

# Plastic and Reconstructive Surgery

Surgical Techniques and Considerations

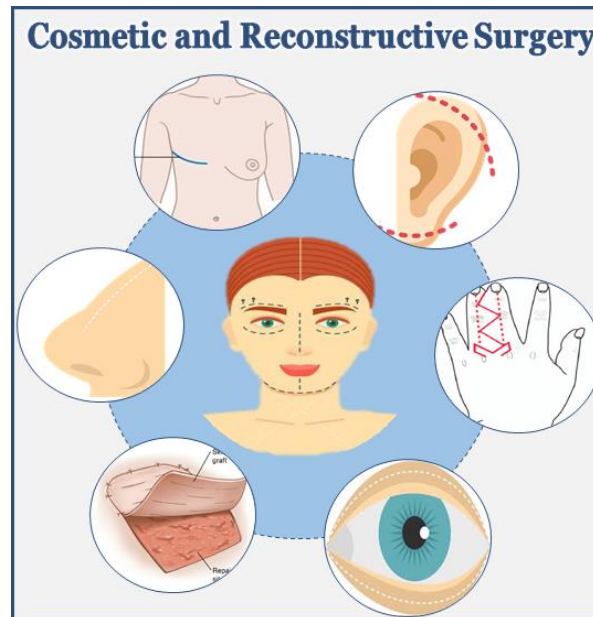


# Lesson Objectives:

1. Identify key anatomical features of the integumentary system
2. Discuss specific elements of case planning for plastic and reconstructive surgery
3. Discuss grafting techniques used in plastic and reconstructive surgery
4. Explain the principles of flap, transverse rectus abdominis (TRAM), and deep inferior epigastric perforator (DIEP) grafts

# Plastic and Reconstructive Surgery

- Addresses defects and anatomical abnormalities from birth, disease, or injury.
- Focuses on restoring form and function.
- Encompasses simple to highly complex operations across various medical subspecialties.



