

primary studies - published RCT

Energy expenditure during physiotherapist-assisted and self-treatment in cystic fibrosis.

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Author: Williams MT

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

a randomised crossover trial

Participants

26 CF subjects

Interventions

Two regimens of treatment were conducted: therapist-assisted treatment (active cycle of breathing, ACBT, with percussion, vibration), and independent treatment (ACBT alone, under the supervision of a physiotherapist). 48 hours between treatments

Outcome measures

Subjects completed pulmonary function tests before and after either treatment. Indirect calorimetry and oximetry parameters were recorded at rest, during, and following treatment. Treatment groups were compared using ANOVA and two-sample crossover t-tests.

Main results

When compared to resting values, physiotherapy treatment resulted in significant increases in VO₂, VCO₂ and respiratory exchange ratio. No difference was evident between treatment regimens for the change in VO₂ between baseline and treatment. The increase in ventilation (baseline to treatment) was significantly greater for the therapist-assisted treatment. The therapist-assisted ACBT was associated with a significant carryover effect for forced expiratory flow at 50% of vital capacity (FEF₅₀). Oxygen requirements for the two treatments were similar. However, the assisted regimen resulted in greater changes in minute ventilation during treatment and improved 48-hour post-treatment pulmonary function after only one treatment session.

Authors' conclusions

These findings suggest that the inclusion of percussion and vibration within the ACBT may influence respiratory muscle activity during treatment and result in improved pulmonary function.

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See also

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Keywords

Adolescent; Adult; Child; non pharmacological intervention - devices OR physiotherapy; Self-Management; Active Cycle of Breathing Technique -ACBT-; percussion; Airway clearance technique; Chest physiotherapy; Behavioural interventions;