primary studies - published, non RCT

The effect of whole body vibration exposure on muscle function in children with cystic fibrosis: a pilot efficacy trial.

Code: PM23671546 **Year:** 2013 **Date:** 2013 **Author:** O'Keefe K

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

Non-randomised controlled cross-over trial.

Participants

Children (8 - 15 years) with CF (n = 7).

Interventions

Participants served as their own controls for the first four weeks (usual care), then underwent four weeks of parentally-supervised home-based WBV exposure followed by four weeks washout (usual care). The WBV exposure consisted of 20 - 30 minutes of intermittent (1 min vibration:1 min rest) exposure on a Galileo platform (20 - 22Hz, 1 mm amplitude) 3 days/week.

Outcome measures

The primary outcome measures of absolute and relative lower body (leg extension (LE), leg press (LP)), upper body (chess press (CP)) strength and power, and power were measured at baseline, and weeks 4, 8 and 12. Secondary exploratory outcomes were cardiorespiratory fitness, pulmonary function and health-related quality of life.

Main results

Six participants completed the training without adverse events. Muscle function changes following WBV exposure were not statistically significant. However, moderate-to-large relative effect sizes (ES) favouring WBV were evident for leg extension strength (ES = 0.66 (-0.50, 1.82)), LP relative strength (ES = 0.92 (-0.27, 2.11)), leg press peak power (ES = 0.78 (-0.50, 2.07)) and CMJ height (ES = 0.60 (-0.56 to 1.76)).

Authors' conclusions

The results from this first controlled trial indicate that WBV may be a potentially effective exercise modality to safely increase leg strength and explosive power in children with CF. Potentially clinically relevant changes support continued investigation of the efficacy, mechanism and feasibility of this intervention in future large-scale studies.

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See also

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Keywords

Vibration; oscillating devices; Airway clearance technique; Chest physiotherapy; non pharmacological intervention - devices OR physiotherapy;