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Study shows Palatinose enhances response of gut hormones GLP-1 and PYY

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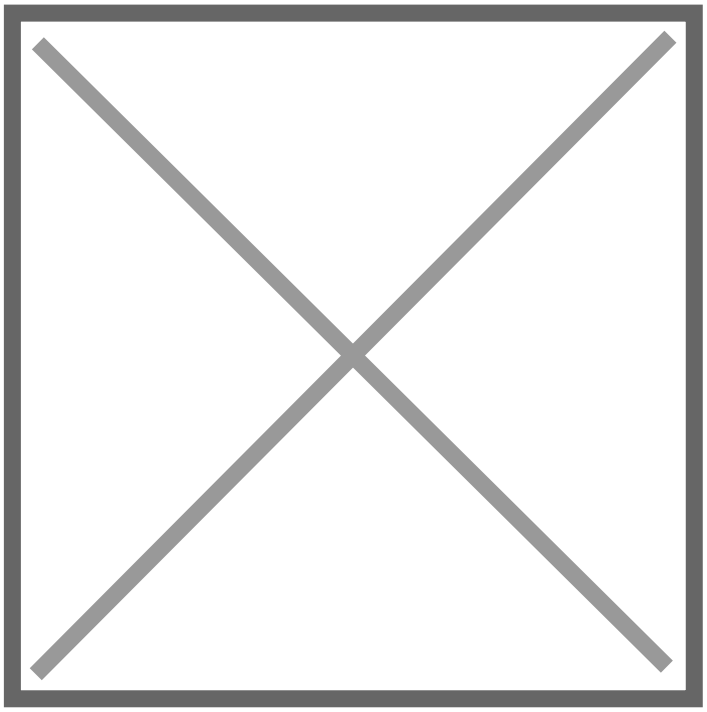

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A new study, conducted by Zhang et al., has demonstrated that consuming Palatinose (isomaltulose) improves the bodyâ??s hormonal and glycaemic response to a second meal by increasing GLP-1 (glucagon-like peptide-1) and PYY (peptide tyrosine tyrosine) levels, helping adults with metabolic syndrome better manage their blood sugar. The findings underscore the potential of Palatinose to support glycaemic stability in people with impaired metabolism.

The human intervention study followed a double-blind, randomised and placebo-controlled crossover design (RCT). It was conducted by a team of various international research institutes and supervised by Prof. Pfeiffer, a leading scientist in endocrinology, diabetes, and nutritional medicine and senior professor at CharitÃ© Berlin. As part of the trial, 15 adults with metabolic syndrome (with a mean age of 62) consumed either 50g of isomaltulose or 50g of sucrose incorporated into a 500ml citrus drink. The study followed two trial protocols: Protocol A included a breakfast with the test drink, followed by three hours of metabolic monitoring, a standardised lunch after three hours, and a further six hours of monitoring afterwards. Protocol B comprised a breakfast followed by three hours of metabolic monitoring, the test drink three hours after breakfast and one hour before a standardised lunch, which was followed by five hours of monitoring. The key measurements monitored included blood glucose, insulin, and gut hormones (GLP-1, PYY), which are known to promote satiety and support blood glucose control.

The findings showed that Palatinose - a slow-release carbohydrate derived from beet sugar - resulted in a lower blood glucose response compared to sucrose, characterised by a significantly lower blood glucose peak. In parallel, the release of beneficial gut hormones GLP-1 and PYY was increased. This resulted in a slower and lower blood glucose response to lunch, also described as a second-meal effect. The results demonstrate that Palatinose not only lowers post-meal glucose spikes but also improves hormonal balance over time, and thereby supports metabolic stability across meals. Adults with metabolic syndrome, in particular, benefit from this prolonged hormone response, leading to stabilised blood glucose levels and improved insulin release, which suggests increased insulin sensitivity.

Importantly, the benefits were more pronounced with the three-hour preload (Protocol A) than with one hour (Protocol B), highlighting the critical importance of timing for maximum effect. This also offers helpful guidance for real-life applications, for example, functional snacks containing Palatinose that can be eaten between meals.

The issue of obesity has risen significantly over the last decade and today, 1 in 4 adults (28.2 per cent) suffer from metabolic syndrome.Â This growing burden demonstrates the importance and relevance of strategies like timed Palatinose intake, which improve postprandial hormone profiles, support second-meal glucose regulation, and strengthen metabolic health in a large at-risk population.

Dr Stephan Theis, Head of Nutrition Science and Communication at BENEO, commented: â??This study shows how smart sugar choices like Palatinose can help the body manage blood sugar not just after eating, but even hours later. It strengthens the evidence for the second-meal effect, resulting from the sustained release of GLP-1 and PYY. The findings highlight the strong potential of functional carbohydrates in supporting long-term metabolic health.