

The gut microbiome at the intersection of public health and social equity

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A GUT MICROBIOME-CENTERED FRAMEWORK

The gut microbiome’s critical role in mediating the effects of socio-environmental factors on individual health is often overlooked.

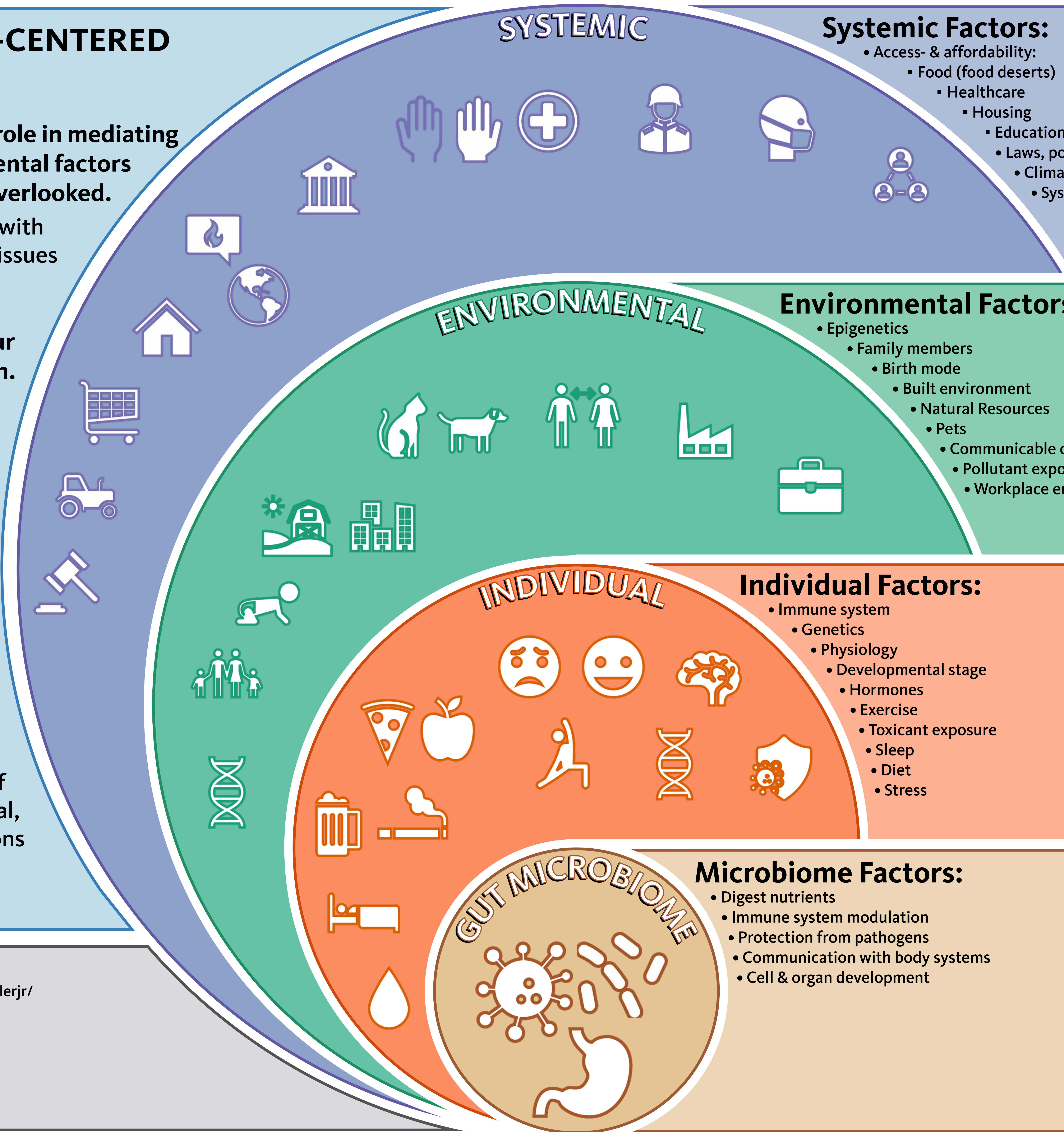
- The gut microbiome intersects with public health and social equity issues

A gut microbiome-centered framework could transform our understanding of public health.

- The gut microbiome is a central component of health
- The gut microbiome is influenced by systemic-, environmental-, and individual-level factors

A gut microbiome-centered framework promotes more ecologically and socially equitable public health policies and practices.

- Gut microbiome interventions must exist within the context of parallel systemic, environmental, and individual-level interventions



Systemic Factors:

- Access- & affordability:
 - Food (food deserts)
 - Healthcare
 - Housing
 - Education
- Laws, policy
- Climate change
- Systemic racism

Systemic-level factors limit or amplify impacts to microbiome.

Food deserts prevent an individual’s ability to access and consume a healthy diet to support gut microbiome health.

Environmental Factors:

- Epigenetics
- Family members
- Birth mode
- Built environment
- Natural Resources
- Pets
- Communicable disease
- Pollutant exposure
- Workplace environment

Environmental-level factors represent the day-to-day influences.

Chronic exposure to environmental pollutants can disrupt an individuals development, immune system functioning, and gut microbiome health.

Individual Factors:

- Immune system
- Genetics
- Physiology
- Developmental stage
- Hormones
- Exercise
- Toxicant exposure
- Sleep
- Diet
- Stress

Individual-level factors are those that individuals are born with or influences of individual lifestyle choices.

Genetics can set the initial conditions for one’s health. Lifestyle choices (diet, exercise) can impact gut microbiome health.

Microbiome Factors:

- Digest nutrients
- Immune system modulation
- Protection from pathogens
- Communication with body systems
- Cell & organ development

Microbiome-level factors represent influences that the gastrointestinal microbial community has on individual health.

The microbiome’s composition and functioning is a reflection of various factors, which impact its ability to support individual health.



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