

# Gender-specific differences in intestinal lining

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A new study published online in *The FASEB Journal* pinpoints several gender-specific differences in intestinal environment that could be significant for both intestinal and non-intestinal disorders in which the intestinal lining or microbiome have been altered.

A person's gender can play a major role in the risk of certain diseases, including intestinal disorders like [irritable bowel syndrome](#), ulcerative colitis, and celiac [disease](#). Other key factors in such diseases are the intestinal barrier and microbiota, which ideally safeguard a person from potentially harmful agents.

To conduct the newly reported experiment, a team led by Madhusudan Grover, an internist and gastroenterologist at the Mayo Clinic, studied a group of healthy female and male participants at three points in time. Researchers examined the participants at baseline and after administration of a standard dose of indomethacin, a common anti-inflammatory medication that temporarily damages intestinal lining. Researchers next examined the participants four to six weeks after stopping the medication. The research team compared small and large intestinal lining composition at each of these points.

The findings revealed that at rest, the female participants had a stronger intestinal barrier and greater diversity of microbes in the gut, leading to a healthier intestinal environment than the male participants. The females were more sensitive than the males to the indomethacin disruption, however, and demonstrated changes in stool microbial populations.

"Considering gender as an important biological variable and its influence on intestinal barrier and microbes will advance our understanding of why men and women have different disease risks and respond differently to various environmental, drug-induced, and other injurious factors," Grover stated.

"There had been suspicions about this," said Thoru Pederson, Ph.D., Editor-in-Chief of *The FASEB Journal*. "For example, it seems that the GI microbiome undergoes changes at puberty that are different in boys and girls. This study adds a very powerful new dimension to this field, with huge clinical implications."

**More information:** Shoko Edogawa et al, Sex differences in NSAID-induced perturbation of human intestinal barrier function and microbiota, *The FASEB Journal* (2018). [DOI: 10.1096/fj.201800560R](https://doi.org/10.1096/fj.201800560R)

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