SCOREBUILDERS

SPOTLIGHT *Series*

Help with Wound Exam and Wound Dressings in Preparation for the NPTE

Presented by Holly Daniel, PT

Objectives

- Review terminology associated with wound examination
- Discuss types of wounds and the association of wound characteristics to the selection of wound dressings
- Understand appropriate choices for wound dressings and interventions

Habit 3: “Put First Things First”

- The 7 Habits of Highly Effective People
- First published in 1989
- Written by Stephen Covey
- New York Times Bestseller for 5 years

Integumentary System

- Largest organ and system most often visualized and touched by PTs/PTAs of all the body systems
- Accounts for largest portion of **“Other Systems”** questions on the NPTE
- Questions about conditions that increase the risk for certain types of wounds (e.g., chronic venous insufficiency, arterial insufficiency) fall under the cardiovascular system as well

Principles of Wound Management

- **Assessment** (including exclusion of disease processes)
- **Remove necrotic tissue**
- **Eliminate infection**
- **Absorb excess exudate**
- **Maintain moist wound surface**
- **Appropriate dressing choice**

Wound Examination

- **Wound type** (e.g., arterial, venous, pressure)
- **Wound size** (length, width, depth)
- **Wound bed** (granulation, slough, eschar)
- **Drainage** (color, amount)
- **Wound margins** (well-defined, diffuse, rolled)
- **Periwound area** (intact, maceration, induration)

Wound Exudate (Drainage) Classification (Color)

- **Serous** (clear, light color with a thin, watery consistency)
- **Sanguineous** (red color with a thin, watery consistency)
- **Serosanguineous** (pink color with a thin, watery consistency)
- **Seropurulent** (yellow/tan color with a thin, watery consistency)
- **Purulent** (yellow/green color with a thick, viscous consistency)

Wound Terminology

- **Erythema** (diffuse redness of the skin)
- **Ecchymosis** (typically blue-black discoloration; bruise)
- **Desiccated** (drying out or dehydration of wound)
- **Desquamation** (peeling or shedding of outer layers of epidermis)
- **Hypertrophic scar** (abnormal scar resulting from excessive and often disorganized collagen formation)

More Wound Terminology

- **Dehiscence** (separation, rupture or splitting of a wound closed by primary intention)
- **Undermining** (tissue erosion underneath the visible wound edges)
- **Tunneling** (channel or tunnel that extends into subcutaneous tissue)
- **Necrotic tissue** (dead tissue; examples include slough, eschar, gangrene)
- **Debridement** (removal of nonviable tissue from a wound)

Selective Debridement

- **Autolytic** (use of body's own mechanisms to remove nonviable tissue; requires moist environment)
- **Sharp** (use of scalpel, scissors, and/or forceps to selectively remove devitalized tissue)
- **Enzymatic** (topical application of an enzymatic preparation to necrotic tissue)
- **Biological** (use of sterile maggot larvae to ingest bacteria and necrotic tissue)

Non-selective Debridement

- **Wet-to-dry dressings** (application of moist gauze dressing to necrotic tissue)
- **Wound irrigation** (e.g., nonforceful irrigation, pulsed lavage)
- **Whirlpool** (both a means of wound cleansing and mechanical debridement)

