and hair was performed prior to the service.
- ___ Your hair was brushed and tangles were removed comfortably.
- ___ Water temperature and pressure was comfortable.
- ___ The massage manipulations were performed in a comfortable, confident manner.
- ___ Concern was exhibited to not allow your face or clothing to become wet.
- ___ Thorough lathering and rinsing procedures were followed.
- ___ Your hair was adequately towel-dried and detangled following the service.
- ___ Total Points

1

2

3

4

5

6

7

RUBRIC



This rubric is a self-assessment tool designed to compare your skill to industry standards. Indicate your present level of performance by checking the appropriate box. See overview for instructions.

Wet Hair Service Draping, Shampooing and Conditioning

Industry Standard – to meet entry level proficiency, Industry Standards require that you:

- Provide hair-related services in accordance with a client's needs or expectations in a safe environment.

Preparation

- Assemble the essential products, implements/supplies and equipment for the procedure

Level 1 Level 2 Level 3 To Improve, I Need To: Teacher Assessment

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--	--------------------------

Procedure

- Wash and sanitize hands
- Ask client to remove jewelry and glasses and secure in a safe place
- Clip client's hair out of the way
- Turn client's collar inward if applicable
- Place towel lengthwise over client's shoulders, cross ends in front
- Position plastic cape over towel and secure
- Examine the client's hair and scalp
- Position cape over shampoo chair
- Brush the hair
- Test the temperature and pressure of the water; wet the hair; apply shampoo
- Perform scalp massage manipulations
- Rinse thoroughly; repeat shampoo and rinse procedures if necessary
- Apply rinse or conditioner; rinse thoroughly
- Towel dry client's hair; detangle the hair

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

Completion

- Clean shampoo service area before continuing with client; ensure there is no water left standing in the shampoo service area
- Discuss the products you used on the client and proceed to the next service.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

Total = addition of all Teacher Assessment boxes

Total

51

Percentage = student score / highest possible score

Percentage

%

RUBRIC



This rubric is a self-assessment tool designed to compare your skill to industry standards. Indicate your present level of performance by checking the appropriate box. See overview for instructions.

Basic Scalp Massage

Industry Standard – to meet entry level proficiency, Industry Standards require that you:

- Provide hair-related services in accordance with a client's needs or expectations in a safe environment.

	Level 1	Level 2	Level 3	To Improve, I Need To:	Teacher Assessment
Preparation					
• Assemble the essential products, implements/supplies and equipment for the procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
Procedure					
• Wash and sanitize hands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Drape client for a wet hair service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Detangle hair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Apply scalp product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Perform effleurage scalp manipulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Perform petrissage scalp manipulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Perform effleurage scalp manipulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Perform tapotement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Rotate the scalp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Conclude scalp massage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Shampoo client's hair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Dry hair or move to next service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
Completion					
• Discuss and offer a rebook visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Recommend appropriate retail products to your client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>
• Clean your work area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>

Total = addition of all Teacher Assessment boxes

Total

48

Percentage = student score / highest possible score

Percentage

%

BRAIN CONDITIONER

Multiple choice. Circle the correct answer.

1. The technical name for the study of hair is:
a) trichology b) hairology c) biology d) cosmetology
2. Which of the following items is alive?
a) hair fiber b) hair bulb c) hair strand d) keratin
3. The cluster of cells in the epidermis from which the hair follicle forms is called the:
a) hair fiber b) hair strand c) primitive hair germ d) root sheath
4. The root sheath of hair is typically oval or round in:
a) kinky hair b) curly hair c) wavy or straight hair d) coarse hair
5. What item needs nourishment to grow into a fully developed hair follicle?
a) primitive hair germ b) cortex c) root sheath d) cuticle
6. Which of the following functions is NOT one of the main purposes of hair?
a) support b) adornment c) protection from cold d) protection from injury
7. Which item produces oil and sends it up through the hair follicles to the surface of the skin?
a) papilla b) root sheath c) sebaceous gland d) arrector pili
8. Which section of the hair structure is the area where mitosis takes place?
a) germinal matrix b) root sheath c) hair follicle d) cuticle
9. The outer covering of the hair fiber is called the:
a) sebum b) medulla c) cuticle d) cortex
10. What does sebum mix with to form the acid mantle?
a) perspiration b) oil c) amino acid d) protein
11. What layer of the hair fiber gives hair its pigment and elasticity?
a) cuticle b) cortex c) medulla d) sebum
12. Which layer of hair may be absent in fine or very fine hair?
a) cuticle b) outer c) medulla d) cortex
13. The helix or coil shape of what part of the hair follicle gives hair the ability to stretch?
a) medulla b) cortex c) cuticle d) root sheath
14. Hair falls out during which stage of growth?
a) active b) anagen c) catagen d) telogen
15. On the average, what stage of hair growth lasts from two to six years?
a) resting b) anagen c) catagen d) telogen
16. Which of these factors does NOT affect hair growth?
a) frequent exercise b) disease c) lack of vitamins d) medication
17. Which of these factors does NOT influence the behavior of hair?
a) heredity b) temperature outside c) environment d) products or appliances

1

2

3

4

5

6

7

18. How is the protein in the cuticle different than the protein in the cortex?
 - a) harder than
 - b) more elastic
 - c) softer than
 - d) more abundant
19. Which of the following statements describes fine hair?
 - a) may be up to 40 % cuticle
 - b) may be more receptive to permanent waves
 - c) may not have any cuticle at all
 - d) may be less than 10% cuticle
20. What structures group together and form bundles called melanosomes?
 - a) amino acids
 - b) proteins
 - c) melanocytes
 - d) keratin
21. Melanin in brown/black hair is called:
 - a) pheomelanin
 - b) eumelanin
 - c) albinism
 - d) melanosome
22. The number of melanocytes in the hair and pigment produced is determined by:
 - a) papilla
 - b) genes
 - c) melanosomes
 - d) the dermal papilla
23. People with lighter-colored hair have melanin in the:
 - a) cuticle only
 - b) cortex only
 - c) cuticle and cortex
 - d) medulla only
24. A high concentration of pheomelanin will result in:
 - a) red hair
 - b) black hair
 - c) brown hair
 - d) dense hair
25. The degree of coarseness or fineness of the hair fiber is referred to as:
 - a) density
 - b) porosity
 - c) viscosity
 - d) texture
26. What condition is determined by the number of active hair follicles per square inch of scalp?
 - a) texture
 - b) density
 - c) porosity
 - d) viscosity
27. The amount of moisture able to be absorbed by hair is called:
 - a) texture
 - b) density
 - c) capacity
 - d) porosity
28. The ability of hair to stretch and return to its original shape without breaking is called:
 - a) elasticity
 - b) texture
 - c) porosity
 - d) breaking point
29. Which porosity describes hair that is able to absorb the least amount of moisture, usually due to the closeness of the cuticle layers?
 - a) resistant
 - b) average
 - c) extreme
 - d) uneven
30. Hair damaged due to chemical services or environment is said to have:
 - a) extreme porosity
 - b) resistant porosity
 - c) uneven porosity
 - d) average porosity
31. Normal dry hair is capable of being stretched to what fraction of its length?
 - a) one-tenth
 - b) one-fifth
 - c) one-half
 - d) three-fourths
32. Wet hair is able to be stretched to what percent of its length?
 - a) 10% to 20%
 - b) 40% to 50%
 - c) 70% to 80%
 - d) 100%
33. Split hair ends start as cracks in the:
 - a) medulla
 - b) cuticle
 - c) cortex
 - d) DNA
34. Fragilitis crinium is the technical name for:
 - a) alopecia
 - b) split ends
 - c) ringed hair
 - d) matting
35. An abraded cuticle can result from all of the following actions EXCEPT:
 - a) brushing
 - b) shampooing
 - c) clipping hair back tightly
 - d) manipulating the hair when wet

