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# The role of probiotics in the management of obesity

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## Abstract

Obesity is well-known to involve alterations in the metabolism, mainly on the immune system leading to more infections and allergies. More recently, there is scientific evidence about the important role that microbiota can play in the prevention and development of obesity and other chronic diseases, especially as a result of an energy unbalance. Probiotics have been defined as food supplements containing live bacteria (*Bifidobacteria, Lactobacillus, Streptococcus* and non-pathogenic strains of *Escherichia coli*). The adequate administration of probiotics can exert health benefits due to their potential effectiveness both in preventing and treating immunological disorders. Nowadays, probiotics are considered as a useful tool to healthily modulate intestinal microbiota. This is the reason why the use of potential therapies including probiotics alone or together with prebiotics (synbiotics) has been suggested as a new approach to manage obesity, diabetes type 2 and other chronic diseases that promote a distorted immune system and unbalanced microbiota. In particular, several bacteria strains have been shown to act as obesity prevention both in animal models and in humans. Recently a new usefulness of probiotics have been discovered to tackle obesity-related alterations, such as osteoporosis, adipose tissue accumulation, allergy symptomatology, gut mucosa lesions and hypercholesterolemia. In conclusion, although most of the studies to evaluate the effectiveness of probiotics on obesity have been performed on animal models, the results are very promising, especially those related to changes in microbiota and the improvement of the immune function in obese subjects.

## Biography

Ascensión Marcos, PhD. has achieved the highest category at the Spanish National Research Council (CSIC) as Research Professor and is leading the Immunonutrition Research Group at CSIC since 1987. She received the International Prize for her "Contribution to the study on nutrition and immunology" given by Nutritional Immunology International Group in 1997. She was also the Head of the Institute of Nutrition and Food Technology at CSIC (1998-2002). Prof. Marcos is the Founder and President of the International Forum of Immunonutrition for Education and Research (i-FINER) since 2007, a non-profit organization whose mission is to provide conditions for expanding formation of human resources in Immunonutrition, specifically concerning education and research. Since 1994, she has been leading several international courses, workshops on Immunonutrition as well as sessions in different conferences to promote the knowledge of this scientific field. Since 1997 Prof. Marcos has been collaborating at the Spanish Nutrition Society in different positions at the Board of Trustees (Secretary, 1997-99; Scientific Committee, 1999-2003; President, 2003-2007; Past-President, 2007-2010; Treasurer, 2010-2015). She was the President of the FENS Conference that was held in Madrid (October, 2011). At the moment she is the Vicepresident of the International Congress of Nutrition (ICN-2013) that will be held in Granada (September, 2013). Prof. Marcos is currently President-Elect of the Federation of European Nutrition Societies (FENS: 2011-2015), Vice-president of the Spanish Society of Probiotics and Prebiotics (SEPyP), honorary member of the Royal Academy of Pharmacy from Cataluña since 2011, Guest Lecturer *ad-honorem* at the Buenos Aires University since 2004 and she has been collaborating as member of several scientific advisory committees, such as ILSI and EUFIC. Prof. Marcos has been coordinating several multi-centre Spanish projects and collaborating in European projects. Her research has been focused on different aspects of Immunonutrition such as: 1) immunomodulation properties of nutrients, bioactive compounds and functional foods, 2) evaluation of the nutritional status of healthy groups of population (especially adolescents, pregnant women, infants and children) and patients suffering from nutrition-immunity related diseases (eating disorders, overweight, obesity, celiac disease, intolerances, drug-addicts). She has been participating in 85 research projects (68 as a leader) and 434 publications, and her scientific consolidation has been recognized for four 6-year periods (1985-1990, 1991-1996, 1997-2002, 2003-2008).