Weekly Question

Why does skin wrinkle in the bathtub?

You may not think of your skin as an organ, but it is. In fact, it is the largest organ of your body. As an organ, your skin keeps your body from drying out, helps to keep your temperature constant, and acts as a barrier to disease.

Your skin is made up of two types of tissue: epithelial tissue and connective tissue. When you look at your skin, you are seeing epithelial tissue. Epithelial tissue protects your body from the outside world. It does the work of moving materials in and out of the body. It also secretes sweat that keeps us cool.

![Epithelial tissue]

A. Name the two types of tissue that form your skin.

1. ________________  2. ________________

B. What are the main jobs of epithelial tissue?

________________________________________

________________________________________

C. Check the box next to the phrase that completes the analogy.

Tissue is to organ as ______.

☐ skin is to body
☐ epithelial is to connective
☐ cell is to tissue
☐ barrier is to purpose
Weekly Question

Why does skin wrinkle in the bathtub?

The tissues of the skin are contained in three layers. The bottom layer, called the hypodermis, is a layer of fat and connective tissue that helps connect the skin to muscles and bones.

The middle layer, the dermis, is composed mostly of connective tissue and includes hair roots, nerve endings, sweat glands, and blood vessels. The dermis cushions the body, regulates body heat, and registers sensations of pain, temperature, and pressure.

The top layer of your skin is the epidermis, which is made of epithelial tissue. The epidermis protects the other layers of your skin and prevents your body from losing water.

A. Label the hypodermis, dermis, and epidermis.

B. Write which layer of skin—the hypodermis, dermis, or epidermis—is described in each statement below.

1. responsible for sense of touch
2. protects skin from damage
3. connects skin to muscle and bone

C. The tissues in your skin are also responsible for “goose bumps,” the raised hairs you get when you are chilled. As your skin registers the sensation of cold, tiny muscles attached to your hair roots make the hairs stand up. In which layer of skin do you think this happens? Explain your answer.
**Weekly Question**

**Why does skin wrinkle in the bathtub?**

As a way of protecting your body, your epidermis contains flattened skin cells called **callus** cells that stack on top of each other like tiles. These cells are dry on the inside and have thick walls. Callus cells are tough and protect skin from damage. When there is a lot of friction on your skin, callus cells build up. This is what we call a callus.

An oily substance called **sebum** also protects your skin. Sebum acts like a natural waterproof seal, keeping your skin from absorbing too much water. Sebum also helps keep water inside skin cells so they don’t dry out.

![Diagram of skin layers with callus and epidermis labeled]

Write whether callus or sebum would protect your skin more in the situations below.

1. using a shovel to dig
2. swimming in a lake
3. staying outside on a hot day
4. handling a hot pan

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**Vocabulary**

- **callus**
  - KAL-us
  - dry, tough skin cells

- **sebum**
  - SEE-bum
  - an oily substance that covers the epidermis

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**Talk**

Acne develops when excess sebum, dead skin cells, and bacteria that normally live on the skin plug up hair follicles. How does washing the skin help control acne?
**Weekly Question**

**Why does skin wrinkle in the bathtub?**

Although sebum normally protects your skin from absorbing too much water, when you soak your skin for more than 20 minutes, the sebum can be washed off. When that happens, the callus cells in the epidermis absorb water, and the cells puff up and become soft. Callus cells are thickest on hands and feet, so they swell the most.

So why does skin wrinkle, instead of just puff up, when it expands? The epidermis is firmly attached in some places to the dermis, which doesn’t expand when soaked in water. These points of attachment between the layers of skin form the indents of a wrinkle.

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**A. Answer the questions.**

1. Based on the picture above, which part of the hand has the most callus cells?

2. Why doesn’t your skin wrinkle when you go outside in the rain?

3. Why doesn’t the skin on your stomach wrinkle after a swim?

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**B. Ducks’ feathers are waterproof, due in part to a gland near their tail. When ducks clean themselves, they spread a substance from this gland over their feathers. How is this substance like sebum? How is it different? Explain your answer.**