



# US Trichology Practical Course Study Guide



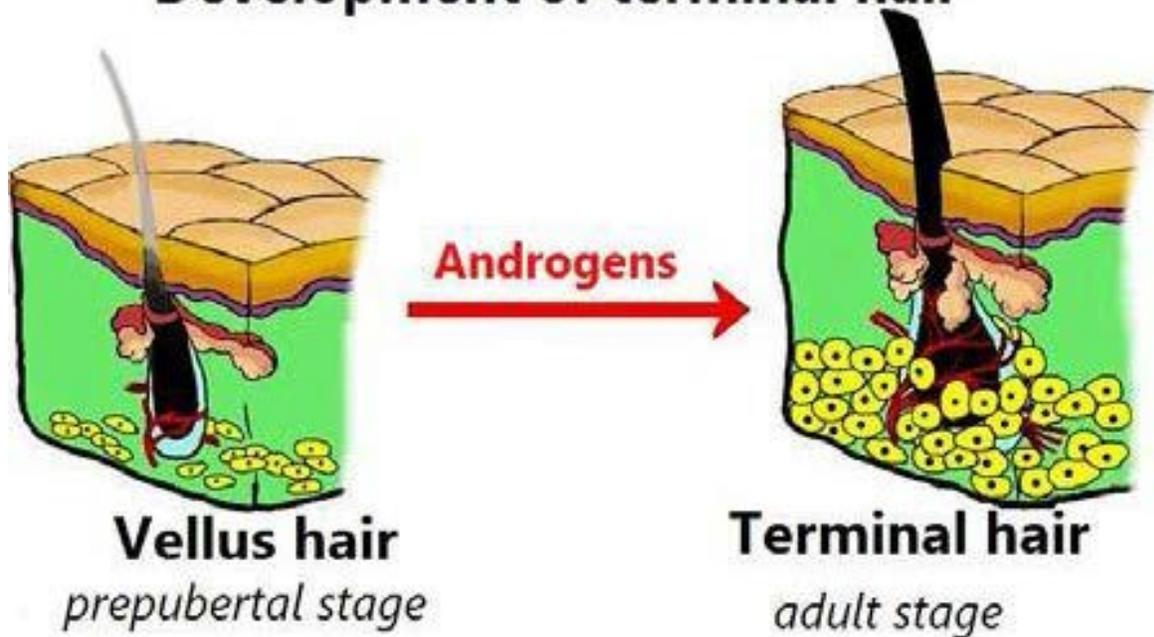
US TRICHOLOGY INSTITUTE



## Chapter - Hair Structure, Physiology & Chemistry

There are two types of hair – vellus and terminal. Vellus is short, fine, light-colored, and barely noticeable thin hair that develops on most of a person's body during childhood. Vellus hair grows individually or in small patches of varying, and sometimes irregular, length (2–4 cm). Terminal hairs are thick, long, and dark. During puberty, the increase in androgenic hormone levels causes vellus hair to be replaced with terminal hair in certain parts of the human body.

### Development of terminal hair



## Chapter - Hair Texture

Hair exists in a variety of textures - the curl pattern, volume, and consistency. There are several theories pertaining to the curl patterns of hair. Curly hair textures have a definite “S” shaped curl pattern. The Andre Walker System is a common system used to classify curl patterns.

Type 1: Straight Hair

Type 2: Wavy Hair

Type 3: Curly Hair

Type 4: Kinky Hair

Fine hair has a small circumference; coarse hair has the largest circumference. Fine hair strands have a thin, smooth consistency, whereas coarse hair possesses a harder, wiry consistency. Medium hair strands are neither fine nor coarse and fall in the middle of the two consistencies. Coarse hair has a more open cuticle, causing it to be the most porous.

Blonde hair has fewer and smaller pigment granules of pheomelanin. There are two pigments derived from melanin – eumelanin and pheomelanin. This makes blonde hair easier and quicker to lighten. The average person begins to gray at approximately 28-40 years of age. The absence of melanin is called Albinism.

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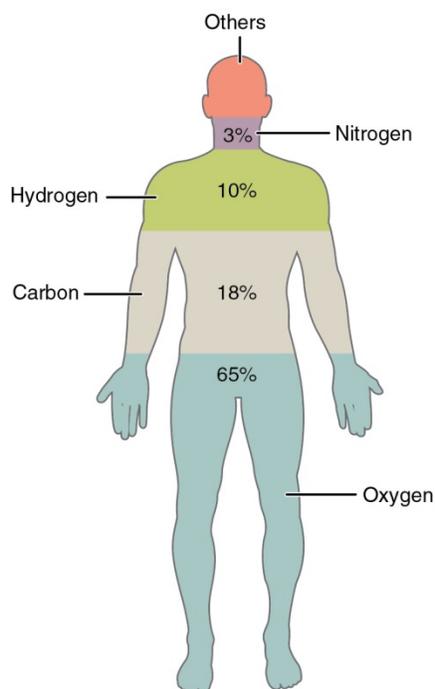




## Chapter - Atoms & Elements

At its most fundamental level, life is made up of matter. Matter occupies space and has mass. All matter is composed of elements, substances that cannot be broken down or transformed chemically into other substances. Each element is made of atoms, each with a constant number of protons and unique properties. A total of 118 elements have been defined; however, only 92 occur naturally, and fewer than 30 are found in living cells. Each element is designated by its chemical symbol (such as H, N, O, C, and Na), and possesses unique properties. These unique properties allow elements to combine and to bond with each other in specific ways. An atom is the smallest component of an element that retains all of the chemical properties of that element.

