Skin Structure & Function

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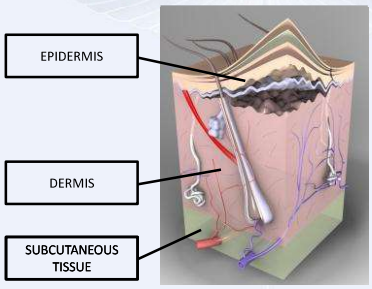
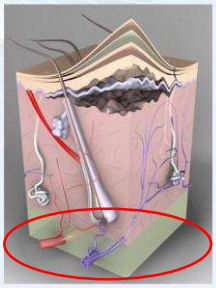


Skin Structure & Function

SUBCUTANEOUS TISSUE

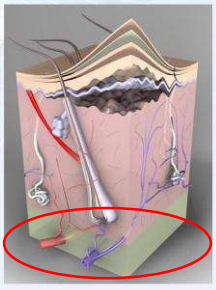
- Essentially the "fatty tissue" beneath the skin.
- Contains the blood vessels and nerves.
  - Cutting into this layer carries the risk of damaging these blood vessels and nerves.



Skin Structure & Function

SUBCUTANEOUS TISSUE

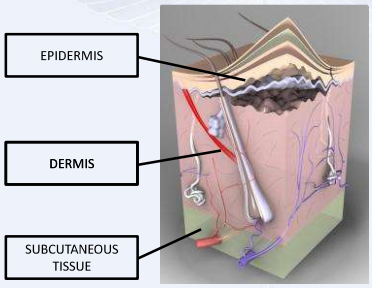
- Loses volume as we grow older.
  - This loss of volume contributes to the bruising ("Solar Purpura") commonly seen on elderly patients' forearms and hands.



Did You Know…

Sensory nerves damaged during deep excision into the subcutaneous tissue *can* regenerate. Provided damage isn't severe and regeneration is possible, nerves heal at a rate of about 1 mm/day.

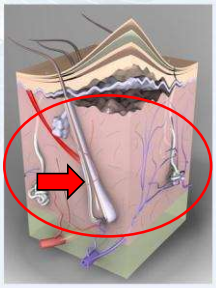
Skin Structure & Function



Skin Structure & Function

DERMIS

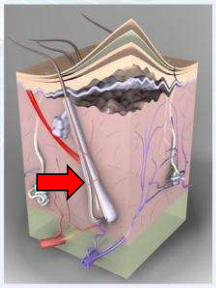
HAIR FOLLICLES
- *Phases* of Hair Growth
  - Anagen (Growth Phase)
    - >85% of hairs in anagen.
    - Lasts for years.



Skin Structure & Function

DERMIS

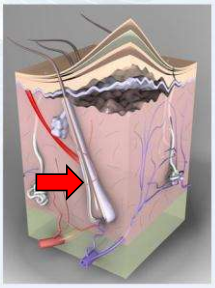
HAIR FOLLICLES
- *Phases* of Hair Growth
  - Catagen (Regression Phase)
    - ~1-2% of hairs in catagen.
    - Lasts for a few weeks.



Skin Structure & Function

DERMIS

HAIR FOLLICLES
- *Phases* of Hair Growth
  - Telogen (Dormant Phase)
    - 10-15% of hairs in telogen.
    - Lasts for several months.
    - ***Telogen Effluvium*** results from too many hairs prematurely entering this phase (and subsequently shedding).



Did You Know…

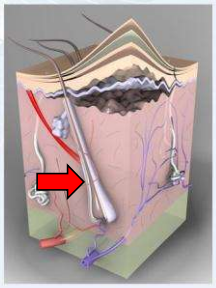
The average person has about 100,000 hairs on their scalp.

Did You Know…

The typical rate of hair growth for healthy adults is about ½ inch per month.

Skin Structure & Function

DERMIS



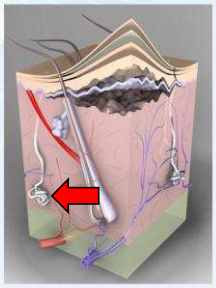
HAIR FOLLICLES
- *Types* of Hair Growth
  - Terminal Hair
    - Long, thick, dark hair (e.g., scalp, pubic, axillary regions).
  - Vellus Hair
    - Very fine, light-colored hair.
    - Think "peach fuzz".

