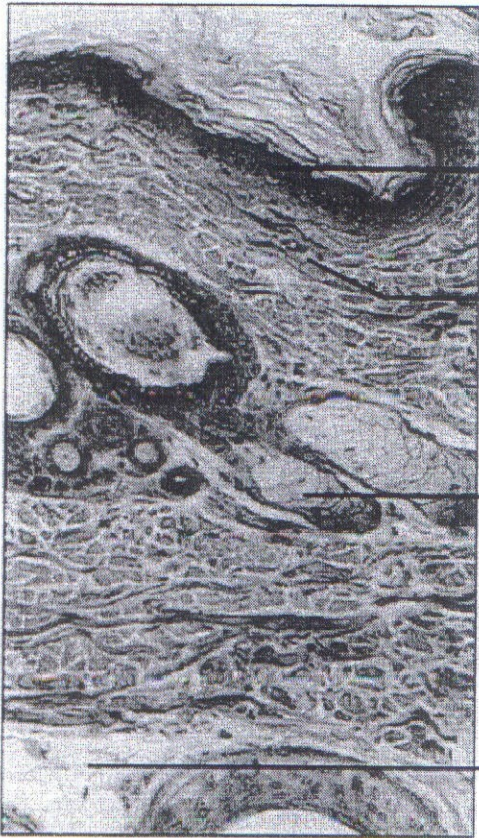


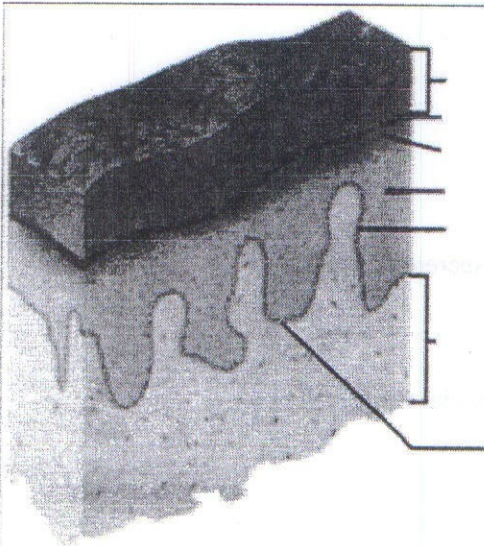
Physiology:

\*\*Layers of the skin

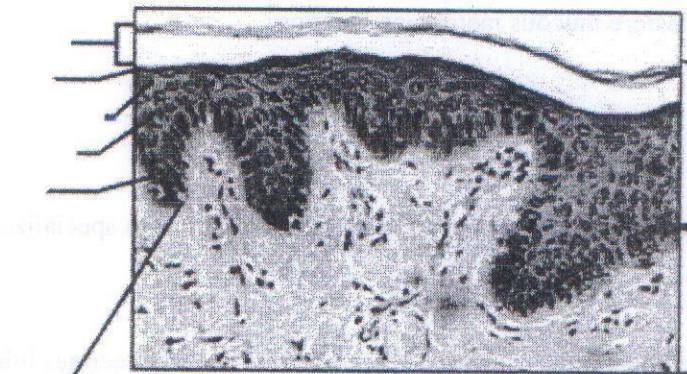


**Irregular dense connective tissue**

**Epidermis, Dermis, & Basement Membrane**



**(a)**



**Epiderm**

**Dermis**

**(b)**

## 6.1 Introduction

A. Organs are body structures composed of two or more different tissues.

B.

C. The skin includes two distinct layers:

a)

b) inner layer, or dermis is thicker than the epidermis and contains connective tissue

\* both layers are discussed later in the notes

Types of Epithelial Membranes:

## 6.2 Types of Membranes

A.

1. They line the thorax and abdomen and cover the organs within these cavities.

2. Serous membranes are made up of epithelium and loose connective tissue and secrete serous fluid that acts as a lubricant.

B.

