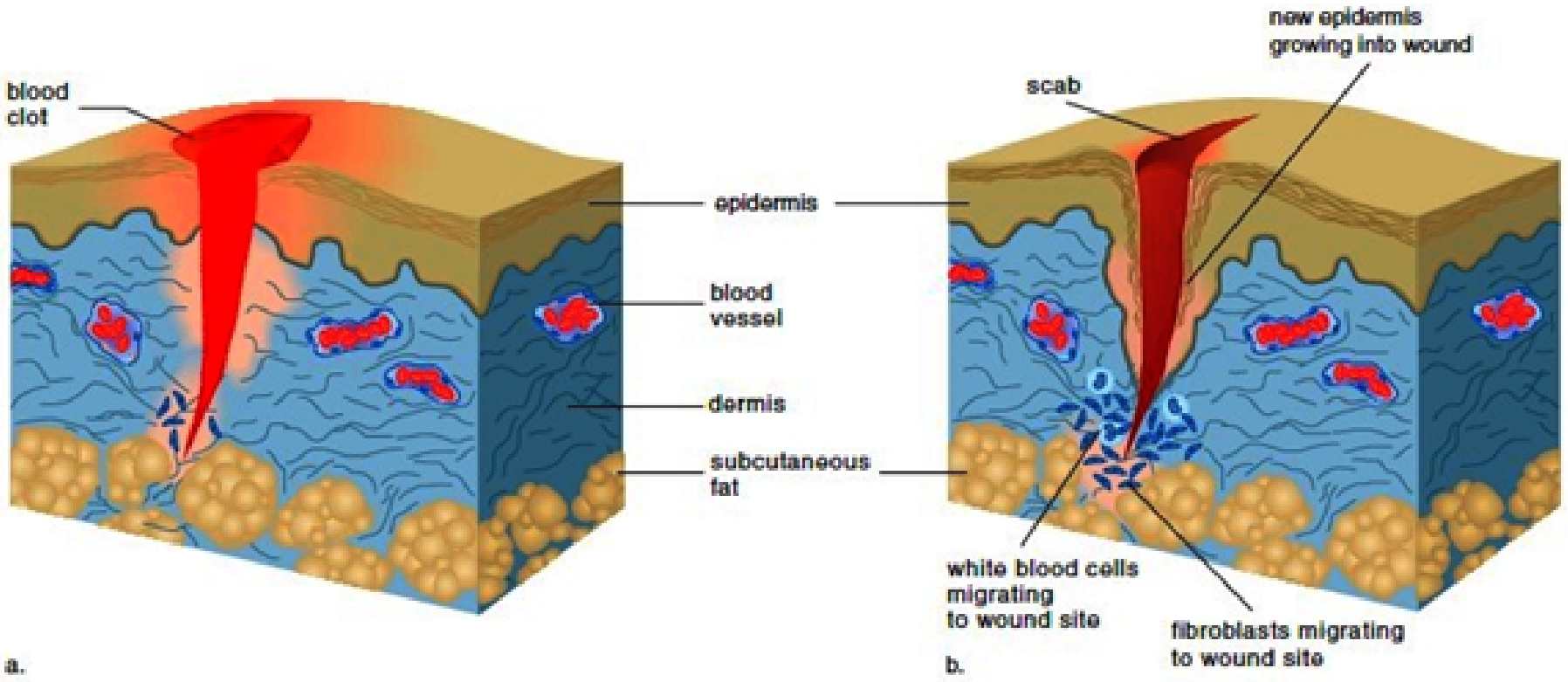
Wound Healing (Inflammatory Phase)



Wound Healing
(Inflammatory Phase)

