

# Difference Between Eccrine and Apocrine

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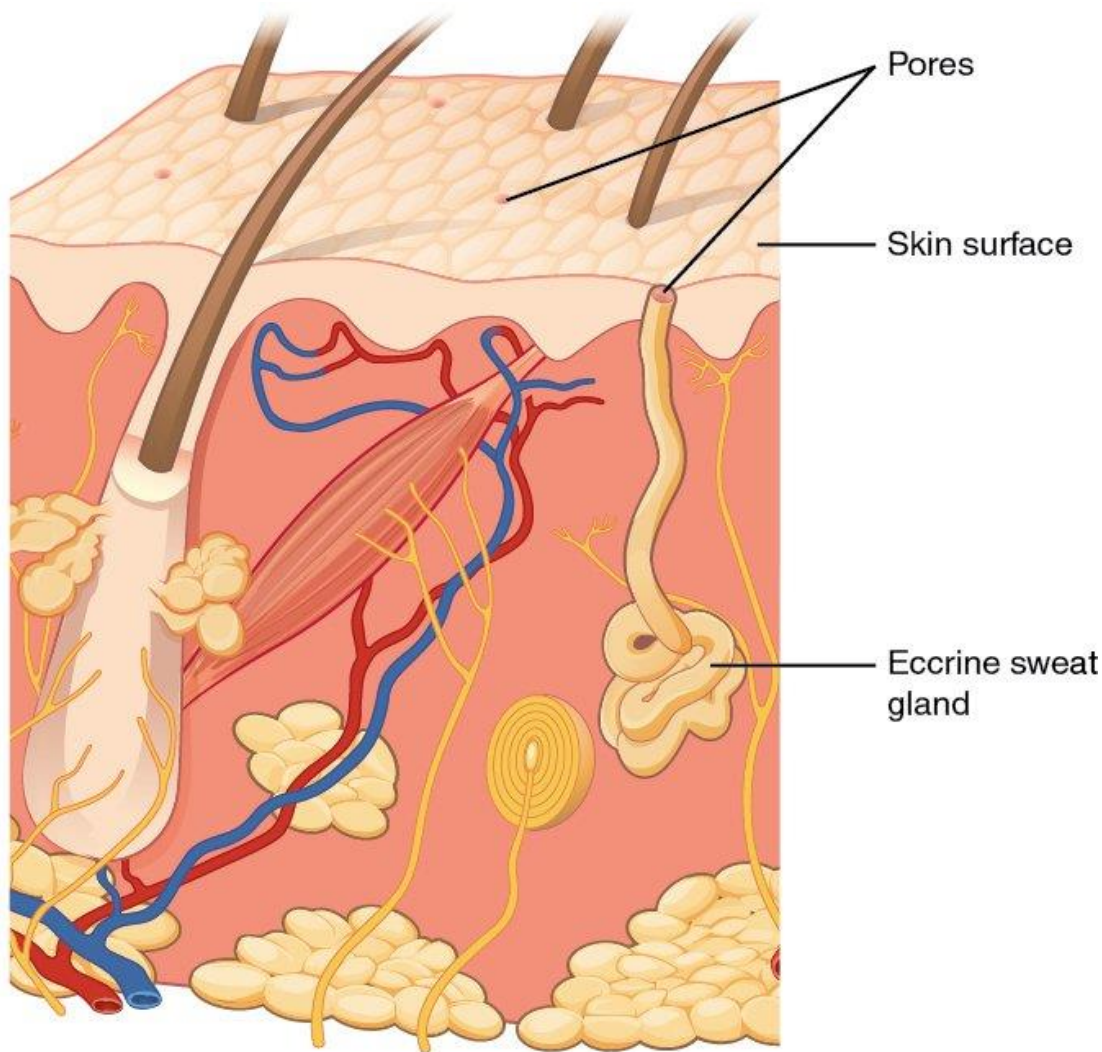
## Key Difference - Eccrine vs Apocrine

The skin is considered as the largest organ of the body that composes different structures including glands, blood vessels, nerve endings, hair follicles and three layers of dermis; epidermis, dermis, and hypodermis. The gland is a type of organ that mainly involves in the secretion of substances in a fluid medium. In the context of skin glands, eccrine and apocrine are two types of sweat glands that are present in the deeper layers of the skin. **The apocrine glands secrete substances indirectly into the external skin surface while the eccrine glands directly secrete the fluids through a duct into the skin surface.** This is the **key difference** between eccrine and apocrine.

## What is Eccrine?

Eccrine glands are considered as major sweat glands that are present in the body. They are highly present in palms and soles. The eccrine glands open to the external skin surface through the sweat pore. These glands are composed by of intra-epidermal spiral duct, which is a dermal duct that contains two portions; a straight and coiled portion. It also consists with a secretory portion that is present in the deeper skin layers such as dermis or hypodermis. Eccrine glands could be termed as thermoregulatory glands since they involve in the maintenance of homeostasis of temperature within the living system. Sweating results in the removal of excretory substances from the body as a liquid that causes the cooling of the body due to sweat evaporation. This helps to neutralize if excess heat is built up in the body. In the context of homeostasis, this is a very important aspect.

The secretion of a white sediment by eccrine glands is due to the fact that increment in the salt concentration of the fluid due to high evaporation. The odor that is generated by sweat is due to the activity of bacteria. Eccrine glands are stimulated by both neural and hormonal stimulations. The eccrine glands could be stimulated by the sympathetic nervous system during the built up of high heat conditions within the body.



