



Webinar Series

United Spinal Association

Webinar title: What is the Vibe?

Vibration Therapy as a Rehabilitation Tool

Presenter/presenters:

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Director of Education

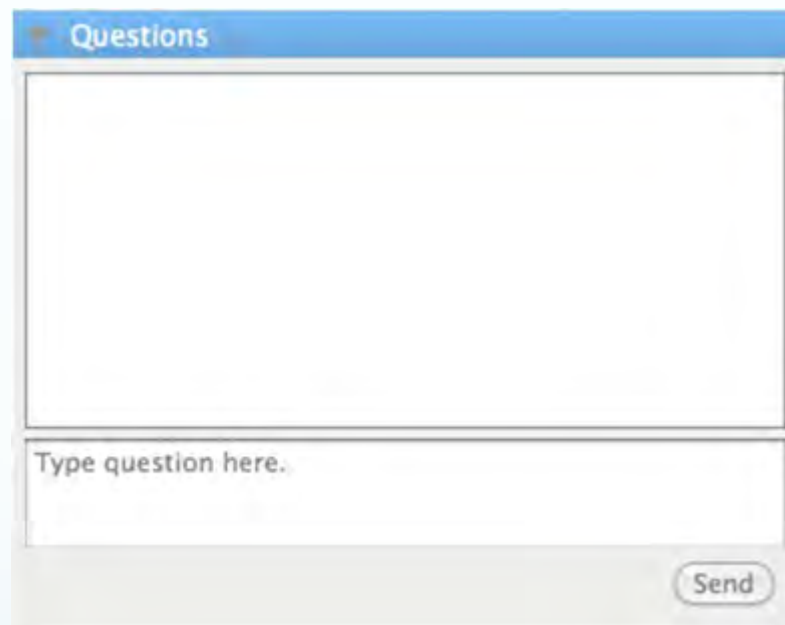
University of Miami & Miami Project to Cure Paralysis

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Want to Ask a Question?



Questions

Type question here.

Send



www.themiamiproject.org

The Miami Project is dedicated to finding more effective treatments and, ultimately, a cure for paralysis resulting from spinal cord injury.



www.NeurotechNetwork.org

*Helping people regain life thru
neurotechnology*

Focusing on education of and advocacy to access neurotechnology devices, therapies and treatments for people living with impairments, their care-givers and medical professionals.



Disclaimer page

The information presented in this webinar is not meant to replace the advice from a medical professional. You should consult a health care professional familiar with your specific case, concerns and condition.

Neurotech Network and its representatives do not endorse, rate, sell, distribute, prescribe, administer or recommend any products, procedures or services. We highly suggest for you to take information to a trained medical professional familiar with your case to discuss options that are best for you.

***Note: what we are presenting is mainly under clinical trials and supervised conditions. Precautions should be taken if using this technology at home.*



Webinar Agenda

- Rehabilitation vs Exercise
- What is Vibration Therapy?
- Partial/Focal/Segmented Vibration vs Whole-Body Vibration
- Supporting Research for Neural Rehabilitation Tool
- Active Clinical Trials
- Overview of Available Technologies
- How to Access this Technology
- Resources to Learn More



Rehabilitation vs Exercise

- **Definition:** Rehabilitation is a treatment or treatments designed to facilitate the process of recovery from injury, illness, or disease to as normal a condition as possible.
- **Focus is**
 - Restoration/recovery
 - Compensation
 - Limitations/adjustment
 - Independence
- **Definition:** Exercise is physical activity that is planned, structured, and repetitive for the purpose of conditioning any part of the body.
- **Focus is**
 - Improve health condition,
 - Maintain or improve fitness and
 - Prevention/performance



What is Vibration Therapy?

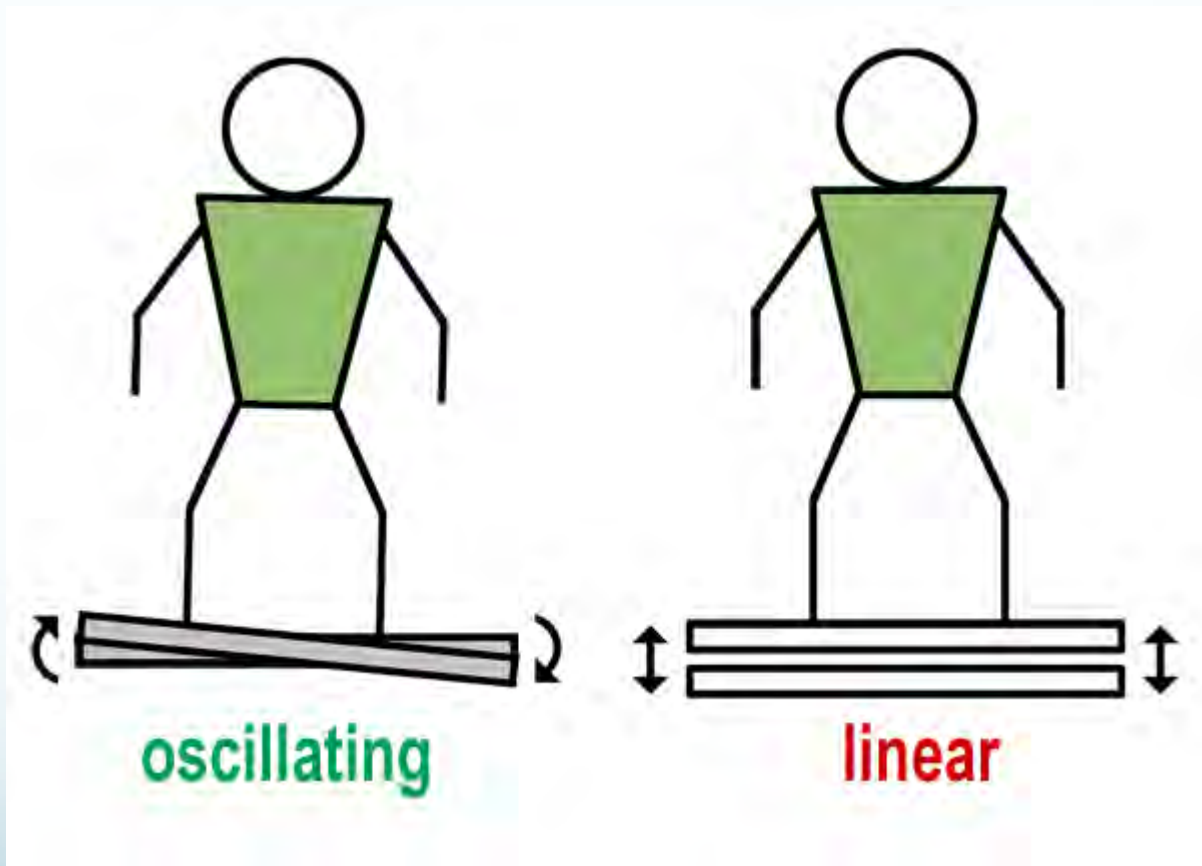
- Definition:
 - Mechanical repetitive movement, or oscillatory motion, around an equilibrium point.
 - It is a forced oscillation, where vibrations generated by motors are transmitted to the person in a targeted area or whole body.
- 1st study as a therapeutic tool for stroke survivors was published in Scandinavian Journal of Rehabilitation in 1969
- Gained popularity when used by professional athletes
- The effects are thought to be a result of muscle excitation or spinal motor neuron excitation