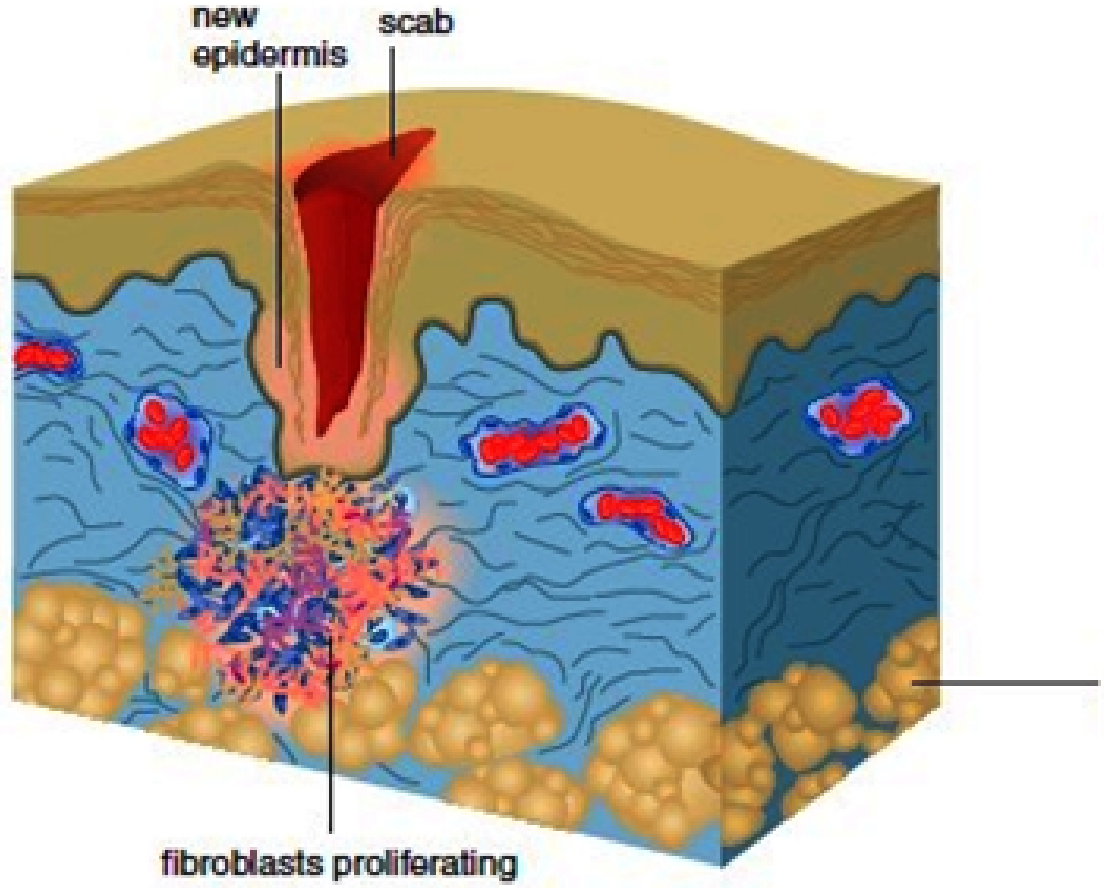
- Injury to the skin will cause an inflammatory response characterized by redness, swelling, heat and pain

- if a wound punctures a blood vessel it will fill with blood

- chemicals released by damaged tissues will cause the blood to clot, the clot prevents pathogens and toxins from spreading to other tissues, the part of the clot exposed to air will dry and harden and become a scab

Wound Healing cont.

(The Proliferative Phase)



c.

Wound Healing cont.

