The Integumentary System

LEARNING OBJECTIVES

After completing this chapter, you will be able to:

1. Define the word parts used to create medical terms of the integumentary system.

2. Break down and define common medical terms used for symptoms, diseases, disorders, procedures, treatments, and devices associated with the integumentary system.

3. Build medical terms from the word parts associated with the integumentary system.

4. Pronounce and spell common medical terms associated with the integumentary system.
Chapter Review

Word Building

Construct medical terms from the following meanings. (Some are built from word parts, some are not.) The first question has been completed for you as an example.

1. identification of an illness
   
2. maintaining internal stability
   
3. common synonym of CAT scan
   
4. of long duration
   
5. the study of disease
   
6. a disease of short duration
   
7. divides the body into superior and inferior portions
   
8. body cavity inferior to the diaphragm
   
9. procedure using a long flexible tube
   
10. term for a finding following an objective examination
   
11. formed from similarly grouped cells
   
12. area of the chest
   
13. MRI
   
14. on top of the stomach
   
15. pertaining to the lung
   
16. divides the body vertically into right and left portions
   
17. pertaining to the navel
   
18. a common cause of disease
   
19. study of body structure
   
20. study of nature
   
21. pertaining to the back
   
22. pertaining to the belly
   
23. pertaining to above
   
24. pertaining to the front
   
25. pertaining to the middle
   
26. pertaining to below
   
27. region of below the stomach
   
28. region of the loin
   
29. cavity that contains the heart
   
30. cavity that contains the urinary bladder, internal reproductive organs, and parts of the small and large intestines
Anatomy and Physiology Terms

Review the combining forms that specifically apply to the anatomy and physiology of the integumentary system. Note that the combining forms are colored red to help you identify them when you see them again later in the chapter.

<table>
<thead>
<tr>
<th>Combining Form</th>
<th>Definition</th>
<th>Combining Form</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>aden/o</td>
<td>gland</td>
<td>follicul/o</td>
<td>little follicle</td>
</tr>
<tr>
<td>aut/o</td>
<td>self</td>
<td>kerat/o</td>
<td>hard</td>
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<tr>
<td>cutane/o</td>
<td>skin</td>
<td>onych/o</td>
<td>nail</td>
</tr>
<tr>
<td>cyan/o</td>
<td>blue</td>
<td>seb/o</td>
<td>sebum, oil</td>
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<tr>
<td>derm/o, dermat/o</td>
<td>skin</td>
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integumentary
IN teg yoo MEN tar ee

epidermis

5.1 The ________________ system forms the entire surface area of the body. It is dominated by the largest organ of the body, the skin. The skin is composed of two distinct layers: an inner, deep layer composed of connective tissue known as the dermis, and an outer layer of epithelium called the epidermis. The term dermis means “skin,” and the term ________________ means “on top of skin.” The integumentary system also includes smaller accessory organs embedded within the skin, such as hair follicles, nails, sebaceous glands, sweat glands, and sensory receptors.

protection
regulate
sensation

5.2 The primary function of the integumentary system is protection. ________________ is provided against outside temperature changes, dehydration, and infectious microorganisms that may cause disease. In addition, the sweat glands, blood vessels, and a layer of fat help the skin to ________________ internal body temperature, while receptors in your skin provide the ability to detect changes in the environment, giving the skin the added function of ________________.
5.3 In the next section, you will review anatomy terms by completing the illustration labels. Use the anatomy terms that appear in the left column to fill in the corresponding blanks in Figures 5.1 and 5.2.

Figure 5.1
Anatomy of the skin. Illustration of a section of skin showing key structures.

Figure 5.2
Nail structure, side view and cross-sectional view.
5.4 The integumentary system can experience many types of challenges to its homeostasis. As the outermost organ of the body, the skin is more exposed to the extremes of the external environment than any other _____________, subjecting it to temperature fluctuations, physical injury, and invasion by unwanted microorganisms. Many types of inherited and acquired diseases may also afflict the _____________. In many cases, it is the first part of the body to display signs and symptoms of an internal disorder because it is the body part with which we are most familiar—we often see, feel, and touch our skin throughout the day. The _____________ that it provides to your overall health is significant: A loss of skin can lead to severe consequences due to dehydration and infection, even death.

5.5 The medical field that specializes in the health and disease of the integumentary system is known as dermatology (derm ah TOL oh jee). This term is a constructed word, written _______/_____/______, using the combining form that means “skin,” dermat/o, to carry the primary meaning. A physician specializing in dermatology is commonly known as a dermatologist (derm ah TOL oh jist).

5.6 In the following sections, we will review the prefixes, combining forms, and suffixes that combine to build the medical terms of the _____________ system.

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**Signs and Symptoms of the Integumentary System**

**KEY TERMS A-Z**

**abrasion**

ah BRAY zhun

5.7 A common injury to the skin caused by scraping produces a superficial wound called an abrasion. Practice spelling this term: ____________________.

**abscess**

AB sess

5.8 An abscess is a localized elevation of the skin containing a cavity, which is a sign of a local infection. The ____________ cavity contains a mixture of bacteria, white blood cells, damaged tissue, and fluids collectively known as pus and is surrounded by inflamed tissue. Several words may be used to describe the production of pus. They are suppuration (suhp ah RAY shun), purulence (PEWR yoo lens), and pyogenesis (PIE oh JENN eh SIS).
5.9 **Cellulite** is a local uneven surface of the skin and is a sign of subcutaneous fat deposition. ____________ is relatively common in women on the thighs and buttocks.

