

Right breakfast bread keeps blood sugar in check all day

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If you eat the right grains for breakfast, such as whole-grain barley or rye, the regulation of your blood sugar is facilitated after breakfast, lunch, and dinner. It was previously not known that certain whole-grain products have this effect all day. This is due to a combination of low GI (glycemic index) and certain type of indigestible carbohydrates that occur in certain grain products.

The findings are presented in a dissertation from the Faculty of Engineering at Lund University. The dissertation shows that even people who have had a breakfast low in GI find it easier to concentrate for the rest of the morning.

Great variations in levels of blood sugar are being associated more and more with the risk of old-age diabetes, obesity, and cardiovascular diseases. These findings can therefore provide valuable information for tailoring a new generation of whole-grain products with low GI that can counteract these so-called lifestyle diseases. They may also have a beneficial effect on short-term memory and mental acuity.

"It is known that a carbohydrate-rich breakfast with low GI can moderate increases in blood sugar after lunch. But my results show that low GI in combination with the right amount of so-called indigestible carbohydrates, that is, dietary fiber and resistant starch, can keep the blood-sugar level low for up to ten hours, which means until after dinner," says Anne Nilsson, a doctoral student at the Unit for Applied Nutrition and Food Chemistry and author of the dissertation.

Experiments also showed that the blood sugar increase following breakfast can be moderated in a similar way by eating the right grain products the night before.

Barley evinced clearly the best results of the four types of grain. In her test, Anne used boiled grains and whole grains in bread. But when the grain was ground into porridge, the effect was weakened, since key structures were then destroyed, which had a negative effect on both GI and the content of resistant starch. On the other hand, splitting the grain worked fine.

The studies also revealed that the right grain can have a favorable impact on the metabolic syndrome, which is a catch-all name for a condition involving severe risk of diabetes and cardiovascular diseases. The diagnosis includes heightened levels of blood sugar and insulin, raised blood fats, high blood pressure, and abdominal fat. When you eat indigestible carbohydrates, they ferment in the large intestine. This bacterial process proved to have a beneficial effect on a number of risk factors for metabolic syndrome, such as markers for inflammation and level of insulin efficiency. The process also produced a greater sense of satiety.

Anne Nilsson also studied the connection between mental acuity and blood sugar levels after meals. Trial subjects were given experimental breakfasts with low and high GI, respectively, and afterwards they were asked to perform mental acuity tests. It turned out that subjects who had eaten low GI breakfasts could concentrate better and had a better working memory (a type of short-term memory) than the other group. These experiments also showed that healthy individuals with low glucose tolerance, that is with high rises in blood sugar than average following a meal, generally performed less well.

“The findings indicate that people with great fluctuations in their levels

of blood sugar run a greater risk of having a generally lower cognitive ability," says Anne Nilsson.

Source: Swedish Research Council

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