Common Wound Types

Arterial ulcers

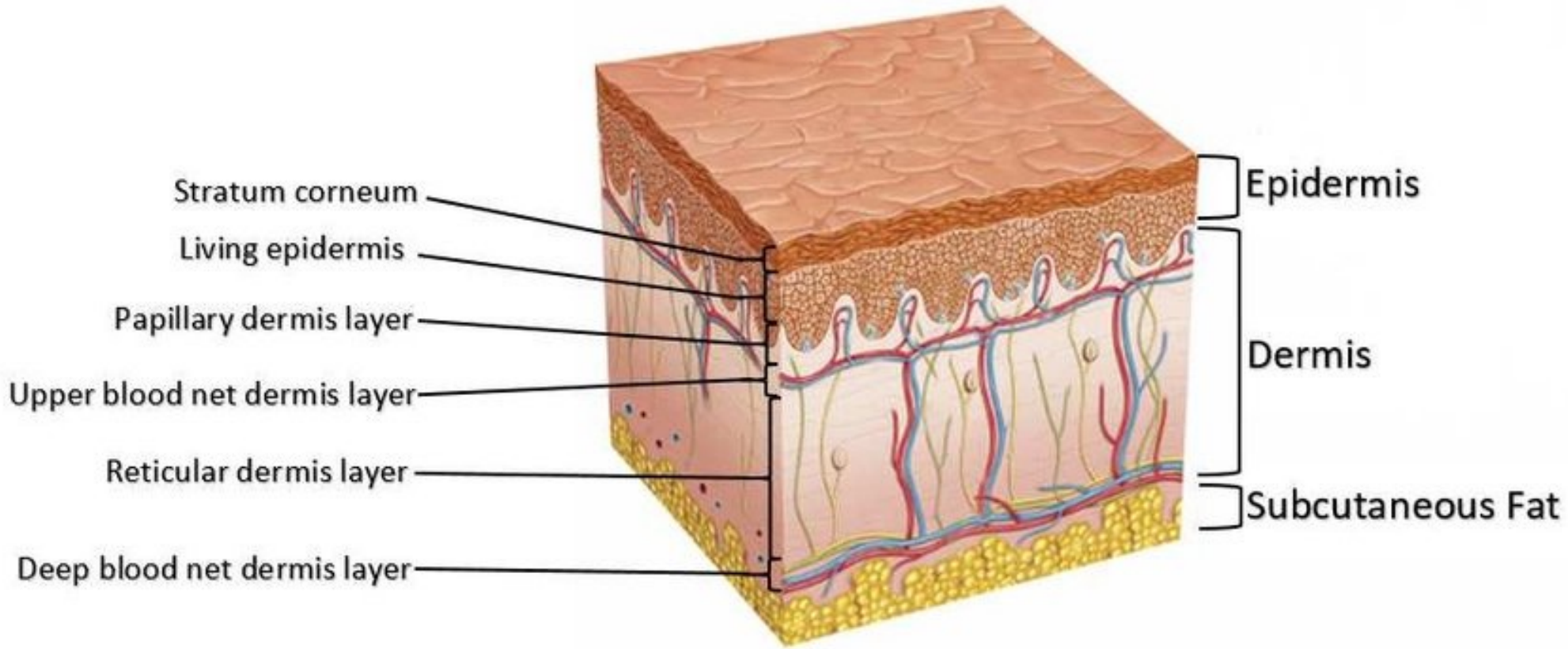
Venous ulcers

Pressure injuries

Neuropathic ulcers

Burns

Skin Anatomy (Layers)



Wound Classification by Depth of Injury

- Superficial wound (epidermis only)
- Partial-thickness wound (extends into dermis)
- Full-thickness wound (extends through the dermis into adipose tissue)
- Subcutaneous wound (extend through subcutaneous fat into deeper structures (e.g., muscle, tendon, bone)

Burn Classification by Depth

- Superficial burn
- Superficial partial-thickness burn
- Deep partial-thickness burn
- Full-thickness burn
- Subdermal burn

Pressure Injury Staging

- **Stage I:** Non-blanchable erythema of intact skin
- **Stage II:** Partial-thickness skin loss with exposed dermis
- **Stage III:** Full-thickness skin loss (adipose tissue visible)
- **Stage IV:** Full-thickness skin loss with exposed deeper structures (e.g., muscle, tendon, ligament, bone)
- **Unstageable:** Full-thickness skin and tissue loss in which extent cannot be confirmed because it is obscured by slough or eschar

Common Types of Wound Dressings

- Gauze
- Transparent film
- Hydrogels
- Hydrocolloids
- Foam
- Alginates

Dressing is an Intervention, so think GOAL!

