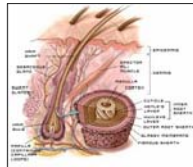
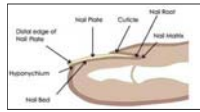


Dermatology Lectures:
Hair & Nails

Dr Rakesh Patalay
Department of Dermatology



Objectives

- Hair Function
- Structure of hair
- How does it grow
- Pathology of Hair
- Nail Function
- Nail Structure
- Pathology of the Nail

Hair



Function of Hair

- Protection
- Sensation
- Thermoregulation
- Communication

Physiological



719

FREE MAGAZINE!

NUTRICE

Gail Porter

Hair ?

What is hair ?

- Protein (Keratin) product of the hair follicle (mini-organ)

Where can it be found ?

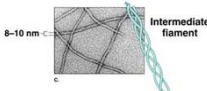
- Everywhere except mucous membranes, palm/soles
- Only 5% on the scalp

When does hair growth begin ?

- 3rd Trimester in utero

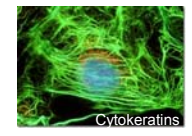
Intermediate Filaments Family of proteins

- Type I-V + Other



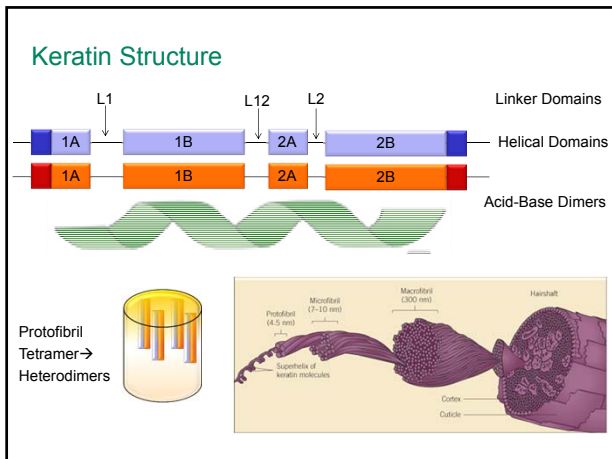
8-10 nm

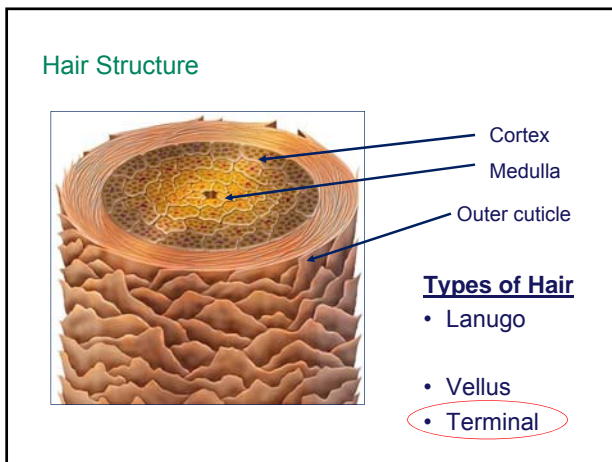
Intermediate filament

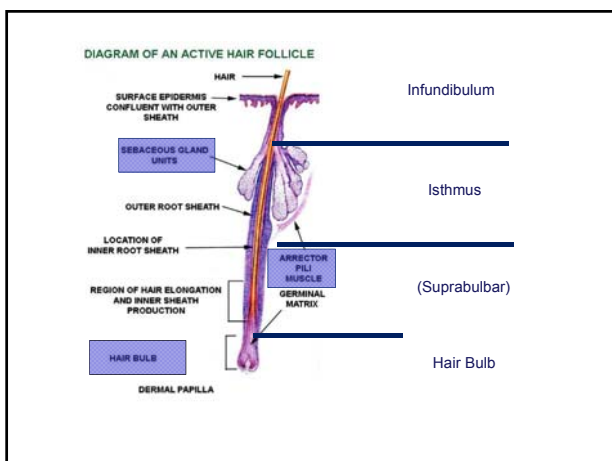


Cyokeratins or hair keratins

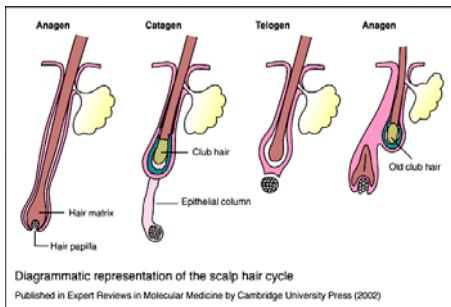
