

Palatinose Enhances Metabolic Efficiency in Endurance Athletes, Study Shows

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A new study, conducted by researchers from Swansea University, has demonstrated that when the smart carbohydrate Palatinose (isomaltulose) is consumed as part of a low-glycaemic diet, it supports more stable blood glucose levels and enhances fat oxidation in ultra-endurance athletes while maintaining performance. The new findings underscore the relevance of Palatinose for sports nutrition strategies aimed at optimising energy supply and metabolic efficiency. This opens up potential for food and drink manufacturers to tap into the growing market of endurance leisure and professional sports.

The randomised, placebo-controlled, crossover human intervention study, led by Hamilton et al., investigated the metabolic effects of Palatinose compared to maltodextrin in nine healthy ultra-endurance athletes during a four-week training period. Combining long-term and acute exercise assessments, athletes consumed carbohydrate drinks containing either Palatinose or maltodextrin around training sessions over 28 days, including pre-, during-, and post-exercise intake. Acute testing included prolonged submaximal running followed by a treadmill run to exhaustion, alongside continuous glucose monitoring, dietary tracking and measurements of substrate oxidation to assess fat versus carbohydrate use during exercise. This approach provides a robust and practical representation of metabolic responses in real-world ultra-endurance settings.

The findings showed that athletes consuming Palatinose - a slow-release carbohydrate derived from beet sugar - as part of a low-glycaemic diet spent more time within the target blood glucose range (70-140 mg/dL), indicating more stable glucose control with fewer hypoglycaemic episodes. This more balanced glucose profile supports a steadier energy supply, which is critical during prolonged endurance exercise. In parallel, Palatinose led to significantly higher fat oxidation during exercise, reflecting an increased reliance on fat as a fuel source. These benefits were observed both acutely during exercise and sustained over the four-week intervention period, suggesting a "training effect" that enhances the body's ability to utilise fat over time while supporting more stable energy supply through fewer hypoglycaemic episodes.

Importantly, these benefits were achieved without any reduction in endurance performance, with athletes showing comparable outcomes between Palatinose and maltodextrin. As ultra-endurance sports continue to grow in both participation and competitiveness, the ability to maintain a stable and sustained energy supply during prolonged exercise is becoming increasingly important. This study therefore provides valuable insights into how targeted carbohydrate choices can support metabolic efficiency and energy management in demanding real-world training conditions.

Dr Stephan Theis, Head of Nutrition Science and Communication at BENEIO, commented: "This study applies continuous glucose monitoring to assess the long-term intake of Palatinose in an ultra-endurance sports context, making it the first of its

kind. The findings are highly encouraging, confirming previous evidence that Palatinose helps to stabilise blood glucose levels and support higher fat burning, while showing that these metabolic benefits persist over extended periods of time. This reinforces the role of Palatinose as a truly effective carbohydrate choice for metabolic stability and training-induced adaptations in (ultra-) endurance sport.â•

This research is particularly relevant as ultra-endurance disciplines continue to expand and professionalise. Trail running participation, for example, has doubled in the last three years, highlighting the increasing uptake of ultra-endurance sports â• both for hobby and professional athletes.Â At the same time, the global sports nutrition market is expanding, with GlobalData projecting a compound annual growth rate of 5.4 per cent between 2025 and 2030.Â PalatinoseTMÂ can be used in a range of formats, including sports drinks, powders, gels or bars. It also allows for EFSA health claims for its lower rise on blood glucose levels when replacing high-glycaemic sugars as well as for its contribution to the recovery of normal muscle function after highly intensive and/or long-lasting physical exercise.