- **Promote moist wound environment** (moisture retentive dressings)
- **Manage moderate to heavy exudate** (absorptive dressings)
- **Prevent or combat infection** (medicated dressings); may need oral antibiotic

***The dressing should match the wound characteristics!**

Gauze Dressings

- Pads (varying sizes)
- Rolls
- Sponges

*Commonly used for wet-to-dry dressings

Moisture Retentive Dressings

- **Alginates**
- **Semipermeable foams**
- **Hydrocolloids**
- **Hydrogels**
- **Semipermeable films**

Alginates

- **Derived from seaweed extraction (calcium salt component of alginic acid)**
- **Useful for partial or full-thickness draining wounds**
- **Provide high absorption capacity (woven into sheets, ropes, or ribbon shapes)**
- **Interaction of calcium ions in the dressing and sodium ions in the exudate creates a hydrophilic gel to maintain moisture**
- **Can be used on infected wounds; require a secondary dressing**

Semipermeable Foam Dressings

- **Hydrophilic base that contacts wound surface and hydrophobic outer layer**
- **Provide protection and moderate absorption for partial or full-thickness wounds with medium to heavy drainage**
- **Available in adhesive & non-adhesive forms (e.g., sheets or pads with varying degrees of thickness)**

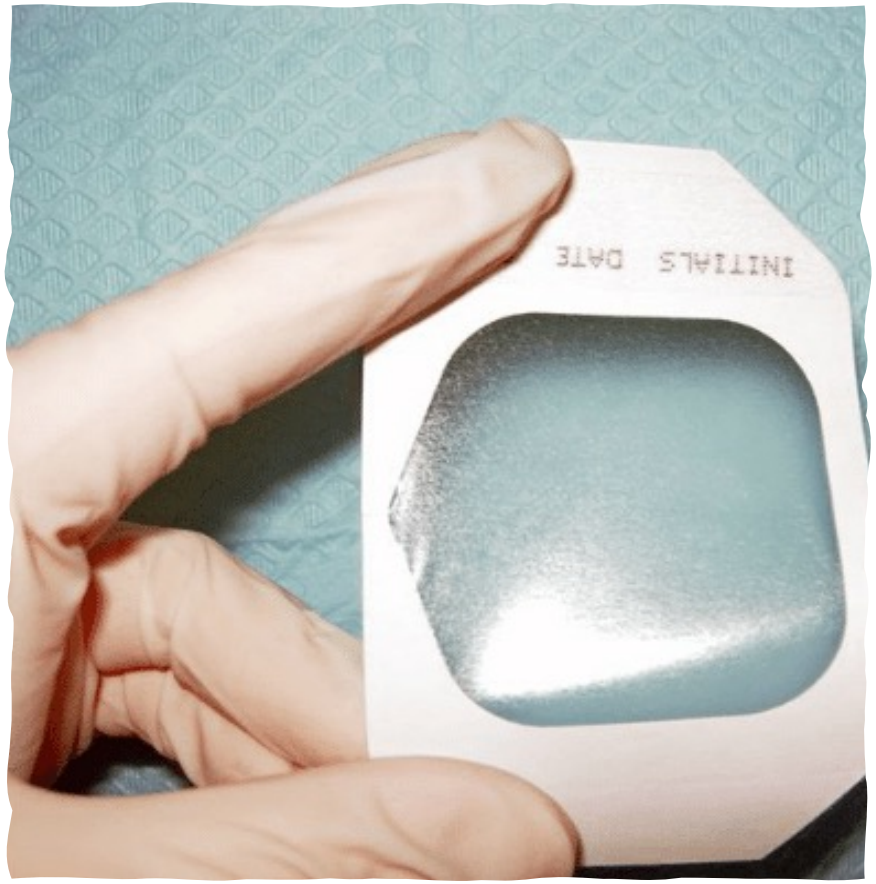
Hydrocolloids

- **Consist of gel-forming material with a film or foam adhesive**
- **Useful for partial and full-thickness wounds**
- **Provide moderate absorption**
- **Most occlusive (dressing of choice for maggot therapy)**
- **Can be worn for several days**

