

# Diet type can increase potentially harmful gas in the gut

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Published in *Clinical Nutrition*, researchers from the University of Minnesota Medical School looked at the production of colonic hydrogen sulfide—a toxic gas in the body that smells like rotten eggs—in people in response to animal- and plant-based diet interventions.

"Although the role of hydrogen sulfide has long been a subject of great interest in the pathogenesis of multiple important diseases—such as [ulcerative colitis](#), [colon cancer](#), and obesity—past investigations have not been able to link dietary data, microbiome characterization and actual

hydrogen sulfide production," said Alexander Khoruts, MD, a gastroenterologist in the U of M Medical School and M Health Fairview. "This is what we have done here."

From a human cohort, the study supports the general hypothesis that hydrogen sulfide produced by the gut microbiota increases with an animal-based diet. However, the results also suggested the existence of gut microbiome enterotypes that respond differentially and even paradoxically to different dietary input.

The study found that:

- In the majority of participants, a plant-based diet resulted in a lower hydrogen sulfide production compared to an animal-based (i.e., western) diet.
- As expected, a plant-based diet contained more fiber, while an animal-based diet contained more protein.
- In some individuals, plant-based diets did not lower hydrogen sulfide production and even led to some increases in it.
- Preliminary results suggested the existence of different compositions of gut microbiota (enterotypes) that correlate with differential responsiveness to [diet](#) in terms of [hydrogen sulfide](#) production.

"The study was consistent with the general understanding that regular intake of fiber-containing foods is beneficial to gut health," said Dr. Levi Teigen, a nutrition researcher in the Division of Gastroenterology in the U of M Medical School. "Future analyses of the gut microbiome may help to individualize nutrition interventions."

**More information:** Levi Teigen et al, Differential hydrogen sulfide production by a human cohort in response to animal- and plant-based diet interventions, *Clinical Nutrition* (2022). [DOI:](#)

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