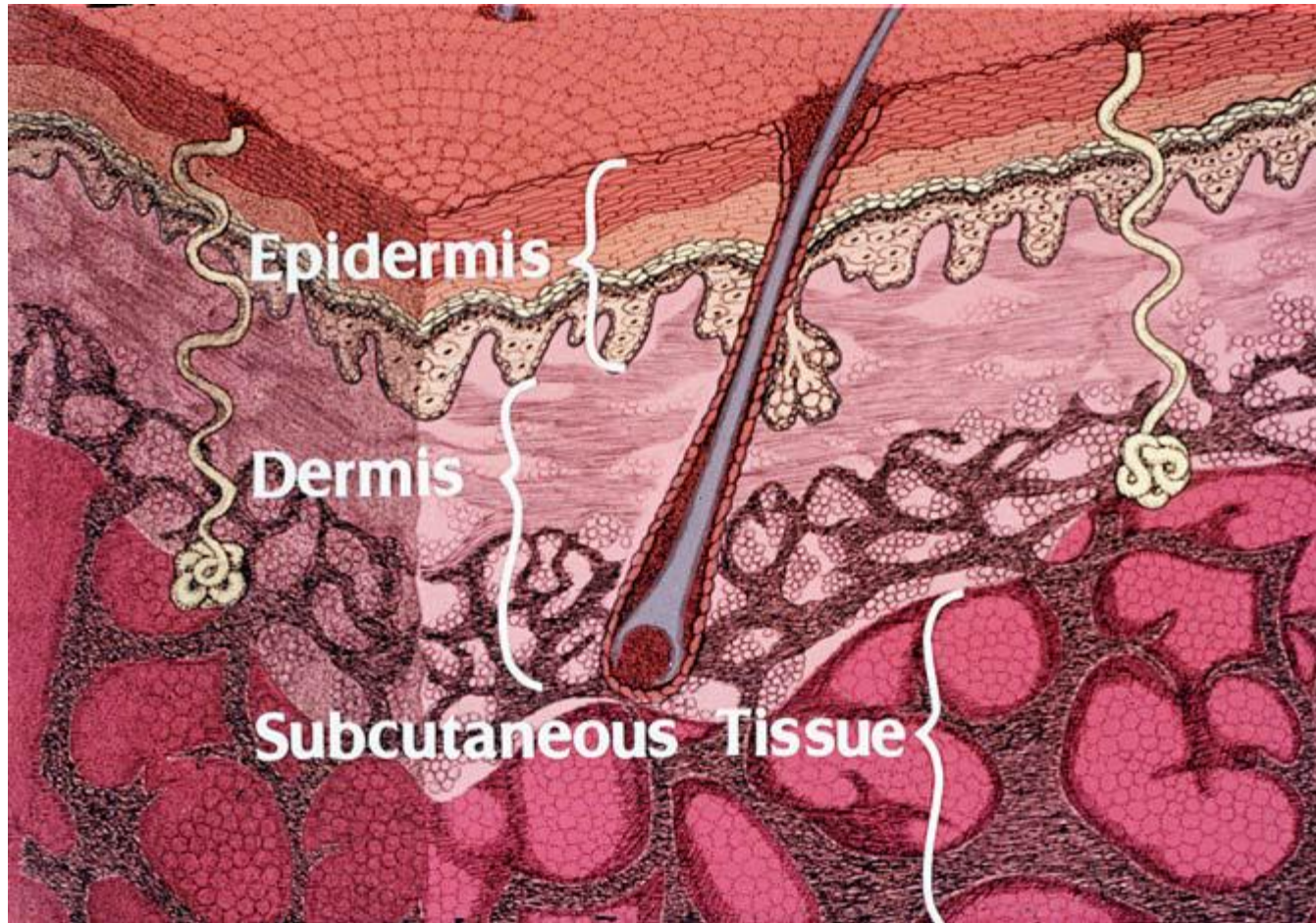


# Basic Suturing

Col Roscoe Van Camp

October 2013



A 150 lb person has 18 sq ft of skin,  
16,723 sq cm and weighs about 12 lbs.

1 sq cm of skin has

- 100 sweat glands
- 4 yds of nerves
- 300,000 epidermal cells
- 3,000 sensory cells

## Epidermis

- Can Regenerate
- Rich in afferent nerves
- Varies in thickness throughout body
- Nonvascular layer