Hydrogels

- **Consist of varying amounts of water and gel-forming materials**
- **Useful for superficial or partial-thickness wounds with minimal drainage**
- **May reduce pressure and diminish pain**
- **Can be used as a coupling agent for ultrasound**

Transparent Film Dressings



- **Semipermeable (permeable to vapor and oxygen, but impermeable to bacteria and water)**
- **Useful for superficial or partial-thickness wounds with little to no drainage (e.g., stage I or II pressure injuries)**
- **Promote autolytic debridement and allow visualization of the wound**
- **Resistant to shearing and frictional forces**
- **Often used to secure IV sites**

Modalities Used for Wound care

- **Electrical stimulation:** High-voltage pulsed current (HVPC) has best evidence for wound healing
- **Ultrasound:** Low intensity with pulsed duty cycle; use of hydrogel sheet as coupling agent or MIST US system for non-contact delivery
- **Negative pressure wound therapy:** Vacuum-assisted closure (VAC) using a foam dressing in the wound and a suction tube connected to a portable pump
- **Hyperbaric oxygen therapy:** Delivery of 100% oxygen inside a sealed chamber
- **Cold laser therapy:** Low-level cold laser uses light in the infrared spectrum to increase circulation and reduce pain

Practice Question #1

After examining a wound, a physical therapist determines autolytic debridement is the best course of action to remove the nonviable tissue. Which of the following interventions **BEST** represents this form of debridement?

1) Use of sharp, sterile instruments
2) Application of a hydrocolloid dressing
3) Application of an enzymatic preparation
4) Wound irrigation with pulsed lavage

Practice Question #2

A physical therapist observes serous drainage from a distal pin site while treating a patient with an external fixator post tibia fracture. Which of the following actions is the **MOST** appropriate for the therapist to take?

1) Discontinue the session and contact the referring physician
2) Use an alginate dressing to absorb the drainage and notify nursing
3) Use a gauze pad to absorb the drainage and continue with the session
4) Document the finding and discontinue the exercise session

Practice Question #3

A physical therapist examines a patient three days post total knee arthroplasty. The findings include a slightly elevated body temperature, increased edema of the knee with warmth to the touch, and a small amount of yellow fluid seeping from the incision. Which of the following actions is the **MOST** appropriate for the therapist to take?

1) Send the patient to the emergency room
2) Document the findings in the medical record
3) Communicate the findings to the referring physician
4) Ask the patient to make an appointment with their physician

Practice Question #4

A patient presents with a stage 3 pressure injury with signs of delayed healing. The physical therapist decides to add electrical stimulation to the plan of care to promote tissue healing. Which type of electrical current would **BEST** promote the therapist's objective?

1) High-volt monophasic pulsed current
2) Low-volt biphasic pulsed current
3) Medium-frequency interferential current
4) Continuous low-amplitude direct current

Practice Question #5

A patient presents with a stage I pressure injury over the left greater trochanter. Which type of wound dressing would **MOST** likely be used?

1) Semipermeable foam
2) Transparent film
3) Hydrocolloid
4) Hydrogel

Practice Question #6

A physical therapist determines that selective debridement is appropriate for a patient who has a mixture of superficial partial-thickness and deep partial-thickness burns on the lower extremity. Which of the following interventions would the therapist **MOST** likely perform to accomplish this type of treatment?

1) Wound irrigation using pulsed lavage
2) Whirlpool with agitator directed at the wound
3) Wet-to-dry dressings performed daily
4) Use of sharp instruments to remove nonviable tissue

Practice Question #7

A patient presents with a shallow wound with diffuse margins on the medial lower leg. The involved limb is swollen and appears dark red in color with hyperkeratosis. Which of the following conditions would **MOST** likely contribute to this type of wound?

1) Diabetes mellitus
2) Venous insufficiency
3) Prolonged pressure
4) Arterial insufficiency

Conclusion

- Increased your confidence with the terminology associated with wound examination
- Improved your understanding of the different types of wounds and the selection of appropriate wound dressings

Questions?

Email: hollydaniel26@gmail.com

Feedback? Let Us Know!

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