

primary studies - published RCT

## **Gut Bifidobacteria enrichment following oral Lactobacillus-supplementation is associated with clinical improvements in children with cystic fibrosis.**

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### **Study design (if review, criteria of inclusion for studies)**

Multi-center, double-blind, randomized placebo-controlled trial

### **Participants**

CF patients

### **Interventions**

Lactobacillus supplementation. Daily Lactobacillus rhamnosus strain GG (LGG) probiotic supplementation over a 12-month period.

### **Outcome measures**

Fecal 16S rRNA biomarker sequencing was used to profile fecal bacterial microbiota and analyses were performed in QiIME.

### **Main results**

Bifidobacteria-dominated fecal microbiota were more likely to arise in LGG-treated children with CF ( $P=0.04$ ). Children with Bifidobacteria-dominated gut microbiota had a reduced rate of pulmonary exacerbations (IRR  $0.55$ ; 95% CI 0.25 to 0.82;  $P=0.01$ ), improved pulmonary function (+20.00% of predicted value FEV(1); 95% CI 8.05 to 31.92;  $P=0.001$ ), lower intestinal inflammation (Calprotectin; Coef  $16.53 \text{ \AA}^{-1} \text{ g}^{-1}$  feces; 95% CI  $26.80$  to  $6.26$ ;  $P=0.002$ ) and required fewer antibiotics (IRR  $0.43$ ; 95% CI 0.22 to 0.69;  $P=0.04$ ) compared to children with Bacteroides-dominated microbiota who were less likely to have received LGG.

### **Authors' conclusions**

The majority of pediatric CF patients in this study possessed a Bacteroides- or Bifidobacteria-dominated gut microbiota. Bifidobacteria-dominated gut microbiota were more likely to be associated with LGG-supplementation and with better clinical outcomes.

<http://dx.doi.org/10.1186/s12890-022-02078-9>

### **See also**

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### **Keywords**

Child; Probiotics; Supplementation; Oral; Immunoregulatory; pharmacological\_intervention; Adult; Lactobacillus; Synbiotic;