5.10 An injury to the skin resulting in a break through the epidermis and into the dermis or deeper layers of skin requires the process of healing. During this process, epidermal cells migrate to the wound and produce new cells while cells within the dermis produce additional protein fibers. If the wound is too large for the epidermal cells to close the breakage, additional protein fibers (collagen) will be produced to seal the wound. In this case, the wound becomes closed by the formation of **scar tissue**. A clinical term for scar is **cicatrix**. ____________ is a Latin word that means “scar.” The plural form is **cicatrices** (sik ah TRYE seez).

5.11 The clinical term for pimple is **comedo**. It is a local elevation of the skin arising from the buildup of oil from sebaceous (oil) glands. Bacteria feed on the oil, attracting the movement of white blood cells and their products and resulting in the localized inflammation. In Latin, the word ____________ means “glutton,” referring to the fact that the lesion is caused by the action of “gluttonous” bacteria. The plural form is **comedones** (KOM ee DOH neez).

5.12 Commonly known as a bruise, a **contusion** (kon TOO zhun) is a discoloration and swelling of the skin that is symptomatic of an injury, such as a blow to the body. A ____________ is a common symptom following a physical trauma, such as an automobile accident.

5.13 The combining form for the color blue is **cyan/o**. Adding the ending -osis, which means “condition of,” produces the term _____________. It is a blue tinge of color to an area of the skin and is a sign of a cardiovascular disturbance. Cyanosis is usually apparent most clearly in the lips and fingertips.

5.14 Derived from the Greek word kystis that means “bladder,” a **cyst** is a closed sac or pouch on the surface of the skin that is filled with liquid or semisolid material. Notice that the c in the term ____________ sounds like an s.

5.15 An injury often leads to inflammation, which includes swelling. Swelling occurs when fluid accumulates in a confined space, such as beneath the skin. The clinical term for fluid accumulation is **edema**. Caused by the leakage of fluid across capillary walls, ____________ is a common sign of injury and infection.
5.16 The Greek word that means "blush" is *erythema*. We use the same word for any redness of the skin. It is a common sign of injury or infection. The correct spelling is the same as the original Greek word; it is spelled ____________________.

5.17 The clinical term for a narrow break or slit in the skin is **fissure**. It is derived from the Latin word for a split or crack, *fissura*, and is illustrated in Figure 5.3 with other signs of skin disease. Write the correct spelling of this term: ____________________.

**Figure 5.3**
Common skin signs. Each of the illustrations depicts a section through skin.

5.18 If an abscess is associated with a hair follicle, the local swelling on the skin is called a **furuncle**. A photograph of a ___________ is provided in Figure 5.4.

**Figure 5.4**
Furuncle.
Source: Courtesy of Jason L. Smith, MD.
### 5.19 A local hard area on the skin, or perhaps elsewhere in the body, is known as an **induration**. This word is derived from the Latin word *induratio*, which means “the process of becoming firm or hard.” An ____________ is usually a sign of an excessive deposit of collagen or calcium.

<table>
<thead>
<tr>
<th><strong>induration</strong></th>
<th>in doo RAY shun</th>
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### 5.20 The French word for yellow is *jaune*. It is the origin of the clinical term for an abnormal yellow coloration of the skin and eyes, **jaundice**. In most cases, ____________ is a sign of liver or gallbladder disease. The yellowing results from an abnormal release of bile pigments by the liver.

<table>
<thead>
<tr>
<th><strong>jaundice</strong></th>
<th>JAWN diss</th>
</tr>
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### 5.21 You have learned that a cicatrix may be formed when skin is torn (see Frame 5.10). An overgrowth of scar tissue that forms an elevated lesion on the skin is known as a **keloid**. This large scar, or ____________, is often discolored, which sets it apart from adjacent, normal skin (Figure 5.5).

<table>
<thead>
<tr>
<th><strong>keloid</strong></th>
<th>KEE loyd</th>
</tr>
</thead>
</table>

#### Figure 5.5
Keloid.
Source: Courtesy of Jason L. Smith, MD.

### 5.22 A **laceration** is the common result of an injury caused by a tear or perhaps a cut by a sharp object with an irregular surface. A ____________ penetrating the dermis and extending for more than one inch often requires stitching with sutures to close the wound.

<table>
<thead>
<tr>
<th><strong>laceration</strong></th>
<th>LASS err AY shun</th>
</tr>
</thead>
</table>

### 5.23 A discolored flat spot on the skin surface, such as a freckle, is clinically called a **macule**. A ____________ is a sign of sun damage to the skin, and the tendency to develop them is genetically determined. A macule is illustrated in Figure 5.3.

<table>
<thead>
<tr>
<th><strong>macule</strong></th>
<th>MAK yool</th>
</tr>
</thead>
</table>
5.24 Similar to a macule but darker in color, a **nevus** is a pigmented spot that is commonly called a mole (Figure 5.6). It is actually a sign of a benign tumor, and if its edges become irregular or the color changes, the **nevus** should be examined as a suspect malignancy known as a **melanoma** (see Frame 5.51).

