

# Cystic Fibrosis Research News

**Title:**

**What Keeps Children with Cystic Fibrosis awake at night?**

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**What was your research question?**

The aim of this study was to investigate what were the causes of sleep problems in a group of children with CF and stable disease. In particular, we wanted to know if poor sleep quality in this group was due to CF-specific disease factors, aspects of the family environment and/or poor sleep habits.

**Why is this important?**

We have previously shown that sleep problems are more common in children with CF than in healthy children. It is important to understand the causes of sleep problems in this group as many will be treatable and optimising sleep may have positive effects for other health issues. For example, the effects of sleep disturbance on the health of a child may include poor growth, problems with immune function and metabolism, negative effects on behaviour and learning and, for the child and family, worsened mental health and quality of life.

**What did you do?**

We studied the sleep of 87 children (7-18 years) with CF, who were at their normal baseline health, in their home environment for 14 days. Children performed lung function and

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underwent a detailed medical and sleep history which focused on individual and family factors thought to impact on sleep quality in CF. We measured sleep quality using actigraphy (where the child wears a wristwatch-sized device which uses movement to quantify sleep), plus a sleep diary and oximetry (measuring the oxygen level in blood with a finger probe).

## What did you find?

We found that reduced sleep quality in children with CF is related to lung health but also other CF related factors. In particular sleep was disturbed by lowered lung function, having periods of low oxygen during sleep, frequent night-time coughing, asthma, CF-related diabetes and overnight PEG feeds. Family factors such as smoking or a family member with a mental health diagnosis and poor sleep habits in the child (such as the use of electronic devices before bedtime) also contributed to poor sleep. We also found the reverse effect—that poor quality sleep had an adverse effect on lung function.

## What does this mean and reasons for caution?

Based on these findings, optimal management of CF disease to improve lung function and other aspects of CF would seem to be the main intervention to improve children's sleep problems; however our findings raise other targets to improve sleep e.g. limiting the use of electronic devices in the hour before bedtime. The limitation of this study is that because we didn't follow the children up over time we can't prove that the aforementioned factors cause poor sleep but only that they're associated with poor sleep.

## What's next?

Future research needs to examine the broad health effects of poor sleep in children with CF and determine whether treating sleep problems in this group can improve health outcomes.

## Original manuscript citation in PubMed

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