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Orafti® Synergy1 from BENEEO provides new opportunities to fight obesity in children

A new study conducted by the research team of Professor Raylene Reimer from the University of Calgary in Canada shows that the prebiotic chicory root fibre Orafti® Synergy1 from BENEEO improves appetite regulation and decreases food intake in overweight and obese children, helping those children to eat less, naturally.^{i ii}

These findings strengthen the results of previous studies addressing the topic of weight management support by chicory root fibres in adults and children. Keeping in mind that about one-third of Canadian and American children are overweight or obese, it is evident that methods and ingredients need to be developed to stop the obesity epidemic and to support healthy weight management.

For this study Professor Reimer and her research team aimed to evaluate the potential of Orafti® Synergy1 in overweight and obese children. 42 overweight and obese children between the ages of 7 to 12 years were included in the study and closely followed for 16 weeks. Results were presented at the American Society for Nutrition's Scientific Sessions at Experimental Biology 2015 in Boston and illustrate that children with 8g daily of Orafti® Synergy1 supplementation had significantly higher ratings in their feeling of fullness and satisfaction and a lower prospective food consumption. Also satiety was significantly higher with the fibre supplementation.

At an *ad libitum* breakfast buffet, the children consumed about 100 calories less when they had been given Orafti® Synergy1 supplementation. At the end of the 16-week study, the lower food intake showed a definite impact on the children's body weight. BMI z-scores were significantly reduced in the prebiotic chicory fibre group, but not in the control group. These results confirmed that in the children studied, long-term intake of

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the prebiotic fibre Orafti®Synergy1 can lead to reductions in energy intake with positive impact on body weight, a reduction in body fat and fat mass index. Orafti®Synergy1 supplementation also contributes to higher satiety and fullness.

“We were very excited when we heard about these results presented at the Experimental Biology conference in Boston,” said Anke Sentko, Vice President Regulatory Affairs and Nutrition Communication at BENEEO. “We know that chicory root fibres help people eat less. It is great to see that Orafti®Synergy1 has the potential to contribute to the obesity fight – for adults and in particular, for children. Because the taste of chicory fibre is pleasant and can be easily integrated into daily eating, we feel that it is a good option to support healthy weight management.”

The study was funded by a grant from the BMO Financial Group, Alberta Children’s Hospital Research Institute and Canadian Institutes of Health Research (CIHR).

Earlier research in this series, including several human intervention studies with the prebiotic chicory root fibres Orafti®P95 and Orafti®Synergy1, also provided positive evidence for the parameters relevant to assessing the potential of an ingredient to contribute to weight management, including:

- Subjective appetite rating
- Satiety regulation on hormonal basis
- Energy intake over the long-term covering potential compensation aspects
- Body weight and body composition (fat mass, in particular trunk fat)

Apart from these studies, recently published information from several research groups have provided new insights into the mechanism link, revealing that the beneficial effects of chicory root fibres on food intake result from their specific prebiotic fermentation properties and the cross-talk with the brain via the gut-brain axis.ⁱⁱⁱ ^{iv} Short chain fatty acids formed during fermentation positively influence satiety regulation in the brain, reducing appetite and subsequent food intake.

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Corresponding observations from an earlier study in children illustrate that Orafiti[®]Synergy1 supplementation might help avoid undesirable weight gain during pubertal growth. This one year study was conducted by the USDA/ARS Children's Nutrition Research Center, and Texas Children's Hospital in Houston^v and found that children between the ages of 9 to 13 years who received 8g daily of Orafiti[®]Synergy1 supplementation showed a less excessive body weight development and less body fat, in comparison with children in the control group receiving maltodextrin (a sweet starch-type product). Professor Reimer and her team concluded that prebiotic chicory root fibre is a potential tool for the prevention and treatment of pediatric obesity.

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The BENEIO-Institute is an organisation which brings together BENEIO'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 that form the basis of the **BENEIO-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 **BENEIO-Institute** facilitates access to the latest scientific research and knowledge throughout all nutritional and regulatory topics related to BENEIO ingredients. It provides BENEIO customers and partners with substantiated guidance for some of the most critical questions in the food industry. BENEIO 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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ⁱ Hume M, Nicolucci A, Reimer R (2015) Prebiotic fiber consumption decreases energy intake in overweight and obese children. The FASEB Journal Vol 29 No.1, Supplement, Abstract 597.3 and presentation handout.

ⁱⁱ Nicolucci A., Hume M., Reimer R. (2015) Effect of Prebiotic Fiber-Induced Changes in Gut Microbiota on Adiposity in Obese and Overweight Children. The FASEB Journal Vo. 29, No. 1 Supplement 276.6 and presentation handout.

ⁱⁱⁱ De Vadder et al (2014) Microbiota-Generated Metabolites Promote Metabolic Benefits via Gut-Brain Neural Circuits. Cell 156, 1-13.

^{iv} Frost et al.(2013) The short-chain fatty acid acetate reduces appetite via a central homeostatic mechanism. Nature Communications. DOI:10.1038/ncomms4611

^v Abrams SA et al (2007) Effect of prebiotic supplementation and calcium intake on body mass index. J Pediatr 151, 293-8.