1
2
3
4
5
6
7

36. A term applied to matting of the hair is:
 a) alopecia b) pilica polonica c) ringed hair d) monilethrix
37. This hair condition may be caused by an inherited defect in the hair's keratin protein structure:
 a) pilica polonica b) alopecia c) trichorrhexis nodosa d) trichonodosis
38. Grayness or whiteness of hair is called:
 a) hypertrichosis b) canities c) monilethrix d) androgenetic alopecia
39. An abnormal coverage of hair on the body where normally only lanugo hair appears describes:
 a) hypertrichosis b) monilethrix c) trichorrhexis nodosa d) pilica polonica
40. A condition in which beads or nodes form on the hair shaft is called:
 a) hypertrichosis b) monilethrix c) canities d) nodules
41. A condition in which alternating bands of gray and dark hair exist is called:
 a) ringed hair b) canities c) monilethrix d) hypertrichosis
42. Removal methods used for hypertrichosis range from tweezing to electrolysis, depending on all of the following factors EXCEPT:
 a) client preference b) location of the hair
 c) cosmetologist's preference d) amount of hair to be removed
43. The average head contains how many strands of hair per square inch of surface?
 a) 1,000 b) 2,000 c) 3,000 d) over 5,000
44. People with what color of hair, on the average, have the fewest hair strands?
 a) black b) red c) blonde d) brown
45. People with what color of hair, on the average, have the most hair strands?
 a) red b) brown c) brunette d) blonde
46. The medical term for head lice is:
 a) scabies b) tinea favosa c) pediculosis capitis d) pityriasis steatoides
47. The medical term for an overabundance of epithelial cells that have accumulated on the scalp or fallen to the shoulders is a disorder known as:
 a) tinea capitis b) tinea favosa c) scabies d) pityriasis
48. The medical term for greasy or waxy dandruff is:
 a) tinea capitis b) pityriasis capitis c) pityriasis steatoides d) tinea favosa
49. What is the term applied to the baby fine hair that is shed shortly after birth?
 a) lanugo b) vellus c) alopecia d) follicle
50. The term used for excessive hair loss is known as:
 a) alopecia b) abraded hair c) fragilitis crinium d) trichonodosis
51. The average daily hair loss is:
 a) less than 20 strands b) 40 to 100 strands c) 250 to 500 strands d) over 1,000 strands
52. Long, thick, pigmented hair like scalp and eyebrow hair is referred to as:
 a) vellus b) lanugo c) body d) terminal
53. The most common form of hair loss in both men and women is:
 a) androgenetic alopecia b) exposure to sunlight c) telogen effluvium d) exposure to chlorine

1

2

3

4

5

6

7

54. In androgenetic alopecia, a combination of heredity, hormones and age causes:
- the shrinking of scalp follicles
 - the lengthening of the hair's growing cycle
 - the anagen phase to become longer
 - the telogen phase to become shorter
55. Alopecia, or excessive hair loss, may be caused by any one of the following EXCEPT:
- fungal infection
 - bacterial infection
 - parasitic organism
 - inflammatory disease of the scalp
56. Hair loss identification systems identify the:
- pattern and density of the client's hair
 - texture of the client's hair
 - hair color variations of the client's hair
 - treatment options
57. Hair loss caused by excessive stretching is called:
- telogen effluvium
 - fragilitis crinium
 - pilica polonica
 - traction alopecia
58. Products claiming hair regrowth or hair loss prevention cannot be marketed without what agency's review and approval?
- OSHA
 - EPA
 - USDA
 - FDA
59. Sudden hair loss in round or irregular patches without the display of an inflamed scalp is referred to as:
- postpartum alopecia
 - alopecia areata
 - telogen effluvium
 - traumatic alopecia
60. Which term is a temporary hair loss that occurs only in women?
- postpartum alopecia
 - alopecia areata
 - telogen effluvium
 - androgenetic alopecia
61. The premature shedding of hair in the resting phase is:
- telogen effluvium
 - alopecia areata
 - traumatic alopecia
 - postpartum alopecia
62. Cleansing the scalp and hair by removing dirt, oils and product build-up is the purpose of:
- scalp massage
 - shampooing
 - draping
 - perming
63. What should be done if a client has an infectious disease or disorder of the scalp?
- proceed with the service, with caution
 - refer the client to a physician
 - use a disinfecting shampoo before proceeding with the service
 - proceed with the service
64. Which term describes the scientific method of manipulating the body by rubbing, pinching, tapping, kneading or stroking with the hands, fingers or an instrument?
- cosmetology
 - trichology
 - anatomy
 - massage
65. When dealing with a client, a professional cosmetologist is responsible for all of the following items EXCEPT:
- safety
 - comfort
 - transportation
 - protection
66. Which of the following statements is NOT true about draping?
- performed prior to hair care service
 - protects client's skin and clothing
 - performed after client removes jewelry
 - performed after shampooing is complete
67. What type of cape is generally used for shampooing, wet hair cutting, wet styling or chemical services?
- plastic or waterproof cape
 - cloth cape
 - double-layered cloth cape
 - light-weight cape
68. Many regulating agencies require all of the following steps EXCEPT:
- use of a neck strip
 - prevent direct contact with the client's skin and cape
 - use of a laundered cape
 - shampoo prior to draping



