

Gene activity in human intestines changed with probiotic bacteria

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Drinks with probiotic bacteria change the activity of the genes in the small intestine. This is the conclusion of Dutch research of TI Food and Nutrition published in the American journal *PNAS* (*Proceedings of the National Academy of Sciences*) carried out by Maastricht University, NIZO Food Research, UMC St Radboud and Wageningen University.

The article was published on the website of *PNAS*. For the first time ever, cellular reactions in the mucosa of the humane intestine after consuming drinks with [probiotics](#) have been identified.

Seven healthy volunteers drank dairy drinks with three different types of probiotic bacteria, each drink containing ten billion bacteria. Six hours after consumption of these drinks biopsies were taken from the upper part of the small intestine ([duodenum](#)) for genetic research. The biopsies were taken by an endoscope brought into the mouth and stomach. The seven volunteers had to drink all three priobiotic bacteria drinks or a sports drink without bacteria (placebo) with a time period in between of two weeks. Neither the volunteers nor the physicians knew who was drinking what type of drink at what time.

Genetic research of the mucosa biopsies shows a change in the activity of hundreds of genes after drinking the bacteria drinks. The molecular pathways that were found show much resemblance to the pathways that certain medicines cause in the human body, Michiel Kleerebezem of Wageningen UR explains.

‘Probiotics cause a local reaction in the [mucosa](#) of the small intestines. These effects are similar to the effects of components that the pharmaceutical industry applies to medicines, but less strong’. This concerns medicines influencing the immune system in a positive manner and medicines lowering the blood pressure. Based on this resemblance to medicines there might be new areas to discover for the application of probiotics, Kleerebezem thinks.

Provided by Wageningen University

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