primary studies - published RCT

Short-Term Effect of Different Physical Exercises and Physiotherapy Combinations on Sputum Expectoration, Oxygen Saturation, and Lung Function in Young Patients with Cystic Fibrosis.

Code: PM27147223 **Year:** 2016 **Date:** 2016 **Author:** Kriemler S

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

RCT

Participants

Twelve 16- to 29-year-old individuals with CF

Interventions

to determine short-term effects of a combined exercise-physiotherapy intervention, using either trampoline or cycle exercises compared to billiard (sham training) patients were randomly allocated to all 3 interventions on non-consecutive days of a week with exercise and physiotherapy parts lasting 30 min and breaks of 30 min after each procedure.

Outcome measures

Sputum weight (g) and lung function were measured before and after the exercise + rest and physiotherapy + rest interventions and SaO2 was measured before and after the combined interventions. Differences in outcome measures between the different exercises and combined exercise/physiotherapy regimens were analyzed by univariate multilevel linear regression.

Main results

Sputum expectoration during and after trampoline exercise was significantly higher than with and after billiard (P = 0.021), and tended to be higher than with and after cycling of similar cardiovascular intensity (P = 0.074). Sputum weights during and after physiotherapy were comparable among sessions, irrespective of the prior exercise or sham procedure. The increase in SaO2 was significantly higher after the combined trampoline/physiotherapy (1.7 +/- 0.9%) and cycling/physiotherapy (1.8 +/- 0.8%) sessions compared to billiard/physiotherapy (0.5 +/- 1.8%, P = 0.011 and P = 0.007). No effects were observed on lung function.

Authors' conclusions

Exercise followed by physiotherapy has an additive effect on sputum production in participants with CF and leads to improved oxygen saturation. Exercises with increased ventilation combined with mechanical vibration seem to be most efficient.

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See also

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Keywords

exercise; non pharmacological intervention - devices OR physiotherapy; training; Combined Modality Therapy; Aerobic training; Chest physiotherapy; strength training;