

P38: Whole Body Vibration In Adults With Cystic Fibrosis

O Semler, S van Koningsbruggen, E Schoenau, E Rietschel

Children's Hospital, University of Cologne, Cologne, Germany

joerg.semmler@uk-koeln.de

Objective: The study was conducted to evaluate the effect of Whole Body Vibration (WBV) on the physical abilities of adolescents with cystic fibrosis (CF). Most patients with CF have a decreased muscle function due to their reduced possibilities of physical training caused by reduced lung function. Depending on the severity of the disease the patients are hardly able to climb stairs or walk longer distances. Due to this reduced mobility they are affected from a loss of muscle function and muscle power.

Subjects: 10 patients aged 24-46 years (3m; 7f) have completed the 3 months' study. FEV1 was 16-108 % predicted (48 ± 28) and BMI 15,4–24,4 kg/m² (19,5 ± 2,7).

Interventions: WBV was provided by a side alternating vibration platform (Galileo 2000). The patients were standing in an upright position receiving vertical vibration of frequencies between 20-25 Hz. The vibration exercise evokes muscle contractions via stretch reflexes improving muscular activity. The training schedule consisted of three 3-minute sessions twice a day 5 days per week for 3 months. Success of treatment for the muscle system was assessed using the chair-rising-test.

Results: There was an increase in muscle power in the patients during the training period. This increase in muscle power was not correlated to an improved muscle force but to an increased velocity during the chair rising test.

Parameter	Mean of differences (t2-t1)	SD of differences (t2-t1)	p
Chair rising [s]	-1.05*	1.64	0.03
Muscle Force / weight [N/kg]	7*	9	0.02
Muscle Power / weight [W/kg]	2.38*	2.78	0.02
Velocity (mean) [m/s]	0.13*	0.18	0.02

Conclusions: After the 3 months of training the patients were able to produce a higher muscle power with less force. This means that the exercise is less exhaustive for the patients. These results demonstrate that WBV can be beneficial to improve muscle function in CF patients.