

The Female Gut Microbiota



Research highlighting the importance of gender differences in epidemiology, pathophysiology, and treatment of various health conditions is emerging year on year. However, there is still a reported discrepancy in the presentation of genders in health studies, including research into the female gut microbiota¹. Read on to discover how the composition of the female gut microbiota changes throughout the life course.

Pregnancy



Mode of delivery



The maternal gut microbiota shapes the neonatal gut microbiota, via direct transfer of bacteria.² This process plays a vital role in infant development, and can contribute to the neurodevelopment of the infant with potentially long-term and multi-generational outcomes².

Babies born by vaginal delivery are exposed to diverse maternal microbes³ and have been shown to have increased bifidobacteria. This is associated with a lower risk of childhood infections, atopic disorders, and obesity.^{4,5}

Adolescence/Adulthood



Childhood



The gut microbiota composition is determined by modifiable diet and lifestyle factors. Too little exercise, disrupted sleep, heightened stress levels and a lack of plant diversity and fibre in the diet can all negatively impact the gut microbiota composition.⁶⁻⁹

Greater numbers of *Bifidobacterium* and *Bacteroides*, and lower numbers of *Streptococcus* and *Enterococcus* are seen in breastfed babies compared to those consuming formula milk.¹⁰ Additionally, excessive antibiotic usage and/or increased hygiene measures are associated with a reduction in gut microbiota diversity during childhood.^{11,12}



Fertility

Recent research has shown a correlation between alterations in gut microbiota composition and infertility^{13,14}. Causal relationships between the gut microbiota and female infertility are now being identified¹⁵, however, sufficient evidence to support this causal relationship is still needed.

Menopause



The gut microbiota becomes less diverse, reflecting that of the male gut microbiota.¹⁶ Menopause is also associated with lower oestrobolome potential (see below).¹⁷

Older adulthood



Gut microbiota diversity generally declines with age.¹⁸

The Menstrual Cycle

The gut microbiota plays a role in regulating oestrogen levels. High levels of oestrogen and low levels of prostaglandins during the follicular phase can slow digestion and reduce bowel movements.¹⁹ In the luteal phase, high levels of prostaglandins can stimulate smooth muscles and increase the frequency of bowel movements.¹⁹

The Oestrobolome

The oestrobolome is a unique microbiome within your gut microbiome. It is made up of a collection of bacteria comprising of genes which are capable of metabolising and regulating circulating oestrogen levels.²⁰ Oestrogen levels can impact weight, libido and mood.²¹⁻²³

References



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