# Sociocultural and Psychological Considerations

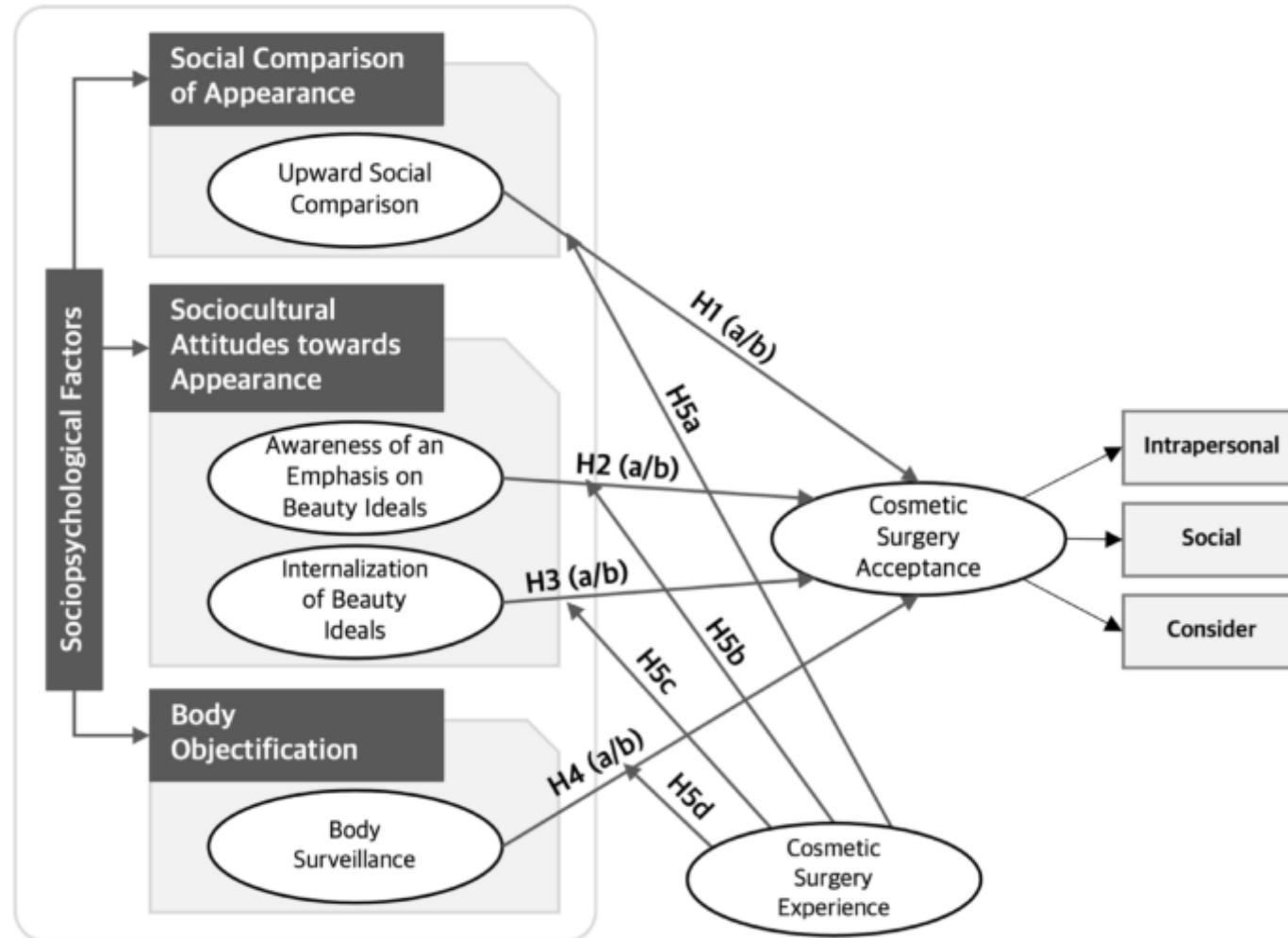
## Social and Cultural Influences

- Personal, professional, and social goals tied to societal standards of appearance.
- Western culture emphasizes youthfulness and certain physical traits.
- Plastic surgery can help individuals integrate into society by fulfilling social norms.

## Psychological Consideration

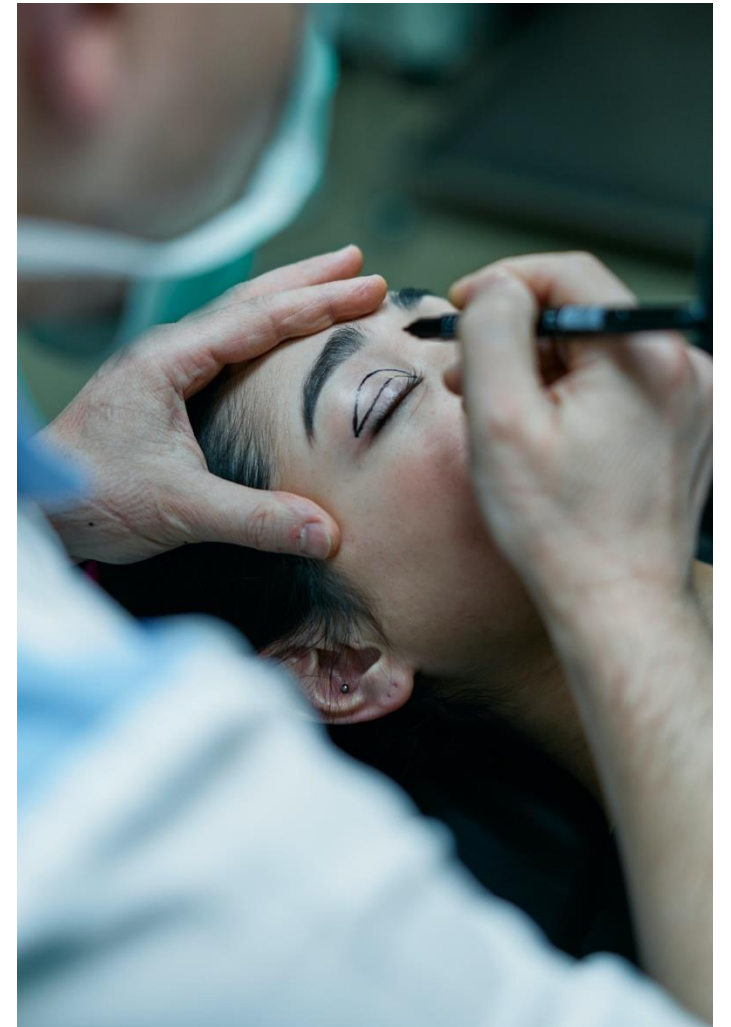
- Patients, whether elective or nonelective, require special psychological support.
- Honest, straightforward communication is essential.
- Emotional support should be provided throughout the perioperative period.

