

## FULL TEXT LINKS



[Review](#) [Curr Psychiatry Rep.](#) 2019 Sep 2;21(9):93. doi: 10.1007/s11920-019-1075-3.

# Microbiome and Mental Health, Specifically as It Relates to Adolescents

[Deborah R Simkin](#) <sup>1</sup>

Affiliations

## Affiliation

<sup>1</sup> Department of Psychiatry, Emory School of Medicine, 4641 Gulfstarr Dr., Suite 106, Destin, FL, 32541, USA. [deb62288@aol.com](mailto:deb62288@aol.com).

PMID: 31478105 DOI: [10.1007/s11920-019-1075-3](https://doi.org/10.1007/s11920-019-1075-3)

## Abstract

**Purpose of review:** This article reviews the relationship of the microbiome, the gut-brain axis, and depression. It also will review factors which can influence this relationship, such as chronic stress, medications, and the Western diet typically consumed by adolescents.

**Recent findings:** Changes in the gut microbiome increase the release of microbial lipopolysaccharides (LPS) which activate a gut inflammatory response. Gut pro-inflammatory cytokines stimulate the afferent vagal nerve which in turn impacts the hypothalamic-pituitary-adrenal (HPA) axis inducing symptoms associated with depression. Recent research suggests that gut inflammation can induce neuroinflammation which, in turn, stimulates microglia activation and the kynurenine pathway and can activate systemic inflammation-inducing depressive symptoms. Promoting a healthy diet and lifestyle changes, limiting exposure to pesticides, limiting medications that affect the microbiome and the use of such things pre/probiotics and other interventions may complement existing efforts to curb the rise in depression. Alternative and complementary therapies may serve as effective treatments in adolescents with depression.

**Keywords:** Adolescents; Anxiety, stress; Autism; Depression; Diet; Leaky gut; Microbiome; Probiotics.

[PubMed Disclaimer](#)

## Related information

[PubChem Compound \(MeSH Keyword\)](#)

## LinkOut – more resources

Full Text Sources

[Springer](#)

Medical

[MedlinePlus Health Information](#)

Research Materials

