# GLP-1 receptor agonists show promise in treating metabolic complications of Bardet-Biedl Syndrome



A recent study conducted by the Monell Chemical Senses Center, published in the Journal of Clinical Investigation, presents promising advances for those affected by Bardet-Biedl Syndrome (BBS), a rare genetic disorder linked with early-onset obesity, compulsive eating, and cognitive impairments. This research highlights the potential of GLP-1 receptor agonists, medications currently employed to treat type-2 diabetes and obesity, as effective therapies to manage the metabolic complications associated with BBS.

The investigative team utilised a genetically engineered mouse model that exhibited the primary characteristics of BBS, including excessive food consumption, impaired glucose regulation, behavioural abnormalities, and disrupted hormonal functions. Treatment with GLP-1 receptor agonists, such as the drugs Ozempic® and Wegovy®, significantly curbed food intake, led to weight loss, enhanced glucose tolerance, and restored metabolic hormone levels in these mice.

“Our findings suggest that GLP-1-based therapies effectively target gut and brain pathways involved in feeding and metabolism, even in the context of a complex genetic disorder like BBS,” said Dr Arashdeep Singh, the study’s first author and former Monell Research Associate, now a Scientist at Research Diets, Inc. in New Brunswick, New Jersey. Singh emphasised the importance of these results as a potential treatment for a population that has historically been underserved.

The mouse model proved to be a valuable approximation of human BBS, showing unique biological traits. The white fat tissue of these mice contained immune cells with a higher tendency for inflammation, alongside dysfunctional anti-inflammatory T cells, indicating a distinct mechanism driving weight gain compared to conventional obesity models. Moreover, the mice demonstrated enlarged pancreatic islet cells, implying impaired insulin regulation. The observed cell-to-cell communication defects involving hormones such as insulin and leptin were evident, but the function of GLP-1 receptors remained intact.

Treatment with GLP-1 receptor agonists in the mouse model successfully reduced overeating, mitigated weight gain, improved glucose tolerance, and balanced circulating metabolic hormones. This provides two significant findings: firstly, that the BBS mouse model is an effective tool for understanding the pathology of this rare disorder and developing treatments, and secondly, that GLP-1 receptor agonists possess therapeutic potential for addressing the metabolic disturbances seen in BBS, warranting further research towards clinical application.

Despite these encouraging findings, challenges remain in translating this therapy to patient care. The researchers noted hesitation among physicians to prescribe GLP-1 therapies to BBS patients, largely due to a lack of clinical trial data specific to this group. Additionally, systemic barriers such as restrictive health insurance policies pose obstacles to treatment access, particularly in the United States. Bardet-Biedl Syndrome affects approximately 1 in 140,000 to 1 in 160,000 newborns in North America and Europe.

“This study represents a significant step forward in closing the treatment gap for BBS and demonstrates how targeting central satiety pathways with GLP-1 therapies may benefit patients whose conditions have long lacked effective medical options,” commented Dr Guillaume de Lartigue, Monell Associate Member and senior author of the study.

The research underscores promising avenues for improving management of Bardet-Biedl Syndrome, highlighting the need for continued investigation to facilitate clinical use of GLP-1 receptor agonists for this rare genetic condition.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://monell.org/monell-center-study-identifies-glp-1-therapies-as-a-possible-treatment-for-rare-genetic-disorder-bardet-biedl-syndrome/> - This URL supports the claim that GLP-1 therapies show potential as a treatment for Bardet-Biedl Syndrome (BBS) based on a study by the Monell Chemical Senses Center. The study offers renewed hope for individuals with BBS.
* <https://www.medicalxpress.com/news/2025-04-glp-therapies-potential-rare-genetic.html?deviceType=desktop> - This article corroborates the use of GLP-1 receptor agonists in treating metabolic complications associated with BBS, highlighting their effectiveness in a genetically engineered mouse model.
* <https://monell.org/news/> - This page reports on the Monell Center study identifying GLP-1 therapies as a potential treatment for BBS, offering hope for managing the disorder's metabolic complications.
* <https://monell.org/press-releases/> - The press releases section at the Monell Chemical Senses Center includes information about the study on GLP-1 therapies for BBS, highlighting its potential impact on this underserved population.
* <https://www.lifetechnology.com/blogs/life-technology-medical-news/study-reveals-hope-for-bardet-biedl-syndrome-patients> - This blog post discusses the Monell study, focusing on its implications for understanding and addressing the sensory aspects of eating behavior in BBS patients, which could lead to targeted interventions.