Antiperspirants and Deodorants

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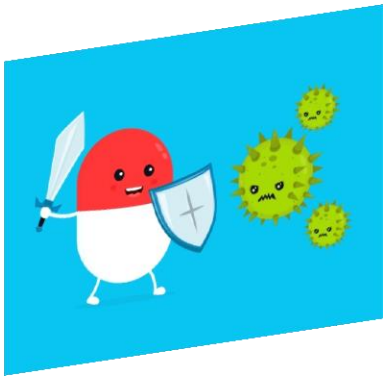
Sweat

By itself is odorless and only establishes a characteristic odor when exposed to moisture (humidity) in the presence of ***bacterial flora*** *on the skin surface, which breaks down the sweat ' s composition resulting in unpleasant odors*

Defense mechanisms against sweat and odor

*First by the **reduction of excretion** from the sweat gland to minimize the appearance of uncomfortable or unsightly wetness production.*



*Second by the use of **antimicrobial agents** to preventing odor development from bacteria and yeast present on the skin.*

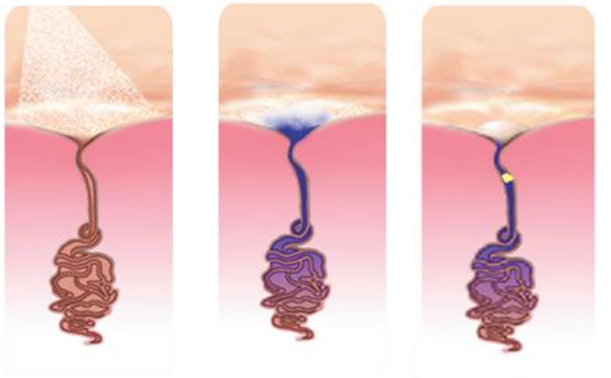
Antiperspirants and Deodorants

Are two of the most commonly used cosmetic products, with millions of consumers applying these products to their axilla every day

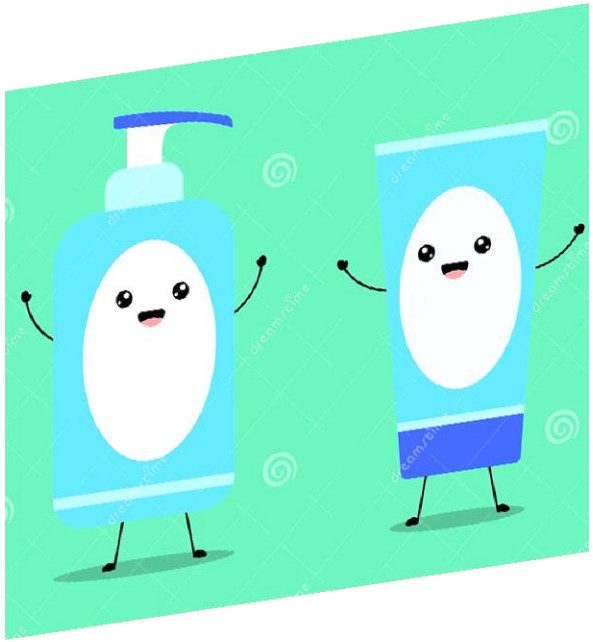
Antiperspirants: they are defined by FDA, as an over - the - counter (OTC) drug when applied topically to reduce production of underarm sweat (perspiration).

They are considered drugs because they can affect the function of the body by reducing the amount of sweat that reaches the skin surface

*The **active ingredient** in antiperspirants is usually **aluminum based**, which is responsible for blocking sweat expulsion through the formation of temporary plugs within the sweat duct, thus stopping or slowing down the flow of sweat to the surface.*



The FDA prescribes a methodology for testing the effectiveness of an antiperspirant; as that which cause 20% sweat reduction in 50% of the test population.



Deodorants are used to mask odor; they are considered cosmetic products because they do not change the function of the body .

They can be formulated either with substances with anti-microbial action (such as ethanol, quaternary ammonium)

or actives which neutralize the body odour (such as Zn ricinoleate that forms complexes with the sweat).