Did You Know…

On average, we normally shed about 100 hairs/day.

Skin Structure & Function

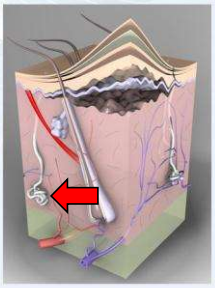
DERMIS



SWEAT GLANDS
- Apocrine Glands
  - Found primarily within the axillary, genital, and anal regions of the body.
  - Most associated with body odor.
  - Their true function remains a mystery.
    - "Hidradenitis" causes chronic inflammation of these glands.

Skin Structure & Function

DERMIS



SWEAT GLANDS
- Eccrine Glands
  - Found throughout virtually all skin surfaces.
  - Essentially odorless.
  - Primary function is to help regulate body temperature.

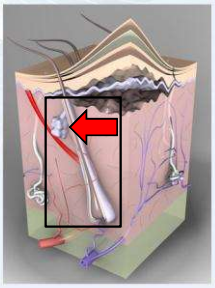
Did You Know…

What we perceive as body odor is the result of bacteria interacting with sweat and epidermal skin cells. Most perspiration *is not* inherently odorous. Instead, it simply serves as a catalyst for the bacterial interaction which causes the body odor.

The clinical diagnosis of body odor is *Bromhidrosis*. Controlling the catalyst (perspiration) through the use of antiperspirants can help. However, so can antibiotics. It's not uncommon for dermatologists to prescribe topical products such as Clindamycin Lotion to help control excessive body odor.

Skin Structure & Function

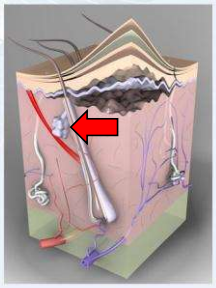
DERMIS



SEBACEOUS GLANDS
- The "oil" glands.
- Produce "sebum".
- Connected to the hair follicles.
  - Together, referred to as the "pilosebaceous unit".
  - Because of this connection, hair follicle inflammation and acne look very similar.

Skin Structure & Function

DERMIS

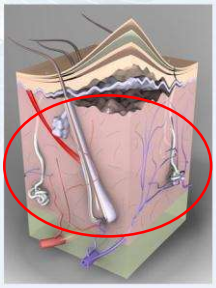


SEBACEOUS GLANDS

- Hormonally sensitive.
  - Genetics, location on body, and age all play a role.
  - Typical "teenage" acne occurs throughout the face, chest, and back.
  - Adult females tend to breakout on lower cheeks and upper neck.

Skin Structure & Function

DERMIS

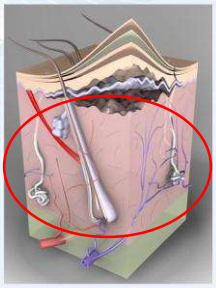


COLLAGEN & ELASTIN

- Collagen
  - Protein fibers which provide *strength*.
  - Helps skin to resist tearing.
    - Skin which is *lacking* in healthy collagen easily tears and bruises.

Skin Structure & Function

DERMIS



COLLAGEN & ELASTIN

- Elastin
  - Protein fibers which allow the skin to stretch but then return to position.

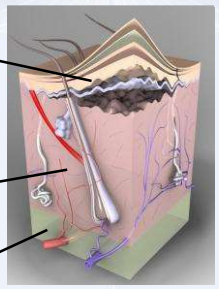
AGED AND SUN-DAMAGED ELASTIN = RHYTIDS!!

