18
The Integumentary System

1. Define important words in this chapter
2. Explain the structure and function of the integumentary system
3. Discuss changes in the integumentary system due to aging
4. Discuss common disorders of the integumentary system
5. Discuss pressure ulcers and identify guidelines for preventing pressure ulcers
6. Explain the benefits of warm and cold applications
7. Discuss non-sterile and sterile dressings

Supplemental Tools
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Assignments
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Overview of Teaching Strategies
This chapter focuses on the integumentary system. Students will learn that the skin is the largest organ in the human body, as well as learning the functions, normal changes of aging, and common disorders of the skin. Emphasis should be placed on observations; stress that NAs are in the best position to notice the early signs of skin breakdown or other problems.

This chapter contains detailed information about pressure ulcers, including risk factors, signs of skin breakdown, stages of pressure ulcers, and prevention. It is a good idea at this time to show students some of the positioning devices that can help prevent pressure ulcers and to emphasize that they are much easier to prevent than to heal. The vital role of nursing assistants in this prevention should be stressed.

This chapter also describes the benefits and risks of warm and cold applications. Emphasize the twenty-minute rule and the fact that moisture increases the effects of hot and cold applications.

Meeting the Learning Objective
1. Define important words in this chapter
   - Textbook pp. 325-326
   - Workbook p. 101

Lecture
Pronounce and define each of the key terms listed in the Learning Objective on pages 325-326.

2. Explain the structure and function of the integumentary system
   - Textbook pp. 326-327
   - Workbook p. 101

Lecture
Pronounce and define the following key terms:
- Integument
- Epidermis
- Melanocyte
- Melanin
- Dermis

Display Transparency
- 18-1 The Integumentary System

Review the following points about the integumentary system:
- Natural, protective covering
- Largest organ and system
- Covers and protects the body
- Skin is a sense organ
Review the functions of the integumentary system:
• Protects internal organs from injury
• Protects body against bacteria
• Prevents loss of too much water
• Regulates body temperature
• Responds to heat, cold, pain, pressure, and touch
• Excretes waste products in sweat
• Helps with production of vitamin D

3. Discuss changes in the integumentary system due to aging

Meeting the Learning Objective
Textbook pp. 327-328
Workbook p. 101

Lecture
Review normal changes of aging:
• Amount of fat and collagen decreases.
• Elastic fibers lose elasticity.
• Hair and nail growth slows.
• Skin becomes drier.
• Skin becomes thinner and more fragile.
• Protective fatty layer thins.
• Hair thins and turns gray.
• Brown spots may appear on the skin.

4. Discuss common disorders of the integumentary system

Meeting the Learning Objective
Textbook pp. 328-332
Workbook p. 102

Lecture
Review the following points about burns and scalds:
• Causes: fire, hot liquids, warm water applications, electrical equipment, hot objects, certain chemicals
• First-degree, or superficial, burns affect the epidermis and cause redness and pain.
• Second-degree, or partial-thickness, burns affect the dermis and cause some skin damage, redness, pain, swelling and blistering.
• Third-degree, or full-thickness, burns affect the epidermis, dermis and underlying tissue and cause serious scarring, which may affect muscle and bone; white or charred skin; pain, swelling, and peeling skin.
• Very painful
• May require surgery
• Can cause resident’s condition to deteriorate rapidly
• Offer pain medication before beginning care.
• Be gentle with moving and positioning.
• Report pus or other fluids around burn area or complaints of pain.

Pronounce and define the following key term:
• Scabies

Review the following points about scabies:
• Cause: mites that burrow into the skin to lay eggs
• Symptoms: rash, intense itching, sores that may become infected
• Usually transmitted by person-to-person contact
• Elderly and those with weak immune systems at higher risk
• Treatment: special lotions

Pronounce and define the following key term:
• Shingles

Review the following points about shingles:
• Cause: viral infection (varicella-zoster virus, same virus that causes chickenpox)
• Can occur in anyone who has had chickenpox
• Symptoms: begins with pain or itching where rash will appear; fever, chills
• Pain may last for many years.
• Virus is spread when in blister form.
• Keep rash covered at all times.
• Treatment: medication

Pronounce and define the following key terms:
• Open wound
• Closed wound
• Bruise

Review the following points about wounds:
• Types of open wounds: abrasion, avulsion, incision, laceration, puncture wound
A common type of closed wound is a contusion, or bruise.

- Symptoms: pain, tissue damage, discoloration, bleeding, fever, chills, trouble breathing
- New wounds require immediate attention.
- Treatment: stopping bleeding, cleaning wound, applying dressing

New wounds require immediate attention.

