

### P40: Effect Of Vibration Training And Functional Therapeutic Muscle Training On Muscle Function And Activities Of Daily Living In Children With MMC

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**Objective:** We analyzed results of children with a meningomyelocele (MMC) who participated in a new functional orientated rehabilitation programme. All children had severe impairments of their motor functions and most of them were wheelchair bound at least for longer distances. As consequence of their immobility their musculo-skeletal system was not trained adequately and they were affected by secondary loss of muscle mass (sarcopenia) and secondary osteoporosis especially in the lower legs.

**Intervention:** The patients completed the 6 months rehabilitation programme at the medifitreha in Cologne. This concept includes 3 weeks of intensive physiotherapy (split 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 functional physiotherapy per day. A combination of NDT, therapeutic strength training, pool-therapy, treadmill-training and Whole body Vibration (side alternating vibration platform Galileo) is used to improve muscle function and independence in activities of daily living.

**Subjects and results:** 16 patients were included in this analysis (8 = male; 8 = female; age 4-20 years). 12 of them had a VP-shunt due to hydrocephalus. The success of therapy was measured with DXA scans (GE Lunar Prodigy), with the ground reaction platform Leonardo and with the Gross motor function measurement (GMFM).

Parameter	% Changes
Tilt Table Test B at start and after 3 months	16,5%
BMC legs/ leg length at start and after 6 months	9,1%
Musclemass legs/ leg length at start and after 6 months	1,1%
GMFM at start and after 6 months	4%

**Conclusions:** The Cologne rehabilitation programme seems to improve motor function in children with MMC. The results of the GMFM especially shows positive effects on activities of daily living, for example in body balance, walking distance, sitting or standing ability. This auspicious motor development can improve quality of life of the children and their parents while transferred in daily living. Beside these results, WBV is a save training method for children with MMC. During the training period no complications have occurred.