<ul style="list-style-type: none">• Type I (Keratin) 37%- Acidic Keratins- Hair Keratins(KRTHA1-A8)- Chromosome 17	<ul style="list-style-type: none">• Type II (Keratin) 39%- Basic Keratins- Hair Keratins (Hb1-6)- Chromosome 12
---	--



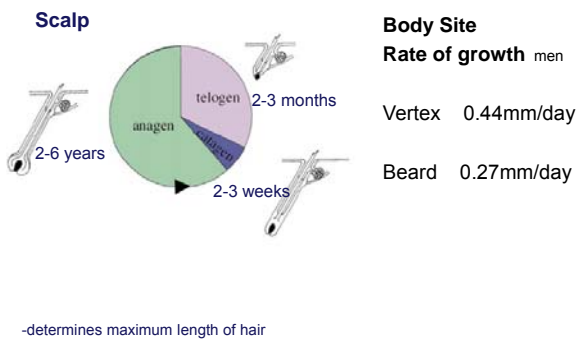




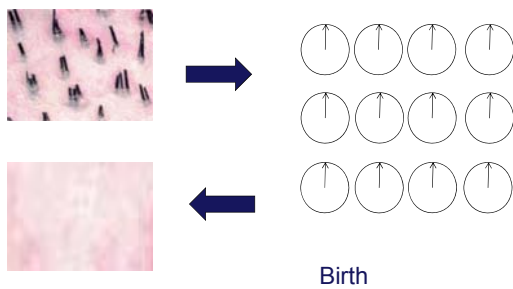
Hair Growth : The Hair Cycle



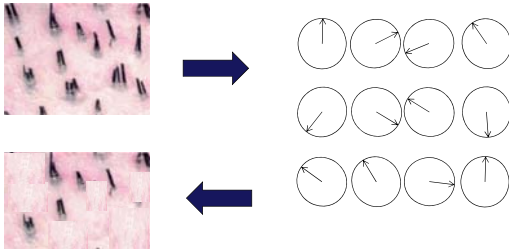
Hair Growth : The Hair Cycle



Synchronicity



Synchronicity



Post Birth

Prolonged anagen post partum

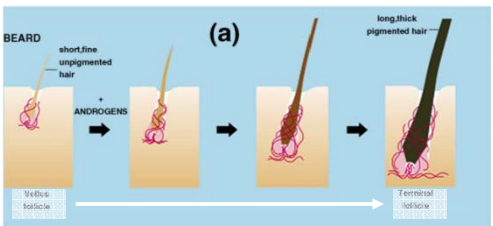
External Influences : Telogen Effluvium



- Premature termination of anogen → Telogen
- Diffuse Hair Loss
- Causes
- Regrowth over 3-6 months

Testosterone Paradox

- Androgens
- Speed of onset



BEARD

short, fine unpigmented hair

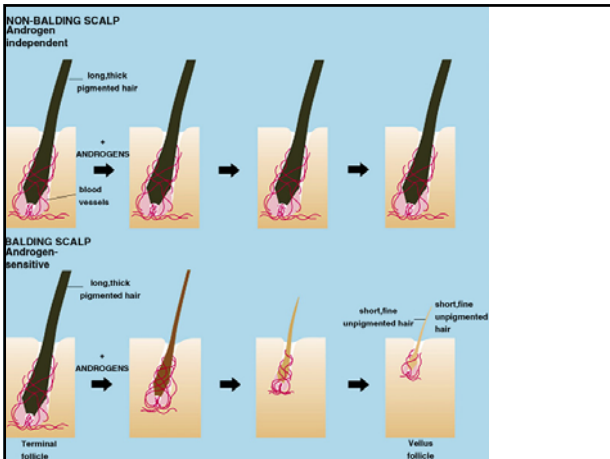
ANDROGENS

(a)

long, thick pigmented hair

Vellus follicle

Terminal follicle



Androgenic Alopecia

Hamilton-Norwood classification

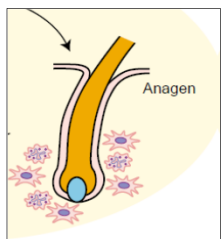
- Androgen Sensitive
- 50% men over 50y
- >80% men over 70y
- Polygenic
- Treat with
 - 5^α reductase inhibitors/minoxidil

