

LESSON 2

The Human Skin



Frequently Asked Questions about Skin

1. Why is skin important?

Skin is the body's largest organ. It regulates body temperature, protects against injury, and prevents infection. The skin contains nerves that sense cold, heat, pain, pressure, and touch.

2. What are the layers of the skin?

The skin consists of a thin outer layer (epidermis), a thicker middle layer (dermis), and the deeper layer (subcutaneous tissue or hypodermis).

3. What is the difference between first-, second-, and third-degree burns?

First-degree burns are red and painful. They swell a little and turn white when you press on them. The skin over the burn may peel off in a day or two. This is the least severe type of burn, affecting only the outer layer of skin. Second-degree burns have blisters and are painful. They affect both the outer and thicker middle layer of skin. Third-degree burns cause damage to all layers of the skin. The burned skin looks white or charred. These burns may cause little or no pain if nerves are damaged.

4. How can I treat sunburn?

The following can help ease the discomfort of sunburn:

- Apply a cold compress to the affected area(s).
- Take Tylenol (acetaminophen) to relieve discomfort or aspirin or other nonsteroidal anti-inflammatory medicines (NSAIDs, like Motrin) to relieve discomfort and inflammation.
- Apply a cooling gel or ointment containing aloe vera, or an over-the-counter 1% hydrocortisone cream to the affected area.

In cases of severe sunburn or sunstroke, see your doctor immediately.

5. How can skin problems be diagnosed?

Doctors can diagnose many skin problems by discussing the symptoms and examining the skin. Sometimes, additional testing may be necessary. A variety of skin tests are available to help diagnose skin problems such as bacterial, viral, or fungal skin infections. A skin biopsy can be performed to tell the difference between rashes, malignant (cancerous) cells, and benign (noncancerous) growths.

6. What causes acne?

The exact cause of acne is not known, but one important factor is an increase in hormones called androgens. These male sex hormones increase in both boys and girls during puberty. Some things that can make acne

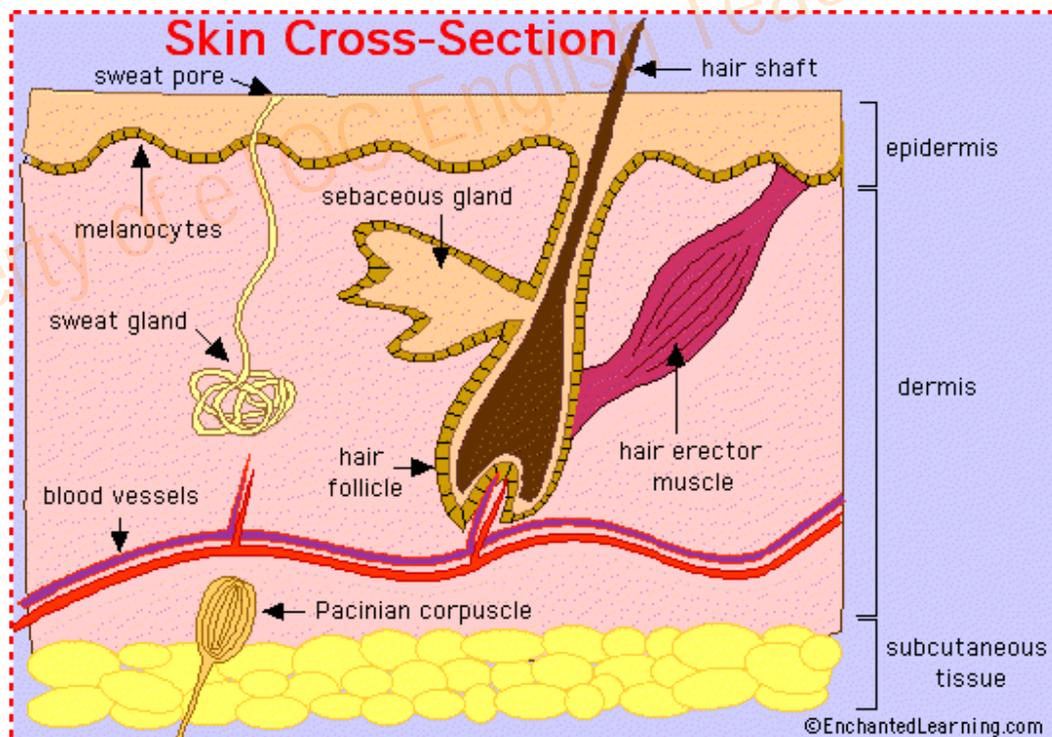
worse include friction caused by leaning on or rubbing the skin, harsh scrubbing, picking or squeezing blemishes, and emotional stress. Acne is not caused by chocolate or other kinds of foods.

Skin Anatomy

The skin is an organ that forms a protective barrier against germs (and other organisms) and keeps the inside of your body inside your body, and keeps what's outside of your body outside. Skin also helps maintain a constant body temperature. Human skin is only about 0.07 inches (2 mm) thick.

Skin is made up of two layers that cover a third fatty layer. The outer layer is called the epidermis; it is a tough protective layer that contains melanin (which protects against the rays of the sun and gives the skin its color). The second layer (located under the epidermis) is called the dermis; it contains nerve endings, sweat glands, oil glands, and hair follicles. Under these two skin layers is a fatty layer of subcutaneous tissue (the word subcutaneous means "under the skin").

On average, an adult has from 18-20 square feet (about 2 square meters) of skin, which weighs about 6 pounds (2.7 kg).



