

The Human Microbiome: A Foundation for Wellness

Introduction: Our Invisible Inhabitants

While the human body is composed of approximately ten trillion cells, it is home to a vastly greater number: almost **100 trillion microorganisms**. These bacteria, viruses, and other microorganisms collectively form the **Human Microbiome**. This complex ecosystem has evolved over millions of years and maintains a crucial symbiotic relationship with the body.

The majority of these microorganisms reside in the human gut and are specifically referred to as the **gut microbiome**.

Origin of the Microbiome

The foundation of the gut microbiome is established at birth. As a baby passes through the birth canal, its mouth makes contact with the walls of the cervix and vagina, acquiring the initial set of microorganisms that will build its lifelong gut microbiome. This natural process is not possible for babies born via Cesarean Section (CS).

The Critical Role of the Microbiome in Health

Keeping a healthy microbiome is of immense importance for good health and for freedom from disease. The microbiome performs several vital functions for the host body:

Essential Benefits and Production

The microbiome plays a direct role in metabolism and immunity:

- **Digestion and Metabolism:** Helps the body digest food and supports weight loss, digestion, and metabolism.
- **Vitamin Synthesis:** Produces essential vitamins, including Thiamine, folate, biotin, riboflavin, pantothenic acid, and Vitamin K.
- **Mineral Availability:** Makes minerals such as calcium, magnesium, iron, and phosphorous available to the body.
- **Immune System Support:** Improves our immunity and supports overall immune health.
- **Antimicrobial Action:** Probiotic bacteria can produce and release antimicrobial molecules, such as organic acid compounds, diacetyl, hydrogen peroxide, and peptides. These compounds have selective activity against numerous strains of microbes commonly found in the gut.
- **Protection:** Helps keep harmful bacteria in check and prevents disease-causing bacteria from sticking to the intestinal walls.

Systemic Health and Well-being

The microbiome's influence extends far beyond the gut:

- **Neurological Impact:** Influences mood, sleep, and stress response.
- **Heart Health:** Improves the health of the heart by promoting good heart health through the production of more HDL cholesterol.
- **Physical Wellness:** Reduces fatigue, pain, and inflammation.
- **Tissue Health:** Supports bone and skin health.

Consequences of Microbiome Imbalance (Gut Dysbiosis)

An imbalance between healthy and unhealthy microbes, sometimes referred to as **gut dysbiosis**, can contribute to several health issues:

- **Digestive Distress:** A disturbed microbiome can lead to bloating, flatulence, and other symptoms of Irritable Bowel Syndrome (IBS).
- **Weight Gain:** Gut dysbiosis may contribute to weight gain.
- **Cardiovascular Risk:** An abnormal microbiome may increase the chances of getting heart attacks or strokes.
- **Metabolic Disorders:** An unhealthy microbiome disturbs the control of blood sugars.
- **Psychological Issues:** Various psychological problems have their origin in an unhealthy gut microbiome.

Strategies for a Healthy Gut Microbiome

Maintaining a healthy gut microbiome is an active process that can be supported through lifestyle and dietary choices:

Strategy	Recommended Action
Dietary Diversity	Eat a diverse range of foods, including vegetables, fruit, whole grain, and fiber-rich food.
Fermented Foods	Consume fermented foods, such as curd.
Polyphenol Intake	Eat foods rich in polyphenols, such as green tea, wine, and dark chocolates.
Limit Unhealthy Foods	Limit processed food which contains preservatives and artificial sweeteners.
Antibiotic Caution	AVOID ANTIBIOTICS UNNECESSARILY.
Probiotics	Use probiotics if needed.
Infant Nutrition	Breastfeed the child until at least 6 months.



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