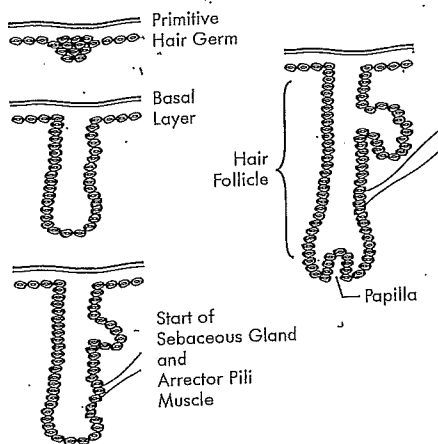
69. What kind of shampoos will make hair dry and brittle?
a) shampoos with a high pH
b) shampoos that are acid-balanced
c) shampoos with a pH of 4.5 to 5.5
d) shampoos with a low pH
70. Which type of water contains minerals and does not allow shampoo to lather freely?
a) warm
b) cold
c) soft
d) hard
71. Brushing the hair prior to a shampoo service accomplishes all of the following EXCEPT:
a) removing tangles
b) removing dust and dirt
c) stimulating blood circulation
d) decreasing blood circulation
72. Which of the following statements is true of removing tangles from the hair?
a) start at lowest point of tangled area
b) start at the scalp and progress toward the ends of hair
c) use long, firm strokes
d) start at the highest point of the tangled area
73. Scalp massage involves manipulations performed on the scalp to relax the muscles and stimulate:
a) blood circulation
b) relaxation
c) the hair shaft
d) the cortex
74. What kind of massage uses light, gliding strokes or circular motions made with the palms of the hands or pads of the fingertips?
a) petrissage
b) tapotement
c) friction
d) effleurage
75. What kind of massage uses heavy kneading and rolling of the muscles?
a) petrissage
b) tapotement
c) friction
d) vibration
76. Light tapping or slapping massage movements are known as:
a) petrissage
b) tapotement
c) friction
d) effleurage
77. The most important scalp massage manipulation that stimulates the sebaceous glands is known as:
a) effleurage
b) petrissage
c) tapotement
d) friction
78. What type of shampoos cleanse the hair without correcting any special conditions?
a) all-purpose
b) medicated
c) clarifying
d) anti-dandruff
79. What type of shampoos are used to remove residue such as product build-up?
a) liquid dry
b) powder dry
c) clarifying
d) plain
80. What type of shampoos are especially good for cleansing lightened, color-treated or dry, brittle hair?
a) acid-balanced
b) all-purpose
c) soapless
d) liquid dry
81. What type of rinse is used after a color service to prevent the color from fading?
a) cream
b) color
c) medicated
d) acid-balanced
82. What type of conditioner helps close the cuticle after an alkaline chemical service?
a) normalizing
b) moisturizing
c) customized
d) instant
83. The structural organization of the hair can be affected by all of the following factors EXCEPT:
a) hair dryers
b) perms
c) water
d) shampoo
84. Avoid giving a scalp massage prior to all of the following services EXCEPT:
a) relaxing healthy hair
b) coloring healthy hair
c) perming healthy hair
d) shampooing healthy hair
85. What term is used to describe the combination of the sense of smell and the use of plant extracts and their healing abilities?
a) electrology
b) massage therapy
c) aromatherapy
d) trichology

7.1 HAIR THEORY

Hair – you cut it and it grows back again. It becomes damaged either by nature or improper care and it can be reconditioned. Its color can be changed and it can take on straight, wavy or curly shapes. The main purposes of hair are adornment and protection from heat, cold and injury. But have you ever wondered what makes all this possible? The answers lie in the marvelous, mysterious biology of living matter or, for your purposes of study, *trichology*, the technical name for the study of hair.

Living matter. What does it mean to say that something is alive? By definition, to say that matter has life means that it grows, it can reproduce, and it responds to stimulation. That is, it can act. It can react.

Is hair alive? Even though hair is primarily protein and protein is the basis for all living matter, only the cells of the hair bulb are alive. The hair *fiber* or *strand* itself is not alive.



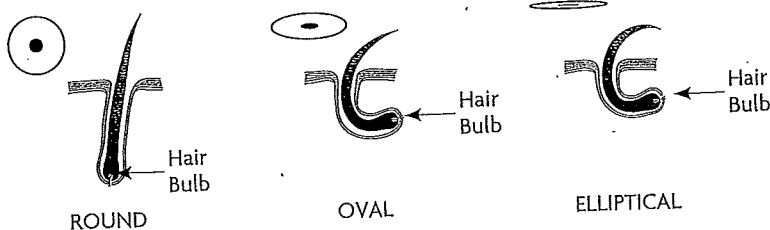
Hair Bulb Formation

To understand more about hair, you need to know how the hair bulb is formed. In fetal life, the hair follicle forms from a cluster of cells in the upper layer of skin, technically referred to as the *basal layer of the epidermis*. This cluster of cells, called the *primitive hair germ*, needs nourishment to grow into a fully developed hair follicle. To get nourishment, it works its way down into the lower (dermal) layer of the skin. As it does, the cell cluster pulls the upper layer down with it, creating a follicle or tube-like "pocket" called the root sheath, out of which the hair will grow.

The shape of this follicle (round, oval, elliptical, etc.) will determine the shape of the hair shaft as it grows from the follicle. Since the hair shaft actually grows out of the hair follicle, the diameter of the hair fiber will be the same as the diameter of the inside of the follicle.

In straight or wavy hair, hair follicles are more or less vertical to the surface of the scalp, with a slight "tilt." The angle of the hair follicle determines the natural flow or wave pattern of the hair. The follicle in straight or wavy hair is typically round or oval.

Two Primary Parts of Hair
 The **hair root** is the portion of hair that is inside the hair follicle *under* the skin's surface.
 The **hair fiber**, sometimes referred to as the *hair shaft* or *strand*, is the portion of the hair that extends above the skin's surface.

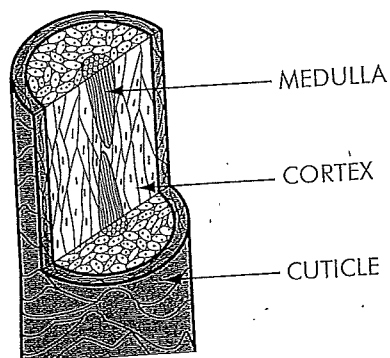


In hair that is tightly curled, the hair follicles grow from the scalp at a much stronger angle. The follicle is almost parallel to the surface of the scalp. Furthermore, the hair bulb itself is nearly doubled back over the follicle in a growth shape resembling a golf club. The hair follicle that produces a tightly curled hair has a flattened, elliptical shape.

Hair Growth

As this primitive hair germ continues its growth downward into the dermis and joins a small number of dermal cells, these cells eventually become the dermal papilla. The papilla is filled with capillaries (small blood vessels) that supply nourishment to the cells around it, called germinal matrix cells.

The germinal matrix is the area of the bulb where cell division (mitosis) takes place. These germinal matrix cells produce the cells that ultimately *keratinize* (*harden*) and form the three major layers of the hair:



1. Cuticle - the outer covering of the hair shaft made up of overlapping layers of transparent scales
2. Cortex - the second layer consisting of unique protein structures (gives hair most of its pigment and strength [elasticity])
3. Medulla - the central core of the hair shaft, also called the pith or marrow (often absent in fine or very fine hair)

Attached to the side of the root sheath are bulges. These bulges are the beginnings of the sebaceous glands. The sebaceous, or oil, glands produce sebum (oil) and send it up through the hair follicles to the surface of the skin to prevent the hair and skin from becoming too dry. Sebum mixes with the body's perspiration to form the "acid mantle." The acid mantle is important because it protects the cuticle, or outer covering, of the hair fiber and maintains the acid balance of hair and skin.

The arrector pili muscle comes from cells in the dermis that attach to the follicle just below the sebaceous gland. This is the muscle that causes the hair to stand on end when a person is scared or cold. It also aids in the secretion of sebum from the sebaceous glands. The other end of the arrector pili muscle attaches to the dermis (or lower layer) just beneath the basal layer of the epidermis.