Glossary

blood vessels - Tubes that carry blood as it circulates. Arteries bring oxygenated blood from the heart and lungs; veins return oxygen-depleted blood back to the heart and lungs.

dermis - (also called the cutis) the layer of the skin just beneath the epidermis.

epidermis - the outer layer of the skin.

hair follicle - a tube-shaped sheath that surrounds the part of the hair that is under the skin. It is located in the epidermis and the dermis. The hair is nourished by the follicle at its base (this is also where the hair grows).

hair shaft - The part of the hair that is above the skin.

hair erector muscle - a muscle is connected to each hair follicle and the skin - it contracts (in response to cold, fear, etc.), resulting in an erect hair and a "goosebump" on the skin.

melanocyte - a cell in the epidermis that produces melanin (a dark-colored pigment that protects the skin from sunlight).

Pacinian corpuscle - nerve receptors that respond to pressure and vibration; they are oval capsules of sensory nerve fibers located in the subcutaneous fatty tissue

sebaceous gland - a small, sack-shaped gland that releases oily (fatty) liquids onto the hair follicle (the oil lubricated and softens the skin). These glands are located in the dermis, usually next to hair follicles.

sweat gland - (also called sudoriferous gland) a tube-shaped gland that produces perspiration (sweat). The gland is located in the epidermis; it releases sweat onto the skin.

subcutaneous tissue - fatty tissue located under the dermis.

Reading & Discussion

A Word with the DOCTOR
by: Dr. John Winsor

A Close Shave

The human skin can suffer from a number of diseases, although the face is relatively immune. Constant exposure to air and sun protect the face from a lot of **infections** that are due to **organisms** who love dark and damp areas, such as between the toes. But for men, any diseases on the face can affect shaving.

The one face rash which is very common is **acne**. The complaint is far more

common among youths than any other age group, especially young men. Unless a male patient has a desire to grow a beard, I advise him to continue shaving but rather **sketchily**, skating around the worst spots. He should use a good, **unscented** soap, or a **medicated** one.

Eczema of the face is much less common than acne. Again, keep on shaving, but avoid the worst areas as far as possible. Fortunately, eczema rarely lasts for anything like as long as acne.

Impetigo, another skin infection, seems to prefer the face to any other part of the body surface. **Germs** affect **isolated** areas of the face but do not spread outwards from the main areas. Sufferers should seek medical advice since it is very often rapidly cleared up by the appropriate **antibiotic drug**.

Since the majority of men do not have the time to go to the barber, and therefore do their own shaving, barber's rash is now a **rarity**. Even among the few who do attend hairdressing salons, the latter are now almost **invariably** carefully maintained and have a high standard of **hygiene**.

Whatever the skin condition from which the face may suffer, the patient must always keep to its own towel. Also, the razor must be thoroughly cleaned after every shave, (though actual **scalding** is said to **blunt** the edge). Very occasionally a patient who uses an **electric razor** gets an allergic rash due to the **chrome** or **nickel** in the razor. But it is possible to identify the metal responsible and take precautions.

Finally, use pleasantly warm water for shaving when you have any skin trouble on the face, and don't follow the shaving by after-shaving lotion until the rash is better. There are plenty of shaving products for men that are available, such as skin soothers or moisturizers, so, if you are not suffering from any infections, there is no reason why you cannot have a close shave and maintain healthy skin.

Vocabulary

- **Infection** - The invasion of the body of a human or an animal by a pathogen such as a bacterium, fungus, or virus. Infections can be localized, as in pharyngitis, or widespread as in sepsis, and are often accompanied by fever and an increased number of white blood cells.
- **organisms** - An individual form of life, such as a plant, animal, bacterium, protist, or fungus
- **acne** - Acne is a common skin disease characterized by pimples on the face, chest, and back. It occurs when the pores of the skin become clogged with oil, dead skin cells, and bacteria.
- **Sketchily** - giving only major points or parts
- **unscented** - not filled with odor or fragrance
- **medicated** - having a healing or health-giving substance mixed in (Medicated shampoo)
- **Eczema** - a skin inflammation with lesions that scale, crust, or ooze a serous fluid, often accompanied by intense itching or burning

- **Impetigo** - A contagious bacterial skin infection, usually of children, that is characterized by the eruption of superficial pustules and the formation of thick yellow crusts, commonly on the face.
- **Germs** - a microorganism, especially one that produces disease in animals or plants
- **isolated** - Separated from others
- **antibiotic drug** - A substance, such as penicillin or streptomycin, produced by or derived from certain fungi, bacteria, and other organisms, that can destroy or inhibit the growth of other microorganisms. Antibiotics are widely used in the prevention and treatment of infectious diseases.
- **Rarity** - The quality or state of being rare; infrequency of occurrence
- **invariably** - without variation or change, in every case
- **hygiene** - Conditions and practices that serve to promote or preserve health
- **scalding** - Causing a burning sensation, as from contact with hot liquid
- **blunt** - To dull the edge of; to make less sharp
- **electric razor** - a sharp implement used especially by men for shaving the face powered by an electric motor
- **chrome** – Chromium or a chromium alloy
- **nickel** - A silvery, hard, ductile metallic element that occurs in ores along with iron or magnesium. It resists oxidation and corrosion and is used to make alloys such as stainless steel. It is also used as a coating for other metals



Reference:

<http://www.englishmed.com/>

<http://www.enchantedlearning.com>

<http://www.webmd.com>

