

نام دوست آرام بخش دلهاست



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“SKIN”

Integument System

Integument System

- Integument System
 - Organs
 - Skin
 - Hair
 - Nails
 - Glands

Integument System

- Functions
 - Protection
 - Abrasion
 - Infection
 - UV light
 - Dehydration
 - Thermal Regulation
 - Insulation (fat keeps you warm)
 - Cooling (sweating cools you down)
 - Sensory Reception
 - Vitamin D Production
 - Communication (raised eyebrows)

NOTE

Vitamin D is made in the dermis of the skin, after exposure to sunlight. It's function is to allow calcium to be absorbed from the foods you eat so your blood calcium levels are normal.

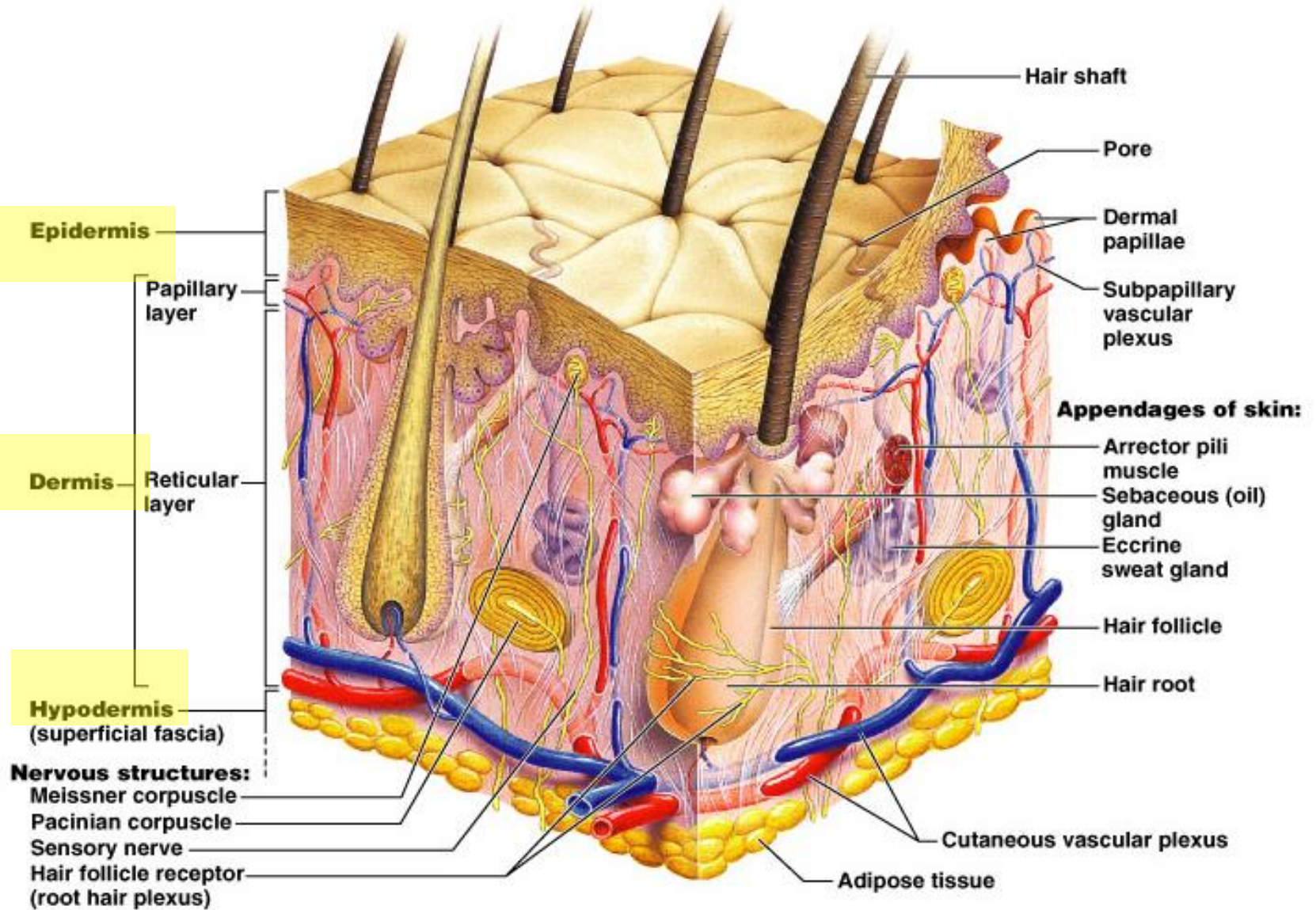
The Skin and the Hypodermis

Skin – our largest organ

- Accounts for 7% of body weight...it weighs twice as much as your brain!
- Divided into three distinct layers
 - Epidermis (“epi” means above something)
 - Dermis
 - Hypodermis (“hypo” means deep to something)

Remember, the term “SKIN” refers to all three layers: epidermis, dermis, and hypodermis.