Cells Form Parts of the Hair

As cells begin their journey upward through the hair follicle, they are separated into specific types. In other words, some cells will become cuticle scales, others will make up the cortex and others will have the particular formation

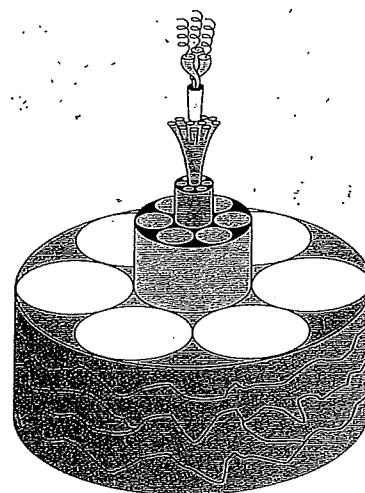
Hair pulled out from the roots will grow again unless the papilla (origin of hair) is destroyed.

of medulla cells. The journey that began deep in the skin, then grew through the outer layers now becomes the visible hair fiber (shaft or strand). Another result of this process of traveling upward is keratinization. Keratinization is a process whereby cells change their shape, dry out and form keratin protein. Once keratinized, the cells that form the hair fiber or strand are no longer alive.

Amino Acids = Protein = Hair

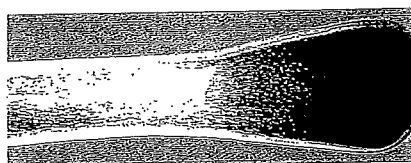
Hair is made up primarily of protein, which is made from the linking together of amino acids. The cortex of the hair is made of chains that take the shape of a helix or coil. These amino acid chains coil around each other and become protofibrils. Protofibrils then twist around each other to become microfibrils. Microfibrils follow the same process and become macrofibrils that also spiral together. This process, when complete, forms the cortex of the hair. The cortex is then covered with the cuticle scales, which also contain protein. This twisting gives hair the ability to stretch like a spring without breaking.

The prefix PROTO means first, the prefix MICRO means small and the prefix MACRO means large. Other examples would be prototype, microscope and macrobiotics.

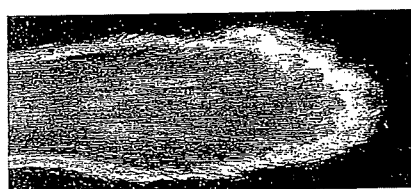


Stages of Hair Growth

Genes determine the growing stages of the hair. There are three stages of hair growth:



Anagen



Catagen



Telogen

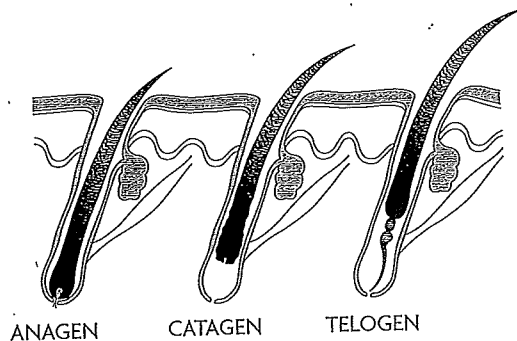
1. The anagen or *active growing stage*, during which time each hair bulb has an attached root sheath. On the average 90 percent of a person's hair is in this stage which lasts from two to six years. Hair color is darker during the anagen stage.
2. The catagen, a *brief transitional stage*, when all cell division stops. This stage lasts only a few weeks.
3. The telogen or *resting stage*, when each hair bulb has no attached root sheath. At this time the hair falls out. On the average 10 to 15 percent of hair is in the resting stage, which generally lasts three to four months. Eventually, cell division is again stimulated, producing new hair, and the growth cycle starts again.

In humans, a mosaic pattern of hair growth occurs because each hair follicle has its own unique growing cycle. Illness and lack of necessary vitamins and minerals can also affect hair and hair growth. In fact, anything that

In humans, the average rate of hair growth is 1/2" (1.25 cm) per month.

alters the physiological state of the body can affect the hair follicle and hair growth. Disease and medication can also affect hair growth by either stimulating the onset of the telogen phase or by causing the production of abnormal, brittle hairs. If a person has been ill or taking any medication, chemical services can damage hair that may be weak already.

Contrary to an old myth, hair does not grow after death of a human body. Hair never grows on palms, soles of feet, lips and eyelids.



Eyebrows and eyelashes are replaced every 4 to 5 months. Eyelashes are technically called cilia.

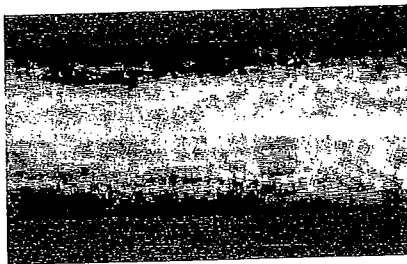
Hair Structure and Behavior

If all hair is made up primarily of protein, then why is everyone's hair so different? Why does a shampoo that works well on one person's hair not work well on another's?

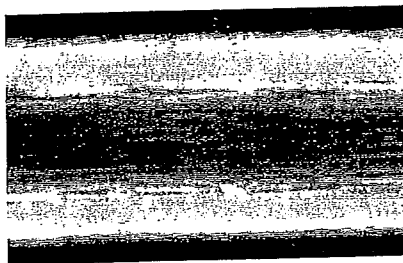
The answer lies in the physical structure of hair. There are three factors that affect the behavior of hair.

1. The first factor is *heredity*. The genes that people inherit from their parents will determine many things about the makeup of the hair, such as its color, shape and diameter.
2. The second factor is the *environment* or weather. If it's rainy or humid, hair will absorb moisture from the air. This extra moisture will alter some of the bonds that give hair its shape and, depending on the type of hair, it may become either limp or frizzy. On the other hand, wind may dry out the hair and sun may damage it. Both of these weather conditions, usually wet or dry, can cause a need for products that either take excess moisture out of the hair or put more moisture back in.
3. The third factor is the *products* or *appliances* used on the hair. For example, shampoos, conditioners, hair dryers, curling irons, perms, relaxers and hair color all affect the structural organization of the hair.

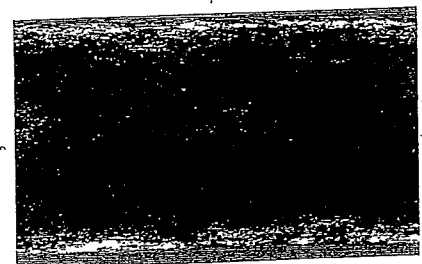
To better understand the differences in peoples' hair, you will need to take a closer look at hair's structural organization. The following series of slides taken of hair magnified hundreds of times show differences in diameter of hair.



Fine



Medium



Coarse

4

PROPERTIES OF THE HAIR AND SCALP

Date _____

Rating _____

Text Pages 47-80

Point to Ponder

"Many receive advice; only the wise profit from it." — Syrus

SCALP CARE

1. What are two basic requirements for a healthy scalp?

a. (cleanliness)

b. (stimulation)

2. Explain how the scalp and hair should be kept clean.

(by frequent treatment and shampooing)

3. Scalp manipulations are given with a continuous, even motion which will:

(stimulate the scalp and/or soothe the client's tension)

4. To be most effective, scalp massage should be applied as a series of treatments: (once) a week for normal scalp and more (frequently) for scalp disorders, under the direction of a dermatologist.