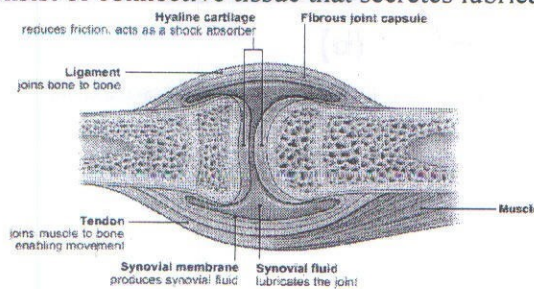
\*\* Draw & label Balloon Example:

\*\* Draw & label where mucous membrane locations

1. They consist of epithelium and connective tissue with specialized cells that secrete mucus.

C.

1. These membranes consist of connective tissue that secretes lubricating synovial fluid.

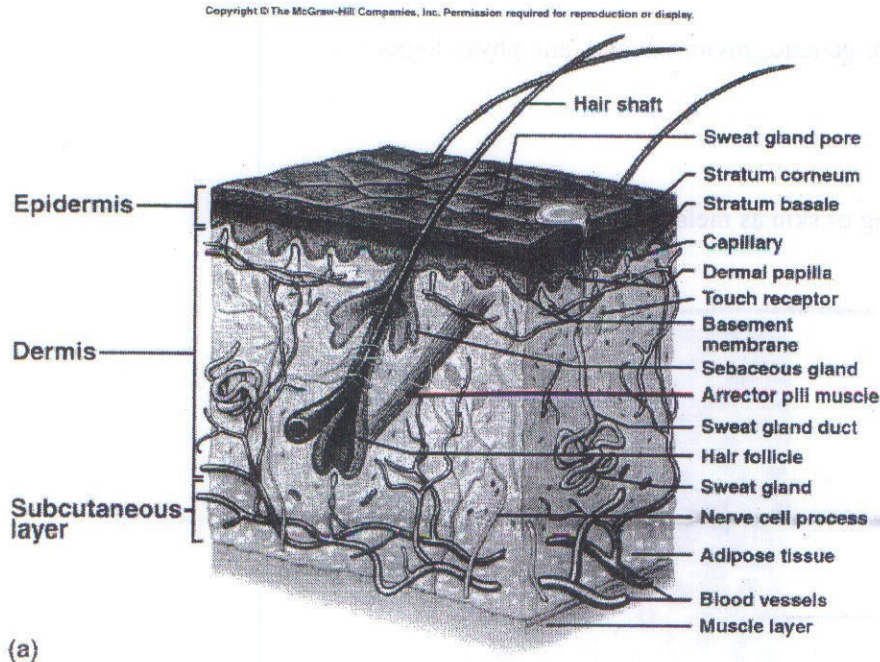


D. The final membrane type is the cutaneous membrane, which consists of the skin.

## Skin and Its Tissues cont.

The skin is a large organ \_\_\_\_\_ through temperature regulation, protection of underlying tissues, retardation of water loss, housing sensory receptors, synthesizing certain chemicals, and excreting wastes.

B. The skin consists of an outer epidermis and a dermis, connected to underlying tissue by the \_\_\_\_\_.



### Epidermis

1. The epidermis is made up of \_\_\_\_\_ and lacks blood vessels.

2.

3. Cells are pushed outward as new cells are formed, and become keratinized as they die-cytoplasm fills with tough, fibrous, water proof keratin protein. The increased rate of cell division leads to Calluses.

Epidermis

4. As a result of \_\_\_\_\_ many layers of tough, \_\_\_\_\_ cells accumulate in the outermost epidermis (superficial), forming a layer called the stratum corneum. The dead cells that compose it are eventually shed.

5. Stratum lucidum is the thickened skin of the palms and soles.

6. The epidermis is important because it protects against water loss, mechanical injury, chemicals, and microorganisms.

7. \_\_\_\_\_, which lie deep in the epidermis and underlying dermis, produce a pigment called melanin that protects deeper cells from the sun's ultraviolet rays.

8. \_\_\_\_\_ pass melanin to nearby cells through cytotrine secretion.

### Skin Cancer

\_\_\_\_\_ ?

The most dangerous form of skin cancer, \_\_\_\_\_ begins in a type of skin cell called a melanocyte. \_\_\_\_\_ produce the skin pigment known as melanin, which is responsible for our natural skin color. When exposed to sunlight, these skin cells produce large amounts of melanin as part of the \_\_\_\_\_ process, helping to protect the skin from burning.

