











# SCIENTIFIC BOOKLET

Vibra **moov**   
PRO



## 10 scientific references











1. Gait-like vibration training improves gait abilities: a case report of a 62-year-old person with a chronic incomplete spinal cord injury - [Barthelemy, 2016](#) 
2. Alternate rhythmic vibratory stimulation of trunk muscles affects walking cadence and velocity in Parkinson's disease - [De Nunzio, 2009](#) 
3. Vibration Elicits Involuntary, Step-Like Behavior in Individuals With Spinal Cord Injury - [Field-Fote, 2012](#) 
4. Effect of illusory kinesthesia on hand function in patients with distal radius fractures: a quasi-randomized controlled study - [Imai, 2017](#) 
5. Effect of a local vibration stimulus training programme on postural sway and gait in chronic stroke patients - [Lee, 2013](#) 
6. Focal vibration in neurorehabilitation - [Murillo, 2014](#) 
7. Illusory movements prevent cortical disruption caused by immobilization - [Roll, 2012](#) 
8. Segmental muscle vibration improves reaching movement in patients with chronic stroke. A randomized controlled trial - [Tavernese, 2013](#) 
9. Short-Term Effects of Focal Muscle Vibration on Motor Recovery After Acute Stroke - [Toscano, 2019](#) 
10. Effectiveness of matrix-rhythm therapy on increased muscle tone, balance and gait parameters in stroke survivors - [Unal, 2020](#) 

## Clinical Benefits

- + FPS applied very early during the acute phase before passive mobilization or conventional therapy
- + FPS preserve sensory-motor interaction
- + FPS can compensate for the lack of feedback due to long-term immobility
- + FPS activate the cortical networks of active movements guiding cortical plasticity
- + FPS reduce the side-effects of immobility and the need for re-training
- + FPS trigger motor responses consistent with the sensation evoked
- + FPS enhance the coordination and limit the co-contractions
- + FPS accelerate the recovery of mobility and motor control
- + FPS reduce the duration of the treatment while improving patient comfort
- + Positive additive effect (enhance the corticomotor excitability) of the combined work of FPS/motor imagery/passive manipulation or active participation



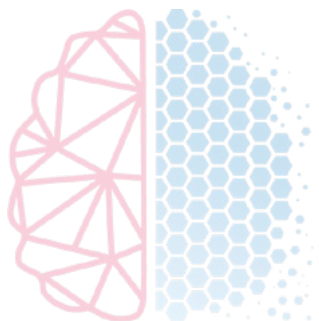
## 10 scientific references

1. Effectiveness of Focal Muscle Vibration on Hemiplegic Upper Extremity Spasticity in Individuals With Stroke: A Systematic Review - [Alashram, 2019](#) 
2. Focal muscle vibration in the treatment of upper limb spasticity - [Caliandro, 2012](#) 
3. Localized 100 Hz vibration improves function and reduces upper limb spasticity: a double-blind controlled study - [Casale, 2014](#) 
4. Preliminary evidence of focal muscle vibration effects on spasticity due to cerebral palsy in a small sample of Italian children - [Celetti, 2011](#) 
5. Brain oscillatory activity correlates with the relief of post-stroke spasticity following focal vibration - [Li, 2022](#) 
6. Decrease of spasticity with muscle vibration in patients with spinal cord injury - [Murillo, 2011](#) 
7. Anti-spastic effects of the direct application of stimuli to the spastic muscles - [Noma, 2012](#) 
8. Vibration therapy in patients with cerebral palsy a systematic review - [Ritzmann, 2018](#) 
9. The effects of robotic gait neurorehabilitation and focal vibration combined treatment in adult cerebral palsy - [Rutovic, 2019](#) 
10. Motor Recovery After Stroke: From a Vespa Scooter Ride Over the Roman Sampietrini to Focal Muscle Vibration (fMV) Treatment - [Toscano, 2020](#) 

## Clinical benefits

- + Safe & well tolerated ; easy to perform at bedside from the acute phase to the chronic one
- + Long-lasting regulation of the muscle tone between agonist & antagonist
- + Can preserve muscular architecture
- + Focal vibration combined with physiotherapy is better and faster than physiotherapy alone in controlling spasticity and improving motor function
- + Different type of application depending on the site and type/level of spasticity
- + Repeated muscle vibration produces a repeated sensory input that reaches, via Ia fiber afferent input, S1/M1 cortical areas and induce plasticity
- + FV can provoke cortical and spinal plasticity leading to the reduction of spasticity
- + Increase excitability in the primary motor cortex especially in S1-M1: biomarker of intrinsic plasticity-related mechanism for the reduction of spasticity
- + The reduction of hypertonia leads to less pain and allow the patients to do more conventional therapy or robotic one
- + Possible reduction of the frequency and amount of medication or toxin taken by the patient





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# VERY EARLY & INTENSIVE NEUROREHABILITATION



Vibramoov Pro

Vibramoov : Vibramoov is a Medical Device, CE marked (Medical Device European Regulation) designed and manufactured upon ISO 13485: 2016 standard