# Cosmetic Surgery Acceptance



# Goals

- Correction of congenital defects or deformities
- Alteration of patient's appearance for cosmetic purposes
- Special psychological needs must be met



**Watch the "Plastic Surgery" Today Video**



# Plastic Surgery Today Video





# Plastic Surgery Today Video

## Summary of Video:

- Plastic surgery is growing
- Today's cosmetic surgery focus is on subtle changes
- Reconstructive and burns

# Diagnostic Procedures

- Diagnosis of conditions that may require plastic/reconstructive surgery
  - Often accomplished by visual examination
    - Change in physical appearance
    - Disease process or deformity
- Imaging studies
  - Often used to determine the type and severity of a condition
    - Standard X-rays, magnetic resonance imaging (MRI),
      - and computed tomography (CT) scanning

# Integumentary System (Skin)

- **Epidermis**

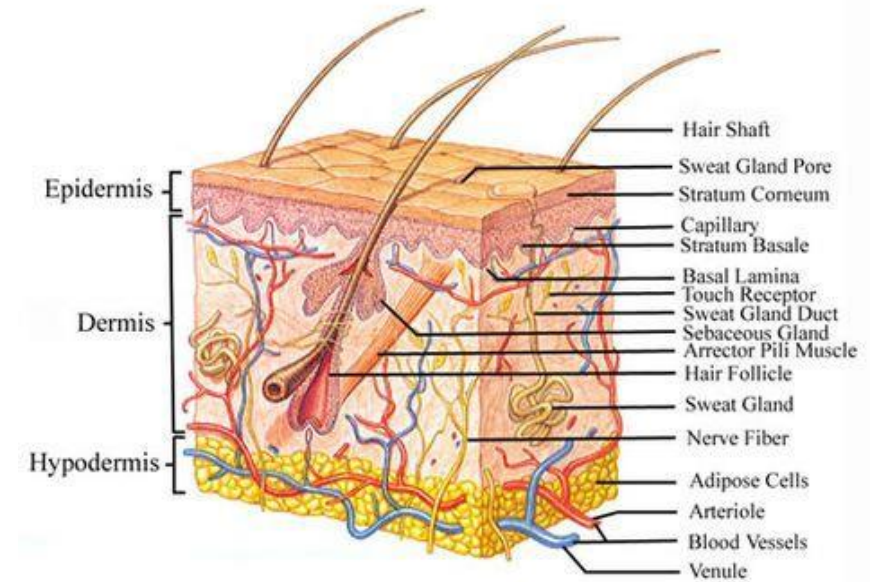
- Stratum corneum: Outermost layer, filled with keratin
- Stratum germinativum: Deepest layer, contains melanocytes

- **Dermis**

- Nourishment and innervation of epidermis
- Blood vessels for oxygenation and thermoregulation
- Sensory receptors for environmental stimuli

- **Skin Appendages**

- Hair: Protective structure with follicles in dermis
- Sweat Glands: Apocrine and eccrine glands for cooling
- Sebaceous Glands: Produce sebum for lubrication



# Case Planning

- Surgeon specifies prep solution dilution
- Prevent solution from draining into eyes or ears
- **Draping Techniques**
  - Follow guidelines in Chapter 17
  - Use extra materials for complex procedures
  - Utilize head drape for facial procedures
  - Employ fenestrated or split sheets for limb draping
  - Use impervious pocket drape for large solution amounts
  - Multiple draping sites often needed

**Watch the "Basic Plastic Surgery Tray" Video**

# Basic Plastic Surgery Tray Video





# Basic Plastic Surgery Tray Video

- Summary of Video:
  - Knife Handle
  - Iris Scissors
  - Needle Driver
  - Hooks, Skin Hooks
  - Forceps

