primary studies - published RCT

Is exercise and electrostimulation effective in improving muscle strength and cardiorespiratory fitness in children with cystic fibrosis and mild-to-moderate pulmonary impairment?: Randomized controlled trial.

Code: PM35306386 **Year:** 2022 **Date:** **Author:** Donadio MVF

Study design (if review, criteria of inclusion for studies)

Randomized controlled trial

Participants

Children between 6 and 17years with CF presenting mild-to-moderate pulmonary impairment.

Interventions

Subjects were randomly allocated to control (CON); exercise (EX); or exercise and neuromuscular electrical stimulation (NMES) (EX + NMES) groups. NMES was applied in the quadriceps and the interscapular region, simultaneously to the exercises. CON group followed the CF team recommendations.

Outcome measures

Subjects were evaluated at baseline and at the end of an 8-week individualized exercise-program (3 days/week, 60min/session). The main outcome measures were lung function, cardiorespiratory fitness, functional capacity, quality of life and muscle strength.

Main results

Twenty-seven patients, aged 12.6Â Â±Â 3.0 years, were analyzed. No significant interactions were found for cardiorespiratory fitness. Functional capacity presented significant differences, indicating a better performance in both EX and EXÂ +Â NMES. No significant changes between groups were seen for quality of life and lung function. As for muscle strength, EX and EXÂ +Â NMES presented large effect sizes and significant differences, compared to CON, for quadriceps (pÂ =Â 0.004, Î·(2)(p)Â =Â 0.401), pectoral (pÂ =Â 0.001, Î·(2)(p)Â =Â 0.487), dorsal (pÂ =Â 0.009, Î·(2)(p)Â =Â 0.333) and handgrip (pÂ =Â 0.028, Î·(2)(p)Â =Â 0.278).

Authors' conclusions

A resistance exercise-training program led to improvements in muscle strength and functional capacity in CF patients with mild-to-moderate pulmonary impairment. The addition of NMES to the training program resulted in no extra favorable effects.

http://dx.doi.org/10.1016/j.rmed.2022.106798

See also

Respir Med. 2022 Mar 1;196:106798. doi: 10.1016/j.rmed.2022.106798.

Keywords

non pharmacological intervention - devices OR physiotherapy; Airway clearance technique; Chest physiotherapy; exercise; training; Combined Modality Therapy; strength training;