Scientific study shows improved fat oxidation and better performance in athletes when using BENEÖ’s Palatinose™

A scientific study by Professor Daniel König and his team at the Department of Sports and Sport Sciences of the University of Freiburg, Germany, has shown that with a pre-load of Palatinose™ endurance athletes “maintained a more stable blood glucose profile and higher fat oxidation, which resulted in improved cycling performance compared with maltodextrin”.

The study used a randomised, double-blind cross-over design to compare the effects of Palatinose™ and maltodextrin on fuel flexibility - the switch between fat and carbohydrates as an energy source and the subsequent effect on performance. It included 20 experienced cyclists and each of them consumed 750 ml of a 10% carbohydrate drink, before undertaking a 90-minute endurance exercise at moderate intensity level (60% VO2 max) and a subsequent time trial performance test.

Results gathered from the study highlighted that when the athletes consumed the drink containing Palatinose™ they showed higher fat oxidation rates during the 90-minute endurance trial and performed better in the subsequent sprint test. On average, the athletes finished the time trial an entire minute faster with the drink containing Palatinose™ and were able to pedal more powerfully in the final five minutes of the time trial, compared to the maltodextrin control.

The results also demonstrated that Palatinose™ stabilised the blood glucose profile, with a lower blood glucose rise before exercise, and maintained this level throughout endurance exercise. As a result, a higher fat burning rate and lowered carbohydrate oxidation in energy metabolism were promoted.

The key to these metabolic improvements lies in the physiological properties of Palatinose™: as a slowly and fully available carbohydrate, Palatinose™ provides its energy in a more steady way, with a lower rise in blood glucose levels over longer time. These unique properties, as
the authors explain, allow for “a greater reliance on fat oxidation and [the] sparing of glycogen during the initial endurance exercise”.

The findings of the study illustrate that the type of carbohydrate consumed plays an important role for fuel flexibility and endurance. Sport drinks and pouches traditionally contain high glycaemic carbohydrates, such as maltodextrin or glucose, as low glycaemic, highly-tolerated carbohydrate alternatives of this quality were not available until recently. However, this study shows that if high fat oxidation rates are wanted or required, for example for basic endurance training, or for key phases in competitive endurance activity, then BENO’s Palatinose™ delivers clear advantages with its steady and sustained carbohydrate energy supply.

Anke Sentko, Vice President Regulatory Affairs and Nutrition Communication at BENO, comments: “The results of this study show that BENO’s Palatinose™ improves fat oxidation during endurance exercise, in line with the specific properties of Palatinose™ in delivering slower and sustained release, full carbohydrate energy and a lower rise in blood glucose levels. By improving the body’s fat oxidation capacity during high intensity exercise, it saves glycogen for the final sprint, which in turn helps athletes perform better. Palatinose™ is an innovative carbohydrate choice in sports nutrition. Athletes and sports people who have tried it out in their daily practice report that they feel the difference from its steady and sustained energy release. There is market demand for such sports nutrition products and the findings of this study offer food and drink manufacturers a way that they can develop products that help people achieve their sporting goals.”

Derived from sugar beet - and also found in honey - Palatinose™, like sucrose, is a fully digestible disaccharide-type carbohydrate composed of glucose and fructose. Yet, as a result of its stronger linkage, it provides carbohydrate energy in a more steady and sustained way, with less effect on blood glucose levels and insulin. It creates an improved metabolic profile with more stable blood glucose levels and a higher contribution of fat utilisation in energy metabolism.
Editor’s Notes:

The unique properties of Palatinose™ to promote higher fat burning rates in energy metabolism have been shown in a large body of research including more than 10 human intervention studies. They were conducted in context with sports and physical activity or in the context with body weight management.

For further information on BENO and its ingredients, please visit: www.beneo.com and www.beneonews.com or follow BENO on Twitter: @_BENO or LinkedIn: www.linkedin.com/company/beneo

The BENO-Institute is an organization which brings together BENO’s expertise from Nutrition Science and Legislation teams. It acts as an advisory body for customers and partners reaching from ingredient approval, physiological effects and nutritional composition to communication and labelling. The key nutritional topics of the BENO-Institute’s work include weight management, digestive health, bone health, physical and mental performance, the effects of a low glycaemic diet as well as dental health.

The BENO-Institute facilitates access to the latest scientific research and knowledge throughout all nutritional and regulatory topics related to BENO ingredients. It provides BENO customers and partners with substantiated guidance for some of the most critical questions in the food industry. BENO is a division of the Südzucker Group, employs 900 people and has production units in Belgium, Chile, Germany and Italy.

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