

Why Should I Care About This?

The gut microbiome is another term for the 100 trillion bacteria which live in the gastrointestinal tract. The combination of these bacteria impact how we feel both mentally and physically. Our energy levels, sleep, mood, cognitive abilities, and overall health or disease are influenced by the gut microbiome. A healthy gut contains both an abundance, and a diversity of bacteria.

While many factors contribute to the gut microbiome, the sustaining forces are shaped during infancy. Gut microbiota composition at birth and during the first few months of life has been linked to later health outcomes to the point that it is considered “programming” for later health or disease (Sarkar et al., 2021).

Dysbiosis (an imbalance of beneficial vs. potentially harmful bacteria) in early life may set the stage for lifelong disruption to the microbiome, causing inflammation and insulin resistance - both of which are associated with a higher risk for asthma, atopic dermatitis, diabetes, allergies, obesity, cardiovascular diseases, and neurological disorders (Sarkar et al., 2021).

Contrary to popular belief, probiotics are not the only solution to gut health. In fact, much of the research on probiotic supplements has been inconclusive.

“THE MICROBIOME ACQUIRED IN THE FIRST THREE YEARS OF LIFE REMAINS FAIRLY CONSTANT THROUGHOUT ADULT LIFE UNTIL OLD AGE”

(Sarkar et al., 2021)



FACTORS SHAPING THE INFANT MICROBIOME

- Birth Mode
- Feeding Method
- Environment
- Vertical Transmission
- Prenatal Nutrition

What Can I Do About This?

Of all 5 factors, birth mode and feeding method have the strongest influence.



BIRTH MODE

C-section delivery has been linked to a higher risk of allergies, asthma, obesity, and type 2 diabetes due to the missed opportunity of ingesting bacteria from the birth canal, in addition to exposure to the antibiotics necessary for a c-section surgery (Lay et al., 2021). However, there are a few things you can do to help negate these consequences.

BREASTFEEDING

Breastfeeding is a protective factor from the development of chronic disease.

- Increases the abundance of *Bifidobacterium*, which has been shown to boost overall immunity; reduce and treat GI infections; and improve constipation, diarrhea, and eczema.
- Longer duration = greater benefits
- Maternal diet contributes to the microbial composition and diversity of breast milk
- Supplementing with *Bifidobacterium infantis* can enhance benefits from breastfeeding when given to the infant



INTRODUCTION OF SOLID FOODS

A clear link exists between gut health and food allergies.

- Fiber, fermented foods, antioxidants, and omega-3s help to "feed" beneficial bacteria, helping them to multiply.
- Beneficial bacteria boost immunity & protect against the development of food allergies.
- Diets low in fiber and high in saturated fats/junk foods are detrimental to the microbiome, and are risk factors for the development of food allergies (Berni Canani et al., 2019).
- Introducing allergenic foods at 3 months may diversify gut bacteria earlier in life, course-correcting dysbiosis from a c-section birth (Marrs et al., 2021).

ENVIRONMENT

Plays a critical role in developing the infant gut microbiome.

- Exposure to dust and dirt encourages beneficial bacteria to reproduce, which builds up the immune system.
- On the opposite end of the spectrum, household use of cleaning products with antiseptic properties may kill beneficial bacteria (Berni Canani et al., 2019).

FORMULA FEEDING + C-SECTION BORN

Choosing a synbiotic formula can restore the delayed colonization of "good" bacteria, more closely matching the microbiome of infants born vaginally.

MULTIVITAMINS

May interfere with microbial stability, especially in early life (Popovic et al., 2021). Single vitamins (e.g. vitamin D) should be given only in clinical deficiency or with pediatric prescription.

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