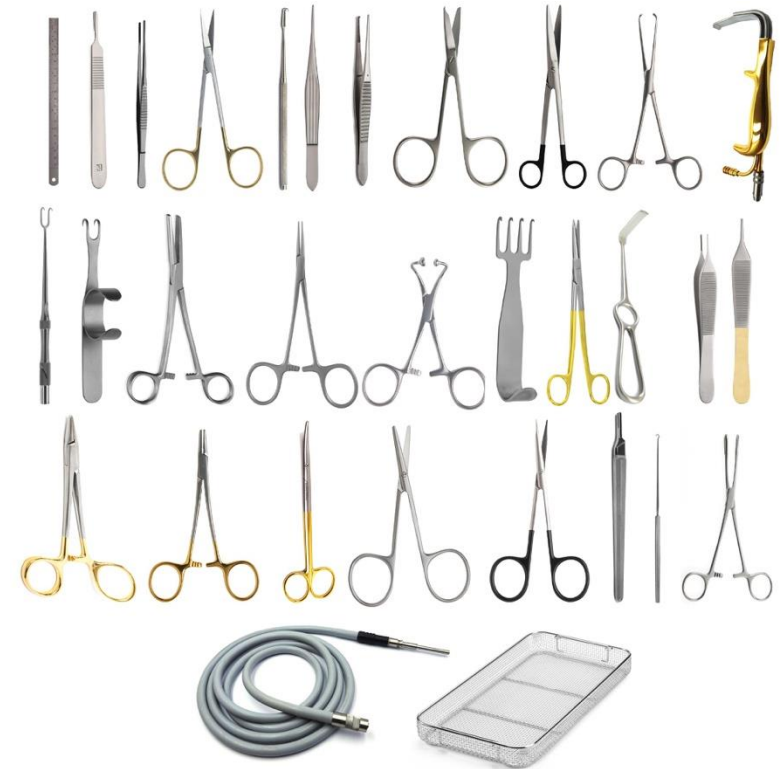
# Surgical Instruments

- **Plastic Surgery Instruments**

- Variety for cutting, sculpting, retracting, grasping tissue
- Short instruments for dermis procedures
- Shallow and deep retractors as needed
- Specialized retractors for abdominoplasty
- Sharp dissection tools including fine scissors, toothed forceps
- Toothed forceps for grasping skin, hemostats for vessels
- Fine orthopedic instruments for reconstruction