5. Knowing the muscles, the location of blood vessels, and the nerve points of the scalp and neck will:

(guide the cosmetologist to those areas in which massage movements are

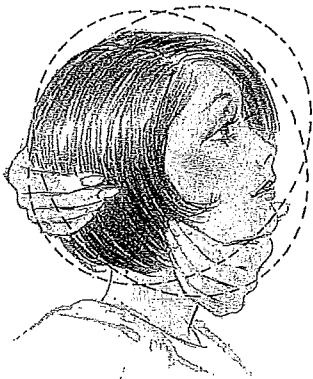
to be directed for the most beneficial results)

6. Explain why hands are placed under the hair with each massage movement.

(so the length of the fingers, balls of the fingertips, and cushions of the palms can

stimulate the muscles, nerves, and blood vessels of the scalp area)

7. Label the following illustrations by filling in the correct names of the movements.



1. (relaxing movement)



2. (sliding movement)



3. (sliding and rotating movement)



4. (forehead movement)



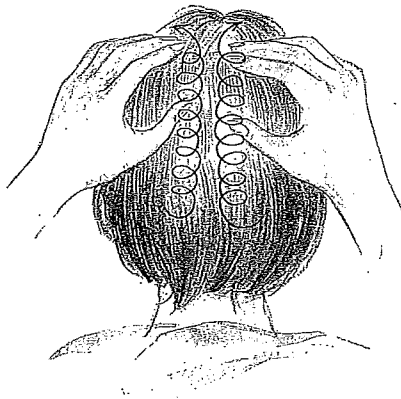
5. (scalp movement)



6. (hairlining movement)



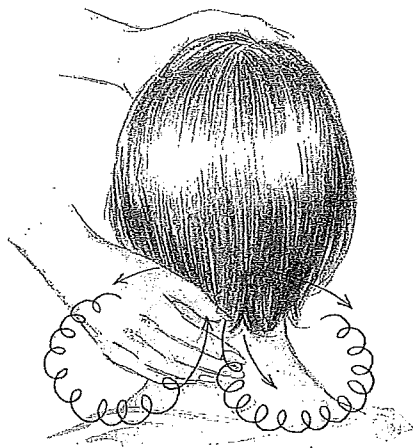
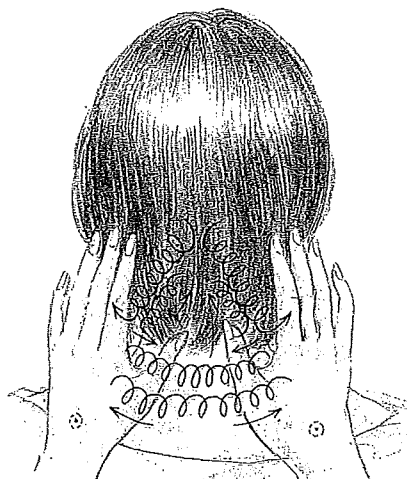
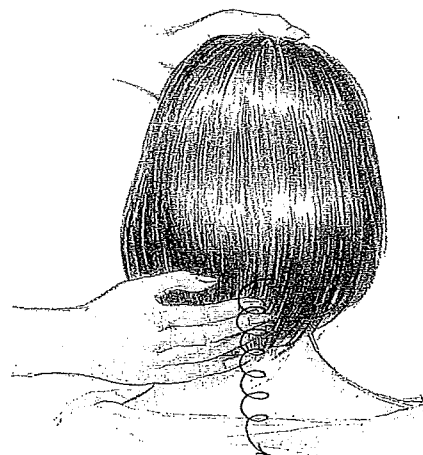
7. (front scalp movement)



8. (back scalp movement)



9. (ear-to-ear movement)

10. (back movement)11. (shoulder movement)12. (spine movement)

GENERAL HAIR AND SCALP TREATMENTS

8. Explain the purpose of a general scalp treatment.

(to keep the scalp and hair in a clean and healthy condition)

9. Regular scalp treatments may: (help slow some types of hair loss)

10. List the ten steps in the treatment for normal hair and scalp.

a. (Drape client.)

b. (Brush hair for about 5 minutes.)

c. (Apply scalp cream.)

d. (Apply infrared lamp for about 5 minutes.)

e. (Give scalp manipulations for 10 to 20 minutes.)

f. (Shampoo the hair.)

g. (Towel-dry the hair to remove excess moisture.)

h. (Apply suitable scalp lotion.)

i. (Set, dry, and style hair.)

j. (Clean up your work station.)

11. Explain when to give a treatment for dry hair and scalp.

(when there is a deficiency of natural oils on the scalp and hair)

12. Describe the type of products used to treat dry scalp and hair.

(scalp preparations containing moisturizing and emollient materials)

13. List the types of products to avoid when treating dry scalp and hair.

a. (strong soaps)

b. (preparations containing a mineral oil or sulfonated oil base)

c. (greasy preparations)

d. (lotions with a high alcohol content)

14. List the ten steps in the treatment for dry hair and scalp.

a. (Drape client.)

b. (Brush client's hair for about 5 minutes.)

c. (Apply the scalp preparation for this condition.)

d. (Apply the scalp steamer for 7 to 10 minutes, or wrap the head in warm steam towels for 7 to 10 minutes.)

e. (Give a mild shampoo.)

f. (Towel-dry the hair and scalp thoroughly.)

g. (Apply moisturizing scalp cream sparingly with a rotary, frictional motion.)

h. (Stimulate the scalp with direct high-frequency current, using the glass rake electrode, for about 5 minutes.)

i. (Set, dry, and style the hair.)

j. (Clean up your work station.)

15. What is the cause of excessive oiliness of the scalp and hair?

(over-activity of the sebaceous glands)

16. Explain how to increase blood circulation to the scalp. (by manipulating and kneading the scalp)

17. Describe how the correct degree of pressing and squeezing benefits the scalp.

(It removes any hardened sebum in the pores of the scalp.)

18. Explain how to normalize the function of the sebaceous glands.

(Excess sebum should be flushed out with each treatment.)

19. List the eleven steps in the treatment for oily hair and scalp.

a. (Drape client.)

b. (Brush client's hair for about 5 minutes.)

- c. (Apply a medicated scalp lotion to the scalp only with a cotton pledget.)
 - d. (Apply infrared lamp for about 5 minutes.)
 - e. (Give scalp manipulations. [optional: Faradic or sinusoidal current may be used.])
 - f. (Shampoo with a corrective shampoo for oily scalp.)
 - g. (Towel-dry the hair.)
 - h. (Apply direct high-frequency current for 3 to 5 minutes.)
 - i. (Apply a scalp astringent.)
 - j. (Set, dry, and style the hair.)
 - k. (Clean up your work station.)
20. Explain when not to use high-frequency current.
- (on hair treated with tonics or lotions that contain alcohol)
21. How is a corrective hair treatment different from a scalp treatment?
- (It deals with the hair shaft, not the scalp.)
22. What type of product should be used to quickly soften dry hair?
- (an emulsion containing cholesterol and related compounds)
23. List the seven steps in the corrective hair treatment.
- a. (Drape client.)
 - b. (Brush the client's hair for about 5 minutes.)
 - c. (Apply a mild shampoo.)
 - d. (Towel-dry the hair.)
 - e. (Apply a conditioner according to the manufacturer's directions.)
 - f. (Set, dry, and style hair.)
 - g. (Clean up your work station.)

HAIR LOSS

24. Over (63 million) people in the United States suffer from hair loss.
25. Scientists believe that approximately (95%) of the hair loss seen in men and women is caused by a progressive condition called (androgenetic alopecia), or common hereditary hair loss.