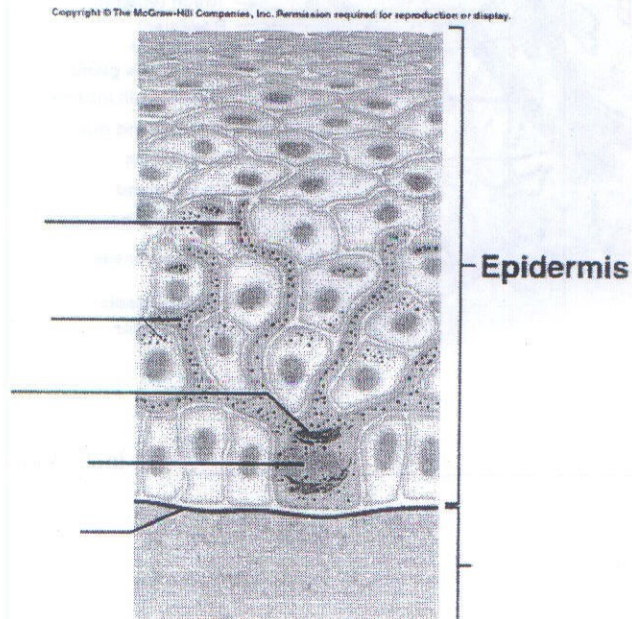
### What Is the ABCD Rule for Malignant Melanoma?

#### Skin Color

Skin color results from a combination of genetic, environmental, and physiological factors.

3. Exposure to sunlight causes darkening of skin as melanin production increases.

4.



Add to notes:

#### Dermis

1.

2. The dermis consists of connective tissue with collagen and elastic fibers within a gel-like ground substance.

3. \_\_\_\_\_ carry nutrients to upper layers of skin and help to regulate temperature. Interference with blood flow leads to Pressure ulcers or bed sores.

4.

Production of vitamin D

Skin cells help to produce \_\_\_\_\_, which is necessary for normal bone and tooth development.

1. Vitamin can be obtained in the diet or can be formed from a substance (dehydrocholesterol).
2. When dehydrocholesterol reaches the skin by blood and exposed to UV rays, this compound is converted to a substance that becomes vitamin D.

### **Subcutaneous Layer**

1. The subcutaneous layer (hypodermis) is composed of loose connective tissue and insulating adipose tissue.
2. It binds the skin to underlying organs and contains the blood vessels that supply the skin.
3. No sharp boundary exists between the dermis and subcutaneous layer.

Hair Follicle

### 6.4 Accessory Organs of the Skin

#### A. Hair Follicles

- 1.
2. Individual hairs develop from cells at the base of the hair follicle, a tubelike depression of the lower epidermis that dips down into the dermis.
- 3.
4. A bundle of smooth muscle cells, called the arrector pili muscle, is attached to each hair follicle.
5. Hair color is determined by genetics; melanin from melanocytes is responsible for most hair colors, but red hair also contains the pigment trichosiderin.

### Sebaceous Glands (Figs. 6.6)

#### Sebaceous Glands

1.

#### Nails

- 1.
2. Nails consist of stratified squamous epithelial cells overlying the nail bed, with the lunula as the most actively growing region of the nail root.
- 3.

Sweat glands (sudoriferous glands) are either eccrine, which respond to body temperature, or apocrine, which respond to body temperature, stress, and sexual arousal.

2.

3. Mammary glands, another modified type of sweat glands, secrete milk.

### 6.5 Regulation of Body Temperature

A. Proper temperature regulation is vital to maintaining metabolic reactions.

B.

C. Active cells, such as those of the heart and skeletal muscle, produce heat.

D. Heat may be lost to the surroundings from the skin.

E.

F. The body responds to excessive cooling by constricting dermal blood vessels, inactivating sweat glands, and shivering.

### Healing of Wounds and Burns

A. Inflammation, in which blood vessels dilate and become more permeable, causing tissues to become red and swollen, is the body's normal response to injury.

B.

### Healing of Burns:

1<sup>st</sup> degree

2<sup>nd</sup> degree

3<sup>rd</sup> degree

4<sup>th</sup> degree

C. Deeper cuts are closed off by clots, covered by scabs, and eventually filled in by fibroblasts, making connective tissue.

D. Large wounds leave scars and healing may be accompanied by the formation of granulations.