

Obesity-related gut damage may worsen asthma symptoms

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Changes in gut function caused by weight gain are associated with an increase in asthma severity, according to research to be presented at the

Society for Endocrinology annual conference in Harrogate.

The study reports a significant association of increasing body weight with higher levels of inflammation, signs of gut permeability, and poorer control of asthma. These findings not only suggest that losing weight could improve symptoms for patients with [severe asthma](#) but also highlights the gut as a potential, alternative therapeutic target for improving asthma control in patients with obesity.

Weight gain has previously been shown to alter the composition of gut bacteria, which can lead to increased gut permeability. Having a 'leaky gut' can allow harmful bacteria to enter the bloodstream, triggering [inflammatory responses](#) throughout the body. Asthma is a chronic inflammatory condition known to be exacerbated in patients with obesity.

Although it is common, if poorly controlled it can lead to serious complications including fatigue, lung infections and an increased risk of severe asthma attacks, which can be life threatening. How increased gut permeability may affect asthma control has not previously been investigated.

Cristina Parenti and colleagues at Nottingham Trent University examined the relationship between body weight and gut permeability with the symptoms of 98 patients with severe asthma. Patients with lean to obese body mass index (BMI) reported their symptoms using the Asthma Control Questionnaire-6. Blood tests were taken to measure levels of gut permeability markers (lipopolysaccharide binding protein (LPB)) and calprotectin), as well as markers of asthma-related inflammation (granzyme-A, IL-5, IL-6, CCL-4).

Patients with poorly controlled asthma had significantly higher levels of LBP and levels of LBP increased with increasing [body weight](#).

Increasing concentrations of LBP also correlated with higher levels of asthma-related inflammatory markers.

Lead investigator, Cristina Parenti, comments, "We have found a significant link between gut permeability, being overweight and poor asthma control, particularly in people with obesity. This suggests that dietary interventions to improve gut barrier function may be an effective, alternative treatment target for asthma patients who are overweight or have obesity."

The current study included only a small number of patients with severe, uncontrolled asthma. The team now plan to recruit more patients to the study and to investigate the effects in participants with well-controlled asthma, over a range of BMIs, as well as examining whether targeting the gut can improve [asthma control](#) in affected patients.

Cristina Parenti concludes, "Our initial findings show that increased gut [permeability](#) is likely to be a factor in worsening [asthma](#) symptoms in patients with obesity, so it will be interesting to look at whether dietary interventions can improve symptoms for these [patients](#)."

The findings were published in *Endocrine Abstracts*.

More information: Cristina Parenti et al, Investigating the effect of obesity on gut damage, systemic inflammation, enhanced asthma severity due to gut derived bacteria, endotoxin, *Endocrine Abstracts* (2022). [DOI: 10.1530/endoabs.86.P211](https://doi.org/10.1530/endoabs.86.P211)

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