![Figure 5.6 — Nevus.
Source: Courtesy of Jason L. Smith, MD.](image)

5.25 **Pallor** is an abnormally pale color of the skin. Derived from the Latin word *pallor* that means “paleness,” _________________ is a sign of an internal condition causing a decreased flow of blood to the skin.

5.26 A **papule** is a general term describing any small, solid elevation on the skin (see Figure 5.3). An example of a _________________ is a comedo, or pimple.

5.27 A **petechia** is a sign of a circulatory disorder. It occurs when a small blood vessel supplying the dermis of the skin ruptures. In people with light skin color, a _________________ is observable as a small red dot on the skin.

5.28 The symptom of itchy skin is known as **pruritus**. As you might suspect, _________________ means “an itching” in Latin.

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**WORDS TO WATCH OUT FOR**

**Pruritus**

You might think at first glance that *pruritus* (“an itching”) is a constructed term that uses the suffix -*itis*, meaning “inflammation.” This isn’t the case, however. Make a note of the spelling of this nonconstructed Latin term. The correct spelling of pruritus has an *u* near the end.
5.29 The Greeks used the word *porphyra* to name a shellfish that releases a purple dye. In time, it was changed to name the color purple. Dermatologists use a form of the word, *purpura*, for a symptom of purple-red skin discoloration. ___________ is usually the result of a hemorrhage (broken blood vessel) that spreads blood through the skin.

5.30 You learned from Frame 5.8 that pus is a fluid containing bacteria, white blood cells, and their products. A general term for an elevated area of the skin filled with pus is *pustule*. An example of a ____________ is a whitehead with pus. A pustule is illustrated in Figure 5.3.

5.31 An *ulcer* is an erosion through the skin or mucous membrane (see Figure 5.3). The term is derived from the Latin word that means “a sore,” *ulcus*. A common form of ulcer arises from lack of movement when lying supine for an extended period of time. It is called a *decubitus* (dee KYOO bih tus) ____________.

5.32 A common allergic skin reaction to medications, foods, infection, or injury produces small fluid-filled skin elevations, known as *urticaria* (Figure S.7M). Also known as hives, ________________ may be accompanied by pruritus (see Frame 5.28).

5.33 A wart is a sign of infection by a papilloma virus. The wart, or *verruca*, is an effort by the skin to rid itself of the virus and is observed as a skin elevation with a thickened epidermis. A ________________ can be treated with antiviral medication.
5.34 A vesicle is a small elevation of the epidermis that is filled with fluid (see Figure 5.3). A blister is an example of a _____________ that results from injury to the skin.

5.35 A temporary, itchy elevation of the skin, often with a white center and red perimeter, is called a wheal. A _____________ is a symptom of an allergic reaction of the skin and is illustrated in Figure 5.3.

**PRACTICE: Signs and Symptoms of the Integumentary System**

**The Right Match**

Match the term on the left with the correct definition on the right.

1. cellulite  
2. abscess  
3. cicatrix  
4. abrasion  
5. jaundice  
6. nevus  
7. pruritus  
8. ulcer  
9. cyst  
10. erythema  
11. furuncle  
12. pustule  
13. verruca  
14. wheal  
15. comedo  
16. vesicle  
17. urticaria  
18. pallor  
19. papule  
20. keloid  
21. macule

a. localized skin swelling that is a sign of inflammation  
b. abnormal yellow coloration of the skin  
c. a local uneven surface of the skin caused by fat deposition  
d. an erosion through the skin or mucous membrane  
e. itchy skin  
f. clinical term for scar  
g. a pigmented spot on the skin; a mole  
h. scraping injury to the skin  
i. a wart  
j. elevated area of the skin filled with pus  
k. temporary, itchy elevation of the skin  
l. redness of the skin  
m. abscess associated with a hair follicle  
n. a closed sac or pouch filled with liquid or semisolid material  
o. any small, solid elevation on the skin  	p. a discolored flat spot on the skin, such as a freckle  
q. an overgrowth of scar tissue  
r. small fluid-filled skin elevations caused by an allergic reaction  
s. abnormally pale skin color  
t. a small elevation of the epidermis that is filled with fluid  
u. pimple
Diseases and Disorders of the Integumentary System