- a. (heredity)
- b. (hormones)
- c. (age)

28. Over time in androgenetic alopecia, the active growth phase becomes (shorter) and the resting phase becomes (longer).

30. Matching: Using the letters AA, TE, TA or PA (as defined below), match the characteristics listed below with the correct type of hair loss.

AA = Alopecia Areata

TA = Traction or Traumatic Alopecia

PA = Postpartum Alopecia

(TE) 1. premature shedding of hair during the resting phase

- (TA) 2. patchy or diffuse hair loss

- (AA)** 3. sudden loss of hair in round or irregular patches

- (PA) 4. temporary hair loss at the conclusion of a pregnancy

- (AA) 5. the scalp is not inflamed

- (TA)** 6. occurs after excessive application of chemicals

- (TE)** 7. occurs if a crash diet too low in protein is followed

- (PA) 8. hair loss slows as hormone levels return to normal

31. The (earlier) hair loss is detected, the (higher) the chances to successfully treat it.

32. Who is in a good position to help detect early signs of hair loss and recommend treatment?

(the cosmetologist)

33. How does the cosmetologist determine if a client has androgenetic alopecia?

(In an area where the scalp shows the most, look for a large number of miniaturized follicles that are producing shorter, thinner, less pigmented hairs than the long ones.)

34. How can you distinguish miniaturized hairs from hairs that have been cut short?

(Cut hairs have a flat end, while miniaturized hairs have a pointy end.)

35. If a client has a sudden or patchy loss of hair, what should you do?

(Advise the client to talk to a physician.)

36. Who developed a universal method to classify and record pattern and density variations of androgenetic alopecia? *(Dr. Ronald C. Savin, MD)*

37. The savin scales provide tools to do what?

(evaluate the degree of hair loss and the degree of response to a hair loss treatment)

38. In regard to this rating scale, define pattern:

(refers to the shape and location of the area with hair loss)

define density:

(refers to how much hair is covering the scalp in the area of hair loss)

39. Name three different services a cosmetologist can offer to a client suffering from androgenetic alopecia:

a. *(wigs)*

b. *(toupees)*

c. *(hair weaving/hair extensions)*

40. Name the two effective treatments available for hair loss.

a. *(topical treatment)*

b. *(drug treatment)*

41. A topical solution medically proven to regrow hair is known as *(minoxidil)*.

42. Explain how minoxidil works:

(It partially enlarges miniaturized follicles and reverses the miniaturization process, which prolongs the growth phase, allowing the hair to become longer and thicker.)

43. Name the four factors favoring regrowth with minoxidil:

a. *(active follicles)*

b. *(age—younger people have a better response)*

c. *(more recent hair loss)*

d. *(smaller area of hair loss)*

44. Monoxidil is a (treatment) for hair loss, not a (cure).
45. A once-a-day prescription pill for the treatment of androgenetic alopecia in men only is known as (finasteride).
46. Name three surgical options available for men's hair loss.
- a. (hair transplants)
 - b. (hair plugs)
 - c. (scalp reductions)

DISORDERS OF THE SCALP

47. Describe a natural occurrence that is commonly mistaken for dandruff. (the natural shedding of the horny scales from the uppermost layer of the scalp that loosen and fall off freely)

DANDRUFF

48. Describe dandruff:
(It consists of small, white scales that usually appear on the scalp and hair.)
49. What is the medical term for dandruff? (pityriasis)
50. If neglected for long, excessive dandruff can lead to (baldness).
51. Name a direct cause of dandruff. (excessive shedding of the epithelial or surface cells)
52. List six indirect or associated causes of dandruff.
- a. (sluggish condition of the scalp possibly due to poor circulation)
 - b. (infection)
 - c. (injury)
 - d. (lack of nerve stimulation)
 - e. (improper diet)
 - f. (uncleanliness)
53. List two contributing causes of dandruff:
- a. (use of strong shampoos)
 - b. (insufficient rinsing of the hair after a shampoo)
54. Name the two principal types of dandruff.
- a. (pityriasis capitis simplex)
 - b. (pityriasis steatoides)

55. Describe pityriasis: (It is characterized by an itchy scalp and small white scales, which are attached to the scalp in masses or scattered loosely in the hair.)

56. List five ways to treat pityriasis capitis simplex.

- | | |
|---|---|
| a. <u>(frequent scalp treatment)</u> | b. <u>(use of mild shampoos)</u> |
| c. <u>(regular scalp massage)</u> | d. <u>(daily use of antiseptic scalp lotions)</u> |
| e. <u>(applications of scalp ointments)</u> | |

57. Describe pityriasis steatoides. (It is a scaly condition of the epidermis. The scales become mixed with sebum, causing them to stick to the scalp in patches.)

58. There may be itchiness, causing the person to scratch the scalp. If the greasy scales are torn off, bleeding or oozing of sebum may follow. What treatment is advisable if this occurs?

(medical treatment)

59. Both forms of dandruff are considered to be (contagious) and can be spread by (common) use of brushes, combs, and other articles.

60. List the eleven steps in the treatment for dandruff.

- (Drape client.)
- (Brush the client's hair for 5 minutes.)
- (Apply a scalp preparation according to the scalp's condition.)
- (Apply infrared lamp for about 5 minutes.)
- (Give scalp manipulations, using indirect high-frequency current.)
- (Shampoo with corrective anti-dandruff lotion.)
- (Thoroughly towel-dry the hair.)
- (Use direct high-frequency current for 3 to 5 minutes.)
- (Apply scalp preparation suitable for the condition.)
- (Set, dry, and style the hair.)
- (Clean up your work station.)

VEGETABLE PARASITIC INFECTIONS

61. The medical term for ringworm is (tinea).

62. Identify the cause of ringworm. (vegetable parasites)

63. List four sources of transmission of ringworm.

a. (scales or hairs containing fungi)

b. (bathtubs)

c. (swimming pools)

d. (unsanitized articles)

64. The common name for tinea capitis is (ringworm of the scalp).

65. Describe tinea capitis.

(It is characterized by red papules, or spots, at the opening of the hair follicles.)

The patches spread and the hair becomes brittle and lifeless. It breaks off,

leaving a stump, or falls from the enlarged open follicles.)

66. Tinea favosa is also known as (favus) or (honeycomb ringworm).

67. Describe tinea favosa.

(It is characterized by dry, sulfur-yellow, cuplike crusts on the scalp called

scutula, which have a peculiar odor. Scars from favus are bald patches that

may be pink or white and shiny.)

68. Explain why tinea favosa must be treated by a physician. (It is very contagious.)

ANIMAL PARASITIC INFECTIONS

69. Describe scabies. (a highly contagious, animal parasitic skin disease)

70. Scabies is caused by the (itch mite).

71. List two reasons for the formation of vesicles and pustules.

a. (the irritation of the parasites)

b. (scratching the affected areas)

72. Pediculosis capitis is a contagious condition caused by the (head louse).

73. Describe how an infection can occur. (As the parasites feed on the scalp, itching occurs and
the resultant scratching can cause an infection.)

74. Explain how pediculosis capitis is transmitted.

(The head louse is transmitted from one person to another by contact

with infested hats, combs, brushes, or other personal articles.)

75. To kill head lice, advise the client to apply (larkspur tincture) to the entire head before retiring at night. The next morning, the client should shampoo with (germicidal soap).
76. Head lice should never be treated in the (school) or the (salon).

