

Rye and barley products facilitate blood glucose and appetite regulation

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Evidence from observational studies indicates that diets rich in whole grain reduce risk of obesity and other diseases related to the metabolic syndrome e.g. type 2 diabetes and cardio-vascular disease. The mechanisms involved are only partially elucidated. Work within HEALTHGRAIN has revealed novel insights regarding some potential mechanisms.

Barley products rich in indigestible carbohydrates (dietary fibre and resistant starch), facilitated glycaemic regulation through a mechanism involving fermentation by gut micro-organisms. Fermentation was associated with release of specific gut hormones (GLP-1), with acknowledged benefits on a variety of parameters associated with reduced risk of the [metabolic syndrome](#), including benefits on perceived satiety.

GLP-1 is currently investigated for use as an antidiabetic, antiobesity drug, but appears to be produced endogenously in healthy subjects after intake of certain whole grain barley products rich in indigestible carbohydrates. Addition of whole grain barley products with slow glycaemic response and rich in dietary fibre and resistant starch in test meals significantly improved [insulin sensitivity](#) in type 2 diabetic subjects as compared with whole grain wheat or white wheat.

Additionally, rye products generally produce a beneficial blood glucose profile following a meal, with a low and sustained [blood glucose](#) response. Rye products also induced lowered insulin response compared

with white wheat, promoted higher post-meal satiety, and induced lowered voluntary energy intake at a subsequent meal. Studies within HEALTHGRAIN indicate that different rye genotypes vary with respect to benefits on glycaemic regulation and insulin demand.

The results are in favour of metabolic benefits of an increased consumption of in particular whole grain barley products with low glycemic response, and foods made of certain rye varieties. The results provide tools for tailoring of whole grain cereal products with magnified health benefits adjunct to the metabolic syndrome.

More information: Nilsson A, Östman E, Holst J J, Björck I (2008) Including Indigestible carbohydrates in the evening meal of healthy subjects improves glucose tolerance, lowers inflammatory markers, and increases satiety after a standardised breakfast. *J Nutr* 138; 732-739.

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