## Chapter - Amino Acids



Element	Symbol	Percentage in Body
Oxygen	O	65.0
Carbon	C	18.5
Hydrogen	H	9.5
Nitrogen	N	3.2
Calcium	Ca	1.5
Phosphorus	P	1.0
Potassium	K	0.4
Sulfur	S	0.3
Sodium	Na	0.2
Chlorine	Cl	0.2
Magnesium	Mg	0.1
Trace elements include boron (B), chromium (Cr), cobalt (Co), copper (Cu), fluorine (F), iodine (I), iron (Fe), manganese (Mn), molybdenum (Mo), selenium (Se), silicon (Si), tin (Sn), vanadium (V), and zinc (Zn).		less than 1.0

The average composition of normal hair is:

- 45.2 % carbon
- 27.9% oxygen
- 6.6% hydrogen
- 15.1% nitrogen
- 5.2% sulfur

The keratin found in hair is called "hard" keratin. **This type of keratin doesn't dissolve in water and is quite resilient.** So what is keratin made from? **Keratin** is an important, insoluble protein and it is **made from 18 amino acids**. The **most abundant** of these amino acids is **cystine** about **17.5 %**, which gives hair much of its strength.

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## Chapter - Human Biology: Body Systems and Cells

The term tissue describes a group of cells found together in the body. The cells within a tissue share a common embryonic origin. Microscopic observation reveals that the cells in a tissue share morphological features and are arranged in an orderly pattern that achieves the tissue's functions. From the evolutionary perspective, tissues appear in more complex organisms. For example, multicellular protists, ancient eukaryotes, do not have cells organized into tissues. Although there are many types of **cells in the human body**, they are **organized into four broad categories of tissues: epithelial, connective, muscle, and nervous**.

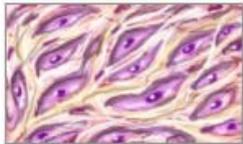
**Epithelial tissue**, also referred to as epithelium, refers to the sheets of cells that cover exterior surfaces of the body, lines internal cavities and passageways, and forms certain glands.

**Connective tissue**, as its name implies, binds the cells and organs of the body together and functions in the protection, support, and integration of all parts of the body.

**Muscle tissue** is excitable, responding to stimulation and contracting to provide movement, and occurs as three major types: skeletal (voluntary) muscle, smooth muscle, and cardiac muscle in the heart.

**Nervous tissue** is also excitable, allowing the propagation of electrochemical signals in the form of nerve impulses that communicate between different regions of the body.

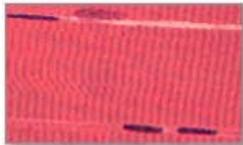
Four types of tissue



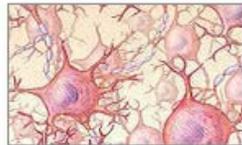
Connective tissue



Epithelial tissue



Muscle tissue



Nervous tissue

### Four Types of Tissue in the Body

1. connective
2. epithelial
3. nervous
4. muscle

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## Chapter - Nervous System

### Nervous System

#### The peripheral nervous system

- the part of the nervous system that consists of the nerves and ganglia on the outside of the brain and spinalcord

#### The Ganglion system

- a nerve cell cluster or a group of nerve cell bodies located in the autonomic nervous system

#### The central nervous system

- The central nervous system (CNS) controls most functions of the body and mind. It consists of two parts:the brain and the spinal cord. The brain is the center of our thoughts, the interpreter of our external environment, and the origin of control over body movement.

#### The glial cells

- surround neurons and provide support for and insulation between them. Glial cells are the most abundant cell types in the central nervous system. Types of glial cells include oligodendrocytes, astrocytes, ependymal cells, Schwann cells, microglia, and satellite cells.

#### Neurons

- specialized cells capable of conducting information in the form of neurotransmitters and are the basic building blocks of the nervous system

#### Nucleolus

- a small dense spherical structure in the nucleus of a cell during interphase

#### Cells

- basic structural and functional unit of any living thing including humans

#### Mitochondria

- Power House of the cell where ATP is created and it is a complex organelle that converts energy from food into a form the cell can use

### Three Main Parts of a Cell

11. Most cells have three main parts.

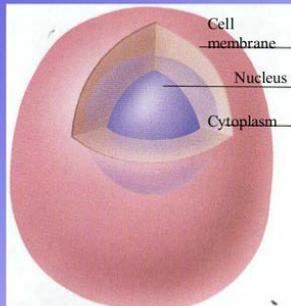
They are the

**-cell membrane**

**-cytoplasm**

**-nucleus**

12. Each of these main cell parts has a special and important job to do.



#### Nucleus

- the command center of a cell sending directions for the cell to grow mature divide and die