STAPHYLOCOCCI INFECTIONS

77. What is the common name for a furuncle? (boil)
78. Describe furuncle. (an acute staphylococci infection of a hair follicle that produces constant pain)
79. Describe carbuncle. (an acute staphylococci infection that is larger than a furuncle)

WORD REVIEW

alopecia areata	glass rake electrode	postpartum alopecia
androgenetic alopecia	high-frequency	pustule
carbuncle	horny scales	scabies
contagious	infrared	scutula
corrective	louse	sebaceous
dandruff	male pattern baldness	sebum
dermatologist	manipulations	staphylococci
epidermis	mite	telogen effluvium
epithelial	papules	tinea
faradic	parasite	traction alopecia
fungi	pediculosis	traumatic alopecia
furuncle	pityriasis	vesicle

MATCHING TEST

Insert the correct term or phrase in front of each definition.

alopecia areata	postpartum alopecia	scabies
androgenetic alopecia	pediculosis capitis	scutula
carbuncle	pityriasis	tinea
epidermis	pityriasis capitis simplex	tinea capitis
epithelial	pityriasis steatoides	vesicle
furuncle		

- (pityriasis steatoides) the greasy or waxy type of dandruff
- (epithelial) cells located on the skin's surface
- (androgenetic alopecia) the most common type of hair loss
- (tinea capitis) ringworm of the scalp

5. (pityriasis) the medical term for dandruff
6. (scabies) a contagious skin disease caused by the itch mite
7. (furuncle) the medical term for a boil
8. (alopecia areata) the sudden loss of hair in round patches
9. (tinea) the medical term for ringworm
10. (pityriasis capitis simplex) the dry type of dandruff
11. (epidermis) the outermost layer of the skin
12. (pediculosis capitis) contagious condition caused by the head louse

RAPID REVIEW TEST

Place the correct word in the space provided in each sentence below.

androgenetic	follicle	over
baldness	fungi	person
contact	hair	regular
contagious	manipulations	sebaceous
cortex	medical	under
disorders	medulla	unsanitized
dry	noncontagious	
excessive	oil	

1. Head lice are transmitted from one (person) to another by (contact) with infested personal articles.
2. Long neglected, excessive dandruff can lead to (baldness).
3. Scalp (manipulations) are given with all scalp treatments.
4. Excessive oiliness is caused by (over)-activity of the (sebaceous) glands.
5. A furuncle is an acute staphylococci infection of a hair (follicle).
6. Both forms of dandruff are considered to be (contagious).
7. Forty million men and 20 million women in the United States are affected by (androgenetic) alopecia.
8. Tinea is commonly carried by scales or hairs containing (fungi).
9. Scalp manipulations are given with hands (under) the hair.
10. (Medical) treatment is advisable for pityriasis steatoides.

-

Age Group	Percentage
18-24	10%
25-34	20%
35-44	25%
45-54	20%
55-64	15%
65-74	10%
75-84	5%
85+	5%

- 5

9. Corrective hair treatments are especially beneficial when given a week before and a week after:
a) a shampoo
b) a blow-dry
c) a vacation
d) a chemical service (d)
10. All forms of ringworm should be referred to:
a) another cosmetologist
b) another salon
c) a physician
d) a lawyer (c)
11. A basic requisite for a healthy scalp is:
a) a poor diet
b) poor circulation
c) strong chemicals
d) cleanliness (d)
12. All scalp treatments include brushing the client's hair for about:
a) 2 minutes
b) 5 minutes
c) 10 minutes
d) 15 minutes (b)
13. The premature shedding of hair during the resting phase is:
a) traction alopecia
b) telogen effluvium
c) postpartum alopecia
d) traumatic alopecia (b)
14. Ringworm is caused by:
a) a round worm
b) a round insect
c) an animal parasite
d) a vegetable parasite (d)
15. Clients with dry hair and scalp should avoid the use of:
a) strong soaps
b) mild soaps
c) moisturizers
d) emollients (a)
16. High-frequency current should not be used on hair treated with tonics or lotions having:
a) a sweet smell
b) a pungent odor
c) a watery consistency
d) an alcohol content (d)
17. A corrective hair treatment deals with the:
a) scalp
b) hair shaft
c) hair follicles
d) sebaceous glands (b)
18. Pityriasis steatoides is a condition in which the scales become mixed with:
a) dust
b) dirt
c) sebum
d) perspiration (c)
19. Scalp manipulations that soothe the client's tension are given with a:
a) continuous, even motion
b) slow, slapping motion
c) fast, kneading motion
d) fast, slapping motion (a)
20. To kill head lice, advise the client to apply _____ or other similar medication to the entire head before retiring.
a) alcohol
b) antiseptic
c) medicated shampoo
d) larkspur tincture (d)

21. The medical term for dandruff is:
 a) alopecia
 b) pityriasis
 c) scabies
 d) tinea
(b)
22. Many scalp treatments include placing the client under the infrared lamp for about:
 a) 2 minutes
 b) 5 minutes
 c) 10 minutes
 d) 15 minutes
(b)
23. The sudden loss of hair in round or irregular patches is know as:
 a) androgenetic alopecia
 b) traction alopecia
 c) alopecia areata
 d) postpartum alopecia
(c)
24. Products used to soften dry hair usually contain:
 a) alcohol
 b) ammonia
 c) chlorine
 d) cholesterol
(d)
25. Scabies is caused by:
 a) a round worm
 b) a round insect
 c) an animal parasite
 d) a vegetable parasite
(c)

Also see *Milady's Standard Theory Workbook*.

4

PROPERTIES OF THE HAIR AND SCALP

Date _____

Rating _____

Text Pages 47–80

POINT TO PONDER

"Things may come to those who wait, but only the things that are left by those who hustle."

— Abraham Lincoln

HAIR

1. The study of hair is called (trichology).
2. The two main purposes of the hair are:
 - a. (adornment)
 - b. (protection)
3. Hair is an appendage of the (skin and scalp).
4. There are three types of hair on the body:
 - a. (long hair)
 - b. (short/bristly hair)
 - c. (vellus)
5. Hair is distributed all over the body, except for what four areas?
 - a. (palms of the hands)
 - b. (soles of the feet)
 - c. (lips)
 - d. (eyelids)
6. Hair on the face is called (barba).
Hair on the head is called (capilli).
Hair of the eyelashes is called (cilia).
Hair of the eyebrows is called (supercilia).
7. The name of the protein that hair is made of is (keratin).
8. Average hair is composed of:
 - a. (50.65) % carbon
 - b. (6.36) % hydrogen
 - c. (17.14) % nitrogen
 - d. (5.0) % sulfur
 - e. (20.85) % oxygen