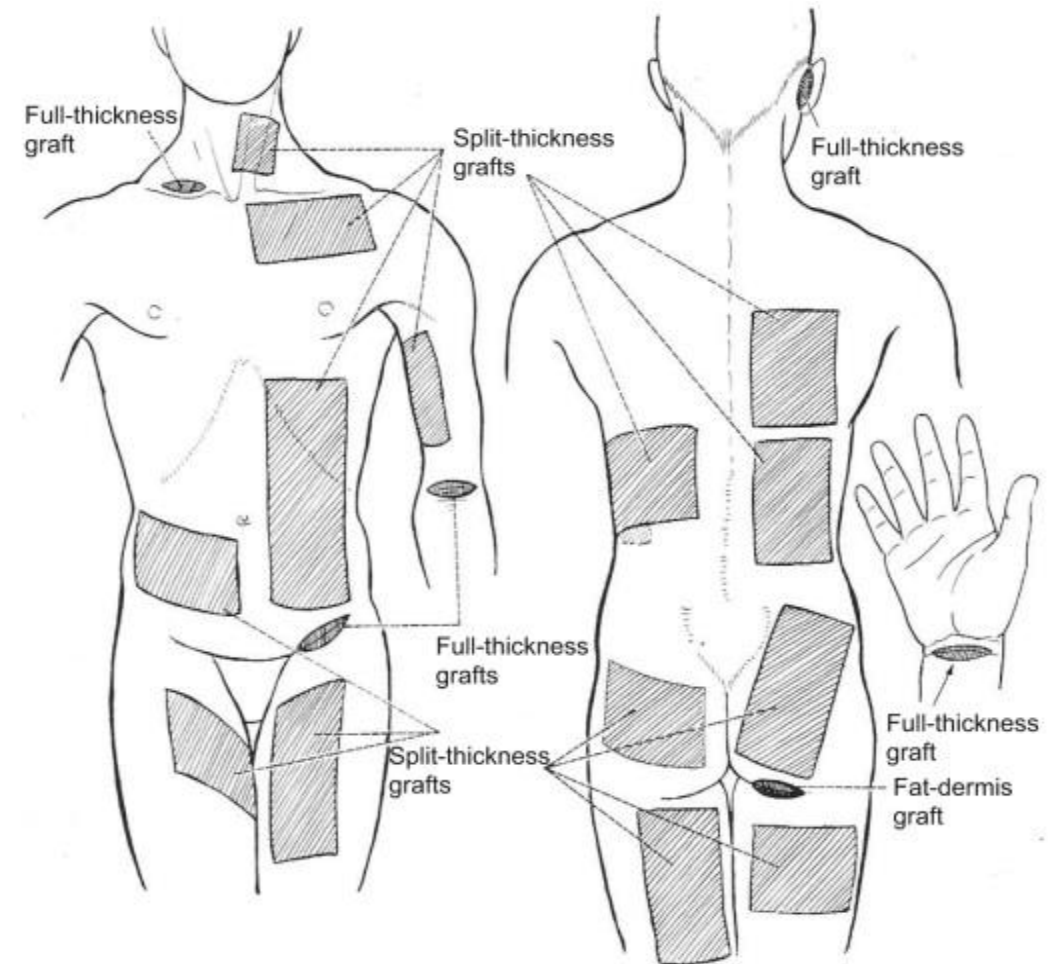
- **Bone-Cutting Instruments**

- Powered orthopedic instruments for bone modeling, anchor holes, cutting
- Various sizes and designs of power drills



# Surgical Techniques

- Surgical management of burns
- Debridement of burns
- Skin grafts
- Split-thickness skin graft (STSG)
- Full-thickness skin graft (FTSG)
- Flap graft
- Mohs micrographic surgery (MMS)
- Scar revision



**Watch the "Skin Graft" Video**

## Skin Graft Video (Start at 0:11)



# Skin Graft Video

## Summary of Video:

- Dermatome cuts skin graft
- Skin Graft then run through a mesher
- Skin graft sewn in with absorbable suture



