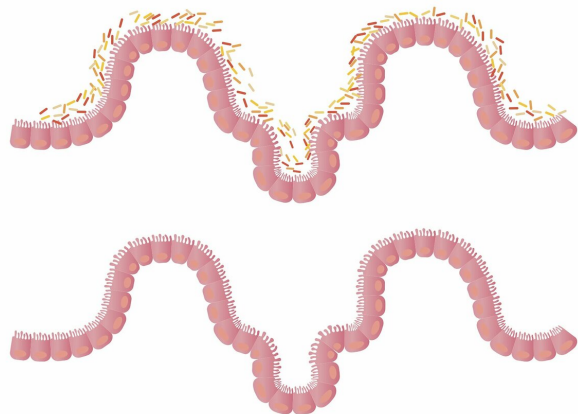


Gut microbiota not involved in the incidence of gestational diabetes mellitus

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Maternal overweight and obesity increase the risk of gestational diabetes mellitus. Gut microbiota composition has recently been associated with both overweight and a range of metabolic diseases. However, it has thus far been unclear whether gut microbiota is involved in the incidence of gestational diabetes.

A [clinical study](#) with the purpose to investigate the impact of two [food supplements](#), [fish oil](#) and probiotics (containing *Lactobacillus rhamnosus* HN001 and *Bifidobacterium animalis* ssp. *lactis* 420), on maternal and child health was conducted at the University of Turku and Turku University Hospital in Finland. The microbiota was analyzed from fecal samples of 270 overweight and [obese women](#) using the state of the art analytical and bioinformatics methods based on deep sequencing metagenomics analysis.

"Metagenomics is a next-generation sequencing tool that provides species level resolution of the [gut microbiota](#) composition. Metagenomics also

provides information on the bacterial genes and gives clues about the possible function of the gut microbiota," says Senior Researcher Kati Mokkala from the Institute of Biomedicine of the University of Turku, Finland.

"Our study shows that gut microbiota composition and function is not involved in the onset of gestational diabetes in overweight and obese women. Also, no difference were found in women with gestational diabetes when compared to women remaining free from the condition," explains Associate Professor Kirsi Laitinen from the Early Nutrition and Health research group.

Probiotics have been shown to influence [gut microbiota composition](#), but the impact of the combination of probiotics and fish oil is less well characterized. The women were randomized into four groups to consume two food supplements either as a combination or separately: fish oil + placebo, probiotics + placebo, fish oil + probiotics, or placebo + placebo. The women consumed the supplements from early pregnancy onwards until after the pregnancy.

"Interestingly, our study revealed that the combination of fish oil and probiotics modulated the composition of gut microbiota particularly in women who did not develop gestational diabetes," Mokkala explains.

Whether the gut microbiota of women with gestational diabetes is less amenable for modification by food supplements needs to be confirmed in further studies.

More information: Kati Mokkala et al, Metagenomics analysis of gut microbiota in response to diet intervention and gestational diabetes in overweight and obese women: a randomised, double-blind, placebo-controlled clinical trial, *Gut* (2020). [DOI: 10.1136/gutjnl-2020-321643](#)

Provided by University of Turku

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