

**P41: Whole Body Vibration in Children with SMA Type II and III**

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Introduction: Spinal muscle atrophy (SMA) is an incurable disease which affects 8 of 100.000 life births. Type I is associated with high mortality in infancy whereas type II and III are associated with high morbidity in childhood and reduced life expectancy. There is no specific therapy available. Concerning physiotherapy there is still controversy about how much is good. Some experts believe it's impossible to overdo it, while others believe that exercising to exhaustion can "burn out" remaining motor neurons.

Methods: We report about 7 children (4 males, 3 females, aged 2,5 - 9 years) with SMA type 2 (5) and type 3 (2) that took part in a programme using whole body vibration (WBV) integrated in functional physiotherapy. In the beginning they received instructions from physiotherapists combined with functional physiotherapy for 13 days. After a training period of 3 months with WBV at home there was another one week intervention with professional therapy and supervision in order to optimize the therapy. In the meantime children trained with their parents at home. Total training period was 6 month. Evaluation took place after 3 and after 6 months using a modified Gross Motor Function Test (mGMFM) and muscle force assessments measuring maximum force that can be developed when pushing off a plate with feet from a semi lying position (45°).

Results: Regarding mGMFM 3 children had improvement of 9-16%, 3 children remained equal and only one had a decline of 8% in mGMFM criteria. This patient had a prolonged pneumonia during the first 3 month of the training period. During this time he showed increase of knee contractures (25 to 30° right side, 30 to 50° left side), which probably led to reduced mGMFM results. Regarding muscle force, we saw improvement in 4 patients, one stayed equal, one missed the investigation and one had a decline (the same one that had a decline in mGMFM - probably due to the contractures that limited the force development on the plate). Looking for contractures, only the above mentioned patient had notable increase of knee contractures, 3 had slight increase, 2 stayed equal and one patient showed reduction after 6 months.

Conclusion: First data analysis show that WBV-Training integrated in functional physiotherapy is a feasible method for children with SMA. Since the disease itself shows slow progression in most type II it could be a success to stabilize motor functions. Such stabilization and even some improvement could be achieved in 6 of 7 children.