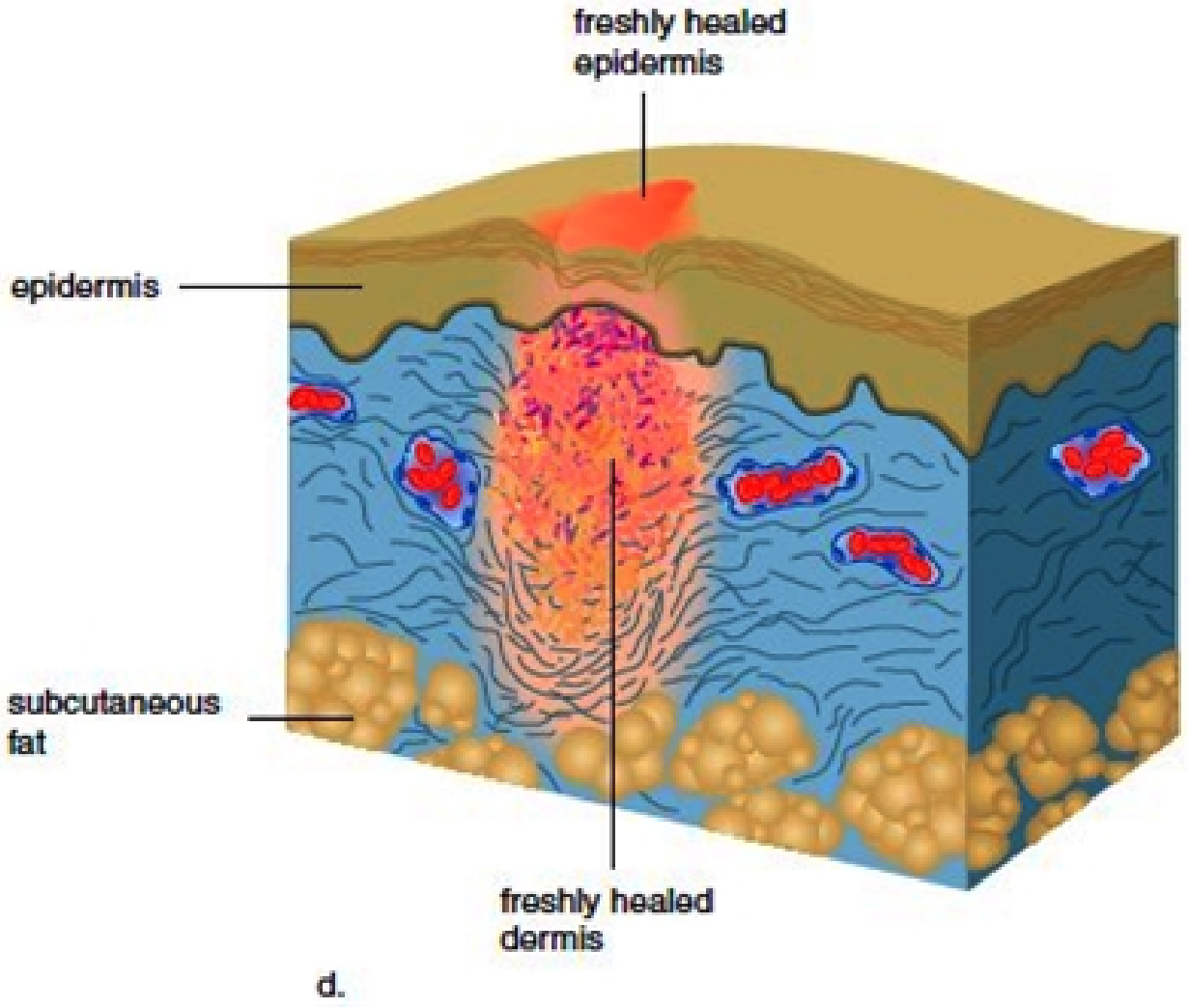
(The Proliferative Phase)

- white blood cells and fibroblasts move into the area to help fight infections and pull the margins of the wound together

- fibroblasts promote tissue regeneration and the basal layer of the epidermis begins to produce new cells at a faster than usual rate

- scar formation might occur due to new cells developing at a faster than usual rate; scars usually do not contain accessory organs and usually are devoid of feeling

Wound Healing cont. (The Remodeling Phase)



Wound Healing cont. (The Remodeling Phase)

- fibroblasts bring about scar formation; the scar may or may not be visible

- a scar is tissue composed of many collagen fibers arranged to provide maximum strength

- scars do not contain the accessory organs of the skin and is usually devoid of feeling

Answer these in your notebook as you are waiting to start class.

1. This disorder of the skin is caused by a fungus.

2. This disorder of the skin is an inflammatatory response to a chemical on the skin.

3. This disorder of the skin is highly contagious and results in open pustules that crust over.

4. This disorder of the skin is hereditary and is an over production of new cells resulting in silver scales or red patches.

5. This is the most common type of skin cancer.

6. This type of skin cancer is common in people with lowered immune systems.

7. What do the ABCDEs of an irregular mole stand for?

8. What does it mean if a cancer metastasized?

9. Put the following in order for wound healing: proliferative, inflammatory, remodeling

Answers

1. This disorder of the skin is caused by a fungus is athlete's foot.

2. The disorder of the skin that is an inflammatatory response to a chemical on the skin is eczema.

3. The disorder of the skin that is highly contagious and results in open pustules that crust over is impetigo.

4. The disorder of the skin that is hereditary and is an over production of new cells resulting in silver scales or red patches is psoriasis.

