

Maternal dietary habit influences fetal life



Submission: 10-09-2023

Revision: 05-10-2023

Publication: 01-11-2023

Diet and nutrition have a tremendous influence on health and disease. Dietary constituents can affect health and have been known to supplement with essential nutrients, minerals, and calories for physiological homeostasis.¹ However, diet can also affect gene expression through epigenetic reprogramming or by altering the level of micronutrients.² While a nutrigenomics study has delineated this causal link, a recent study published in EMBO Molecular Medicine by Grant et al.,³ went a step further to establish that maternal intake of dietary fibers can alter the fetal gut microbiome, influencing the diversity of the intestinal bacterial flora, thereby affecting the gut-brain axis. Although the relationship between diet and fertility in males and females has been reported,^{4,5} the effect on postnatal life is not well documented. In this study by Grant et al. at the (Luxembourg Institute of Health, Esch-sur-Alzette, Luxembourg), the authors reported that selected feeding of fiber-free diets to pregnant mice alters the gut microbiome composition of their neonate pups depriving them of protective and beneficial commensal, *Akkermansia muciniphila*, a mucin-foraging bacterium. Further, these animals exhibited heightened immune activity by enriching defense response pathways and IL-22 expression. Therefore, the protective role of *A. muciniphila* is associated with its protection against chronic inflammation through TLR4 signaling. The author's study has far-reaching conclusions on improving human health outcomes by the rational choice of food, drugs, and lifestyle to prevent gut dysbiosis and colonization of the right microbiome.^{6,7}

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Access this article online

Website:<http://nepjol.info/index.php/AJMS>**DOI:** 10.3126/ajms.v14i11.58517**E-ISSN:** 2091-0576**P-ISSN:** 2467-9100

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<https://doi.org/10.1038/s41422-020-0332-7>

Authors' Contributions:

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Work attributed to:

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Source of Support: Nil, **Conflicts of Interest:** None declared.