#### Three Main Parts of a Cell:

1. Cell Membrane
2. Cytoplasm
3. Nucleus

## Chapter - Digestive System

### Phases of Digestion

1. Ingestion
2. Movement
3. Mechanical and Chemical Digestion
4. Absorption
5. Elimination

### Types of Digestion

1. Mechanical
2. Chemical

### Makeup of the Digestive System

1. Mouth
2. Pharynx
3. Esophagus
4. Stomach
5. Small Intestine
6. Large Intestine
7. Rectum

### Functions:

- **Mouth-** Teeth mechanically breaks down food into small pieces. Tongue mixes food with saliva (contains amylase, which helps break down starch). Epiglottis is a flap-like structure at the back of the throat that closes over the trachea preventing food from entering it.
- **Esophagus-** Secretes mucus and moves food from the throat to the stomach using muscle movement called peristalsis.
- **Stomach-** Stores the food a person eats and breaks it down into tiny pieces. It also mixes food with digestive juices that contain enzymes to break down proteins and lipids.
- **Small Intestine-** Absorbs nutrients from the food into the bloodstream through the small intestine walls. It also secretes digestive enzymes.
- **Large Intestine-** Accepts what small intestines don't absorb, absorbs water, and concentrates wastes.

### The liver directly affects digestion by producing bile—

- Bile helps digest fat
- filters out toxins and waste including drugs and alcohol

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## Chapter - Endocrine System

### Ovaries — Women: Produce eggs

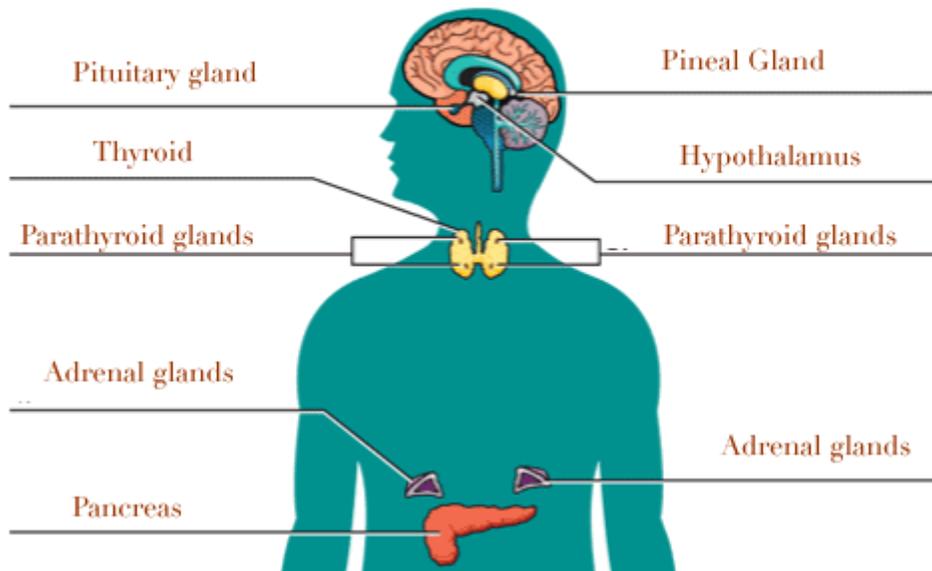
- Produce two groups of steroid hormones
  - Estrogens
  - Progesterone

### Testes — Men: Produce sperm

- Produce androgens, such as testosterone

Gland	Hormone	Chemical class	Representative actions	Regulated by	
Pancreas	 Insulin	Protein	Reduces blood glucose	Glucose level in blood	
	 Glucagon	Protein	Raises blood glucose	Glucose level in blood	
Gonads	• Testes	 Androgens	Steroids	Support sperm formation; development and maintenance of male secondary sex characteristics	FSH and LH
	Progesterone	Steroids	Promotes growth of uterine lining	FSH and LH	

## The Endocrine System




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## Chapter - Anatomy & Physiology of the Hair

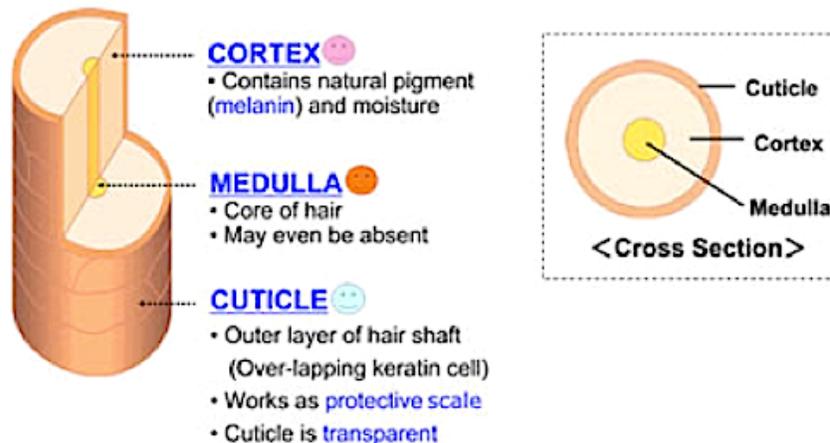
Hair is a collective term for thin thread like outgrowths of the top layer of the skin the epidermis. Hair is made of most a protein called Keratin.