Skin Structure





**YOU HAVE
20sq FEET
OF SKIN**

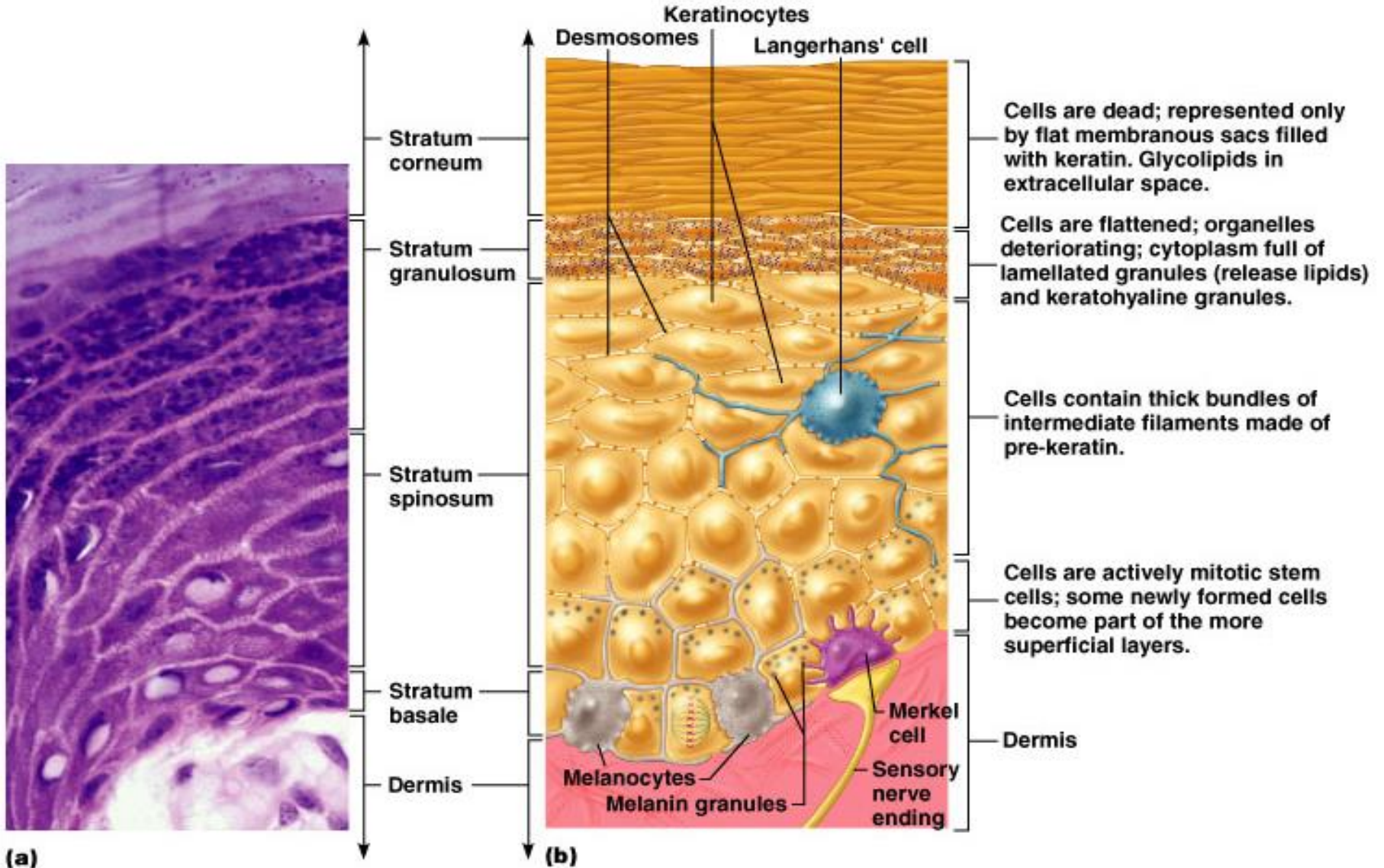
**SCIENCE
WORLD**

We can explain.

How to remember the layers of the epidermis

- The epidermis has five layers. From deep to superficial, they are the stratum basale, stratum spinosum, stratum granulosum, stratum lucidum, and stratum corneum.
- To remember which one is the deepest layer, visualize your basement. That is the stratum basale.
- To get from your basement (deepest layer) to the roof (superficial layer), walk up your basement stairs...be careful! They are covered with cactus spines (stratum spinosum).
- That leads you to the kitchen, where someone has spilled sugar all over the floor (stratum granulosum).
- Then you go upstairs and stop to put on suntan lotion before you go to the roof. The stratum lucidum is like a layer of suntan lotion; it protects from UV rays, but is only present on the palms and soles, so that's where you picture yourself applying the lotion.
- Now you are ready to go to the roof and enjoy a nice corn on the cob (stratum corneum).

