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Modification of inflammation with probiotic intake in obese children

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Introduction: Low grade inflammation is one of the main characteristic associated to obesity, and participates to the development of numerous comorbidities. The gut microbiota has been evidenced to interact with the host metabolic and inflammatory condition. We investigated the effect of an alimentary supplementation of *Bifidobacterium pseudocatenulatum* CECT 7765 on different elements of obese children health: gut microbiota global composition, inflammatory cytokines and cardiometabolic risk factors.

Methods: The study included 48 obese children with insulin resistance. They received dietary recommendations and a capsule of probiotic (10 CFU) or placebo daily for 13 weeks. Clinical, biochemical and gut microbiome measurement were made at baseline and at the end of the intervention.

Results: All children displayed body mass index (BMI) improvement consecutive to the intervention. Probiotic intake impacted gut microbiota, increasing the proportion of Rikenellaceae family, particularly the *Alistipes genus.* Regarding metabolic and inflammatory parameters, the children who received the probiotic displayed significant decrease in circulating high-sensitive C-reactive protein (P=0.026), and monocyte chemoattractant protein-1 (P=0.032) and an increase in high-density lipoprotein cholesterol (P=0.035) and omentin-1 (P=0.023) in comparison with the children who received the placebo.

Conclusion: The positive impact of the intervention on the BMI of all children reveals the benefits provided by the dietary changes. By complementing this intervention with the intake of *B. pseudocatenulatum* CECT 7765, a modification of the gut microbiota has been obtained, with an increase of bacterial groups associated to lean phenotypes. In parallel, those children displayed a greater improvement on inflammatory status and metabolic health. Our results suggest that modulation of gut microbiota with probiotic to be an effective tool to ameliorate obesity-related alterations in children.

Biography

Marie Gombert has completed her Bachelor degree in Biochemistry from the University of La Rochelle (France) and a Master degree in Digestive Health and Nutrition from the University of Toulouse, France. She is currently studying childhood obesity, in particular the relationship between circadian rhythms and metabolism, during her PhD in the laboratory of pediatrics of the University of Valencia, Spain. She is co-author of three reviews related to the topic of her PhD.

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