Review some of the word parts that specifically apply to the diseases and disorders of the integumentary system that are covered in the following section. Note that the word parts are color coded to help you identify them: prefixes are green, combining forms are red, and suffixes are blue.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ec-</td>
<td>outside, out</td>
</tr>
<tr>
<td>par-</td>
<td>alongside, abnormal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Combining Form</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>actin/o</td>
<td>radiation</td>
</tr>
<tr>
<td>aden/o</td>
<td>gland</td>
</tr>
<tr>
<td>albin/o</td>
<td>white</td>
</tr>
<tr>
<td>carcin/o</td>
<td>cancer</td>
</tr>
<tr>
<td>cellul/o</td>
<td>little cell</td>
</tr>
<tr>
<td>chym/o</td>
<td>juice</td>
</tr>
<tr>
<td>crypt/o</td>
<td>hidden</td>
</tr>
<tr>
<td>derm/o, dermat/o</td>
<td>skin</td>
</tr>
<tr>
<td>follicul/o</td>
<td>little follicle</td>
</tr>
<tr>
<td>hidr/o</td>
<td>sweat</td>
</tr>
<tr>
<td>kerat/o</td>
<td>hard</td>
</tr>
<tr>
<td>leuk/o</td>
<td>white</td>
</tr>
<tr>
<td>melan/o</td>
<td>black</td>
</tr>
<tr>
<td>myc/o</td>
<td>fungus</td>
</tr>
<tr>
<td>onych/o</td>
<td>nail</td>
</tr>
<tr>
<td>pedicul/o</td>
<td>body louse</td>
</tr>
<tr>
<td>scler/o</td>
<td>hard</td>
</tr>
<tr>
<td>trich/o</td>
<td>hair</td>
</tr>
<tr>
<td>xer/o</td>
<td>dry</td>
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<table>
<thead>
<tr>
<th>Suffix</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>-a</td>
<td>singular</td>
</tr>
<tr>
<td>-ia</td>
<td>condition of</td>
</tr>
<tr>
<td>-ic</td>
<td>pertaining to</td>
</tr>
<tr>
<td>-ism</td>
<td>condition or disease</td>
</tr>
<tr>
<td>-itis</td>
<td>inflammation</td>
</tr>
<tr>
<td>-malacia</td>
<td>softening</td>
</tr>
<tr>
<td>-oma</td>
<td>tumor</td>
</tr>
<tr>
<td>-osis</td>
<td>condition of</td>
</tr>
<tr>
<td>-pathy</td>
<td>disease</td>
</tr>
<tr>
<td>-rrhea</td>
<td>discharge</td>
</tr>
</tbody>
</table>

**KEY TERMS A-Z**

**acne**

AK née

5.36 **Acne** is an uncomfortable condition of the skin resulting from bacterial infection of sebaceous glands and ducts (Figure 5.8). The skin disease known as ________________ is characterized by the presence of numerous open comedones (blackheads) and closed comedones (whiteheads) in affected parts of the face, and also often involves the neck, back, and chest. Acne is the most common skin disease of adolescence, due to the rapid growth of sebaceous glands during this period of life.

Figure 5.8

Acne.
Source: Courtesy of Jason L. Smith, MD.
5.37 Actinic keratosis is a precancerous condition of the skin caused by exposure to sunlight. It forms skin lesions resulting from overgrowths of the epidermis, usually with scaly surfaces. The term actinic keratosi is a constructed word, actinic keratosis, in which actinic is Greek for “pertaining to light rays” and keratosis means “a condition of keratin.” In general, any form of keratosis produces a sign of scaly skin.

5.38 A genetic condition characterized by the reduction of the pigment melanin in the skin is known as albinism. The term albinism uses the combining form albin/o, which is derived from the Latin word for white, albus. It is a constructed word, albinism, which means “a condition or disease of white.” The term albino refers to the person affected with albinism.

5.39 A loss or lack of scalp hair is a clinical sign known as baldness, or alopecia. Alopecia may be a sign of an infection of the scalp, high fevers, drug reactions, or emotional stress. The common appearance of alopecia in men, often called male-pattern baldness, is the result of a genetically controlled factor that prevents the development of hair follicles in certain areas of the scalp.

5.40 A burn is an injury to the skin caused by excessive exposure to fire, electricity, chemicals, or sunlight. The level of injury caused by the burn is determined by the amount of surface area damaged, called total body surface area (TBSA), and the depth of the damage. A burn becomes life threatening when a large TBSA has become damaged, exposing the body to infection and exposure. In the past, burn depth classified burns into first-degree, second-degree, third-degree, and fourth-degree categories. More recently, burn depth is recorded as partial thickness, full thickness, and deep. These classifications are illustrated in Figure 5.9.
5.41 A **carbuncle** is a skin infection composed of a cluster of boils (Figure 5.10). The most common source of infection is *Staphylococci* bacteria, or "staph." The term __________________ is derived from the Latin word *carbo*, which means "live coal" and refers to the hot pain associated with this disease.

5.42 Remember that the combining form **carcin/o** means "cancer." When you add the suffix that means "tumor," it forms the word __________________. Several forms of cancer, or carcinoma, affect the skin. **Basal cell carcinoma** (Figure 5.11) and **squamous cell carcinoma** are tumors arising from the epidermis that usually remain localized, although the lesions do spread and can become serious if they are not treated. Squamous cell carcinomas, in particular, can be dangerous. The third major form of skin cancer is **melanoma**, which will be described later in Frame 5.51.
5.43 **Cellulitis** is an inflammation of the connective tissue in the dermis (Figure 5.12). It is caused by an infection that spreads from the skin surface or hair follicles to the dermis and sometimes the subcutaneous tissue. It is usually bacterial in origin. The term is a constructed word, *cellulitis*, which literally means “inflammation of little cells.” The related term used for follicle infection, *folliculitis* (foh LIK yoo LYE tiss), is also a constructed word. It means “inflammation of little follicles.”

5.44 **Dermatitis** is a generalized inflammation of the skin, involving edema (Frame 5.15) of the dermis (Figure 5.13). In addition to swelling, symptoms may include pruritus (Frame 5.28), urticaria (Frame 5.32), vesicles (Frame 5.34), and wheals (Frame 5.35), or some combination of these. The major types of include contact dermatitis, caused by physical contact with a triggering substance such as poison ivy; *seborrheic* (SEB or EE ihk) *dermatitis*, which is an inherited form characterized by excessive sebum production; and actinic dermatitis, caused by sunlight exposure. Eczema (EK zeh mah) is a superficial form of dermatitis, with flakiness of the epidermis as the primary sign. Dermatitis is a constructed word, *dermatitis*, which literally means “inflammation of the skin.”
Ecchymosis is a condition of the skin caused by leaking blood vessels in the dermis, producing purplish patches of purpura (Frame 5.29) larger in size than petechiae (Frame 5.27). The term ecchymosis is a constructed word, ec/chym/osis, which literally means “condition of leaking out.”