Epidermal Cells and Layers of the

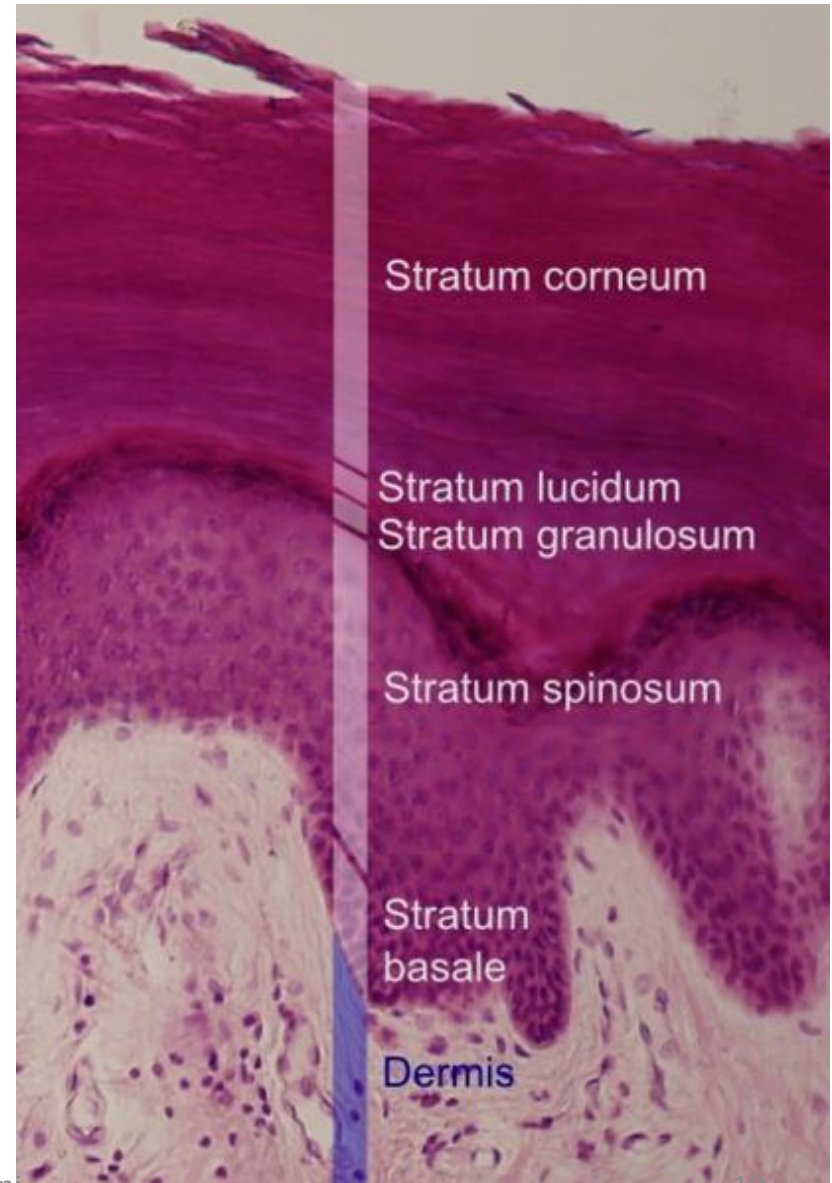


STRATUM LUCIDUM

This layer is only on the palms and soles