Partial vs Whole Body



Oscillating vs Linear



Evidence for Stroke

- Upper Extremity
 - Reduced spasticity
 - Proprioceptor facilitator/improve global awareness
 - Improved dexterity
- Lower Extremity
 - Increased walking speed
 - Improved dorsiflexion and plantar flexion (foot drop)
 - Improved knee flexion and extension

NOTE: These are small study results.
Studies with larger sample resulted in no significant impact

Evidence for Multiple Sclerosis & Parkinson's Disease

- Multiple Sclerosis
 - Decreased fatigue (partial)
 - Decrease of tone
 - Improved muscle force and sensation
 - Postural control impact was questionable
- Parkinson's Disease
 - Walking speed, stride duration, cadence (Partial)
 - Improved tremor & rigidity
 - Gait & posture (Double blind study reported no difference)



Evidence for Spinal Cord Injury

- Upper Extremity
 - Decrease spasticity
 - Improved sensorimotor
 - Improved Range of Motion
 - Improved functional gain when combined with repetitive motion therapy
- Lower Extremity
 - Improved blood flow, circulation
 - Decrease spasticity
 - Motor Incomplete SCI, improved walking function



Evidence for SCI continued

- Biggest effect seems to be on spasticity reduction
 - Focal vibration effects last for a maximum of 24 hours
 - Whole body vibration effects can last for 6 to 7 days
- Focal vibration can elicit step-like behavior in motor complete or motor incomplete lesions, but results need the vibration, i.e. there is no permanent change

Precautions & Risks

- Most frequently sited side effects
 - Lower extremity reddening of the skin
 - Itching
 - Acedotal Reporting: adverse effects of musculoskeletal, digestive, vascular, reproductive, visual and vestibular.
 - No adverse events reported in the literature
- Common Parameters
 - Frequency Range = 25-50 Hz
 - Amplitude = 2-10 mm
 - Duration = 30 sec to 10 minutes



Noted Clinical Trials - Stroke

- **AMES Treatment of the Impaired Leg in Chronic Stroke Patients:** NCT01378637
 - Oregon Health & Science Univ, Northwestern Univ, Rehabilitation Institute of Chicago
- **AMES Treatment of the Proximal Arm in Chronic Stroke:** NCT01934439
 - Oregon Health and Science Univ.
- **Balance Rehabilitation With Sensory Recalibration After Stroke:** NCT01677091
 - Rennes University Hospital



Noted Clinical Trials - SCI

- **The Effect of Whole Body Vibration on Spasticity in Persons With Spinal Cord Injury:** NCT02127606
 - Kessler Foundation
- **Spinal Cord Injury Leg Rehabilitation (AMES):** NCT01498991
 - Oregon Health and Science University
- **Dose-Response Effects of Whole Body Vibration on Spasticity and Walking in SCI (WBV):** NCT02340910
 - Shepherd Center



Vibration Systems



Galileo by STIM Design
<http://stimdesigns.com>



VibePlate
<http://www.vibeplate.com>



Vibration Systems



Power Plate

<https://powerplate.com>



The WAVE

<http://www.vibraprofitness.com>



Vibration Systems



Juvent Health Platform

<http://www.juvent.com/health/>



AMES Technology Inc.
Oregon Health & Science University

<http://www.amesdevices.com/>



Options for those who cannot stand?



How to Access

- Clinical Physical Therapy or Rehabilitation Settings
- Extended Rehabilitation Facilities/Programs
- Exercise Facilities
- Home Use

Resources

- Reference Previous Webinars
 - Rehab is Over. Now What?:
<http://www.spinalcord.org/video-rehab-is-over-now-what/>
 - Paralysis and Exercise:
<http://www.spinalcord.org/video-cutting-edge-fitness-for-wheelchair-users/>
 - ClinicalTrials.gov: Search terms “vibration therapy” AND your condition, ie. stroke, spinal cord injury, multiple sclerosis, etc.



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