Respons to Ms. Ref. No.: ARCHIVES-PMR-D-10-00888R1
Title: Rapidly emerging role of whole body vibration therapy in the management of neurological diseases besides polio

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To Editor,

We thank xxx et al. for their comments on our brief report regarding whole-body vibration (WBV) training in persons with late effects of polio (1). Their overall conclusion that WBV therapy has a rapidly emerging role in the management of neurological disorders is equally thought provoking. Despite being on the market for over a decade and tested in different neurological disorders, there are not yet any clear results regarding positive effects of WBV training. Even though some studies have reported improvements (2,3), others have not found it to be better than traditional interventions (3-6). The reported effects are usually small in comparison with other established interventions and often within the limits of normal variations or measurement errors. We have performed assessments of reliability (7-10) of muscle strength and gait performance in patients with late effects of polio and stroke and have shown that increases on group level must be at least 7%, and often greater, to be considered clinically real improvements. Improvements reported after WBV training are often below these values and therefore would not indicate a clinically real improvement.

Furthermore, there are few randomized controlled trials (RCT) of WBV training in patients with neurological disorders. Those that have used such structured design often report no or small effects. The authors refer to a randomized cross-over study by Schyns et al. (5) and state that balance improved and muscle spasm was attenuated after WBV training in patients with multiple sclerosis (MS). However, balance was not primarily assessed in that study and other outcomes measures, such as gait performance, were not significant. In addition, the authors of that study themselves concluded that "…there is limited evidence that the addition of whole body vibration provides any additional improvements". A recently published RCT of patients with MS (6) also reported that WBV training over 20 weeks had no effects on leg muscle performance and functional capacity. In patients with Parkinson's disease (PD) (3) and stroke (4), WBV training was not found to be more effective than conventional training regarding gait performance (3), balance or activities of daily living (4). In our opinion, studies so far have not been able to show that WBV training is a viable treatment for neurological disorders.

An important aspect of the design of WBV training studies is the choice of outcome measures. Some studies have primarily assessed body functions for example muscle strength and balance but there is little evidence of transfer of gains to activities of daily living (for example gait performance) after WBV training. From a rehabilitation perspective, an

intervention is considered to be effective when it reduces not only impairments but also activity limitations and subsequently participation restrictions.

We do agree with xxx et al. that there is insufficient evidence of the effects of WBV training and therefore a need for larger RCTs in patients with neurological disorders, using sound reliable outcome measurements. We have recently completed a double blind RCT of WBV training with two different amplitudes in chronic stroke patients and the findings will be reported at upcoming international conferences during 2011.

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