Androgenic Alopecia

Ludwig Scale

Androgenetic Alopecia in Women

Pathology: Autoimmune Alopecia Areata



Immune privileged status of anagen hair breaks down

Pathology : Infection/Inflammation

Most common pathology of hair follicle



Nails



Function

- Protection (weapon)
 - Chemical, physical
- Touch
 - Manual dexterity
- Communication - socially

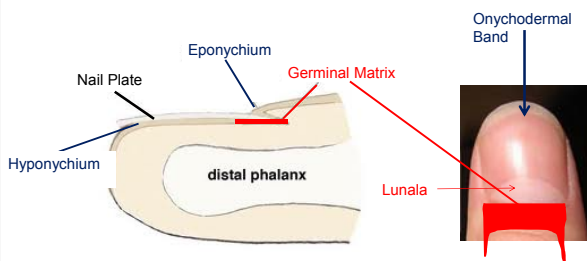


Structure

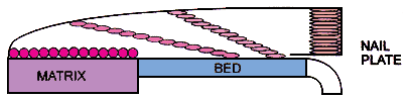
- Mostly hard "hair" keratin
- calcium
- Strong
 - Longitudinal Ridging
 - Curvature



Nail Anatomy



Growth of the Nail Plate



- Nail surface is produced by proximal nail bed
- Estimate site of nail matrix pathology
- Complex interactions for normal growth & pathology

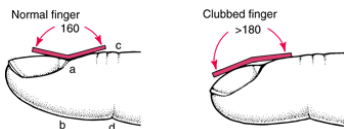
Growth Rate

Finger Nails -3mm per month (0.1mm/day)
 Toe Nails -1mm per month
 continues up to 1 week post mortem

Nails in Systemic Disease



Clubbing



CAUSES OF CLUBBING:	
1.	Pulmonary
	- Bronchial Carcinoma
	- Fibrosing alveolitis
	- Chronic suppurative lung diseases
	- emphysema
	- silicosis
	- bronchiectasis
	- cystic fibrosis
	- Mesothelioma
2.	Cardiac
	- Congenital cyanotic heart diseases
	- Endocarditis
	- Atrial myxoma
3.	Gastrointestinal
	- Cirrhosis
	- IBD (Crohn's / Ulcerative colitis)
	- Celiac disease
	- GI lymphoma
4.	Others
	- Familial
	- Thyroid acropachy
5.	Unilateral
	- Axiillary artery aneurysm
	- Brachial arterio-venous malformation

Nails in Systemic Disease



Beau's Lines – systemic illness



Koilonychia (spoon shaped nails)
 inherited, anaemia, hyperthyroid, drugs



Pitting



Onycholysis



Salmon Spots

1/3 patients

Psoriasis

Nail Pigmentation



Melanonychia Striata

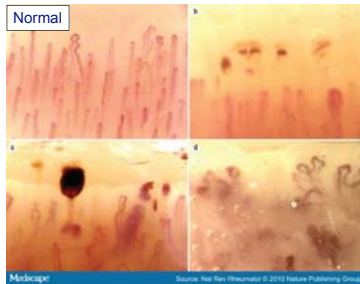
vs

Melanoma



Nail in Systemic Disease

- Videocapillaroscopy



- Systemic Sclerosis

- Giant capillaries
- microhaemorrhages

Further Applications

- Drug Monitoring/Diagnosis

- Cystic Fibrosis (chlorine)
- Prescribed drug compliance
- Illicit drug intake (cocaine, amphetamines)
- Environmental exposure (heavy metals, nickel)