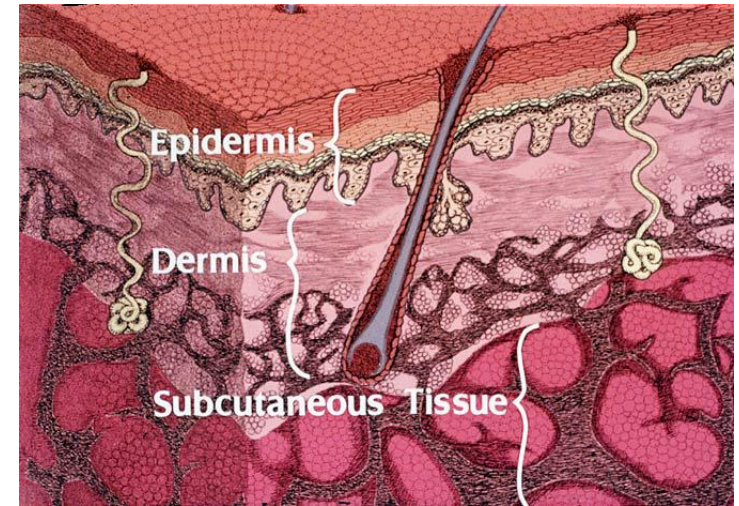
## Dermis

### Collagen and elastin

- Blood vessels
- Lymphatics
- Nerves - both afferent and efferent
- Epithelial Appendages (hair, nails, glands...)

## Subcutaneous Tissue

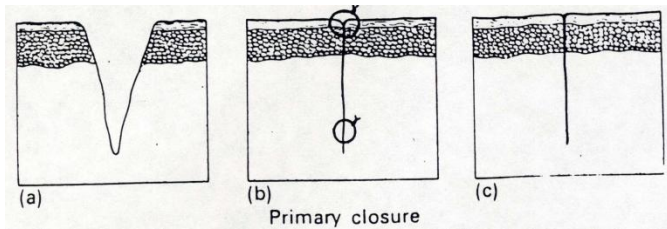
- Adipose and areolar tissue
- Anchored by collagen fibers
- Function:
  - Shock absorption
  - Body insulation
- Unable to regenerate if damaged



## Wound Care Options:

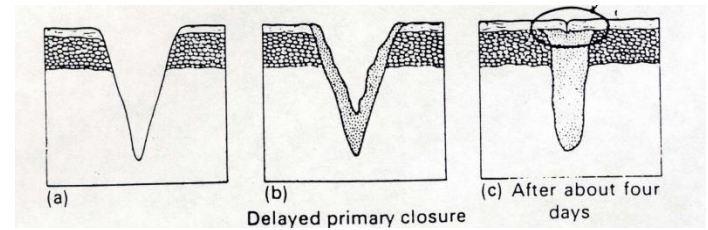
- **Primary Closure**

Non-contaminated wounds  
Adequate resources  
Methods: suture, staple, glue



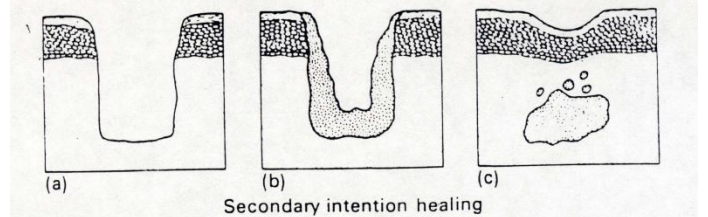
- **Delayed Primary closure**

Wound open to monitor infection  
Closed day 2-4  
Monitored for signs of infection



- **Secondary Intention**

Wound debrided and allowed to fill  
Significant tissue loss  
Open wound, moderate drainage



# Normal Healing: Summary

- **Inflammatory Phase (0-5 days)**
  - Clinical - erythema, warmth, edema, pain
  - Cellular - vasoconstriction/dilation, leukocyte, macrophage activity
  - Fibrinogen-Fibrin
- **Repair Phase (4-14 days)**
  - Clinical - granulation tissue, thin epithelial layer, wound shrinkage
  - Cellular- epithelial migration, collagen synthesis
- **Maturation Phase ( 14 days - 3 Mo's or >)**
  - Clinical - Shrinking, thinning and paling
  - Cellular - Collagen remodeling and organization

# IMPEDIMENTS TO HEALING

- Medical (diabetes, vascular)
- Age (older is worse)
- Nutrition (inadequate)
- Iatrogenic (abx, cleaning)
- Environmental (pressure)
- Other (medication)



# Syringe Irrigation – Cleaning Wounds

- Advantages:

- Remove debris
- Helps reduce infection and enhance granulation
- Readily available

- Technique:

- Use normal saline or tap water
- 35 -50cc with 19 gauge needle or 10cc with 22 gauge needle
- Direct flow at right angles to tissue
- Use basin to collect wound debris
- Avoid direct stream to new tissue



# Wound closure techniques

## **Simple Interrupted Suture (shallow simple wound)**

- Start in middle and include depth of wound

- Do not close under pressure

- Use only enough to secure closure

## **Vertical Mattress Suture (deep wounds)**

- Start wide and include depth of wound

- Approximate skin surface accurately

- Do not use excessive pressure

## **Special circumstances:**

- Ensure accurate approximation of lip lines

- Do not close contaminated wounds

- Ensure bleeding is stopped