Hair is a protein filament on the scalp that grows from the skin about 1.25 cm-1.75 / (.25 -.5 inches) a month or about 15 cm / 6 inches per year. That equals about .04 mm a day. Unlike other Mammals human hair growth and shedding is random and not seasonal or cyclical.

### Hair Shaft

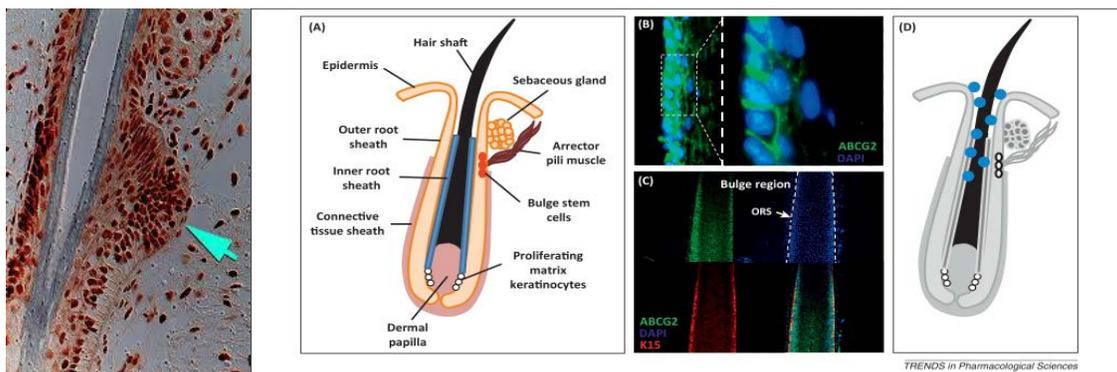
The hair shaft is made of a hard protein called keratin and is made in three layers. This protein is actually dead, so the hair that you see is not a living structure.

The **inner layer is the medulla**. The **second layer is the cortex** and the **outer layer is the cuticle**.



### Bulge - The

bulge is located in the outer root sheath at the insertion point of the arrector pili muscle. It houses several types of stem cells, which supply the entire hair follicle with new cells, and take part in healing the epidermis after a wound. The bulge is a specialized portion of the hair follicle. The bulge is responsible for regulating the hair growth cycle.



**Hair on the scalp grows about 1 cm / (.25 -.5 inches) or about 15 cm / 6 inches per year.**

Unlike other mammals human hair growth and shedding is random and not seasonal or cyclical. At any given time, a random number of hairs will be in one of three Main stages of growth and shedding: **Anagen**, **Catagen**, and **Telogen**:

## Chapter - Hair Growth Cycle

### Growth Phase

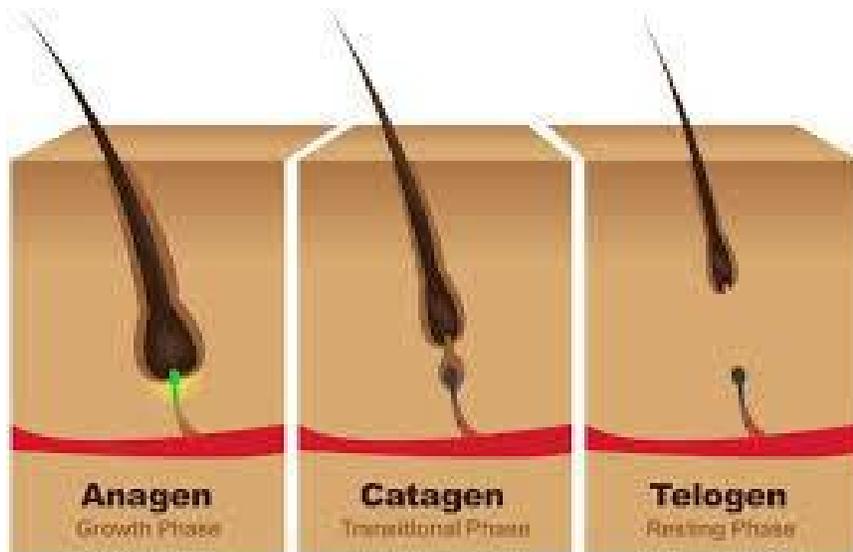
**Anagen is the active phase of the hair.** The cells in the root of the hair are dividing rapidly. A new hair is formed and pushes the club hair (a hair that has stopped growing or is no longer in the Anagen phase) up the follicle and eventually out. During this phase the hair grows about **1 cm every 28 days**. Scalp hair stays in this **active phase of growth for two to six years**

### Transitional Phase

The **Catagen** phase is a **transitional stage** and about **3% of all hairs** are in this phase at any time. This phase lasts for about **two to three weeks**. Growth stops and the **outer root sheath shrinks** and attaches to the root of the hair. This is the formation of **what is known as a club hair**.

