



# Scientific booklet



MODE 1  
Mobility

Vibra **moov**<sup>®</sup>  
PRO

Functional Proprioceptive Stimulations



MODE 1

# Mobility

1

Combining FPS with botulinum toxin injections improved ankle mobility, reduced spasticity and pain and enhanced walking speed in a child with unilateral spastic cerebral palsy.

*Case Report: Combination of focal vibration therapy and botulinum toxin injections to treat equinus gait in a child with unilateral spastic cerebral palsy. Boulay, 2025*

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2

FPS treatment applied to the trunk improve the stride length, cadence and walking speed of patients with Parkinson's disease.

*Alternate rhythmic vibratory stimulation of trunk muscles affects walking cadence and velocity in Parkinson's disease. De Nunzio, 2010*

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3

Repetitive FPS sessions on upper limb after stroke, combined with conventional rehab, significantly improved proximal and distal upper-limb function versus rehabilitation alone.

*Greater recovery of upper-limb function in stroke patients with repetitive functional proprioceptive stimulation compared to robotic mechanotherapy: a quasi-randomized controlled trial. Shurupova, 2026*

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4

Early FPS treatment of patients with fracture significantly reduced pain at rest or during movement and also greatly increased recovery of range of motion.

*Effect of illusory kinesthesia on hand function in patients with distal radius fractures: a quasi-randomized controlled study. Imai, 2017*

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5

FPS to the palm augmented the activity of the antagonistic forearm extensors, especially in the paretic hand, which was induced via top-down cortical modulation.

*Augmented activity of the forearm extensor muscles induced by vibratory stimulation of the palm of the hand in individuals with subacute post-stroke hemiplegia. Kimura, 2022*

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6

FPS improve postural sway & key gait parameters such as speed, cadence, step length, and single-limb support time of stroke patients.

*Effect of a local vibration stimulus training programme on postural sway and gait in chronic stroke patients: a randomized controlled trial. Lee, 2013*

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7

FPS in spinal cord injury patients is safe and feasible as early as the ICU setting, showing short-term reduction in spasticity, inducing relaxation and reducing kinesophobia.

*Early functional proprioceptive stimulation in high spinal cord injury: a pilot study Martinache, 2025*

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8

FPS applied during limb immobilization effectively prevents the maladaptive sensorimotor cortical reorganization typically seen with disuse.

*Illusory movements prevent cortical disruption caused by immobilization. Roll, 2012*

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9

FPS can significantly improve motor function in the flaccid upper limb of a patient recovering from acute brain injury, suggesting it as a promising rehabilitative technique.

*Impact of Focal Muscle Vibration on Flaccid Upper Limb Motor Paralysis following Acute Brain Disease: A Case Study. Saito, 2023*

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10

A 4-week rehabilitation program incorporating FPS significantly enhanced postural control and functional recovery of stroke patients compared to conventional therapy alone.

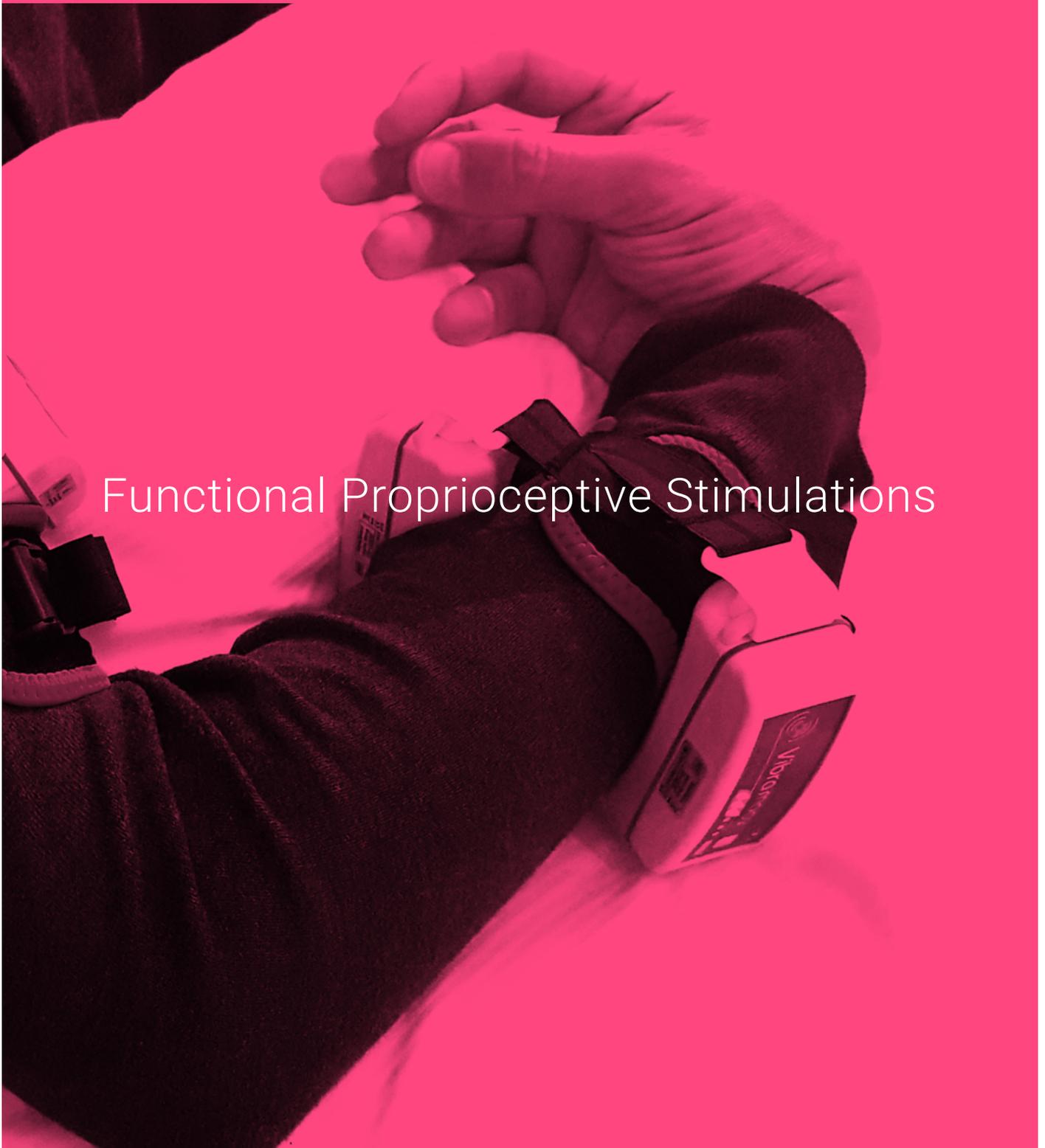
*Effectiveness of a rehabilitation program involving functional proprioceptive stimulation for postural control and motor recovery among stroke patients: a double-blinded, randomized, controlled trial. Wisniewska-Szurlej, 2025*

