

Scarring



A scar is a blemish on the skin.

What is a scar?

A **scar** is a blemish on the skin. They can be lighter or darker in color than the surrounding tissue or even silver-colored. Scars are the way that the body repairs damage. They can be left over from all sorts of injuries, including burns, accidental cuts and scrapes, and surgery incisions. Though people often comment that large, visible scars make people look strong

and mysterious, the reality for people living with certain forms of scarring is not always so rosy. While many scars are just marks, they can be itchy, painful, or sensitive, and even disrupt sleep. Some types of scarring can make it difficult to complete daily tasks. Large and disfiguring scars can make people feel self-conscious, stigmatized, anxious, or depressed.

How do scars form?

Wounds cause skin tissues to break. Often, this breaks blood vessels and bleeding ensues. **Platelets** in the blood stick together to form a clot to prevent further blood loss. Next, **white blood cells** fight off any foreign matter that got in. Finally, a protein called **fibrin** weaves through the clot, holding it in place. This is the process of **scab formation**. Scabs protect the damaged tissue below from infection and let the healing process occur. Healing begins when **epithelial tissue** (the main component of skin, as well as tissue that lines body cavities and makes up our glands) starts to grow over the break. In this way, the body connects the edges of the wound together. When repairing damaged tissue, epithelial cells can grow at around 1 mm per day.



Scab formation is the first step in wound healing.



Epithelial cells connect the edges of the wound.

Skin has three layers: the epidermis, dermis, and hypodermis. The **epidermis** is the thin top layer, the **dermis** is just below it, and the **hypodermis** is the bottom layer where the skin connects with the underlying muscles and bones. The dermis contains cells called **fibroblasts**, which make the protein **collagen**. Our skin, muscles, tendons, and bones all contain collagen; it lends strength and support to tissues. After the epithelial cells have grown, fibroblasts enter the damaged area and build up an

irregular layer of collagen. Normally, collagen is laid down in even, organized patterns.

However, the body is working very fast to cover the wound and prevent infection, so the collagen layer we get after an injury isn't as fancy. This mass of collagen is a scar. Once the skin tissue is repaired, the scab falls off.

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Atrophic scars are small, usually round, depressions in the skin. They are generally due to acne or chicken pox but can also arise from injuries in which fat is lost.

Scar contractures occur when scar tissue (typically from burns) crosses joints or natural creases in the skin. In these areas, the tissues can contract, or shorten. Contracture usually takes place during scar formation, before the tissue has matured. Scar contractures can limit motion.



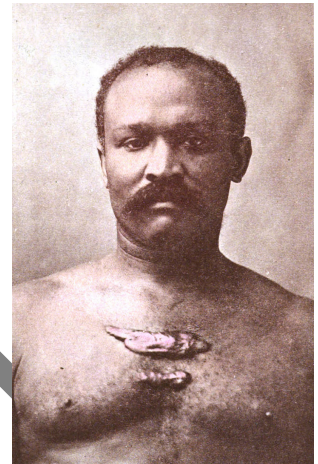
Hypertrophic scar.

Hypertrophic scars are bound by the edges of the initial injury laterally but extend above the skin. These types of scars can be itchy or painful and typically red in color. They are often the result of burns and tend to shrink with time.

Keloid scars, like hypertrophic scars, are raised. However, unlike hypertrophic scars, they also spread out over the edges of the initial injury. In different parts of the body, they develop different shapes. Keloid scars continuously grow. If they are cut off, they almost always return. Doctors don't diagnose a scar as keloid until it has remained for a year or more.

Finally, **intermediate scars** are simply those that don't easily lend themselves to categorization. Over time, characteristics can emerge

that lead to a diagnosis. For example, if a raised scar continues to grow after a year has passed, it's probably a keloid. If it starts to shrink, it's probably hypertrophic.



Keloid scars.

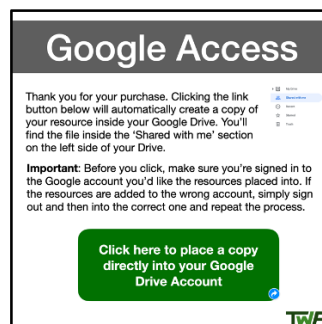
Can scars be treated?

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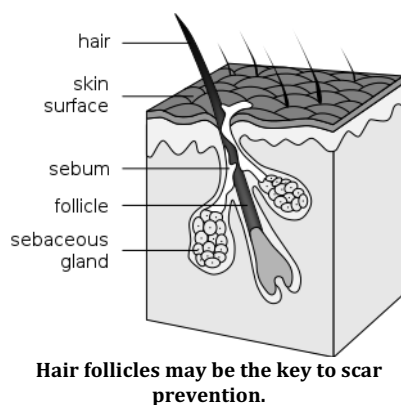


scars grow back after excision, additional treatments such as **corticosteroid injections** are often performed.

It's often best to leave a scar alone for a year and monitor it. Dermatologists can provide the best advice after a proper diagnosis.

Can scars be prevented?

Since scars can't be erased, are there at least ways to keep from getting them? In many cases, yes. **Preventing injury** will prevent scars, but of course this isn't always possible. With minor injuries, **proper care** of the wound site can help. For instance, leaving a scab on instead of picking it off can give the skin more time to heal. Preventing wounds from drying out will also aid the repair process. If a wound is deep, large, or doesn't seem to be healing well, get help from a doctor. Most injuries that extend beneath the epidermis or cover large swaths of skin, however, will result in scarring.

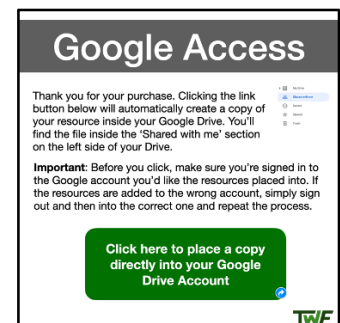


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researchers discovered that hair follicles produce a protein that causes myfibroblasts to turn into adipocytes. In lab trials, they managed to get hair follicles to grow in mice and samples of human skin early in the wound repair process, but it hasn't been tested on a wound in a living person yet. In the mice and skin samples, however, the healed skin was identical to normal skin. This discovery has the potential to prevent disfiguring or debilitating scars.

Reading Comprehension Questions

1. What are scars?
2. Summarize
3. Why
4. Why does
5. What
6. List three different scar treatments.
7. What's the best
8. What new discovery may prevent scar tissue from forming? Explain.

Extension Questions

9. Research a type
10. Create an infographic about scars, including

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