5. The most common type of skin cancer is basal cell carcinoma.

6. The type of skin cancer that is common in people with lowered immune systems is Kaposi's Sarcoma.

7. What do the ABCDEs of an irregular mole stand for?
A = Asymmetry C = Color E = Elevation
B = Border D = Diameter

8. Metastasize means cancer spread to other parts of the body.

9. The order for the stages of wound healing is:
inflammatory - swelling redness, blood fills area and chemicals cause platelets to clot
proliferative - fibroblasts and WBC arrive and fight infection and pull edges of wound together
remodeling - fibroblasts create scar formation

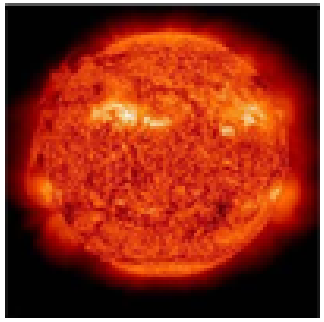
Wound Healing

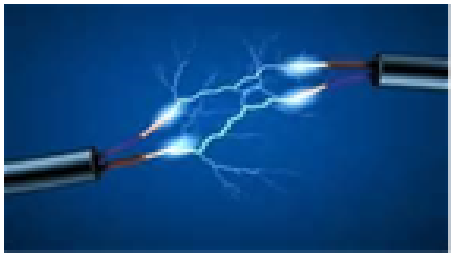
start here to avoid the weird beginning

Burns

- usually caused by heat but can also be caused by radioactive, chemical or electrical agents

- two factors affect burn severity; the depth and the extent of the area burned



Burns are considered critical when:

- second degree burns cover 25% or more of the body
- third degree burns cover 10% or more of the body
- any portion of the body has a fourth degree burn
- facial burns that accompany damage to the lungs
- burns to the hands or feet because of scar tissue formation

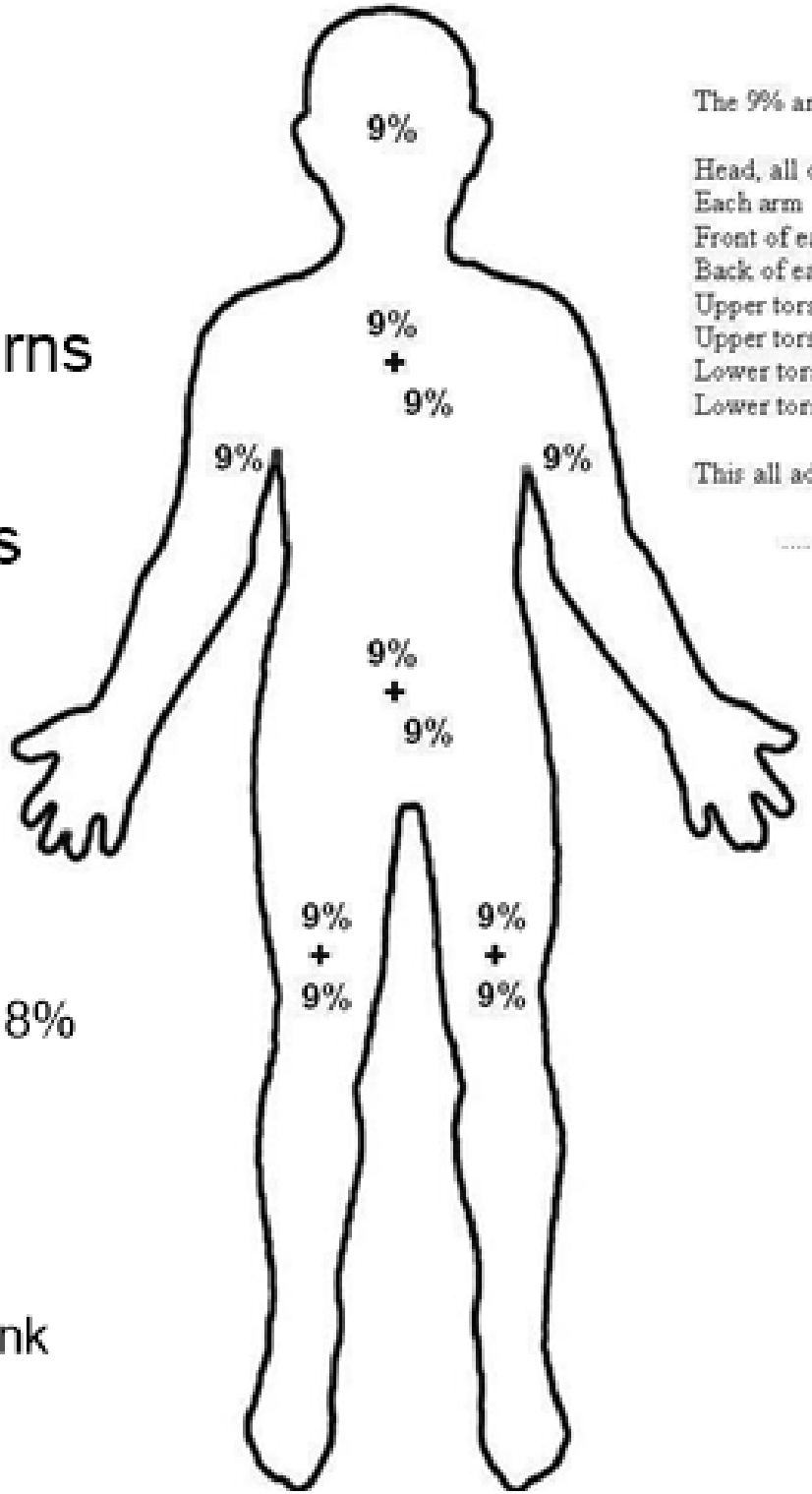
Burns cont.