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MODE 2  
Spasticity

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## MODE 2 Spasticity

# 1

An 8-week regimen of focal muscle vibration therapy significantly reduced spasticity and improved daily living activities in a man with incomplete spinal cord injury.

*Focal Muscle Vibration Reduces Spasticity and Improves Functional Level in Incomplete Spinal Cord Injury: A Case Report. Alashram, 2022*

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# 2

Focal muscle vibration to the triceps brachii with physiotherapy significantly reduced the spasticity and improved arm function in hemiplegic patients, with lasting effects.

*Localized 100 Hz vibration improves function and reduces upper limb spasticity: a double-blind controlled study. Casale, 2014*

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# 3

Focal muscle vibration over three days reduced lower limb spasticity and improved ankle motion in children with cerebral palsy, with effects lasting 12 weeks.

*Preliminary evidence of focal muscle vibration effects on spasticity due to cerebral palsy in a small sample of Italian children. Celetti, 2011*

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# 4

Focal muscle vibration applied to the ankle plantarflexor and dorsiflexor muscles significantly reduced post-stroke spasticity and improved ambulation.

*Focal vibration of the plantarflexor and dorsiflexor muscles improves poststroke spasticity: a randomized single-blind controlled trial. Chen, 2023*

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# 5

Focal muscle vibration significantly reduces post-stroke spasticity, enhances motor function and pain relief, especially when combined with other rehab techniques.

*Focal Vibration Therapy for Motor Deficits and Spasticity Management in Post-Stroke Rehabilitation. Giorgi, 2024*

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# 6

Focal muscle vibration reduces spasticity in stroke patients by bilaterally activating S1-M1 areas, with stronger ipsilesional activity, linking neural modulation to symptom relief.

*Brain oscillatory activity correlates with the relief of poststroke spasticity following focal vibration. Li, 2022*

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# 7

Focal muscle vibration reduced upper limb spasticity and improved motor function in chronic stroke patients, with benefits lasting one month post-treatment.

*Decrease of spasticity with muscle vibration in patients with spinal cord injury. Murillo, 2011*

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# 8

Focal muscle vibration applied to spastic muscles (fingers, palm, and wrist flexors) significantly reduces spasticity in the hemiplegic upper limbs of post-stroke patients.

*Anti-spastic effects of the direct application of vibratory stimuli to the spastic muscles of hemiplegic limbs in poststroke patients: a proof-of-principle study. Noma, 2012*

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# 9

A combined treatment with focal muscle vibration followed by robotic gait training improved spasticity and gait function in an adult with cerebral palsy.

*The effects of robotic gait neurorehabilitation and focal vibration combined treatment in adult cerebral palsy. Rutovic, 2019*

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# 10

Focal muscle vibration promote post-stroke motor recovery by inducing cortical and spinal plasticity allowing an improvement in strength, walking and a reduction in spasticity.

*AMotor Recovery After Stroke: From a Vespa Scooter Ride Over the Roman Sampietrini to Focal Muscle Vibration (fMV) Treatment. A 99mTc-HMPAO SPECT and Neurophysiological Case Study. Toscano, 2020*

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# Very early et intensive neurorehabilitation

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