**Integumentary System Information**

Quick! What's the body's biggest organ? You might be surprised to find out it's the skin, which you might not think of as an organ. No matter how you think of it, your skin is very important. It covers and protects everything inside your body. Without skin, people's muscles, bones, and organs would be hanging out all over the place. Skin holds everything together. It also:

* protects our bodies
* helps keep our bodies at just the right temperature
* allows us to have the sense of touch

**Don't Miss Your Epidermis**

The skin is made up of three layers, each with its own important parts. The layer on the outside is called the **epidermis**. The epidermis is the part of your skin you can see.



Look down at your hands for a minute. Even though you can't see anything happening, your epidermis is hard at work. At the bottom of the epidermis, new skin cells are forming. When the cells are ready, they start moving toward the top of your epidermis. This trip takes about 2 weeks to a month. As newer cells continue to move up, older cells near the top die and rise to the surface of your skin. What you see on your hands (and everywhere else on your body) are really dead skin cells.

**Bye-Bye Skin Cells**

These old cells are tough and strong, just right for covering your body and protecting it. But they only stick around for a little while. Soon, they'll flake off. Though you can't see it happening, every minute of the day we lose about 30,000 to 40,000 dead skin cells off the surface of our skin. So just in the time it took you to read this far, you've probably lost about 40,000 cells. That's almost 9 pounds (4 kilograms) of cells every year! But don't think your skin might wear out someday. Your epidermis is always making new skin cells that rise to the top to replace the old ones. Most of the cells in your epidermis (95%) work to make new skin cells.

And what about the other 5%? They make a substance called **melanin**. Melanin gives skin its color. The darker your skin is, the more melanin you have. When you go out into the [sun](http://kidshealth.org/kid/watch/out/summer_safety.html), these cells make extra melanin to protect you from getting burned by the sun's ultraviolet, or UV, rays. That's why your skin gets tan if you spend a lot of time in the sun.

**The Dermis Is Under the Epidermis**

The next layer down is the **dermis**. You can't see your dermis because it's hidden under your epidermis. The dermis contains nerve endings, blood vessels, oil glands, and sweat glands. It also contains collagen and elastin, which are tough and stretchy.

The nerve endings in your dermis tell you how things feel when you touch them. They work with your brain and nervous system, so that your brain gets the message about what you're touching. Is it the soft fur of a cat or the rough surface of your skateboard?

**Dermis = Lots of Blood Vessels**

Your dermis is also full of tiny blood vessels. These keep your skin cells healthy by bringing them the oxygen and nutrients they need and by taking away waste. These blood vessels are hard to see in kids, but you might get a better look if you check out your grandparents' skin. As the dermis gets older, it gets thinner and easier to see through.

The dermis is home to the oil glands, too. These are also called **sebaceous** glands, and they are always producing **sebum**. Sebum is your skin's own natural oil. It rises to the surface of your epidermis to keep your skin lubricated and protected. It also makes your skin waterproof — as long as sebum's on the scene, your skin won't absorb water and get soggy.

You also have [sweat](http://kidshealth.org/kid/talk/yucky/sweat.html) glands on your epidermis. Even though you can't feel it, you actually sweat a tiny bit all the time. The sweat comes up through **pores**, tiny holes in the skin that allow it to escape. When the sebum meets the sweat, they form a protective film that's a bit sticky.

**The Third Layer Is Subcutaneous Fat**

The third and bottom layer of the skin is called the **subcutaneous** layer. It is made mostly of fat and helps your body stay warm and absorb shocks, like if you bang into something or fall down. The subcutaneous layer also helps hold your skin to all the tissues underneath it.

This layer is where you'll find the start of hair, too. Each hair on your body grows out of a tiny tube in the skin called a **follicle**. Every follicle has its roots way down in the subcutaneous layer and continues up through the dermis.

You have hair follicles all over your body, except on your lips, the palms of your hands, and the soles of your feet. And you have more hair follicles in some places than in others — there are more than 100,000 follicles on your head alone!

**Skin Can Warm and Cool You**

Your skin can help if you're feeling too hot or too cold. Your blood vessels, hair, and sweat glands cooperate to keep your body at just the right temperature. If you were to run around in the heat, you could get overheated. If you play outside when it's cold, your inner temperature could drop. Either way, your skin can help.

Your body is pretty smart. It knows how to keep your temperature right around 98.6° Fahrenheit (37° Celsius) to keep you and your cells healthy. Your skin can respond to messages sent out by your **hypothalamus**, the brain's inner thermometer. If you've been running around on a hot day, your blood vessels get the signal from the hypothalamus to release some of your body's heat. They do this by bringing warm blood closer to the surface of your skin. That's why you sometimes get a red face when you run around.

To cool you down, sweat glands also swing into action by making lots of sweat to release body heat into the air. The hotter you are, the more sweat your glands make! Once the sweat hits the air, it evaporates (this means that it changes from a liquid to a vapor) off your skin, and you cool down.

What about when you're ice-skating or sledding? When you're cold, your blood vessels keep your body from losing heat by narrowing as much as possible and keeping the warm blood away from the skin's surface. You might notice tiny bumps on your skin. Most kids call these [**goosebumps**](http://kidshealth.org/kid/talk/qa/shiver.html). The reflex makes special tiny muscles pull on your hairs so they stand up very straight.

**Diseases and Disorders**

* **Skin cancer** - Skin cancer is rare in children and teens, but good sun protection habits established during these years can help prevent skin cancers like **melanoma**, a serious form of skin cancer that can spread to other organs in the body later in life, especially among fair-skinned people who sunburn easily.
* **Dermatitis -** Medical experts use the term **dermatitis** to refer to any inflammation that might be associated with swelling, itching, and redness of the skin.