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Can Probiotics Manage Altered Microbiota in Obesity?

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Obesity is well-known to involve alterations in the metabolism damaging thus the immune system which causes a higher risk to suffer from 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 (Bifid bacteria, *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 (symbiotic) 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 has 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.