



## The Innocuous World of Microorganisms on Healthy: Human Host

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A huge number of microorganisms reside on the surface and in the deep layers of skin, in saliva, in conjunctiva, oral mucosa, gastrointestinal and genital tracts. These innocuous permanent residents of body sites are called "normal flora" of healthy human host.

There are two types of normal flora:

1. Resident normal flora- Which consists of fixed types of microorganisms regularly found in a particular body area for a given age.
2. Transient normal flora- These are potentially pathogenic or non-pathogenic microorganisms that inhabit the skin and mucosal membranes for a short period of time like hours, days or weeks. They are environment derived, do not produce disease and don't establish themselves permanently.

The fetus is sterile but becomes colonized by a normal flora at the moment of birth, passing through the birth canal. Handling and feeding of the infant after birth leads to establishment of stable normal flora on the skin, oral cavity and intestinal tract in about 48hrs post birth.

Our normal flora provides many benefits such as:

- They synthesize vitamins like Vitamin K and B12 that are absorbed by the host.
- They prevent the attachment of pathogens by competing for the attachment factors and nutrients.
- They induce low levels of antibodies that cross react with similar antigens on pathogens, preventing infection or invasion.
- It has been proved that the gut bacteria produce many anticancer molecules which help in preventing the tumour growth.

A variety of factors can disrupt the normal flora including age, diet, stress, illness and exposure to antibiotics.

A high-fat and high calorie diet negatively alters the gut microbiota by increasing the levels of bacteria associated with obesity

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and reducing the overall gut bacterial diversity.

Studies have indicated that there is a strong connection between fast food, the gut microbiome and the immune health.

Some cosmetics are also known to cause alteration in the pH of skin surface either by increasing or reducing the normal flora of skin. Preservatives in the product may remain active on skin and with continued use of the product the resident microflora is changed.

Normal flora may act as opportunistic pathogens, especially for those who are suffering from rheumatic heart disease, undergoing immunosuppression, radiation therapy, chemotherapy etc.

Antibiotics can also affect the normal micro flora of the human gut thereby killing the beneficial microorganisms. Prolonged and indiscriminate use of antibiotics can allow the antibiotic resistant microorganisms to flourish. Therefore, antibiotics should be used judiciously, only when required.

So, take care of your body it's the only place you have to live. If you don't take care of your body your body won't take care of you.

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