Treatment: stopping bleeding, cleaning wound, applying dressing

Pronounce and define the following key term:
- Lesion

Review the types of skin lesions:
- Macules
- Papules
- Pustules
- Vesicles
- Wheals
- Hematoma
- Purpura

Pronounce and define the following key term:
- Gangrene

Review the following points about gangrene:
- Means death of tissue
- Caused by lack of blood flow
- Must be treated immediately
- Causes: burns, diabetes, injuries, circulatory disorders, weakened immune system, complications from surgery
- Symptoms: discoloration of skin, sores that do not heal, pain, loss of feeling, foul-smelling discharge, chills, change in vital signs
- Report elevated temperature, pulse, or respiration rate; changes in blood pressure or difficulty breathing.
- Treatment: antibiotics, surgery, amputation, hospitalization

Pronounce and define the following key term:
- Eczema

Review the following points about eczema:
- General term for a variety of skin problems
- Causes: stress, allergies, family history, irritating agents in environment
- Treatment: topical steroid creams, soothing or drying lotions

Report: worsening of eczema, severe itching or pain, signs of infection

Pronounce and define the following key term:
- Psoriasis

Review the following points about psoriasis:
- Chronic skin condition in which skin cells grow too fast
- Symptoms: white or silver patches on skin, itching and discomfort, arthritis, pain
- Causes: usually inherited; may be caused by dry climate, cold weather, stress, or weakened immune system
- Treatment: topical creams, shampoos, and lotions; medication, phototherapy, dietary changes, sun therapy

Pronounce and define the following key term:
- Tinea

Review the following points about fungal infections:
- Commonly occur in moist areas of the body
- Symptoms: red scaly patches, itching, rawness, pain
- Examples: jock itch, vaginal yeast infections, athlete’s foot, tinea
- Causes: perspiration, tight-fitting clothing
- Treatment: topical antifungal creams, medications
- Report: skin changes, skin abrasions, flaking, redness, sores, scratching

Pronounce and define the following key term:
- Wart

Review the following points about warts:
- Rough, hard bump on the skin
- Cause: contagious virus enters skin through cut or tear
- Treatment: medication, removal with laser or special instrument

5. Discuss pressure ulcers and identify guidelines for preventing pressure ulcers

Meeting the Learning Objective

Textbook pp. 332-335
Workbook pp. 102-103
Lecture
Pronounce and define the following key terms:
• Pressure points
• Bony prominences
• Necrosis
• Pressure ulcers

Display Transparency
18-2 Pressure ulcer danger zones
Discuss the common sites for pressure ulcers illustrated on the transparency and on p. 333 in the textbook. Emphasize the importance of observation to prevent pressure ulcers and the increased risk of pressure ulcers for bedbound residents.

Referring to Figure 18-9 (p. 333 in textbook), describe the four stages of pressure ulcers. Stress that each resident’s skin should be inspected every time care is provided.

Display Transparency
18-3 Observing the skin
Review signs of skin breakdown:
• Pale, white, reddened, gray or purple skin
• Dry, cracked, or flaking skin
• Torn skin
• Blisters, bruises, or wounds on the skin
• Rashes or any discoloration
• Tingling, warmth, or burning of skin
• Itching or scratching
• Swelling of skin
• Wet skin
• Broken skin anywhere on the body
• Changes in existing wounds or ulcers

List risk factors for pressure ulcers, including:
• Immobility
• Wrinkled linens that do not lie flat
• Crumbs or other irritating objects in bed
• Malnutrition or dehydration
• Urinary incontinence

Review the guidelines for prevention of pressure ulcers:
• Report changes in skin.
• Perform regular skin care and closely observe skin.

• Keep skin clean and dry.
• Assist immobile residents to change position often, at least every two hours.
• Ask residents in wheelchairs to change position often.
• Avoid rubbing skin against surfaces during transfers.
• Keep linens dry, clean, and wrinkle-free.
• Perform ROM exercises, as ordered.
• Massage skin often, if allowed.
• Use special positioning devices.
• Use pillows to separate skin surfaces.
• Follow diet and fluid orders.
• Use moisturizers, as ordered, on unbroken skin.

6. Explain the benefits of warm and cold applications

Meeting the Learning Objective
Textbook pp. 335-340
Workbook pp. 103-104

Lecture
Discuss the following points:
• Heat relieves pain and muscular tension, decreases swelling, elevates temperature in the tissues, increases waste removal, and brings more oxygen and nutrients to tissues for healing.
• Cold helps stop bleeding, prevents swelling, reduces pain and brings down high temperatures.
• Moisture strengthens the effect of heat and cold.
• Observe for excessive redness, pain, blisters, or numbness

Demonstration
If your facility allows, demonstrate each of the following procedures, including all of the numbered steps in your demonstration:
• Applying warm moist compresses
• Administering warm soaks
• Applying an Aquamatic K-Pad

Have the students return the demonstration. Procedure checklists are located at the end of the Student Workbook.