Skin Structure & Function

EPIDERMIS

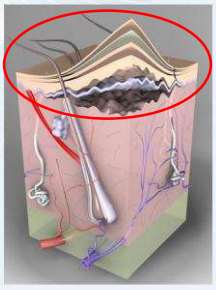
DERMIS

SUBCUTANEOUS TISSUE



Skin Structure & Function

EPIDERMIS

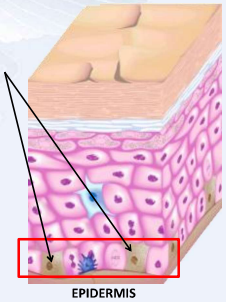


- Where skin cells are produced and developed.
- Divided into layers.
- Home to a few very important types of skin cells-
  - Keratinocytes
  - Melanocytes

Skin Structure & Function

Basal Layer

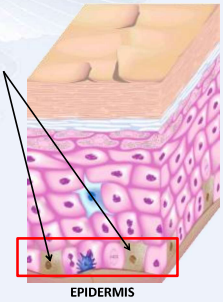
- *Melanocytes* found here.
  - Cells which provide pigment (color) to our skin.
    - "Melanin" is the name of that pigment.
  - Cancer of the melanocytes is called "melanoma".



Skin Structure & Function

Basal Layer

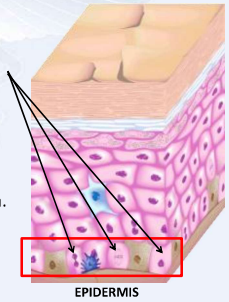
- *Melanocytes* found here.
  - Damaged or destroyed anytime the dermis is injured.
    - Excision, deep shave removal, or even deep cryosurgery always risks damaging the melanocytes and causing permanent hypopigmentation.
    - "Surface" procedures (skin tag removal, light cryosurgery, etc.) generally don't damage the melanocytes.



Skin Structure & Function

Basal Layer

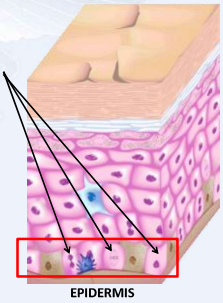
- *Keratinocytes* begin here.
  - Make up 95% of the epidermis.
  - They are what soaks up moisturizer when you apply it.
  - They are what shed when we rub our skin and bathe.
  - Form a barrier against infection.
  - Help our body to retain water.



Skin Structure & Function

Basal Layer

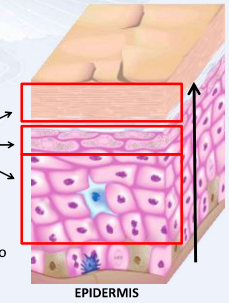
- *Keratinocytes* begin here.
  - The basal layer is where keratinocytes are born.
  - These earliest versions of epidermal skin cells are called *basal cell keratinocytes*.
  - Cancer of the basal cell keratinocytes is called "Basal Cell Carcinoma".



Skin Structure & Function

Beyond the Basal Layer

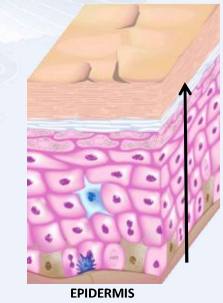
- *Keratinocytes* migrate upward, through the...
  - Stratum Spinosum
  - Stratum Granulosum
  - Stratum Corneum
- Protein ("keratin") increases in concentration as cells migrate upward.
  - Keratin increases their resilience to damage.
  - Eventually, cells die and shed off.



Skin Structure & Function

Beyond the Basal Layer

- The process of skin cell maturation is sometimes called "squamatization".
  - Cancer of keratinocytes outside of the basal layer (undergoing *squamatization)* is called "Squamous Cell Carcinoma".



Did You Know…

Skin cell "turnover" is the process in which epidermal skin cells are created in the lowest (basal) layer of epidermis, mature, migrate upward, and eventually slough. On average, this process typically takes about one month.

Did You Know…

Because it doesn't "turn over" like the epidermis, any pigment which makes its way to the dermis will be permanent. Tattoos are the most obvious example, but even longstanding Melasma, in which excess melanin has "leaked" into the upper dermis, can cause permanent (and unwanted) discoloration.

Did You Know…

Since Basal Cell Carcinomas (BCC) are comprised of cells which *haven't* undergone significant keratinization, they usually (but not always) tend to appear more fragile and prone to bleeding.

Since Squamous Cell Carcinomas (SCC) are comprised of cells undergoing "squamatization", they usually (but not always) tend to have a tougher, scalier appearance.

Skin Structure & Function

CONCLUSION