

Dietary modulation of gut microbiota in overweight individuals

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Recent studies have shown that the gut microbiota varies in both its composition (e.g. reduced levels of bifidobacteria and increased levels of less desirable bacteria) and its metabolic activity in obese individuals compared with lean individuals. It seems that microbiota can modulate host energy homeostasis and adiposity through a number of different mechanisms, including harvesting energy from food, lipopolysaccharide (LPS)-induced chronic inflammation, modulation of tissue fatty acid composition and gut-derived-peptide secretion.

Modulation of the gut microbiota by dietary means is the basis for the probiotic and prebiotic concepts. The majority of scientific data on prebiotic effects comes from studies with either inulin-type fructooligosaccharides (FOS) or galactooligosaccharides (GOS). The capacity of these prebiotics to selectively stimulate the growth of bifidobacteria, and in some cases lactobacilli, and elicit a significant change in the overall composition of the gut microbiota has been demonstrated repeatedly. With regard to obesity and related metabolic disorders, the majority of available data related to prebiotics comes from animal models and dietary supplementation with FOS. These studies suggest that prebiotics are able to regulate food intake and weight gain, glucose homeostasis, dyslipidemia, steatosis and hypertension. However, one recent study looked at the effect of a unique second generation prebiotic GOS and found significant positive effects on microbiota, immune response and metabolic syndrome markers in overweight individuals. This presentation will aim to summarise the 'obese microbiota', its possible beneficial modulation through the use of prebiotics with the emphasis on the second generation prebiotic GOS.

Biography

Jelena Vulevic has a Ph.D. in gut microbiology with 13 years research experience in the area of functional food ingredients at the University of Reading, United Kingdom. She has supervised number of undergraduate and postgraduate (both M.Sc. and Ph.D.) students, lectured on the variety of courses and presented at various seminars and conferences. The topics included microbiota, prebiotics, probiotics, omega-3-fatty acids, flavonoids, medical nutrition, etc. Currently she is employed as Medical Liaison Manager at Clasado Ltd.

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