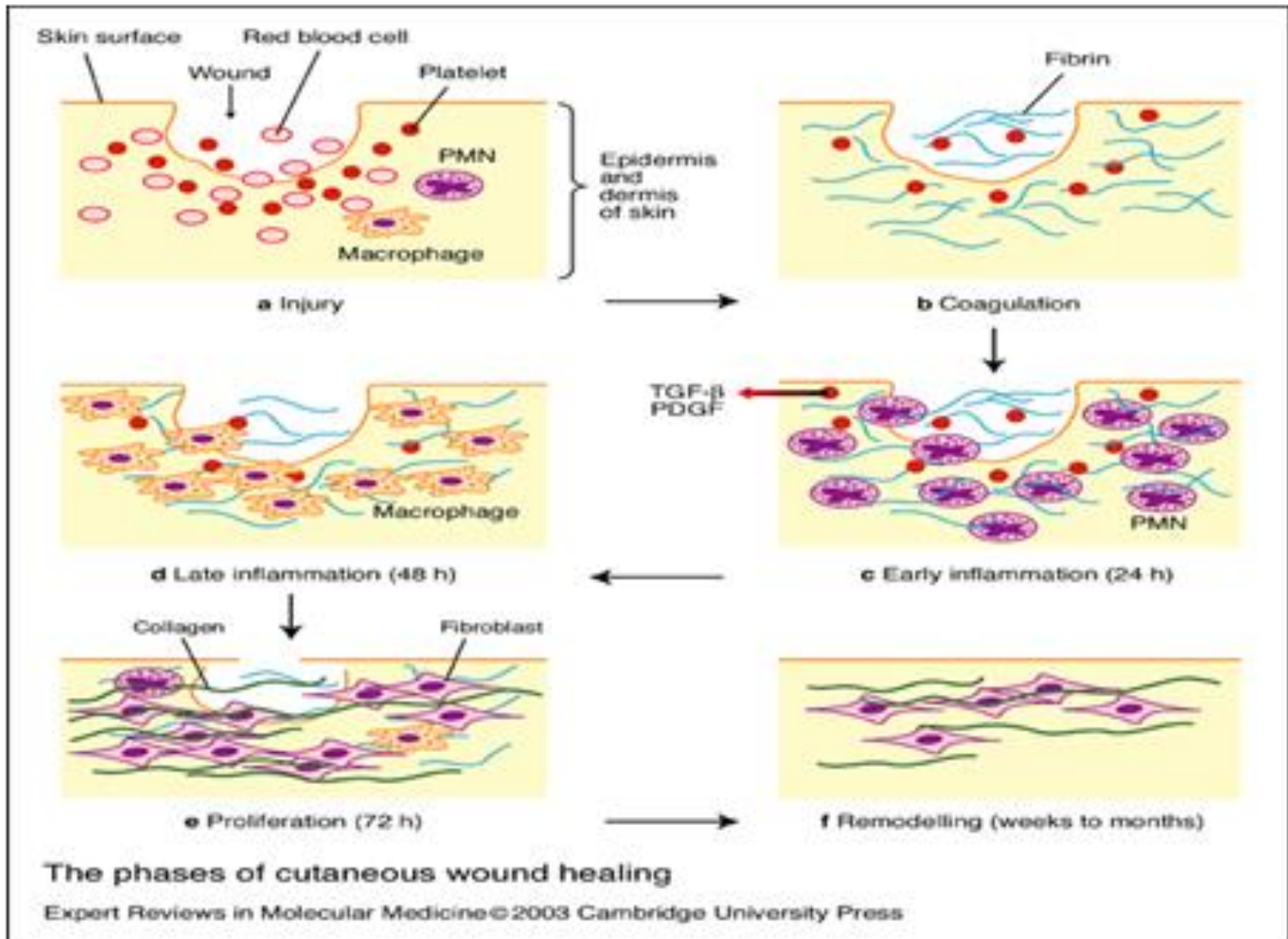
It is just deep to the S. corneum and superficial to the S. granulosum