A skin eruption producing clusters of deep blisters is known as herpes. The vesicles (Frame 5.34) appear periodically, affecting the borders between mucous membranes and skin. There are several types of herpes, all of which are caused by herpes simplex virus (HSV). The major types are oral herpes, caused by herpes virus type 1 (Figure 5.14), genital herpes, caused by herpes virus type 2, and shingles, caused by the herpes zoster virus. Herpes is an infectious disease, transferable when the vesicles burst open and physical contact is made between the carrier and another person. In the absence of lesions, it may also be transferable by body fluid contact.
hidradenitis
high drad en EYE tiss

5.47 In the condition **hidradenitis**, the individual suffers from excessive perspiration. It is due to the inflammation of sweat glands, which can become worsened by bacterial infection. The word ___________________ is a constructed term, hidr/aden/itis, with two word roots: hidr, which means “sweat,” and aden, which means “gland.” Thus, the literal meaning of the term is “inflammation of sweat gland.”

impetigo
imp eh TYE goh

5.48 **Impetigo** is a contagious skin infection (Figure 5.15). Similar to oral herpes due to the development of small vesicles (Frame 5.34) usually forming around the lips, it is often caused by bacteria that enters a break in the skin (such as an animal or insect bite) and is characterized by the presence of golden crusts following the rupture of the vesicles. The term ___________________ is a Latin word meaning “scabby eruption.”

Figure 5.15 ■
Impetigo.
Source: Courtesy of Jason L. Smith, MD.

Kaposi’s sarcoma
KAP oh seez * sar KOH mah

5.49 **Kaposi’s sarcoma** is a form of skin cancer arising from the connective tissue of the dermis (Figure 5.16). It is indicated by the presence of brown or purple patches on the skin and appears among some elderly patients. ___________________ is also a common condition associated with HIV infection and AIDS.

Figure 5.16 ■
Kaposi’s sarcoma.
Source: Courtesy of Jason L. Smith, MD.

leukoderma
loo koh DER mah

5.50 As some people age, their skin becomes lighter in color due to reduced activity of the pigment-producing cells in the skin, the melanocytes. This condition is called **leukoderma**. The term ___________________ is a constructed word, leuk/o/derm/a, which literally means “white skin.”
5.51 The most life-threatening skin cancer is **malignant melanoma**, which is shown in Figure 5.17. It arises from the cells normally providing the pigment **melanin** (MELL ah nin) to the skin, called **melanocytes** (mell AN oh sites). ____________ is a constructed term, melan/oma, which literally means “black tumor.” Once established in the skin, the tumor grows rapidly and metastasizes (goes elsewhere in the body). About one-half of cases arise from nevi (moles).

5.52 The combining form for nail is onych/o and is used in the construction of terms relating to nail diseases. In general, a disease of the nail is an **onychopathy** (ON ih KOHP a thee). In the nail condition called **onychocryptosis**, a nail becomes buried in the skin due to abnormal growth. It is commonly called an ingrown nail. The term ____________ is a constructed word, onych/o/crypt/osis, and means “condition of hidden nail.”

5.53 In the condition **onychomalacia**, a nail is abnormally soft. It is often a sign of calcium or vitamin D deficiency. The term ____________ is a constructed word, onych/o/malacia, which means “softening of the nail.”

5.54 The condition ____________ is a fungal infection of one or more nails (Figure 5.18). Notice that the word root for fungus, **myc**, is included in this constructed term, onych/o/myc/osis, to form its meaning into “condition of fungus of the nail.”
5.55 In **paronychia**, the prefix *par-*, which means "alongside, abnormal," is included to build the term. Thus, the constructed word `par/onych/ia` means "condition of alongside the nail." As you might guess, ____________ is an infection around the nail.

5.56 The Latin word for a parasitic body louse is *pediculus*, which is the origin of the combining form of *pedicul/o*. When this combining form is combined with the suffix for "condition of," it forms the constructed word ____________. **Pediculosis** occurs mostly on the scalp, where it is called head lice, but it may also be found in the pubic region (called pubic lice) and other parts of the body (called body lice). Pediculosis can be treated effectively with medicated shampoo.

5.57 **Psoriasis** is a painful, chronic disease of the skin characterized by the presence of red lesions covered with silvery epidermal scales (Figure 5.19). Believed to be an inherited inflammatory disease of the skin, ____________ is a Greek word meaning "to itch" and is spelled exactly like the clinical term.

5.58 The condition **scabies** is a skin eruption caused by the female itch mite, which burrows into the skin to extract blood (Figure 5.20). From the Latin word *scabere* that means "scratch," ____________ produces the symptoms of dermatitis (Frame 5.44), such as erythema (Frame 5.16), swelling or edema (Frame 5.15), and pruritus (Frame 5.28).
5.59 **Scleroderma** uses the combining form *scler/o*, which means “hard.” It is an abnormal thickening or hardness of the skin, caused by overproduction of collagen in the dermis. The term ____________ is a constructed word, *scler/o/derm/a*, which means “skin hardness.”

