

Al-Rasheed University College

Medical Lab Technology

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Microbiology (Practical)

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## Lab7: Normal Microbial Flora

### Definition

The normal flora of the human body refers to the **microbial community** that colonizes on the skin and mucus membrane. Normal flora is sometimes called **indigenous micro biota**, as they reside within or on the human's skin surface.

The term "**normal microbial flora**" mixture of microorganism that inhabit the skin and mucous membranes of healthy normal persons. Such as *Lactobacillus* spesies

✚ Diverse microflora such as **bacteria, fungi**

### Types of Normal Flora:

The skin and mucous membranes always harbor a variety of microorganisms that can be arranged into several groups:

- ❖ **Resident micro biota** consists of relatively fixed types of microorganisms regularly found in a given area at a given age; if disturbed, it promptly reestablishes itself
- ❖ **Transient micro biota** consists of nonpathogenic or potentially pathogenic microorganisms that inhabit the skin or mucous membranes for hours, days, or weeks. The transient micro biota is derived from the environment, does not produce disease, and does not establish itself permanently on the surface



- ❖ **Commensals:** which means one partner benefits and the second one remains unaffected.
- ❖ **Opportunistic:** any disturbances in the normal microflora may give rise to opportunistic pathogens that may **harm** the host cells.

**The difference between Resident micro biota and Transient micro biota:**

<b>Resident micro biota</b>	<b>Transient micro biota</b>
These micro biota are present throughout the lifetime of person	These micro biota are present on the body only for a particular period of time (a hours, weeks, ...)
Most of these micro biota have a mutual relationship of commensalism with the host	They can be present as commensals but can be present as pathogens
if disturbed, it promptly reestablishes itself	does not establish itself permanently on the surface

**Beneficial effects of normal flora:**

1. provides first line of defense against microbial pathogens
2. Assist through in digestion and contribute to maturation of the immune system.
3. Production of essential nutrients (**vitamin K & B** by some normal intestinal flora **eg. *E.coli***).



## Disadvantage of normal flora:

They can cause disease in the following:

1. When individuals become immunocompromised or debilitated.
2. When they change their usual anatomic location.
3. Shifts in the normal micro biota may cause diseases

## Distribution and Occurrence of the Normal Flora

### ❖ Human Skin

The skin harbours **1000 to 10,000 microorganisms** per square centimetre. A **human skin layer** possesses the outermost epidermis and inner dermis layer.

Examples: *S. aureus*



### ❖ Human Eye Conjunctiva

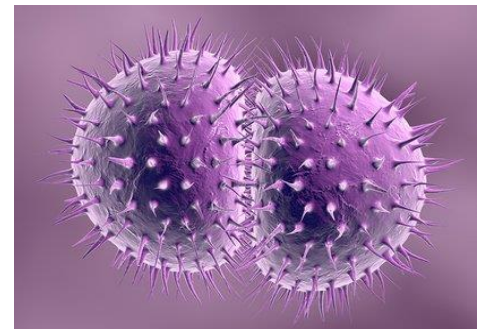
The membrane that constitutes the lining of eyelids and eyeball is termed eye conjunctiva. *Staphylococcus epidermidis*, *Staphylococcus aureus* and *Corynebacterium species*, *Streptococcus pneumoniae*, *Neisseria species*, etc., inhabit the eye conjunctiva.



### ❖ Mouth

Some microorganisms resist mechanical flushing and remain in the **oral cavity**. The normal microflora of mouth includes

- *Staphylococcus*,
- *Neisseria*,
- *Lactobacillus species* and some yeasts.



❖ **Nasopharynx Region or Upper Respiratory Tract**

- *Haemophilus*
- *Micrococcus species* are the normal microflora of the nasopharynx

❖ **Gastrointestinal tract** (esophagus, stomach, small intestine, large intestine).

Examples: *Escherichia, Proteus, Klebsiella* and *Enterobacter species*.

❖ **Genitourinary system**(kidneys, ureters and urinary bladder)

Examples:

- *Lactobacilli,*
- *Enterococci,*
- *Diphtheroids* and *Candida albicans*.