Sweat Glands Encyclopedia Article

Sweat Glands

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Sweat Glands

Sweat glands are coiled tubes of cuboidal epithelial cells embedded in the skin. The human body contains approximately three million sweat glands. Also known as sudoriferous glands, sweat glands produce and secrete a fluid that is composed mostly of water but also includes salts, urea, **uric acid**, **amino acids**, ammonia, sugar, **lactic acid**, and ascorbic acid. The fluid produced is called sweat and is secreted during a process called perspiration.

The function of perspiration is to regulate body temperature and eliminate wastes from the body. Sweat glands are able to regulate body temperature because of the cooling effect produced when sweat evaporates from the skin. Regulated by the **hypothalamus**, the sweat glands are under control of the **sympathetic nervous system**. During a 24-hour period, an adult secretes approximately 100 ml of sweat under resting conditions. Exposure to heat and/or physical activity can cause sweat loss to exceed 100 times that of normal conditions in a day.

The two types of sweat glands found in human skin include eccrine (merocrine) and apocrine glands. The most common type is the eccrine glands; these are most abundant on the palms of the hands and soles of the feet. However, eccrine glands are located on all skin surfaces except eardrums, lips, fingers, toes, **nails**, penis, clitoris, and labia minora. Eccrine glands consist of a secretory duct, located in the subcutaneous **tissue** below the **dermis**, and an excretory duct embedded in the dermis that opens onto the surface of the **epidermis**.

Much less common than the eccrine glands are the apocrine glands. Although similar in structure to eccrine glands, apocrine glands open into **hair** follicles. The secretory portion of the apocrine gland originates in either the dermis or subcutaneous tissue. During secretion, the apical region of the cells is eliminated. Apocrine glands are located in the axilla, pubic region, and areolae of the **breasts** and do not become active until **puberty**. Additionally, **mammary glands** are essentially modified apocrine glands. The fluid produced by apocrine glands is thicker than that of eccrine glands. Initially, sweat secreted from apocrine glands is odorless. However, **bacteria** from the skin's surface invade the region and nourish themselves with **carbohydrates** and proteins lost during secretion, thus producing the characteristic body odor.