5.60 **Systemic lupus erythematosus**, abbreviated **SLE**, is a chronic, progressive disease of connective tissue in many organs including the skin. The early stages of ____________, often commonly referred to as just lupus, are marked by red patches on the skin of the face and joint pain.

**DID YOU KNOW?**

The Latin word for wolf is *lupus*. The disease lupus was named by the appearance of the reddish face rash that reminded early physicians of a wolf.

5.61 **Tinea** is a fungal infection of the skin. It is often called *ringworm* due to the ring-shaped pattern on the skin that forms in response to the fungi (Figure 5.21). In fact, the term ____________ is the Latin word for worm or larval moth. The three major forms of tinea are **tinea capitis**, which forms on the scalp and can lead to alopecia (Frame 5.39); **tinea pedis**, which forms on the feet and is also known as athlete’s foot; and **tinea corporis**, which may occur elsewhere on the body.
The Integumentary System | 99

Figure 5.21
Tinea. Although it is a fungal infection, tinea is often called ringworm.
Source: Courtesy of Jason L. Smith, MD.

5.62 A general term for a disease affecting the hair is **trichopathy** (trye KOH path ee), which combines the word root for hair (trich) and the suffix for disease (-pathy). The condition **trichomycosis** is a fungal infection of hair. In this constructed term, trich/o/myc/osis, the word roots for hair and fungus are combined to form the term ________________.

5.63 The combining form xer/o means “dry”; when this is combined with the word root that means “skin,” it forms the word ________________. Not surprisingly, the disease **xeroderma** is characterized by abnormally dry skin. It is caused by hyposecretion (abnormally low secretion) of the oil glands and is an inherited condition. It is a constructed term, xer/o/derm/a, which literally means “dry skin.”

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**PRACTICE: Diseases and Disorders of the Integumentary System**

**The Right Match**

Match the term on the left with the correct definition on the right.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>tinea</td>
</tr>
<tr>
<td>2.</td>
<td>acne</td>
</tr>
<tr>
<td>3.</td>
<td>burn</td>
</tr>
<tr>
<td>4.</td>
<td>herpes</td>
</tr>
<tr>
<td>5.</td>
<td>alopecia</td>
</tr>
<tr>
<td>6.</td>
<td>impetigo</td>
</tr>
<tr>
<td>7.</td>
<td>scabies</td>
</tr>
<tr>
<td>8.</td>
<td>psoriasis</td>
</tr>
</tbody>
</table>

- a. results from bacterial infection of sebaceous glands and ducts
- b. characterized by red lesions covered with silvery epidermal scales
- c. baldness
- d. contagious bacterial skin infection with a yellowish crust
- e. caused by excessive exposure to fire, electricity, chemicals, or sunlight
- f. skin eruption caused by the female itch mite
- g. viral skin eruption that produces clusters of deep blisters
- h. fungal infection of the skin
Break the Chain

Analyze these medical terms:

a) Separate each term into its word parts; each word part is labeled for you (p = prefix, r = root, cf = combining form, and s = suffix).

b) For the Bonus Question, write the requested word part or definition in the blank that follows.

The first set has been completed for you as an example.

1. a) dermatitis
   
   derma/titis

   r   s

   b) Bonus Question: What is the definition of the suffix? inflammation

2. a) melanoma

   r   s

   b) Bonus Question: What is the definition of the suffix?

3. a) onychomycosis

   onycho/mycosis

   cf   r   s

   b) Bonus Question: What is the definition of the second word root?

4. a) pediculosis

   pedi/culosis

   r   s

   b) Bonus Question: What is the definition of the suffix?

5. a) scleroderma

   sclero/derma

   cf   r   s

   b) Bonus Question: What is the definition of the combining form?

6. a) trichomycosis

   tricho/mycosis

   cf   r   s

   b) Bonus Question: What is the definition of the combining form?

7. a) cellulitis

   cellu/litis

   r   s

   b) Bonus Question: What is the definition of the suffix?

8. a) leukoderma

   leuko/derma

   cf   r   s

   b) Bonus Question: What is the definition of the second word root?
Treatments, Procedures, and Devices of the Integumentary System

Review some of the word parts that specifically apply to the treatments, procedures, and devices of the integumentary system that are covered in the following section. Note that the word parts are color coded to help you identify them: prefixes are green, combining forms are red, and suffixes are blue.

<table>
<thead>
<tr>
<th>Combining Form</th>
<th>Definition</th>
<th>Suffix</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>abras/o</td>
<td>to rub away</td>
<td>-ectomy</td>
<td>surgical excision, removal</td>
</tr>
<tr>
<td>aut/o</td>
<td>self</td>
<td>-ion</td>
<td>process</td>
</tr>
<tr>
<td>derm/o, dermat/o</td>
<td>skin</td>
<td>-plasty</td>
<td>surgical repair</td>
</tr>
<tr>
<td>rhytid/o</td>
<td>wrinkle</td>
<td>-tome</td>
<td>cutting instrument</td>
</tr>
</tbody>
</table>

**KEY TERMS A-Z**

biopsy
BYE op see

debridement
day breed MON

5.64 A biopsy is a minor surgery involving the removal of tissue for evaluation. Abbreviated bx or Bx, a ________________ is usually a necessary step toward making a diagnosis of a suspected tumor of the skin.