### Resting Phase

**Telogen** is the resting phase and usually accounts for **6% to 8%** of all hairs. **This phase lasts for about 100 days for hairs on the scalp** and longer for hairs on the eyebrow, eyelash, arm, and leg. During this phase, the hair follicle is completely at rest and the club hair is completely formed. Pulling out a hair in this phase will reveal a solid, hard, dry, white material at the root. **About 25 to 100 telogen hairs are shed normally each day**



Hair Growth Cycle

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## Newly found Hair Growth cycles- Exogen and Kenogen hairs

Recent research suggests that the shedding process of a hair is not the same as the process usually referred to as telogen.

### Exogen Phase

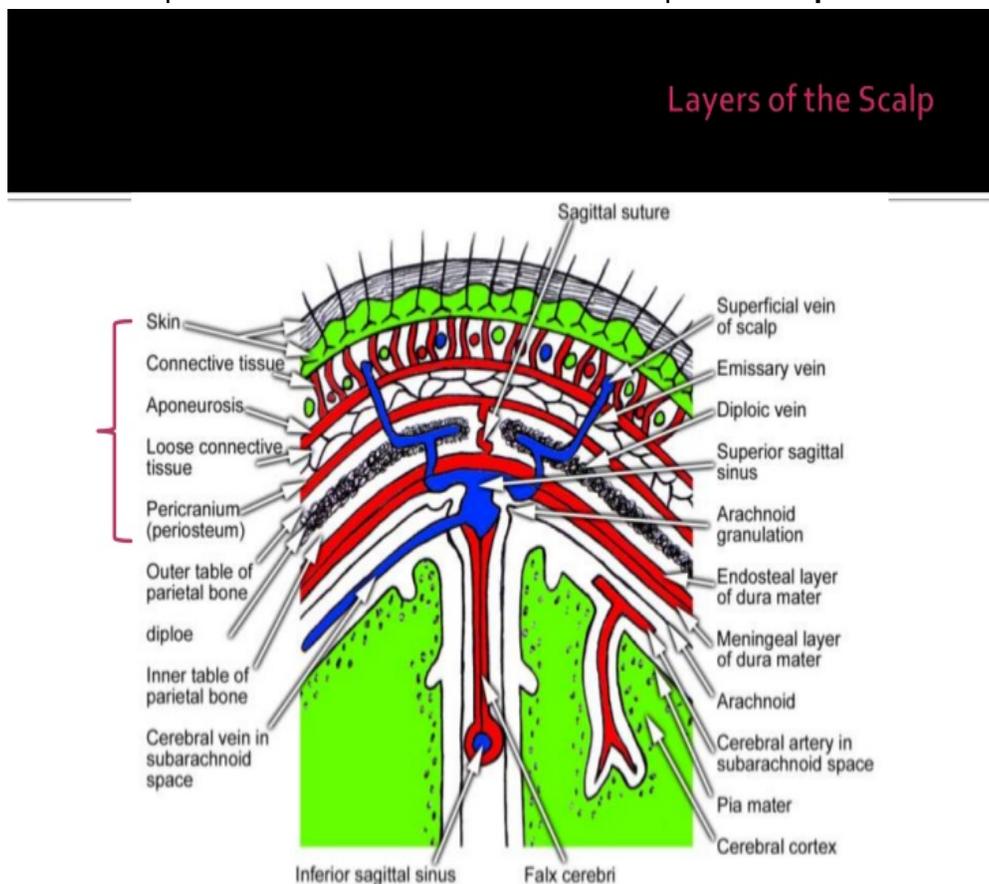
**Exogen differs from telogen** because unlike anagen and telogen hairs that are anchored to the follicle. **Exogen hairs are retained but not anchored to the follicle.**

### Kenogen Phase

**Kenogen** is the term given to the time between the shedding of a telogen hair and the beginning of a new anagen hair. During this time the follicle remains empty.

## **Chapter - Anatomy & Physiology of the Scalp**

The soft tissue envelope of the cranial vault is called the scalp. **The scalp consists of 5 layers.**



The **scalp** is a multilayered structure with layers that can be defined by the word itself:

- **S**-skin
- **C**-connective tissue (dense)
- **A**-aponeurotic layer (galea aponeurotica)
- **L**-loose connective tissue
- **P**-pericranium



## Chapter - Nutrition, Health, & Wellness

### Amino Acids

1. A single protein can be made up of 20 different amino acids.
2. All proteins share a common structure but differ in shape and size and electrical charge; each protein contains a specific number of amino acids linked in a specific order.
3. Two types of amino acids: Essential and Nonessential

Essential amino acids: Cannot be made by the body and therefore must be obtained from food consumption, often in the form of animal protein. **They are synthesized by plants or bacteria. Food containing these amino acids are “essential” for human growth and must be a part of the diet.**

### Eight essential Amino acids are:

- Lysine
- Tryptophan
- Valine
- Phenylalanine
- Isoleucine
- Leucine
- Methionine
- Histidine

