



# Cystic Fibrosis Research News

## **Title:**

**Macronutrient Intake in Preschoolers with Cystic Fibrosis and the Relationship between Macronutrients and Growth**

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## **What was your research question?**

We wanted to look at what a large sample of preschoolers with CF were eating and drinking, and compare their daily intake (including fat and protein) to recommendations published by the Cystic Fibrosis Foundation. We also wanted to know if any nutrients were related to better growth six months later.

## **Why is this important?**

There are many reasons why preschoolers may not meet CF-specific growth recommendations. One of the primary reasons is that they are not eating and drinking enough calories each day. By better understanding what children are eating and drinking, CF care teams can give more specific recommendations about what to serve for meals and snacks to help each child to grow better and faster. Research has found a strong link between healthy nutrition in CF and better health outcomes

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over time. There is also research showing that behavioural interventions can help reach CF nutrition recommendations.

## **What did you do?**

Parents of 75 children with CF (ages 2-6 years) recorded what their child ate and drank each day for one week. To be eligible for the study children could not be receiving tube feedings. All parents gave their permission to be in the study. We looked at total daily energy intake from food and beverages (kilocalories) and how much of that intake was from each of the macronutrients (carbohydrate, protein, fat). We looked at growth after six months to see if intake of any of the macronutrients was related to growth over time.

## **What did you find?**

It is recommended that preschoolers with CF consume between 110-200% of the recommended daily allowance, and less than half (45%) of the preschoolers were meeting the lowest 110% recommendation, with the average intake for the sample being 109.5%. Just over half (53%) of children were meeting the minimum CF recommendation that 35% of total daily kilocalories come from fat. All of the children were meeting the protein recommendation. Children consumed the most fat and protein at lunch and dinner. The only macronutrient that was related to an increase in height over time was protein intake.

## **What does this mean and reasons for caution?**

While it was impressive that the preschoolers with CF were consuming more kilocalories than the 100% recommended daily allowance, many of the preschoolers were not eating and drinking enough each day to reach the CF-specific recommendations. The children were successful with eating the recommended amount of protein, but over half were not meeting the recommendations for fat intake. When children with CF are struggling to grow well, caregivers can record what the child is eating and drinking so that the CF team can give specific nutrition recommendations that match with what the child needs.

## **What's next?**

Research should try to find simpler ways for caregivers to record daily intake and share this information with the CF team, so that families of young children can get specific nutrition recommendations more quickly. Looking closer at daily fat and protein intake may be helpful for growth.



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