5.65 Wounds are often complicated by physical contact with a dirty object, including the ground. To clean the wound, a procedure called debridement is often used (Figure 5.22). A French word meaning “unbridled,” ________________ involves excision of foreign matter and unwanted tissue.

Figure 5.22
Debridement, or wound cleansing.
Source: © ARNO MASSEE/SCIENCE PHOTO LIBRARY/Custom Medical Stock Photo
5.66 Remember that the combining form derm/o means “skin.” When combined with the suffix that means “process” and the combining form that means “to rub away,” abras/o, it forms the word ____________. Dermabrasion is a form of cosmetic surgery, in which the skin is surgically changed to improve appearance. During dermabrasion, abrasives similar to sandpaper are used to remove unwanted scars and other elevations and may also be used to remove tattoos. Alternatives to dermabrasion include chemical peels, in which a chemical agent is used to remove the outer epidermal layers to treat acne, wrinkles, and sun-damaged skin.

5.67 Some burns and similar injuries cause extensive damage to a large area of skin, challenging the normal healing process. In these cases, the surgical procedure of dermatoautoplasty may be used to improve healing. This is a constructed term that can be written as dermat/o/aut/o/plasty. In this term, note the combining form that means “self,” aut/o. This is because the surgery involves using the patient’s own skin as a graft, usually after it has grown in a media solution. ____________ is also called an autograft. Alternatively, a skin graft from another person may be used. This procedure is called dermatoheteroplasty (DER mah toh HET er oh PLASS tee), or allograft. During both procedures, an instrument called a dermatome (DER mah tohm) is used to cut thin slices of skin for grafting. A ____________ may also be used to excise (surgically remove) small skin lesions. Recall that the suffix -tome means “cutting instrument.”

5.68 The general term for a surgical procedure of the skin is dermatoplasty. This term uses the combining form that means “skin” with the suffix, -plasty, which means “surgical repair.” In ________________, skin tissue is transplanted to the body surface.

5.69 An ________________ is a chemical agent that softens or smooths the skin. Topical and oral antibiotics (ahn tye bye OT iks) are used to manage infections, such as acne and carbuncles. Retinoids (RET ih noydz) may also be used to manage certain forms of acne because they cause the upper layers of the epidermis to slough away. Acne and related disorders may also be treated by ultraviolet light therapy, which causes a similar effect on the epidermis.
5.70 **Plastic surgery** is a popular form of skin treatment, which is used for skin repair following a major injury, correction of a congenital defect, or cosmetic improvement. Several of the terms related to plastic surgery use the combining form *rhytid/o*, which means “wrinkle.” Plastic surgeries that are primarily cosmetic include **rhytidoplasty** (RIT ih doh PLASS tee), which is the surgical repair of skin wrinkles (Figure 5.23); **liposuction** (LIE poh suk shun), which is the removal of subcutaneous fat (fat immediately deep to the skin) by insertion of a device that applies a vacuum to pull the fat tissue out of the body.

**Figure 5.23**
Rhytidoplasty. This is a common form of plastic surgery in which the skin is pulled and sutured to decrease skin wrinkles.

*Source: Kim Steele/Getty Images.*

**Words to Watch Out For**

**The Y in Rhytid**

It may be tempting to spell the term *rhytidectomy* with an *i* instead of a *y*. One way to remember to use a *y* is to think of the word *elderly*. As you’ve learned, the word root *rhytid* means “wrinkle.” Elderly people commonly have wrinkles, and the word *elderly* ends with a *y*. 
PRACTICE: Treatments, Procedures, and Devices of the Integumentary System

The Right Match

Match the term on the left with the correct definition on the right.

1. biopsy
2. emollient
3. debridement
4. cosmetic surgery
5. autograft

   a. chemical agent that softens or smooths the skin
   b. wound-cleaning procedure
   c. surgically changing the skin to improve appearance
   d. surgery that uses a patient's own skin as a graft
   e. the removal of tissue for evaluation

Linkup

Link the word parts in the list to create the terms that match the definitions. You may use word parts more than once. Remember to add in combining vowels when needed—and that some terms do not use any combining vowel. The first one is completed for you as an example.

Combining Form  | Suffix
---------------|-------
abras/o        | -ectomy
aut/o          | -ion
derm/o, dermat/o | -plasty
rhytid/o       | -tome

Definition

1. use of abrasives to remove unwanted scars and tattoos
2. the surgical repair of skin wrinkles
3. surgical repair of the skin
4. surgery that involves the use of the patient's own skin to improve healing
5. an instrument that is used to cut thin slices of skin for grafting

Term

dermabrasion
Abbreviations of the Integumentary System

The abbreviations that are associated with the integumentary system are summarized here. Study these abbreviations, and review them in the exercise that follows.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCC</td>
<td>basal cell carcinoma</td>
<td>SqCCa</td>
<td>squamous cell carcinoma</td>
</tr>
<tr>
<td>bx, Bx</td>
<td>biopsy</td>
<td>TBSA</td>
<td>total body surface area</td>
</tr>
<tr>
<td>SLE</td>
<td>systemic lupus erythematosus</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PRACTICE: Abbreviations**

Fill in the blanks with the abbreviation or the complete medical term.

