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**New scientific study shows that
BENEО's Palatinose™ promotes the use of fat reserves**

The results of a recently published scientific study show that BENEО's low glycaemic carbohydrate, Palatinose™ (isomaltulose), beneficially affects fat utilisation in overweight and obese people¹. The study was led by Prof. Daniel König, University of Freiburg, Rehabilitative and Preventive Sports Medicine.

The study reports that by choosing Palatinose™ instead of high glycaemic carbohydrates (e.g. sucrose, glucose syrups or maltodextrin) blood glucose, insulin levels and fat utilisation are beneficially affected. The partial or complete substitution of high glycaemic carbohydrates with Palatinose™ not only reduces the body's blood glucose and insulin responses to food and drink but also enhances fat utilisation following a meal. When used in conjunction with calorie counting, the replacement of high glycaemic carbohydrates with Palatinose™ makes it easier for consumers to gain or maintain a healthy weight.

Anke Sentko, Vice President Regulatory Affairs and Nutrition Communication at BENEО comments: "This study is particularly good news for those in the West trying to fight the overwhelming affects of population obesity. The findings of this study illustrate that the careful choice of appropriate carbohydrates does in fact support a healthy lifestyle and enables the body to activate its fat stores for energy production. The study also shows that these results can be achieved with only slight changes to a person's diet."

The study's design reflects a daily-life approach

The human intervention study was set up in a double-blind, controlled, cross-over design. A meal-type approach was applied in which foods and drinks were consumed that were sweetened either

¹ Reference: König D, Theis S, Kozianowski G, Berg A: Postprandial substrate utilisation in overweight subjects with the metabolic syndrome following isomaltulose (Palatinose™) ingestion. Nutrition (2012), doi:10.1016/j.nut.2011.09.019 (in press)

with Palatinose™, or with a conventional high glycaemic sugar-blend, composed of sucrose and glucose syrup. The twenty men (age from 32 to 64) who participated in this study were overweight or obese (mean BMI of about 32 kg/m²), had reduced insulin sensitivity and a subsequent increased risk of developing type 2 diabetes mellitus. They consumed 50 g of either Palatinose™, or the high glycaemic sugar-blend, for breakfast and another 25 g Palatinose™, or the sugar-blend, three hours later for lunch. In order to investigate the effects both at rest and during moderate physical activity 30 minutes of moderately intense exercise was included two hours after breakfast (to simulate the physical effect of going for a 30 minute walk).

Higher fat utilisation during physical activity and at rest

The consumption of a breakfast which contained Palatinose™ had a significantly lower effect on blood glucose levels and insulin release than the breakfast which included high glycaemic sugars. In addition, fat utilisation was greater with Palatinose™ both at rest and during physical activity. The beneficial effect of the functional carbohydrate on fat utilisation was most pronounced following breakfast but was still also seen following lunch. Overall, fat utilisation with Palatinose™ was significantly higher at approximately 18%, compared with the high-glycaemic sugar-blend throughout the entire observation period.

Palatinose™, also called a “slow release” carbohydrate, is already well known for its low impact on blood glucose levels and insulin release. That is why in endurance sport as well as in the food and drink industry it is increasingly becoming recognised as a value-added alternative to conventional carbohydrates.

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The BENEО-Institute is an organisation which brings together BENEО’s expertise from Nutrition Science, Nutrition Communication and Regulatory Affairs 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 that form the basis of the **BENEО-Institute’s** work include weight management, digestive health, bone health, physical and mental performance, the effects of a low glycaemic diet in the context of healthy eating and disease prevention, as well as dental health.

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

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