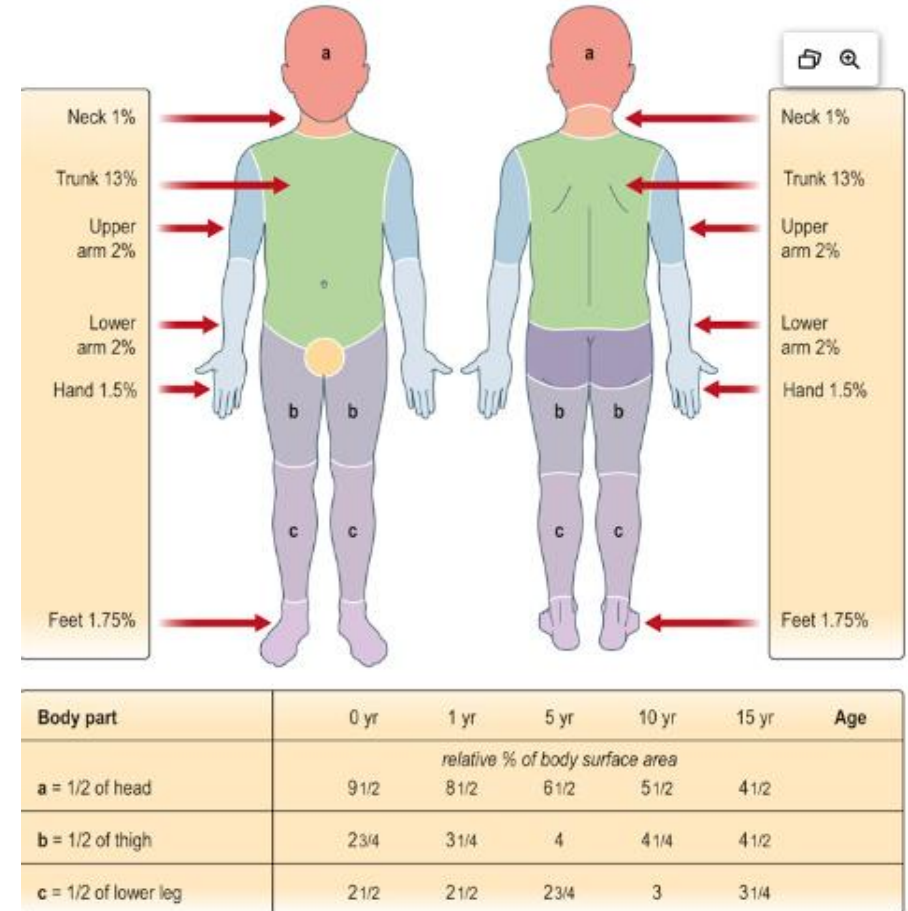
# Surgical Procedures

- Blepharoplasty
- Brow lift:  
endoscopic technique
- Rhytidectomy
- Mentoplasty
- Malar augmentation
- Otoplasty
- Correction of Stahl's ear
- Augmentation mammoplasty
- Reduction mammoplasty with  
mastopexy and  
nipple reconstruction
- Rectus abdominis myocutaneous flap
- Microvascular deep inferior epigastric perforator  
graft (DIEP)
- Nipple reconstruction
- Liposuction
- Abdominoplasty with possible panniculectomy

# Surgical Management of Burns

## Classification of Burns

- System established by the American Burn Association categorizes burns based on tissue depth.
  - Superficial partial-thickness first-degree
  - Partial-thickness second-degree
  - Full-thickness second-degree
  - Full-thickness third-degree
- Burns can lead to fluid imbalance, infection, and other complications.



# Surgical Management of Burns (contd.)

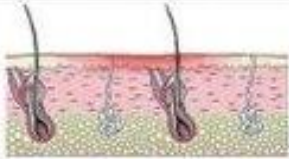







## **Estimating Surface Area of Burns**

- Accurate assessment crucial for treatment planning.
- Rule of Nines (adults) and Brower and Lund system (children) commonly used.
- Greater than 15% surface area burned (adults) or 10% (children) increases shock risk.