Major concerns are:

- fluid loss (countered by IV salt solution)
- heat loss (countered by placement in a warm enviornment)
- bacterial infection (countered by isolation and application of anti-bacterial dressing)

The Rule of 9s

- Sometimes used to estimate the extent of burns
- Total body surface is divided into regions
  - Head / Neck = 9%
  - Upper Limb 9% Each
  - Lower Limb (Front and Back) 18% Each
  - Urogenital Regions 1%
  - Front of Trunk or Back of Trunk (Upper and Lower) 18%



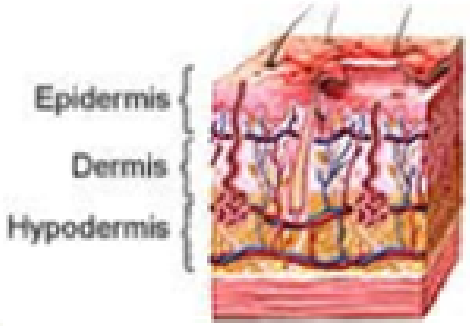
The 9% areas are:

Head, all of it	9%
Each arm	2 x 9%
Front of each leg	2 x 9%
Back of each leg	2 x 9%
Upper torso front	9%
Upper torso back	9%
Lower torso front	9%
Lower torso back	9%

This all adds up to 99%

..... and we don't talk about the 1% in polite company!

First Degree = only the epidermis is affected, person experiences redness and pain but no blisters or swelling (moderate sunburn), pain subsides within 48-72 hours and the injury heals without further complications or scaring, the damaged skin peels off in about a week



First degree burn

Second Degree = extends through the entire epidermis and part of the dermis, redness and pain, blistering in the region of the damaged tissue, the deeper the burn the more prevalent the blisters that enlarge during the hours after the injury, healts without complications and with little scaring in 10-14 days (possibly 30-105 if deep into dermis scarring is common)

Second degree burn

Burns Cont. (Care)

- damaged tissue is removed

- skin grafting (auto grafting / using tissue from another part of the victim's body so that rejection rate is low)

- if damage is extensive laboratory skin can be grown from cells taken from the patient

Third Degree = destroys the entire thickness of the skin, wound is leathery and may be brown, white, tan, black or red, no pain might be felt because pain receptors have been damaged as have blood vessels, sweat glands, sebaceous glands and hair follicles

Fourth Degree = involve tissue down to the bone, chances of surviving this type of burn are not good unless a very limited area of the body is affected

When We Age...

- Rate of cell mitosis decreases
- Dermis becomes thinner
- The connection between dermis and epidermis is looser (wrinkles)
- Adipose tissue in the hypodermis of the face and hands decreases resulting in older people more likely feeling cold
- Melanocytes decrease causing hair to turn gray and skin to become paler
- Remaining pigment cells get larger and pigmented blotches appear on the skin (may be due to sun damage)

How does the skin contribute to homeostasis?

- Skin protects the body (physical trauma and pathogen invasion)

- Skin helps regulate water loss (skin keeps the right amount of water in and outside water out)

- Skin assists the function of the urinary system (sweat gland secrete water from the body through perspiration which ciontains small amounts of salt, amonia, urea and other wastes)

- Skin produces vitamin D (when skin is exposed to sunlight it can prduce vitamin D this leaves skin and enters the liver and kindeys where it creates hormones that regulates calcium uptake)

- Skin gathers sensory information (gives the CNS information about the outside world)

- Skin regulates body temperature (blood vessles contracting and dilating, sweat released, arrector pili contracts)