

THE IMPACT OF FODMAP RESTRICTION AND REINTRODUCTION ON THE GUT MICROBIOTA OF PATIENTS WITH IRRITABLE BOWEL SYNDROME AND ITS ASSOCIATION WITH CLINICAL RESPONSE

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Analysis of over 1,700 faecal samples from 463 IBS patients shows that baseline dysbiotic microbiota predicts poorer response to FODMAP restriction, and individual FODMAPs exert distinct prebiotic effects on gut bacteria independent of symptom tolerance.

KEY POINTS

- Participants with dysbiotic microbiota at baseline were less likely to respond to FODMAP dietary restriction ($p=0.01$) and showed higher fecal calprotectin, secretory IgA, and eosinophil-derived neurotoxin, suggesting immune activation ($p<0.05$).
- FODMAP restriction decreased Bifidobacterium abundance in both cohorts ($FDR<0.01$), with a dose-dependent effect: the less restrictive DOMINO diet caused milder depletion than strict restriction, independent of response and IBS subtype.
- Reintroduction of galacto-oligosaccharides and fructans restored Bifidobacterium levels, while polyols increased Anaerostipes abundance, regardless of participants' tolerance ($FDR<0.05$).
- Total bacterial biomass did not change during restriction or reintroduction, and 25 significant associations were found between individual FODMAPs and gut bacteria.
- Participants intolerant to sorbitol showed increased Alistipes upon exposure ($p<0.05$, $FDR>0.05$), suggesting FODMAP-specific microbial dynamics, though these did not reach significance after multiple testing correction at the current sample size.

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