### Twelve non-essential Amino acids are:

- Alanine
- Arginine
- Aspartic acid
- Cysteine
- Glutamic acid
- Glutamine
- Glycine
- Proline
- Serine
- Tyrosine
- Asparagine
- Selenocysteine

### Protein

Protein is the **building block of hair**. A proper amount of protein is vital for healthy hair growth. Ideal proteins are fish such as salmon, sardines and mackerel that are packed with a high amount of omega-3 fatty acids as well as vitamin b12 and iron and protein. The body can't make these facts and these fat also help the shine of your hair. Other seafood items such as calms provide zinc, selenium iron copper and number of B vitamins. Oysters are even better they provide 14 times the amount of zinc more selenium and about the same amount of other vitamins. Zinc helps cells in the hair build and become harder which in turn will keep your hair looking fuller. Eggs are another excellent source not only of protein but vitamin b12 and biotin also key for your hair. Biotin helps strengthen your hair and helps hair growth. And eggs are one of the cheapest proteins available.

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## **Chapter - Advanced Scoping & Checkups of Hair & Scalp**

### **The Scoping Process**

When you **are scoping someone in your initial consultation, there are a number of goals and you should have.** To start, you need to give yourself a good overview and understanding of the customer's hair loss. If possible, identify the type of hair loss - whether that be Androgenetic Alopecia, Alopecia Areata, Scarring Alopecia or whatever. Keep in mind there may be a combination of different types of hair loss present at the same time. Knowing a clients occupation can help you gain insight to environmental factors that may be contributing to their hair loss.

You'll do the scoping after you go through the questionnaire with the customer that will give you a good idea of which areas are most important to your customer and what areas bother them the most. Your goal is not only to see for yourself what's going on but to explain what is happening to your client. This should be done, if at all possible, on a large LED screen. If that is not available use a good size computer LED or laptop screen. **It is important for the customer to be able to see their hair and hair follicles very well during this process.**

As you go into each area, describe that area to the client. For example, "This is the crown area at your whorl. You can see how the hair goes in different directions in a circular pattern. Notice how these hair follicles are starting to cycle down or become smaller indicating you are having hair loss in this area because the hairs are smaller and fewer in number than the hairs around them. This appears to be in the pattern of androgenic alopecia or in other words, female pattern hair loss."

Continue your exam at the top of the head and in the frontal hairline as well as the temporal areas if they are involved. Take pictures as instructed, in a manner you can later replicate, as photos are essential to note progress. If the customer is confident that you are comparing the same areas during check ups they will be more compliant. Use a tape measure to measure from the tip of their nose, straight up or at a right angle. This can also be done by using the glasses that are part of the HairCheck device which has numerals on it to mark a specific area so it is the same each time.

Take digital pictures of the:

- a) Crown - C
- b) Top from the back (ask client to put their chin in the air to tilt the head back) – T
- c) Front – F
- d) Right Side – R
- e) Left Side – L

**Save these pictures in a patient folder by labeling them in the following format: a) Year – Month – Date – Area of scalp (see initials above) – Client's Initials ex –Joe Smith, top of head, July 20, 2014 = 140720tjs**

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## Chapter - Less Common Hair Loss Problems



**Trichotillomania** also known as **trichotillosis** or **hair pulling disorder** is a **self-induced plucking or breakage of hair**. It is often chronic and can be categorized as a behavioral or mental disorder. Treatment may be difficult as it is often done subconsciously which may require behavior modification or referrals to psychologists or psychiatrists. Hair loss treatment may be effective to help regrow these areas of loss but it is not a permanent solution. If the source of the anxiety is not identified and treated the behavior will

continue and may lead to permanent hair loss.

**Hirsutism** is a condition of **excessive hair or hairiness on women**. This unwanted male pattern hair growth is **caused by excess male hormones** called androgens, primarily testosterone. This hair is often stiff and pigmented and shows up where men normally grow hair, there face, chest and back. Since people with Hirsutism have higher levels of these androgens, they can also ironically suffer from hair loss on their head while have the excess hair elsewhere. **Symptoms:** Hirsutism often runs in families. It can also have several other signs including, a deepened voice, balding, acne, and a decrease in breast size.



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## Frontal Fibrosing Alopecia

**Usually found in post-menopausal women 50 or older, it may be associated with and classified as a type of lichen planopilaris.** It is a lymphocytic Cicatricial Alopecia but with a distinct frontal and temporal progression. It presents as scarring alopecia along the frontal hairline and temporal areas with shiny skin, inflammation may be found along the edges and loss of eyebrows is noted in some women. Female Pattern Loss may also be present.

Postmenopausal frontal fibrosing alopecia is female hair loss occurring in more than one pattern. It typically begins after 65 with unknown causes but is thought to be related to have an immune response disturbed and of hormonal issues. It may also have the presence of cutaneous and/or mucous membrane lichen planus in patients.

**Clinically, look for:** Frontal hair line thinning and temporal areas; Early stage of FFA can have single or small tufts of hair; Often, patients feel an itchiness.