Emphasize that these procedures should only be performed if allowed by the facility and if the NA is trained to perform the procedure.
Lecture
Pronounce and define the following key term:
• Sitz bath

Explain to students that sitz baths cause circulation to be increased to the pelvic area, which means blood flow to other parts of the body decreases. Residents may feel weak, faint, or dizzy after a sitz bath. Stop the bath if the resident complains of feeling dizzy or faint. Sitz baths may cause the urge to void. Always wear gloves when helping with a sitz bath.

Demonstrations
If your facility allows, demonstrate each of the following procedures, including all of the numbered steps in your demonstration:
• Assisting with a sitz bath
• Applying ice packs

Have the students return the demonstration. Procedure checklists are located at the end of the Student Workbook.

Emphasize that these procedures should only be performed if allowed by the facility and if the NA is trained to perform the procedure.

Lecture
Review the following points about cooling or tepid sponge baths:
• Can reduce body temperature
• Take vital signs prior to the bath and during the procedure at specific intervals.
• Possible complications include chills, shivering, sudden change in vital signs, or breathing problems.

Remind students that warm or cold applications should be limited to 20 minutes at a time.

7. Discuss non-sterile and sterile dressings

Meeting the Learning Objective
TEXTBOOK PP. 340-342
WORKBOOK P. 104

Lecture
Review the following points about sterile and non-sterile dressings:
• Open wounds increase risk of infection.
• Non-sterile dressings are applied to wounds that have less chance of infection.
• Sterile dressings are required when the wound is new, open or draining, or when there is a higher risk of infection.

Demonstration
Demonstrate the procedure: Assisting the nurse with changing a non-sterile dressing. Include all of the numbered steps in your demonstration.

Have the students return the demonstration. Procedure checklists are located at the end of the Student Workbook.

Lecture
Review the following points about sterile dressing care:
• Sterile field is created.
• Supplies that are considered sterile: sterile dressings, sterile drapes or pads, tubing and catheters.
• If any part of the sterile field becomes contaminated, the entire process must be restarted.

Demonstration
Demonstrate the procedure: Applying sterile gloves. Include all of the numbered steps in your demonstration.

Have the students return the demonstration. Procedure checklists are located at the end of the Student Workbook.

Chapter Review

Exam
DISTRIBUTE CHAPTER 18: EXAM
(APPENDIX C, PP. 326-327)

Allow students enough time to finish the test. See Appendix D for answers to the chapter exams.

Answers to Chapter Review in Textbook
1. The epidermis and the dermis
2. Answers include: protects internal organs from injury; protects body against bacteria; prevents loss of too much water; regulates body temperature; responds to heat, cold, pain, pressure, and touch; excretes waste products in sweat; and helps with production of vitamin D
Skin becomes thinner and more fragile. Protective fatty layer thins. Hair thins and turns gray. Brown spots may appear on the skin.

4. First-degree (superficial) burns affect the epidermis and cause redness and pain. Second-degree (partial-thickness) burns affect the dermis and cause some skin damage, redness, pain, swelling and blistering. Third-degree (full-thickness) burns affect the epidermis, dermis and underlying tissue and cause serious scarring, which may affect muscle and bone; white or charred skin; pain, swelling, and peeling skin.

5. By direct person-to-person contact

6. The same virus that causes chickenpox—varicella-zoster virus (VZV)

7. Open wounds—abrasion, avulsion, incision, laceration, puncture wound; closed wounds—contusion, or bruise

8. Skin breakdown usually occurs at the points of the body that bear much of the body’s weight, or pressure points.

9. Answers include: pale, white, reddened, or purple skin; dry, cracked, or flaking skin; torn skin; blisters, bruises or wounds; rashes or any skin discoloration; tingling, warmth, or burning of the skin; itching or scratching; swelling of the skin; wet skin; broken skin anywhere on the body; or changes in existing wounds or ulcers

10. Answers include: If caught early, a break or tear in the skin can heal fairly quickly without other complications. Once a pressure ulcer forms, it can become bigger, deeper, and infected. Pressure ulcers are painful and difficult to heal, and can lead to life-threatening infections.

11. Answers include: immobility; wrinkled linens that do not lie flat; crumbs or other irritating objects in bed; malnutrition or dehydration; or urinary incontinence

12. At least every two hours

13. Answers include: Heat relieves pain and muscular tension, decreases swelling, elevates temperature in the tissues, increases waste removal, and brings more oxygen and nutrients to tissues for healing. Cold helps stop bleeding, prevent swelling, reduce pain and bring down high temperatures.

14. Answers include: excessive redness; pain; blisters; or numbness

15. No longer than 20 minutes at a time

16. Non-sterile dressings are applied to wounds that have less chance of infection. Sterile dressings are required when the wound is new, open, or draining, or when there is higher risk of infection.