



Cystic Fibrosis Research News

Citation:

Sanders DB, Fink A, Mayer-Hamblett N, Schechter M, Sawicki GS, Rosenfeld M, Flume PA, Morgan WJ. Early Life Growth Trajectories in Cystic Fibrosis are Associated with Pulmonary Function at Age 6 Years. *Journal of Pediatrics*. 2015 Nov;167(5):1081-8.e1. PMID: 26340874.

What was your research question? (50 words maximum)

Is there a link between the severity of lung disease at age 6 and changes in nutritional status before age 6 in individual children with cystic fibrosis (CF)?

Why is this important? (100 words maximum)

CF leads to problems in growth and nutrition, as well as progressive lung disease, and there is a strong relationship between growth and lung function. The CF Foundation recommends all children maintain at least a 50th percentile in weight-for-length ratio (WFL) or body mass index (BMI). As newborn screening (NBS) has increased for CF, doctors have a chance to encourage weight gain even earlier for patients. However, evidence is limited on what effect this earlier focus on weight gain may have for lung function at later ages. It is important to understand whether these efforts are associated with later lung health.

What did you do? (100 words maximum)

We looked at data in the CF Foundation Patient Registry (CFFPR) for children with CF born between 1994 and 2005. We followed these children from below age 2 to age 7 and assessed them based on changes in annual WFL percentiles before age 2 and BMI percentiles between ages 2 and 6. The relationship between growth projections before age 6 and forced expiratory volume (FEV₁) percent predicted at age 6-7 were evaluated using statistical analysis.

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What did you find? (100 words maximum)

Our study included a total of 6,805 CF patients. Children with annual WFL and BMI always in the 50th percentile or higher before age 6 had the highest adjusted average FEV₁ at age 6-7. FEV₁ at age 6-7 years for children with WFL and BMI that increased more than 10 percentile points between birth and age 6 was 98.3%. For these same children, getting to and keeping a WFL and BMI in the 50th percentile or higher before age 6 was associated with significantly higher FEV₁ at 6-7 years.

What does this mean and reasons for caution? (100 words maximum)

This study found that changes in nutritional status in the first 6 years of life are significantly associated with FEV₁ at age 6-7 years. This finding suggests that interventions that improve nutrition in early life may lead to improvements in later lung function. Some reasons for caution with these findings include: there is only one measure of lung disease in the CFFPR; finding an association between nutritional status and later FEV₁ does not mean that the better nutritional status caused the increased FEV₁; and our study does not show why different growth trajectories occur.

What's next? (50 words maximum)

Ongoing studies that closely monitor growth, nutrition, and lung health will be needed to provide stronger evidence of causation. Clinical trials would also help to reinforce the results of this study.