This **THIN** layer provides protection from UV radiation.

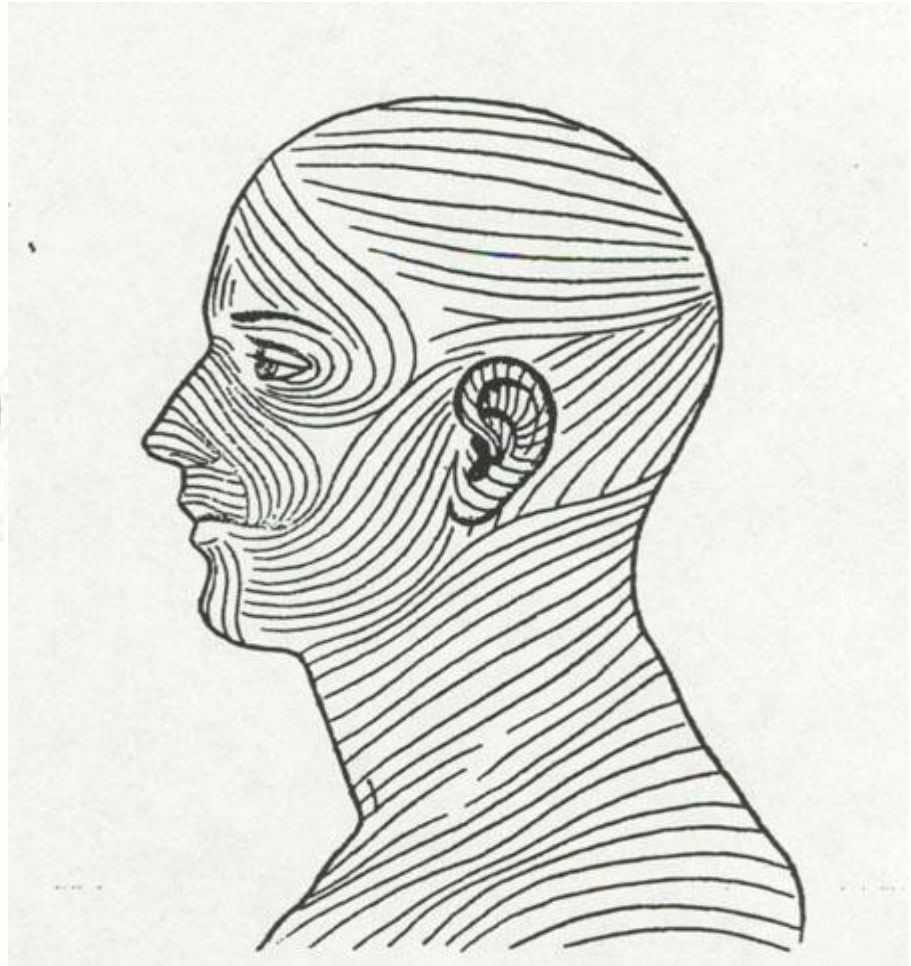


Skin Healing

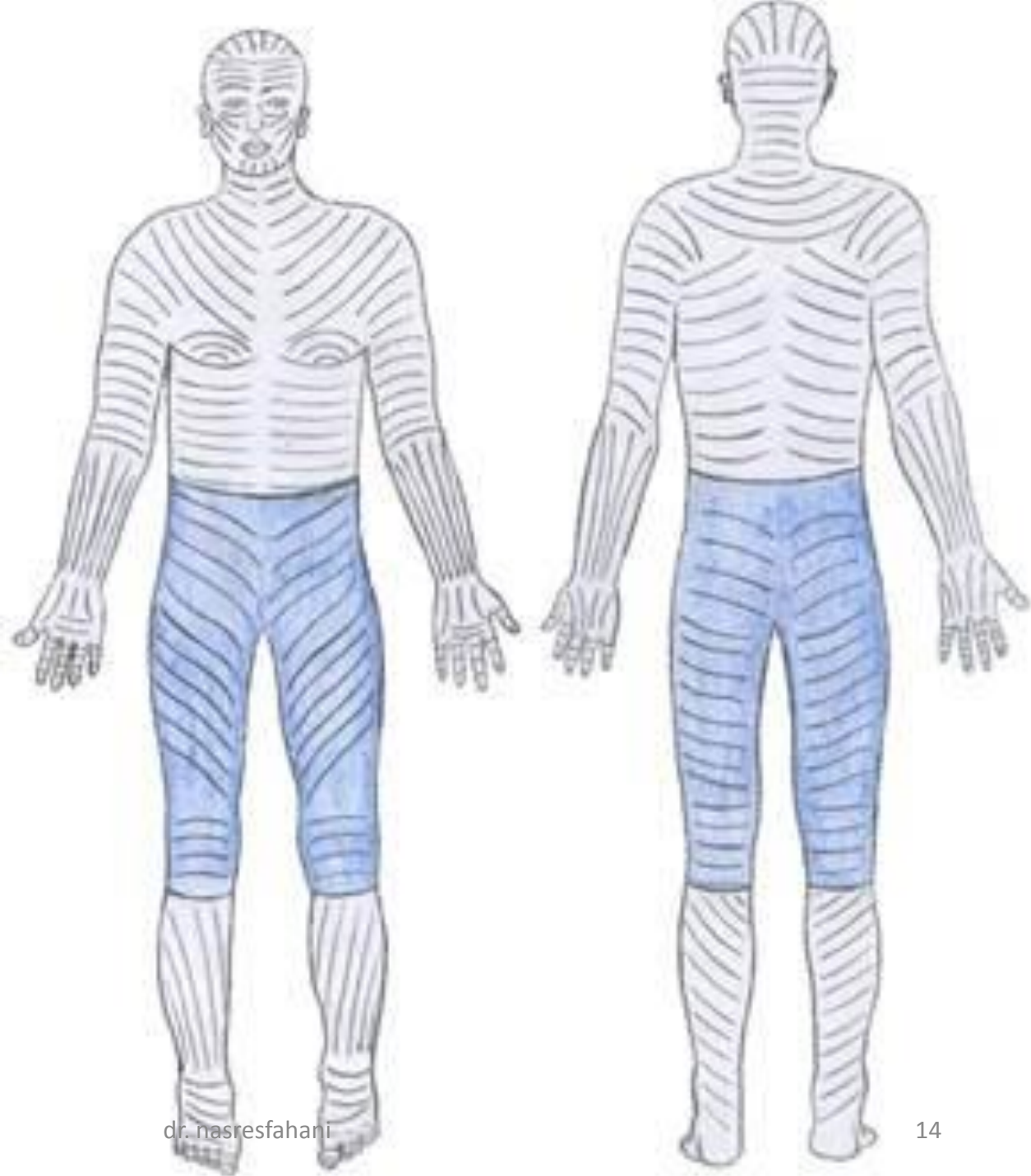
- Individual skin cells do not have a high metabolic rate, and construction of scar tissue is more difficult than making normal skin. You get a scar only if the dermis is excessively damaged.
- Remember that the epidermis does not have blood supply and the fibroblasts are only present in the dermis.
- Still, the skin is capable of repair, even after serious damage because stem cells persist in both the epidermis and the dermis.



