

Gut Microbiota

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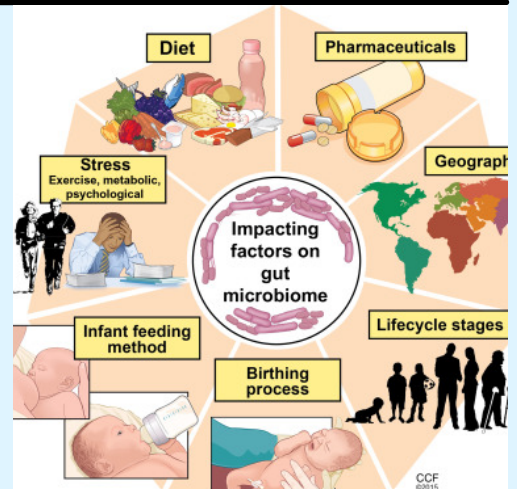
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Introduction

African Americans remain the least healthy ethnic group in the United States. Diet is a key contributor to the disparities that we see in many chronic diseases and conditions that affect this population. In order to address and ultimately eliminate these health disparities, it is important to understand how various factors, including diet and nutrition, contribute to these disparities.

What is microbiota?

Very small organisms that coexist peacefully in healthy individuals. These microorganisms are all throughout the body, but are mainly located in the large and small intestine.



How are we exposed to microbiota?

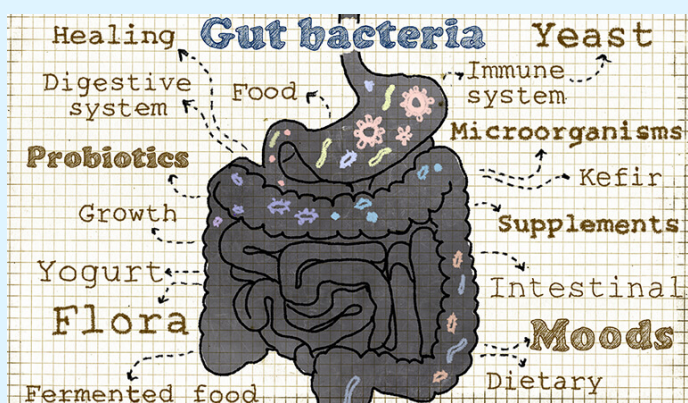
1. Infancy is the first time we are exposed to these microorganisms. As we exit the birth canal the exposure is directly based on the species found in the mother and from breast feeding. Eventually, we collect more microbiota by the food we eat and places we go.

Why Our Area?

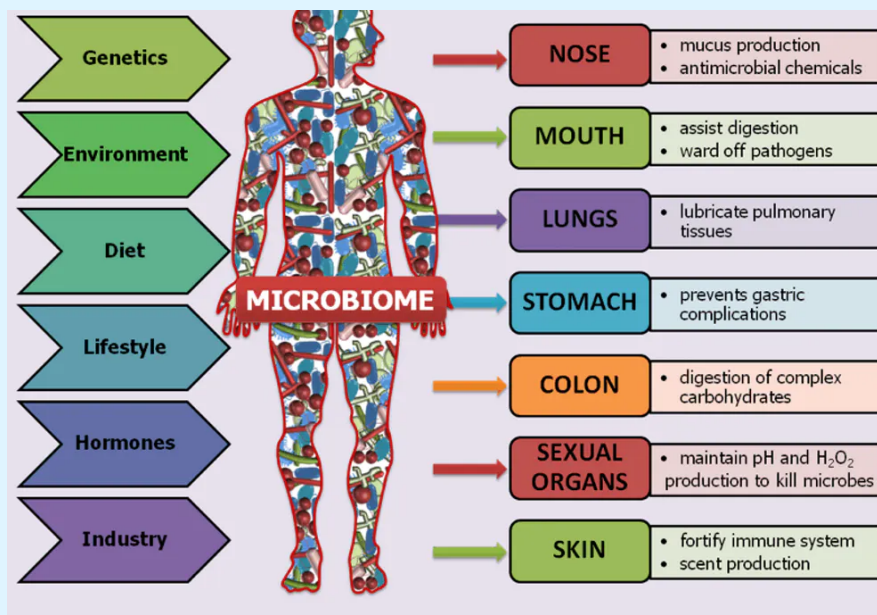
2. Many factors, such as diet and lifestyle, affect the composition of an individual's gut microbiota. It is easier to group various types of microbiota by comparing limited data types collected from a specific set of individuals. There is a theory that structure of the microbiota community is initially started by the way species enter. It is easy to understand that an individual that lives in a urban area of New York will have different microbial community than one who resides in a rural area of Louisiana.

Why Stool Collection?

3. Most of the collection tactics for healthy individuals tend to be invasive. Stool collection is the most convenient method. The most accessible microbiota content can be found in the lower digestive tract (large intestine) closest to the feces.



Diet plays an important role in our everyday life. Diet alters the composition of microbiome. Digestion microbiota aids in absorption of nutrients, shaping of the immune response, synthesizing of bioactive compounds such as Short Chain Fatty Acids (SCFA), Vitamin B/K and developing neuronal system. Microbiota also helps produce their own metabolites and digest things that our cells cannot do themselves. While some are beneficial others are considered pathogenic. Microbiota can be linked to diseases such as Alzheimer's disease, depression, cancer, and autoimmune disease. Microbiota also can interact with the medication that we take.



Factors that affect microbiome in human body Location

Although it is invisible the microbiota is considered very impactful. A major aid in our body's ability to function and make frequent changes throughout our life span.

Word Bank

Skin - Protects against unwanted bacteria and pathogens, healing wounds, communication with the body, and a defense for the immune system.

Gut - Helps in digestion of complex carbs and breaks down nutrients.

Intestine - Helps in ingestion of medications, nutrients in foods such as production of vitamin B12 found in meat, and hormone regulation

Carbohydrates - (Carbs) Found in a wide range of food items that includes a variety of nutrients important to the diet. Examples include: fruits, vegetables, bread, pasta, and grains.

Organs - A group of tissues in a living organism that have adapted to perform a specific function. Example : small intestine or large intestine, etc..

Metabolism - Life sustaining chemical reaction that changes food into energy

Short Chain Fatty Acids (SCFA) - Plays a vital role in the maintenance of health and development of disease. SCFA are apart of a larger group of fatty acids that are made by the gut microbiota during the breakdown of partially and nondigestible carbohydrates.

Microbiota - Living organisms of a specific habitat located in the digestive system

Microbiome - An everchanging community of all the microorganisms found in and on our body that can be beneficial or harmful.

Pathogen - Bacteria that can cause diseases or illness

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