## Lichen Planopilaris

**It is a type of scarring, permanent hair loss affecting people who have lichen planus.**

**Lichen planopilaris refers to areas of hair producing follicles** which may also include facial hair, eyebrows, or hair on other parts of the body. It is not contagious but the cause is unknown. It is considered an auto immune disease often involving a type of white blood cell called T-lymphocytes. Related diseases include Frontal Fibrosing alopecia and Graham Little Syndrome (Piccardi-Lasseur-Graham Little Syndrome).

## Chapter - Scalp Disorders

**Psoriasis** is thought to be an immune system problem. Triggers include infections, stress, and cold. The most common symptom is a rash on the skin, but sometimes the rash involves the nails or joints.

**Seborrheic dermatitis**, also known as dandruff among others, is a chronic, relapsing and usually mild dermatitis. In infants seborrheic dermatitis is called cradle cap. Seborrheic dermatitis is an inflammatory skin disorder affecting the scalp, face, and torso.

**Pityriasis Capitis (Dandruff)** is the non-inflammatory scalp condition of excessive flaking of dead skin that forms on the scalp, eyebrows, forehead and elsewhere on the body. This represents as an exfoliation of the Stratum Corneum (outer layer of the epidermal layer). These can look white or gray in color and be localized or all over the scalp.

**Tinea Capitis (ringworm)** is a disease caused by a superficial fungal infection of the skin on the scalp, eyebrows and eyelashes and nails. It has a great propensity for attaching the hair follicles.

Dermatitis, eczema, dandruff and Seborrhea dermatitis are all disorders that may contribute to hair loss. Hypoactive Thyroid, Diabetes and Anemia are diseases that contribute to hair loss. As a result of hypothyroidism, the body's metabolism may slow down.

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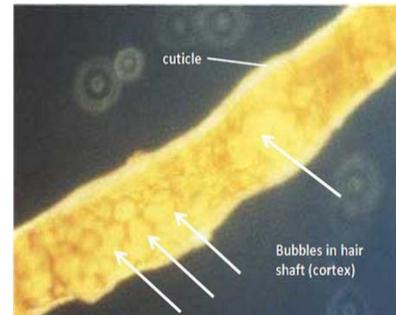
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## Chapter - Hair Shaft & Fiber Problems

**Bubble hair** is a hair shaft deformity most often associated with thermal hair dressing services. Blow-drying to hot, Hot irons, relaxing, coloring and decoloring, perming, or excessive chemical use often to trigger it. When water is heated up into steam (essentially air) can get trapped inside the hair as a bubble. More technically it's a rapid vaporization of the water in the hair shaft. Remember that water forms steam at around 100 degrees C (212 F). Most heating tools go well above this temperature. Bubble hair feels rough and lumpy, tends to be very brittle too. Microscopic exams on bubble hair show that the cortex of the hair is damaged and the bubble actually is an air bubble. The higher the heat the more likely the damage. Very little can be done to repair this type of damage other than cutting it out.



### Trichothiodystrophy (TTD, Tay syndrome)

TTD is a recessive disease that is passed by a faulty gene that is carried by both parents. It is characterized by sulphur-deficient hair that becomes very brittle. Patients often have trouble gaining weight. It's rare - about 1 in a million people have it. Hair becomes short and sparse looking and often splits longitudinally in little fibers that are dry. The skin on the scalp can look fishlike scales. 75% of patients report photo (light) sensitivity. There is no cure. It is suggested that patients stay away from sunlight and supplement with Cytosine per their physician.

### Woolly Hair and Woolly Hair Nevus

Woolly, also called frizzy, hair is simply very tightly coiled hair fibers. It usually has normal strength and durability with a healthy cuticle. Woolly Hair Nevus is a congenital condition in which hair in a certain part of parts of the scalp is kinked or woolly. Woolly hair can be difficult to grow long. This may be due to a shortened anagen phase. The tight coiling may create stresses in the hair fiber that may weaken it and lead to more fragile and breakable hair. It is frequently seen on the scalps of people of African origin, and most often in children.



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## **Chapter - Drug & Medicine Related Hair Loss**

### **Types of drugs that may cause hair loss:**

High blood pressure	Blood thinners	Hormones
Antidepressants	Cholesterol lowering drugs	Mood stabilizers
Thyroid medications	Acne	Antibiotics and Antifungal
Weight loss	Immune suppressant	Anticonvulsants
Anti-inflammatory (NSAIDS)	Steroids	Ulcer
Chemotherapy	Gout	Parkinson's disease

There are over 100 drugs that may contribute to hair loss, above are just a select few.

## **Chapter - Setting up & Operating a Hair Loss Center or Trichology Business**

**Stand-alone Centers:** The advantage of a stand-alone Trichology or hair loss clinic is that people clearly know what you are and when they come in, they know that you're dedicated to treating hair loss. This certainly helps your look of professionalism and your reputation. It allows you to advertise this location solely for Trichology and hair loss.

In a stand-alone clinic, you look more professional, so outside people are more likely to give you referrals. If you're just a hair loss clinic, salons feel more comfortable referring to you.

