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Gut microbiota associated with prebiotic effect of whey protein

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The mechanisms involved in the regulation of food intake are complex and imply different mechanisms. In this abstract, we have focused on the role of gut microbiota as a contributor to the regulation of energy homeostasis and energy intake. Changes in bacterial composition have been seen in both obese animals and humans with reductions in Bacteroidetes and concurrent increases in Firmicutes. The aim of this study was to assess the impact of whey protein on the human gut microbiota of three obese donors and three normo-weight donors. The prebiotic potential of these substrates were assessed through *in vitro* gastrointestinal digestion following of a fecal batch cultures fermentations (mimicking a colonic fermentation) for 48 hours. Along fermentation pH and gas production were measured, as well as changes of microbiota. Total bacteria, Bacteroidetes, *Lactobacillus*, *Bifidobacterium*, Firmicutes and *E. coli* were quantified using RT-PCR. Results indicated a pH decreased in all samples, because of the metabolites of bacteria (shorts chain fatty acids among others). In relation with gas production values were higher in normo-weight donors than obese. There was significant differences in bacterial species respect donors as well as total bacterial and substrates. A tendency was also mostly observed to increased bifidobacteria and total bacteria in lean and obese donors, but *Lactobacillus* spp. was higher in obese than in lean subjects. In general, there was an increase of Bacteroidetes and *Bifidobacterium*. In conclusion, whey protein could have a role, not only lowering the caloric value and increasing satiety but also modulating the gut microbiota in a healthy manner.

Biography

Teresa Sanchez Moya has completed her degree in Veterinary and Master in Nutrition Technology and Food Safety. She has also obtained an official Pre-doctoral Fellowship of the Education Ministry of the Spain Government and presently she is a PhD student in the official doctoral program in Food Technology, Nutrition and Food Science at the University of Murcia under supervision of Dr. Gaspar Ros Berrueto, Dr. Carmen Frontela Saseta and Dr. Ruben Lopez Nicolas.

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