**Abbreviation**

1. ____________________
2. BCC
3. ____________________
4. SqCCa
5. ____________________

**Medical Term**

biopsy

systemic lupus erythematosus

total body surface area
Chapter Review

Word Building

Construct medical terms from the following meanings. The first question has been completed for you as an example.

1. literally means "black tumor" melanoma
2. inflammation of connective tissue —itis
3. disease of the nail onychopathy
4. fungal infection of a nail onychomycosis
5. abnormally dry skin dermopathy
6. a skin wound caused by scraping abrasion
7. an infection arising from a follicle folliculitis
8. disease that affects the hair trichologist
9. blisters that later form a yellowish crust iigo
10. a small, solid circumscribed skin elevation nevus
11. a discolored flat spot —ule
12. derived from the Latin word "to soften" emollient
13. one who specializes in skin ailments dermatologist
14. overgrowth of scar tissue keloid
15. an ingrown nail cryptosis
16. a precancerous condition caused by sunlight actinic keratosis
17. abnormally light skin —derma
Medical Report Exercises

Sally Garcia

Read the following medical report, then answer the questions that follow.

PEARSON GENERAL HOSPITAL
5500 University Avenue, Metropolis, TX
Phone: (211) 594-4000 • Fax: (211) 594-4001

Medical Consultation: Dermatology
Date: 11/20/2011
Patient: Sally Garcia
Patient Complaint: Itchy, painful rash on right upper arm.

History: 22-year-old Hispanic female has complained of itching, pain, and swelling of the right upper arm, for one month. Social History: During this time, she started work in a factory warehouse where she was exposed to dust and high humidity. She reports that chemicals are used in the workplace but does not now know what chemicals to which she was exposed.

Family History: Father, age 72, with melanoma; older brother with seborrheic dermatitis spreading to the scalp to contribute to alopecia.

Allergies: None

Physical Examination: All vital signs are normal. Skin shows generalized inflammation, including erythema and mild edema, of right upper arm spreading to shoulder and thorax with vesicular rash. There is some scarring occurring, and there is a 3 cm × 1 cm keloid located on the lateral aspect of the right arm.

Diagnosis: Contact dermatitis.

Treatment: Treat local skin rash with emollients and 2% cortisone ointment. Schedule follow-up appointment in two weeks. If inflammation persists, antibiotic ointment to be administered.

Jane K. Hernandez, M.D.

Comprehension Questions

1. What is the probable cause of the cicatrices on the skin? ________________________________

2. If the symptom of pruritus returns after the initial treatment, how might the formation of new scar tissue be prevented? ________________________________

3. Why do you think antibiotic therapy is included in the follow-up treatment if the condition persists? ________________________________
At the (a) ______________ clinic where patients with skin ailments are referred, Sally Garcia, a patient with an unusual skin condition, was observed. The skin condition included a generalized skin inflammation, or (b) ______________, which included abnormal redness, swelling, and pain. Skin damage caused by sunlight, a precancerous condition known as (c) ______________ ________________, was ruled out as a diagnosis, along with all known forms of skin cancer. Rather, an allergic agent was the likely cause. After several days of general inflammation, fluid-filled skin elevations, or (d) ______________, appeared. The elevations gave the patient symptoms of itching or (e) ______________. Scratching the elevations produced open sores, or (f) ______________, which upon healing left scars, or (g) ______________. In some areas, the scar tissue became overgrown, forming (h) ______________. Treatment included the application of topical ointments, or (i) ______________, and antibiotic treatments were prescribed during a follow-up.
Comprehension Questions

1. What patient behaviors support the initial diagnosis?  

2. What is a common word for nevus?  

3. Do you think antibiotic therapy should be included in the treatment?
Case Study Questions

The following case study provides further discussion regarding the patient in the medical report. Recall the terms from this chapter to fill in the blanks with the correct terms.

Patricia Velasquez, a 25-year-old female, had trained for competitive swimming and diving since the age of 12 years. According to her mother, Patricia has had no prior medical concerns and was given the usual vaccinations as a young child. Several months before Patricia's visit to her personal physician, she had been complaining of a nagging irritation on the skin of her right shoulder. Because, at first, she believed the skin irritation to be a minor response to a new skin lotion, or (j) ________________, she delayed consulting a physician. When her mother noticed the mole, or (k) ________________, on Patricia's right shoulder had changed in shape and become darker, she decided to make an appointment. After a physical exam with otherwise negative findings, her personal physician observed the mole and referred her immediately to a skin specialist, or (l) ________________. Upon observing the nevus, which had increased in size from 0.5 cm to 0.9 cm since her prior appointment only three weeks earlier, the skin specialist recorded the lesion as a possible form of skin cancer arising from pigment-producing skin cells, called (m) ________________. He determined that an immediate course of action was necessary and asked for Patricia's approval to remove the suspected tumor as an outpatient treatment in his office. Patricia agreed, and the specialist performed the minor surgery within minutes. The specimen was sent to the lab for analysis as part of the biopsy procedure, abbreviated (n) ________________. Because of the large incision necessary, a skin repair procedure, (o) ________________, was performed to aid healing and prevent the formation of a scar, or (p) ________________. Although the lab reported that the specimen was positive for melanoma, the specimen did not show evidence of metastasis, so no further cancer treatments were deemed necessary.

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