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Cystic Fibrosis Research News

Title:

Rethinking physical exercise training in the modern era of cystic fibrosis: A step towards optimising short-term efficacy and long-term engagement

Lay Title:

New perspectives on physical exercise training in adults and children with cystic fibrosis

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What was your research question? How can we improve the effects of physical exercise training in people of all ages who are living with cystic fibrosis (CF) and get better long-term engagement with exercise?

Why is this important?

Regular exercise training can make people with CF (pwCF) fitter and maintain their lung health. However, the positive effects of exercise are varied, with some pwCF do not benefitting as much as others. One reason is the lack of individualisation of training programmes in this new era of CF care. The increased life expectancy and availability of highly-effective treatments for many pwCF offer novel opportunities for exercise training. Old training approaches need to be adapted for a new generation of young pwCF that are healthier than ever. On the other hand, there are aging pwCF, meaning careful consideration of training programme design is needed.

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What did you do?

We came together, as experts from the ECFS Exercise Working Group, to review and interpret the current literature on physical exercise training in pwCF. We have provided a new theoretical framework to help guide choice among existing training programmes, and a rationale for the development of innovative training methods that are tailored more towards the individual. Our approach is to deliver exercise quality whilst taking into account the physiological, psychological and logistical factors associated with age and disease severity.

What did you find?

We suggest that children with CF should exercise like their healthy peers and be involved in sports (the best modality to promote long-term positive exercise behaviour) rather than participation in formal exercise training programmes. This can be achieved by early training of neuromuscular abilities (especially in those exhibiting growth retardation and delayed skill-related measures of physical fitness) to increase physical self-efficacy and body image which are important modulators of exercise participation at young age. In adults with more advanced disease, we would suggest that formal supervised training modalities includes a mixture of endurance-type activities and strength training and should be tailored to prevent the rapid loss of fitness over time (for example muscle strength). In the absence of consensus regarding the best training modality, we suggest considering individual preferences in the choice of exercise modalities and intensity.

What does this mean and reasons for caution? Our approach is based on the importance of considering the various effects that exercise can have on our body (for example the muscle fatigue induced by a training session) including psychological effects (for example how pleasant exercise is perceived) to adapt training programmes to the individuals' needs. This is particularly important during periods of exacerbations (for example when exercise is somewhat limited but still possible) and in the current era of highly-effective drugs, so called CFTR modulators. However, our knowledge about the effects of CFTR modulators on overall fitness and muscle function is still very limited, in particular when started early in life.

What's next?

Researchers and healthcare professionals are encouraged to test the proposed training modalities adapted to different target groups. Research into exercise training in combination with new CFTR modulator therapies would also be welcome. Conducting long-term exercise trials is challenging in CF, we therefore suggest that experts test out new programmes (for example through small feasibility pilot studies), before starting larger studies.

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