primary studies - published RCT

Benefits of neuromuscular electrical stimulation prior to endurance training in patients with cystic fibrosis and severe pulmonary dysfunction.

Code: PM22911373 **Year:** 2013 **Date:** 2013 **Author:** Vivodtzev I

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

Randomized controlled trial.

Participants

Fourteen patients with CF (FEV(1) = 35% +/- 11% predicted)

Interventions

Patients were prospectively randomized to either a 6-week neuromuscular electrical stimulation (NMES) program (n = 7) or a 6-week control period (n = 7) both followed by ergocycle (ERGO) training (8 weeks) (NMES + ERGO and control + ERGO groups).

Outcome measures

Measurements were pulmonary function, mid-thigh circumference, quadriceps strength, 6-min walk distance, maximal exercise capacity on a cycloergometer, plasma biomarkers, insulin resistance (homeostasis model assessment indexes), and quality of life (CF questionnaire for adults and teenagers > 14 years of age [CFQ14 +], Baseline Dyspnea Index-Transition Dyspnea Index).

Main results

NMES + ERGO training greatly improved mid-thigh circumference (+ 2.6 +/- 0.9 cm vs - 0.4 +/- 1.4 cm), quadriceps strength (+ 6 +/- 5 kg vs - 2 +/- 2 kg), and BMI (+ 0.6 +/- 0.6 kg/m(2) vs - 0.5 +/- 0.7 kg/m(2)) compared with control + ERGO training (P

Authors' conclusions

NMES training performed prior to endurance training is useful for strengthening peripheral muscles, which in turn may augment gains in body weight and quality of life, further reductions in ventilation requirements during exercise, and retard insulin resistance in patients with CF with severe pulmonary obstruction.

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See also

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Keywords

Adolescent; Adult; Child; exercise; non pharmacological intervention - devices OR physiotherapy; training; non pharmacological intervention - psyco-soc-edu-org; strength training; Respiratory Tract Diseases;