

Cystic Fibrosis Research News

Title:

Nasal high-flow therapy as an adjunct to exercise in patients with cystic fibrosis: a pilot feasibility trial

Lay Title:

Supplementing physical exercise with nasal high-flow therapy in people with cystic fibrosis: a proof of concept.

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What was your research question?

We wanted to explore if nasal high-flow therapy (NHFT) can be used by people with CF during physical exercise. NHFT is a system which delivers air and oxygen at flows higher than traditional therapies. We monitored performance and to see if using NHFT was beneficial to the people involved.

Why is this important?

Exercise is beneficial to the health of people with CF by slowing down the decline in lung function, improving bone health and quality of life. People with CF, especially in the advanced stages of their disease, often struggle with exercise because of breathlessness and drops in oxygen levels. Traditional oxygen therapy helps with oxygen levels, but not with shortness of breath or discomfort. As such, finding an alternative without these limitations is important to help people with CF exercise more.

NHFT, which has been successfully used in other lung diseases, might be the alternative we are looking for.

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What did you do?

We studied twenty-two adults with CF and advanced lung disease. All patients, who took part in the study, performed two treadmill 6-minute walking tests 24-48 hours apart. Treadmill walking test are used to evaluate exercise tolerance in people with CF. One test was performed on each patient's usual conditions (with or without supplemental oxygen). The second test was performed with NHFT. Before, during and after the tests, we recorded breathing rate, oxygen and carbon dioxide levels, and we asked patients to rate their breathlessness and comfort.

What did you find?

Twenty subjects had an overall positive experience and stated that they would take part in longer-term studies using NHFT during exercise. Only two people did not tolerate the device. No side effects were linked to the use of NHFT.

The distance walked during the test was significantly longer using NHFT, by an average of 19 meters. Oxygen levels were similar, but breathing rate was lower on NHFT compared to standard conditions.

Breathlessness and discomfort are always higher at the end of the exercise compared to the beginning. When using NHFT, this effect was a lot lower than without it.

What does this mean and reasons for caution?

These results showed that NHFT might improve exercise tolerance among individuals with CF and advanced lung disease. NHFT appears to maintain breathlessness, comfort and oxygen levels more stable throughout exercise. This potentially means that people could exercise longer and more frequently.

However, we have to be cautious as this study was a proof of concept on a small number of participants. We also only looked at effects in the short term, while any real-world use would be repeated and extensive.

What's next?

While these findings are very promising, further studies to explore the use of NHFT during a longer-term physical training programme in people with cystic fibrosis are needed. These studies need to involve larger number of participants and monitor them for longer period of training.

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