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BPA may worsen inflammatory bowel disease, US study says

Possible mechanism linked to gut bacteria

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Bisphenol A (BPA) may affect microbial amino acid metabolism in the gut thereby worsening the symptoms of inflammatory bowel disease (IBD), according to researchers from Texas A&M university, US.

IBD covers a range of gut disorders, including Crohn's disease and colitis, and its incidence is increasing around the world.

Some research suggests that oestrogen, including in contraceptive pills and hormone replacement therapy, may increase the risk of IBD developing. The researchers therefore think it "plausible" that bisphenol A could have a similar effect, by mimicking oestrogen.

Last year, a **US-German team**¹ suggested that BPA exposure in the womb may alter populations of microorganisms in the gut, leading to colonic inflammation.

Led by Clinton Allred from the department of nutrition and food science, the Texan team exposed mice to BPA for 15 days, at levels matching the "upper end" of human exposure. They used dextran sulfate sodium (DSS) to induce colitis in the mice and then observed the effects of adding BPA. Administering DSS alone caused a small spike in deaths, while BPA alone had no effect on survival rates. But exposing mice to both DSS and BPA caused almost 70% of the mice to die.

The researchers also report that BPA exposure during DSS-induced colitis made symptoms more severe and appeared to slow the recovery rate, when DSS was no longer administered.

To gain an insight into possible mechanisms, the team analysed faecal samples, on the basis that BPA may affect levels of some metabolites produced by gut microorganisms, including anti-inflammatory molecules.

In particular, the researchers suggest that BPA exposure may link to reduced levels of the amino acid tryptophan as well as metabolites derived from other amino acids. Low levels of tryptophan and amino acid metabolites are associated with increased autoimmune disease activity, including IBD, they report.

Writing in *Experimental Biology and Medicine*, the researchers call for further studies to determine the mechanisms by which BPA lowers levels of tryptophan in the colon.



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[BPA may change gut microbiota and metabolites, study suggests](#)²

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