Skin lines of cleavage



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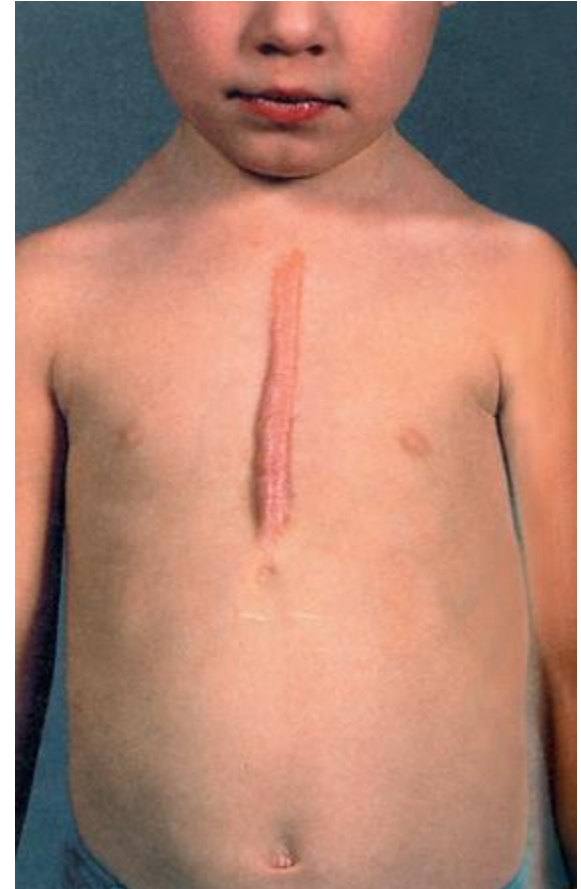
Dermis

2) RETICULAR LAYER

- **DENSE IRREGULAR Connective Tissue**
- Gives the dermis its strength.
- Remember, the epidermis is the strongest layer of the SKIN, but the reticular layer of the dermis is the strongest layer of the DERMIS.
- This layer has lots of COLLAGEN and ELASTIN (elastic fibers)
- The DERMIS is where most of the body's collagen is found.
- Stretch marks are caused from tiny tears in the collagen of the DERMIS.
- Leather is made of this layer.

- **The dermis is also the area where all the glands of the body are located.**
- A transdermal patch (nicotine patch, etc) must diffuse all the way from the epidermis into the dermis to reach the blood vessels there.
- The blood vessels in the dermis are what gives a pink color to Caucasian people.

Keloid Scars



Hypodermis Conditions

- Hypodermis is not connected to the muscle under it. Therefore, exercising muscle will not burn off fat only in that area. Fat is burned off equally over entire body. Losing 10 lbs is like losing ¼” off whole body. More noticeable in face than in hips.
- By the way, **there’s no such thing as cellulite**. The term was invented by marketers. It is NOT a special type of fat. It’s just fat, the same as every other fat. It looks like wrinkled, “orange peel” skin because the collagen fibers on top of it bind it down like a net. There is no such thing as a cream to get rid of adipose.
- (Don’t confuse cellulite with cellulose, a plant fiber)

Third Degree Burn



Arm Graft



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Decubitus Ulcers



Cellulitis

- Cellulitis is inflammation in subcutaneous layers of the skin, due to infection.
- Cellulitis can be caused by normal skin flora (bacteria) or by exogenous bacteria, and often occurs where the skin has previously been broken: cracks in the skin, cuts, blisters, burns, insect bites, surgical wounds, intravenous drug injection or sites of intravenous catheter insertion.
- Treatment with appropriate antibiotics is needed, and recovery periods last from 48 hours to six months.



CONTUSION: “Bruise

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- Why does a bruise look black and blue? The vessels in the hypodermis are ruptured, and the blood leaks out; looks blue. As it ages, the hemoglobin breaks down to a green color, then a yellow color.
- The color of the bruise depends on the age of the bruise.





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