*primary studies - published RCT*

# Disrupted intestinal microbiota and intestinal inflammation in children with cystic fibrosis and its restoration with Lactobacillus GG: a randomised clinical trial.

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

Double-blind randomized clinical trial

### Participants

Twenty-two children with CF (median age, 7 years; range, 2-9 years).

### Interventions

Administration of probiotics: Lactobacillus GG (LGG) with and without antibiotic treatment.

### Outcome measures

The intestinal microbiota were analyzed by denaturing gradient gel electrophoresis (DGGE), real-time polymerase chain reaction (RT-PCR), and fluorescence in situ hybridization (FISH). Intestinal inflammation was assessed by measuring fecal calprotectin (CLP) and rectal nitric oxide (rNO) production in children with CF as compared with healthy controls.

### Main results

Fecal CLP and rNO levels were higher in children with CF than in healthy controls (184+/-146 microg/g vs. 52+/-46 microg/g; 18+/-15 vs. 2.6+/-1.2 micromol/L NO2 (-), respectively; P

### Authors' conclusions

CF causes qualitative and quantitative changes in intestinal microbiota, which may represent a novel therapeutic target in the treatment of CF. Administration of probiotics restored gut microbiota, supporting the efficacy of probiotics in reducing intestinal inflammation and pulmonary exacerbations.

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### See also

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### Keywords

Child; Lactobacillus; Probiotics; Supplementation; Oral; Immunoregulatory; pharmacological_intervention;