**Figure 01: Eccrine Glands**

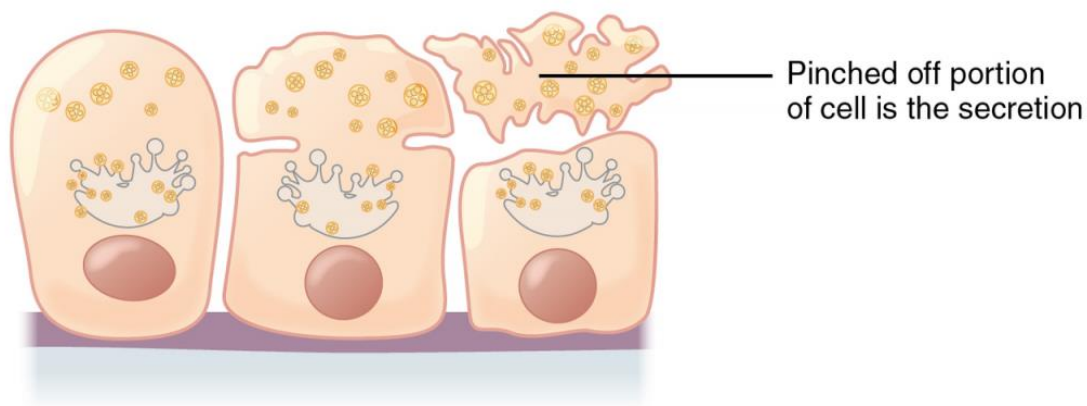
This is coordinated by the hypothalamus in the brain. In phenomena such as anxiety, fear, pain or stress hormones are released thus involve in the stimulation of eccrine glands that results in the secretion of more sweat than normal levels. By the excretion of excess water and unwanted electrolytes that are present in the body, these glands maintain the ionic balance of the body. The components of the fluid that is secreted by these glands such as antibodies and immunoglobulins involve in the protection of the skin from bacterial infestation. Eccrine glands secrete a clear thin fluid that is the sweat.

## What is Apocrine?

The term apocrine is used in the classification of exocrine glands in the context of histology. Apocrine cells are known to produce membrane-bound vesicles during their secretions. Apocrine cells collectively form the apocrine gland. The gland is made up of secretory tubules of the glomerulus and also with an excretory duct that opens externally into the skin next to a hair. In its morphology, the apocrine gland is large and spongy. It is located in the subcutaneous layer of the dermis; mainly in the deeper layers of the skin. The

apocrine glands are mainly found in areolar of the breast, armpits, the area between anus and genitals, the eyelids and the ear. The apocrine gland is comparatively larger than the eccrine gland since it possesses a larger secretory portion with a large lumen.

In the context of the secretory layer of the apocrine glands, it is a single cell layered structure with a single type of ductal epithelial cell. These cells may vary in diameter according to the locations where they are situated. Some instances, they could be branched into multiple ducts. Apocrine glands are inactive before puberty. This is a distinct characteristic feature that distinguishes them from other secretory glands. Apocrine glands become active with a change in their size due to the hormonal surge that takes place during puberty.



**Figure 02: Apocrine Glands**

Apocrine sweat glands involve in the secretion of a chemical fluid known as pheromones that have the ability to attract opposite sex. This is a common phenomenon that takes place in all mammals. Adrenaline rush or instances where adrenaline is secreted in larger quantities such as sexual stimulation, pain, fright or anxiety, directly affects the increment in the size of apocrine glands and increase the secretions. Apocrine glands secrete a thick clear fluid.

## **What are the Similarities Between Eccrine and Apocrine?**

- Both are present in the deeper layers of the skin
- Both glands involve in the secretion of fluids.

## **What is the Difference Between Eccrine and Apocrine?**

Eccrine vs Apocrine

<p>Ecrrine glands are a type of sweat glands that directly secrete the fluids through a duct into the skin surface.</p>	<p>Apocrine glands are the glands that secrete substances indirectly into the external skin surface.</p>
<b>Location</b>	
<p>Ecrrine glands are present all other areas except the areas in which apocrine glands are present.</p>	<p>Accrine glands are found in areolar of breast, armpits, ear, eyelids, perineum</p>
<b>Type of Secretion</b>	
<p>The fluid secreted by Ecrrine is thin and clear watery sweat.</p>	<p>Apocrine glands secrete a thick clear fluid.</p>
<b>Function</b>	
<p>Ecrrine gland acts as a thermoregulatory gland.</p>	<p>Apocrine gland secrete pheromonic chemicals that attract opposite sex.</p>

## Summary - Eccrine vs Apocrine

A gland is a type of organ that mainly involves the secretion of fluid substances. Eccrine glands are considered as major sweat glands that are present in the body. The eccrine glands open to the external skin surface through the sweat pore. Eccrine glands could be termed as thermoregulatory glands that involve in the maintenance of homeostasis of temperature within the living system. Eccrine glands secrete a clear thin fluid which is sweat. Apocrine cells are known to produce membrane-bound vesicles during their secretions. Apocrine cells collectively form the apocrine gland. Apocrine glands are inactive before puberty. They secrete substances indirectly into the external skin surface. Apocrine glands secrete a thick clear fluid. This is the difference between Eccrine and Apocrine.

### Reference:

1. "Eccrine gland." Encyclopædia Britannica, Encyclopædia Britannica, inc. [Available here](#)
2. "Apocrine gland." Encyclopædia Britannica, Encyclopædia Britannica, inc., [Available here](#)

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APA: Difference Between Eccrine and Apocrine. (2018 January 26). Retrieved (date), from <http://differencebetween.com/difference-between-eccrine-and-vs-apocrine/>

MLA: "Difference Between Eccrine and Apocrine". Difference Between.Com. 26 January 2018. Web.

Chicago: "Difference Between Eccrine and Apocrine". Difference Between.Com. <http://differencebetween.com/difference-between-eccrine-and-vs-apocrine/> accessed (accessed [date]).



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