

P39: First Results Of The Cologne Rehabilitation Concept For Children With Reduced Mobility

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Objective: In a retrospective analysis we assessed the results of the first 46 participants of the Cologne rehabilitation concept for handicapped children and adolescents at the beginning and after 6 months of training. All patients had reduced motor functions and most of them are wheelchair bound. They had different underlying diseases leading to their reduced mobility but all of them are not able to use their musculo-skeletal-system as they should. As a consequence they lose more muscle mass and bone mass and many of them are affected from contractures especially in the lower legs.

Intervention: The patients completed the 6 months of training in the Cologne rehabilitation concept. This concept includes 3 weeks of intensive physiotherapy (splitted into a start period of 2 weeks and a refresher course of 1 week after 3 months) and of 6 months Whole Body Vibration (WBV) therapy at home. During the time at the rehabilitation center the patients receive 4h of intensive physiotherapy per day. A combination of NDT, physio-gym, pool-therapy, treadmill-training and Whole Body Vibration is used to improve muscle function and independence in activities of daily living. The Whole body vibration was applied by the side alternating vibration platform Galileo. This training-device was modified and combined with a tilting table. This allows patients to train even when they are not able to carry their whole body weight at the beginning.

Subjects and Results: 46 patients were included in this analysis who completed the 6 months of training. The success of therapy was measured with DXA scans (GE Lunar Prodigy) and with a modified and shortened variant of the Gross motor function measurement (GMFM). The GMFM is a standardized test to evaluate abilities in children with reduced motor functions.

The results of the DXA measurements and the GMFM are shown in table 1:

Parameter	Changes	p
BMD whole body (head excluded from analysis)	+ 2,1 %	0,0001
BMC legs/leg length	+ 6,6 %	0,0001
Muscle mass / body length	+ 2,2 %	0,006
Muscle mass legs/leg length	+ 3,2 %	0,009
GMFM	+ 5,2 %	0,001

Conclusions: The patients treated with the Cologne rehabilitation concept showed a significant increase in BMD and muscle mass in the DXA scans after 6 months of training. The GMFM reflected a significant improvement in motor function and in activity of daily living.

The study is limited by the wide range of severity of motor impairment in these patients and further studies have to prove the benefit of the rehabilitation concept for different diseases of the musculo-skeletal system and of patients.