They also often contain essential oils that mask the odour of perspiration

Deodorants are best for those people who do not have a problem with sweating yet want to feel fresh and odor free.

It is important to note that deodorants have no antiperspirant physiologic activity, but antiperspirants can function both as antiperspirants and deodorants

Formulation Considerations and Delivery Systems

Underarm products may be delivered to the axillae in a variety of ways, the four most important product forms are sticks/solids, roll-ons, extrudable gels/creams, and aerosols.

Antiperspirants and Deodorants should meet the following criteria:

1. Effective and uniform delivery of product to the underarm.

2. Not harmful to the body or clothing.

3. Stable in its package for a reasonable shelf-life.

4. Aesthetically appealing

Types of ingredients for antiperspirant/deodorant systems

1- Emulsifiers/Suspending Agents

Typically act to emulsify oil in water or water in cyclomethicone.

Cyclomethicones *are widely used because they volatilize easily without causing cooling, stinging or staining. They also have a low surface tension that results in good spreading of the product onto the skin, and formation of a thin film that reduces tackiness of the active during delivery and dry down.*

2-Gellants and Viscosity Enhancers

They act to solidify or modify the product's rheology, affecting the way products are delivered across the axillae. Ingredients included in these formulations may be: cetyl/stearyl alcohol, synthetic waxes

3- Propellants and Solvents/Carriers

Most often are used to deliver the formula from its container onto an axilla (providing a steady vapor pressure sufficient to force all the contents out). Ingredients included in these formulations may be: butane, isobutane, propane, ethanol,

compressed gas

4-Emollients and Feel Modifiers

Used to provide an elegant, aesthetic lubrication to container parts, improve mildness (i.e., less irritating), minimize residue (whitening) on axillae and clothing

5- Miscellaneous Additives

A broad class of ingredients that can deliver many different benefits, such as: adding or hiding color, modifying background odors or enhancing fragrancing of skin, improving mildness (pH), and improving the dispersibility of powder. They may include talc, silica, titanium dioxide,fragrance/masking agents, antioxidants, preservatives

Side effects of Antiperspirant and Deodorant

Antiperspirants and deodorants are generally very safe products.

However the American Cancer Society (ACS) states that the main risk related to using these products is that they can cause nonspecific irritant reactions and sensitization due to compounds contained within these products resulting in the development of allergic contact dermatitis (ACD).

- *The most commonly occurring allergen is the **fragrance** which is added to deodorants to enhance their function by counteracting underarm odor.*

Axillary dermatitis occur in individuals with known fragrance allergies

- *The second most commonly present*

*Allergen is the **Propylene glycol**, which is used as a solvent with moisturizing, antiseptic*

and preservative properties

- ***Essential oils***, *naturally occurring mixtures of substances derived from plants, are frequently used fragrance ingredients. They have a highly variable composition of many different compounds and are known sensitizers*

-***Parabens***, *are preservatives used for their antibacterial and antifungal properties. They are generally efficacious, inexpensive, and safe.* ***Paraben allergy is a relatively uncommon*** *entity with rates of sensitization cited at* ***0 to 3.5 percent*** *of the population.*

- ***Vitamin E, or tocopherol*** *is a* ***natural preservative*** *and at times is also added to beauty products due to the belief that it functions as an* ***antioxidant*** *and* ***moisturizer****.*

Although tocopherol is generally believed to be a benign addition to many beauty products, it can ***occasionally cause allergic dermatitis****.*

- *Some Myths related to antiperspirants and deodrants*

Cancer and Alzheimer's disease Myths

Studies show that there is no relationship between antiperspirant use and cancer or Alzheimer's disease.

Since humans are exposed to aluminium from food, packaging, pans, water, air and medicines. From the aluminium we are exposed to, only minute amounts are absorbed, and these are usually excreted or harmlessly stored in bone

The Alzheimer's Society states that the link between environmental

Aluminium and Alzheimer's disease

seems unlikely

Thank You