

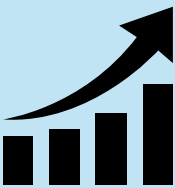
# THE ROLE OF PROBIOTICS AND PREBIOTICS APPLIED IN CELIAC DISEASE

## KEYWORDS

Probiotics / Prebiotics  
Symbiotics / Celiac disease  
Intestinal microbiota

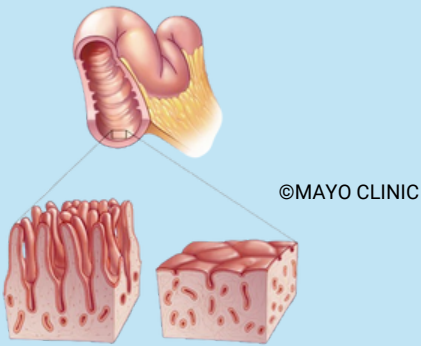


## 1. INTRODUCTION



Probiotics

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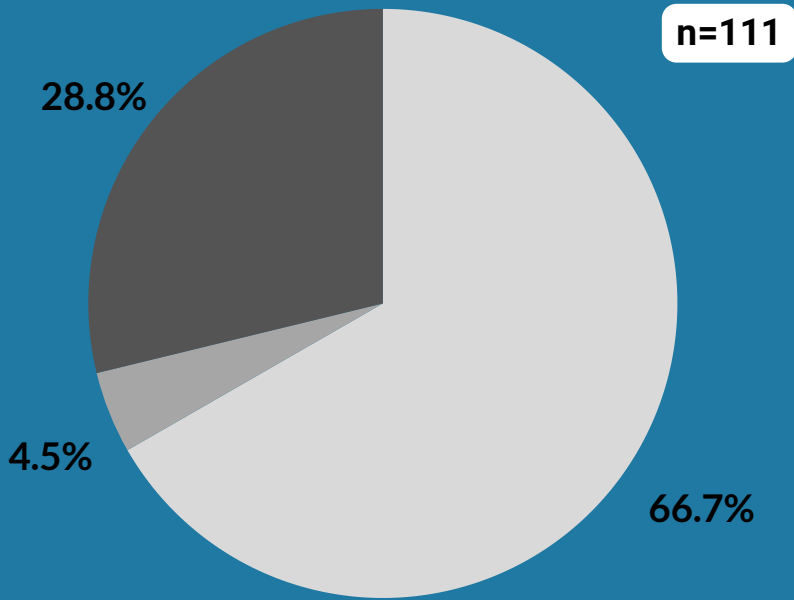


Typical gut Gut with celiac disease

## 2. OBJECTIVES

- To approximate the knowledge and perception of the general population about prebiotics and probiotics.
- To determine whether there is enough scientific evidence to demonstrate a beneficial relationship between the consumption of prebiotics and probiotics and an improvement in celiac disease symptoms.

## 3. ANALYSIS OF GENERAL POPULATION KNOWLEDGE



Annex II Fig. 4: Pie chart showing the percentage of responses to the question, "Have you ever felt to talk about prebiotics and probiotics?"

66.7% Yes, I have heard it.  
28.8% I think I've heard it, but I don't know exactly what it is.  
4.5% No, I have not heard it.

## 4. WHAT EVIDENCE DO WE HAVE?

Mozafarybazargany et al., The effects of probiotics on gastrointestinal symptoms and microbiota in patients with celiac disease: a systematic review and meta-analysis on clinical trials. Clin. Exp. Med. 23, 2773–2788 (2023)



Treated Population	Control Group (Placebo)	Probiotics Administered	Fundamental Result
Adults with symptomatic celiac disease	Yes	<i>Bifidobacterium spp.</i> and <i>Lactobacillus spp</i>	Significant reduction in GSRS (gastrointestinal symptom rating scale)
Adults with symptomatic celiac disease	Yes	<i>Bifidobacterium infantis</i>	No variation in terms of GSRS. But improvements in those patients more symptomatic.
Children with celiac disease	Yes	<i>Lactobacillus plantarum</i> and <i>Lactobacillus paracasei</i> + maltodextrin	Similar immunoglobulin levels between probiotic and placebo groups
Adults with celiac disease without excluding gluten from the diet	Yes	<i>Bifidobacterium infantis</i>	No change in GSRS. Improvements in inflammatory response. No differences in intestinal permeability in both groups.
Children with celiac disease	Yes	<i>Lactobacillus plantarum</i> and <i>Lactobacillus paracasei</i> + maltodextrin	Similar immunoglobulin levels between probiotic and placebo groups
Children with celiac disease	Yes	Symbiotic ( <i>B.bifidum</i> , <i>B. longum</i> . and <i>L. acidophilus</i> , <i>L. rhamnosus</i> + fructooligosaccharides and vitamins	Significant reduction of Anti-Tissue Transglutaminase immunoglobulin A in treated group

## 5. CONCLUSIONS



- Although the majority of the surveyed population is familiar with the terms prebiotic and probiotic, their understanding is limited and they are perceived mainly as a marketing strategy.
- More clinical studies are needed to understand the effects and possible health benefits for celiac patients.