**Setting up in a salon:** There can be many advantages setting up in a salon. You will have built in possible referrals from the other stylists in the salon at first it may take a while to get them to refer people to you until they see some people growing hair but once they do there's a good chance you can get referrals as long as they're comfortable you will not be stealing their clients for their other services.

**Spa:** Setting your business up inside a spa is a very good option. Spas often have rooms that are rented out, typically for around \$200 a week.

You'll need a good scope or Capillascope. You may be able to start with a smaller, less efficient, cheaper scope but you should plan on ultimately moving up to a scope which has a fixed 50x and 200x lens.

## **Chapter - Marketing Your Hair Loss Center**

### **Advertising**

**Use Facebook** – post any of your clients that let you even as they are starting the process it gets others excited .

Use videos if you can right from your phone.

Use the internet- We get 80% of our leads and sales from our internet site and now use the internet for 90% of our clinic advertising.

A website is NOT advertising- **Google Adwords is a way to reach just the people who are looking for hair loss treatment or laser hair loss treatment in your area.**

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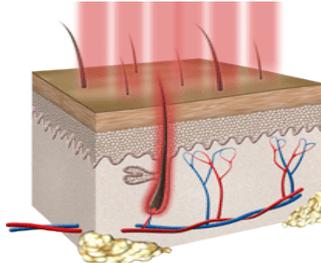
## Chapter - Comprehensive Guide to Advanced Hair Loss Solutions

**Hair Transplant – Costly** and client may not be a candidate. Transplant may not take properly. Transplant will replace hair in one area, but hair loss is progressive and will continue to recede. This means often client will have to have more than one transplant. Can only be performed by a Doctor.

**Hair System – Costly.** Long term expense. Does nothing to Regrow Natural Hair. In fact, destroys hair follicles further and causes permanent loss. May not look “Natural”. May not be able to participate in Normal activities.

**Scalp Treatments -** Scalp massage, Herbal ointments, Deep Conditioning treatments, Infrared light treatments. Have minimal effect on stopping hair loss and Regrowing hair.

**Volumizing Products -** Basic scalp cleaners and shampoos and “Fuller, Thicker products” give the Appearance of thicker, fuller hair, but DO NOT Regrow Hair. Many contain Sulfates which increase inflammation and cause additional Hair Loss. Studies show sulfates and DEA’s may cause Cancer.



LLLT at work

LLLT is defined as “a cool laser that effectively stimulates the scalp area and causes an increase in blood flow called Photo-bio-stimulation”.

**Photobiostimulation (PBS)** is the biochemical, non-thermal effect that results from the exposure of living tissue to various dosage of energy at varying wavelengths emitted from low level lasers.

### 5 distinct Effects Known to Occur:

I. **ATP**

An increase in ATP (Adenosine Triphosphate) and protein synthesis, causing an increase in osmotic cellular function

II. **Cell Growth**

Improved cell proliferation

III. **Protein Growth**

Increase in protein synthesis, causing a change in cell membrane permeability

IV. **Circulation**

Increased blood circulation by 54% after only one treatment, providing a supply of nutrients to the hair follicle

V. **Capillaries**

Clinically proven to increase the size of the capillaries under the hair follicle

(11) Laser Hair Loss Treatment Devices have now been cleared (approved) by the FDA to promote hair growth. This includes devices and studies for both men and women with 93%-100% growth.

Salon Devices generally offer 120-185 Red Light Diodes.

In-salon Sessions is suggested twice a week for 30 minutes with the ability to offer an additional third time a week if needed.

Think of Red Light Sessions like body building. For the best results, it is suggested to work out one muscle group one day, and the next another, as to not over use. After a workout, the muscle needs time to relax and build. Same holds true with Red Light Sessions. A client should use it one day, and the next day allowing rest.

**An Excellent Scalp Cleaner should be able to do the following:**

- promotes excellent scalp hygiene.
- Aids in the penetration of Minoxidil or other topicals.
- Contains a strong concentration of B vitamins, particularly B5, which is essential for healthy hair.
- Dissolves sebum and flakes (dandruff). Sebum can block the penetration of Minoxidil and other topicals which need to reach the derma papilla to work.
- Increases the permeability of the scalp.

**Shampoos- What to Look For**

- **Nizoral®(2% Ketoconazole shampoos)- with 2% Ketoconazole good for:**
  - Anti fungal conditions like pityriasis versicolor – kills fungi such as Malassezia)
  - Yeast issues like Pityrosporum
  - anti-inflammatory effects - Seborrheic dermatitis, etc
  - Coal tar shampoos -which can have anti-inflammatory effects useful in many scalp disorders like Pruritus (itch), Psoriasis, Seborrheic dermatitis, etc.
- **Selenium sulfide Shampoos like Selsun Blue**
- **Pyrrithione Zinc shampoos – like Noble Formula Zinc Shampoo - 2% Pyrrithione Zinc**
- **Hints: Make sure your clients leave it in place a least 5 minutes often 10 minutes is better.**

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Observations	
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