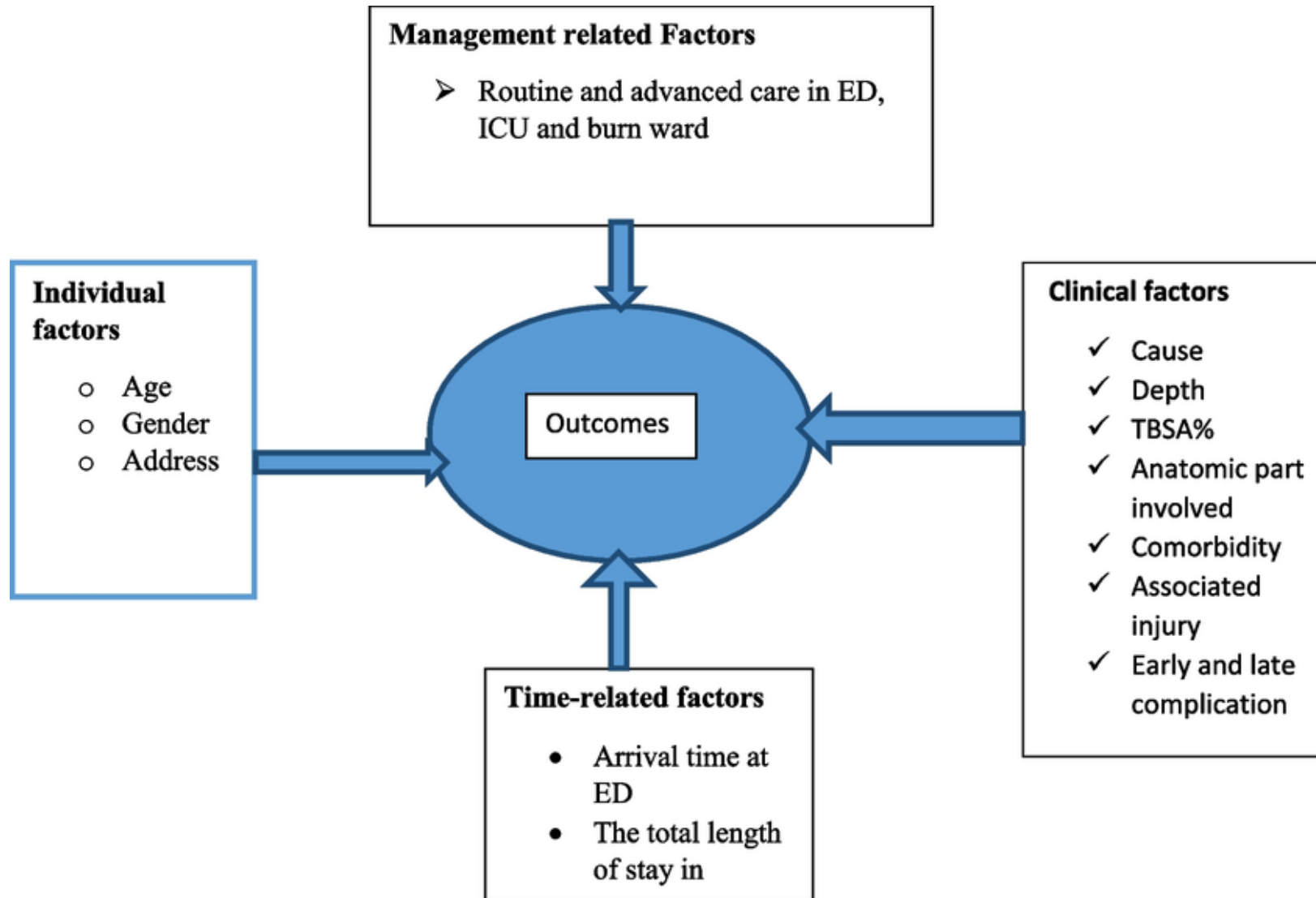
## **• Debridement of Burns**

- Removal of nonviable tissue essential for healing.
- Burn wounds require repeated debridement.

# Burns Classification

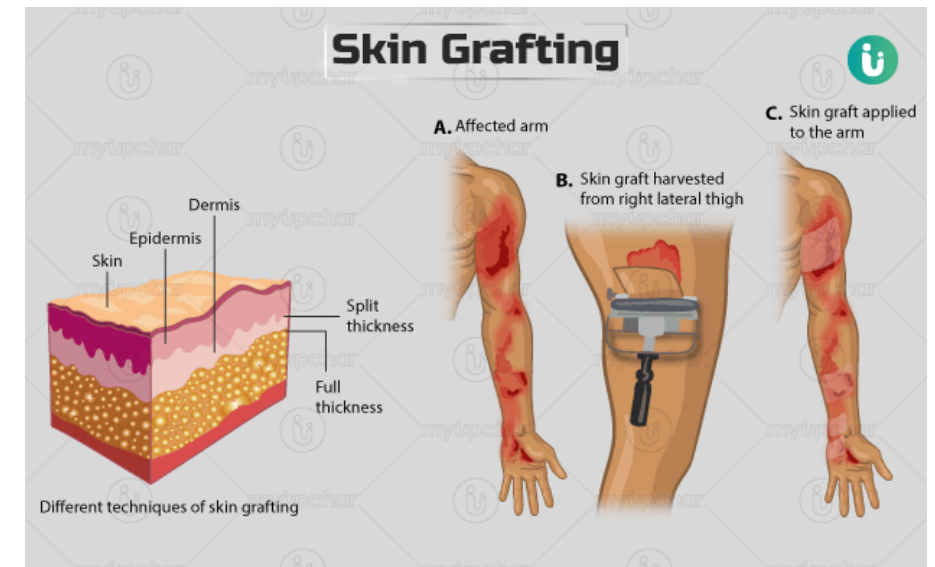
| Degree | Anatomic correlate   | Schematic aspect  | Clinical aspect   |
|--------|--|---|---|
| I      | Reddening, swelling, pain (epidermis)                        |    |    |
| IIa    | Reddening, blistering, pain (superficial dermis)             |    |    |
| IIb    | Pallor, blister, pain (partial dermis)                       |   |    |
| III    | Greyish white or black necrosis, analgesia (complete dermis) |  |   |
| IV     | Carbonization (may extend to the bones and joints)           |   |  |