UNIVERSAL PRECAUTION

42. List four things that must be done in practicing universal precautions to protect yourself and your clients.

a. *(Use gloves and safety glasses.)*

b. *(Use disinfectants and detergents.)*

c. *(Practice personal hygiene.)*

d. *(Practice salon cleanliness.)*

WORD REVIEW

alcohol

EPA

sanitation

antiseptic

formalin

sodium hypochlorite

bactericide

fungicide

steam autoclave

contagious

hospital disinfectant

sterilization

contaminant

MSDS

ultrasonic cleaner

contaminated

OSHA

ultraviolet sanitizer

decontamination

phenols

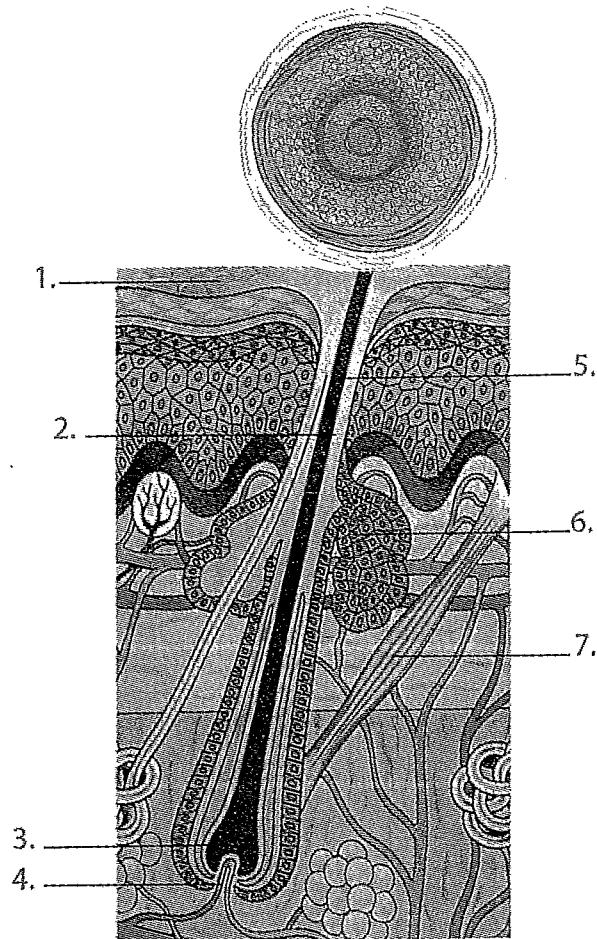
universal precautions

disinfectant

quats

virucide

9. Hair is divided into two principle parts: the (root) and the (shaft).
10. Identify the parts of the skin and hair illustrated below.



1. (epidermis)
2. (follicle)
3. (bulb)
4. (papilla)
5. (root)
6. (sebaceous or oil glands)
7. (arrector pili muscle)
11. Within the hair papilla is a rich blood and nerve supply that contributes to the (growth) and (regeneration) of the hair.

21. Explain in four steps the sequence of natural replacement of hair.
- (The bulb loosens and separates from the papilla.)
 - (The bulb moves upward in the follicle.)
 - (The hair moves slowly to the surface, where it is shed.)
 - (The new hair is formed by cell division, which takes place at the root of the hair around the papilla.)
22. How often are eyebrows and eyelashes replaced? (every 4 to 5 months)

HAIR GROWTH

23. Hair that is long, thick, and pigmented is known as (terminal hair).
24. Hair that is short, fine, and nonpigmented is known as (vellus hair).
25. Normal, healthy hair cycles through three stages. What are they?
- (anagen [growing])
 - (catagen [transitional])
 - (telogen [resting])
26. On average, hair grows (1/2) inch per month.
27. Hair grows for a period of (2 to 6) years.
28. During catagen, the transitional phase, the (follicle) rapidly decreases in volume and the lower part of the follicle is (destroyed).
29. During telogen, the resting phase, how long does the hair follicle rest? (2 to 6 months)
30. Average daily shedding is between (40) and (100) hairs.
31. List the average amounts of hair per head according to hair color.
- | | |
|-----------------------------|----------------------------|
| a. blonde: <u>(140,000)</u> | b. brown: <u>(110,000)</u> |
| c. black: <u>(108,000)</u> | d. red: <u>(90,000)</u> |
32. Hair stream is (hair flowing in the same direction) as a result of follicles sloping in the same direction.
33. When two hair streams flow in opposite direction, what is the result? (a natural part)
34. Hair that forms a circular pattern is called a (whorl), and a tuft of hair standing up is known as a (cowlick).
35. Straight hair is usually (round) in shape. Wavy hair is usually (oval) in shape. Curly, kinky hair is almost (flat) in shape.

HAIR ANALYSIS

36. List four senses you use in determining hair condition.
- a. (sight) b. (touch)
- c. (hearing) d. (smell)
37. Define hair texture.
- (the degree of coarseness or fineness of the hair)
38. Variations in texture are due to:
- a. (diameter of the hair) b. (feel of the hair)
39. What layer of the hair is missing in fine hair? (the medulla)
40. What type of finish does wiry hair have? (hard, glassy)
41. Define hair porosity. (the ability of all types of hair to absorb moisture)
42. List four types of porosity.
- a. (good) b. (moderate)
- c. (poor) d. (extreme)
43. Define elasticity.
- (the ability of hair to stretch and return to its original form without breaking)
44. Wet hair can be stretched (40) % to (50) % of its length.

DISORDERS OF THE HAIR

45. Matching: Match the terms on the left with their correct descriptions on the right.
- | | |
|------------------------------------|--|
| <u>(E)</u> 1. canities | A. alternate bands of gray and dark hair |
| <u>(D)</u> 2. congenital canities | B. split hair ends |
| <u>(J)</u> 3. acquired canities | C. moist hair |
| <u>(A)</u> 4. ringed hair | D. gray hair at birth |
| <u>(H)</u> 5. hypertrichosis | E. gray hair |
| <u>(B)</u> 6. trichoptilosis | F. knotted hair |
| <u>(F)</u> 7. trichorrhexis nodosa | G. brittle hair |
| <u>(K)</u> 8. monilethrix | H. superfluous hair |
| <u>(G)</u> 9. fragilitas crinium | I. very straight hair |
| | J. gray hair due to old age |
| | K. beaded hair |

46. Matching: Match the disorder of the hair on the left with the treatment on the right.

- | | |
|------------------------------------|--|
| <u>(C)</u> 1. Hypertrichosis | A. Recommend conditioning hair treatments. |
| <u>(B)</u> 2. Trichoptilosis | B. Hair should be oiled to soften and lubricate or cut. |
| <u>(E)</u> 3. Trichorrhesis nodosa | C. Tweeze or remove by depilatories, electrolysis, shaving or epilation. |
| <u>(D)</u> 4. Monilethrix | D. Scalp and hair treatments may improve. |
| <u>(A)</u> 5. Fragilitas crinium | E. Soften the hair with conditioners. |

Also see *Milady's Standard Practical Workbook*.

WORD REVIEW

albino	density	papilla
anagen	elasticity	pigment
appendage	fall	porosity
arrector pili	fine	sebaceous gland
barba	follicle	sebum
bulb	fragilitas crinium	supercilia
canities	hair cycle	telogen
capilli	hair root	texture
carbon	hair shaft	trichology
catagen	hair stream	trichoptilosis
cilia	hypertrichosis	trichorrhesis nodosa
coarse	keratin	vellus
cortex	medulla	whorl
cowlick	melanin	
cuticle	monilethrix	

5

DRAPING

See Milady's Standard Practical Workbook.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20-22 lines visible. The paper appears slightly aged or off-white. There is no handwriting or printed text on the page.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page, possibly from a composition book. There is no handwriting or other markings on the page.