# Conceptual Framework



# Skin Grafting

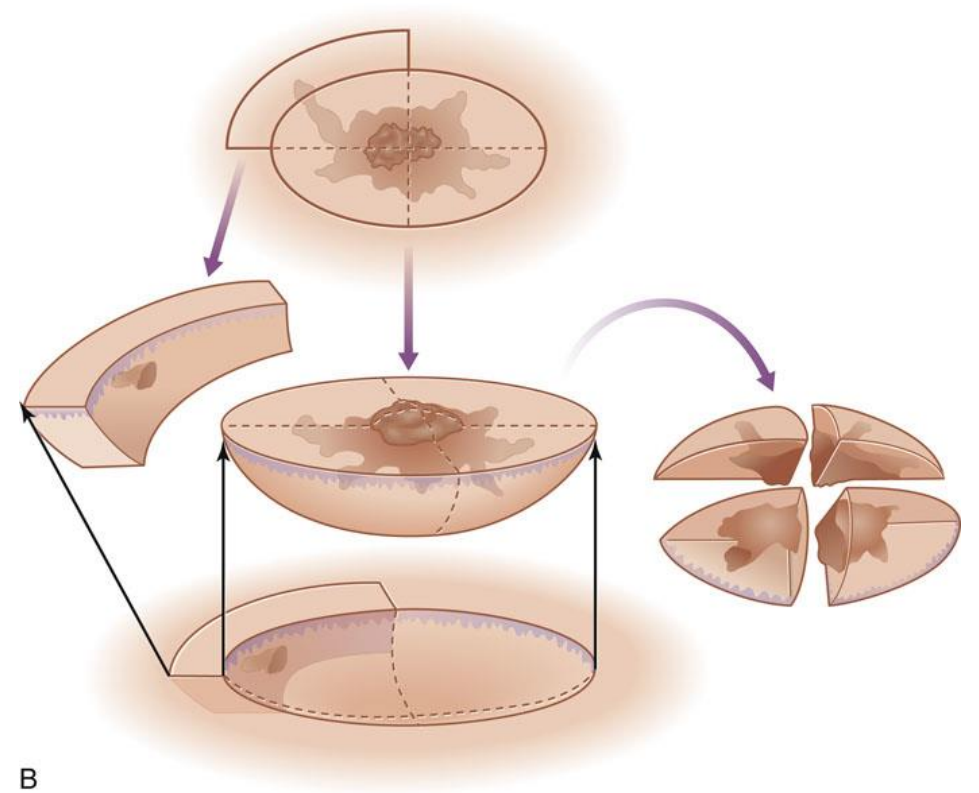
- Tissue grafts replace lost tissue from disease or injury.
- Skin grafting is common in plastic surgery.
- **Classification**
  - Split-thickness skin graft (STSG): Epidermis and papillary dermis.
  - Full-thickness skin graft (FTSG): Complete dermis and epidermis.
- **Types of Biological Grafts**
  - Allograft: From one individual to another.
  - Autograft: From one area to another in the same patient.
  - Composite graft: Multiple tissue types.
  - Xenograft: Tissue from one species to another.





# Mohs Micrographic Surgery

- **Technique:** Excision of malignant skin lesion by systematic removal of margins and immediate microscopic examination.
- **Procedure:** MMS performed with frozen section technique for quick microscopic evaluation and wider excision if needed.
- **Procedure**
  - Patient Preparation
  - Lesion Markin
  - Lesion Excision
  - Specimen Handling
  - Pathologist's Role
  - Wound Closure



# Scar Revision

- A type of aesthetic surgical procedure
  - Patient wishes for an improved appearance and
    - The scar is not as conspicuous as previously
- Simple scar revision
  - Procedure: surgeon using an Adson w/teeth to grab the end of the scar, slightly elevating it and using a #15 blade to cut underneath the length of the scar and reclosing the skin edges

**Watch the video on "Z-Plasty of Scar Contracture (Finger)" to gain insights into Scar Revision Surgery**

## Z-Plasty of Scar Contracture (Finger)



# Z-Plasty of Scar Contracture (Finger)

- **Summary of the Video**

- **Z-Plasty Overview:**

- Versatile plastic surgery technique.
    - Improves functional and cosmetic appearance of scars.

- **Procedure:**

- Elongates contracted scar or rotates scar tension line.
    - Central element: Z-shaped incision along line of greatest tension or contraction.
    - Triangular flaps raised on opposite sides of ends, then transposed.

## Concluding Note





## REMINDER: BOOK YOUR FIRST COACHING SESSION NOW!

If you have not scheduled your first coaching session by now, schedule it now for personalized support, career related guidance, and understanding the practical side of the program.

Click on the coaches tab on the right side and schedule your session!



# Read Chapter 28 from the E-Book

Read **Chapter 28** from your E-Book to pass the upcoming quiz from **Surgical Technology - Elsevier eBook on VitalSource, 8th Edition**.

[Click Here](#) to read chapter 28!

# Thank you!

Get ready for your quiz and rest of the activities now. Best of luck!



# Congratulations!

Lesson 28 is complete.