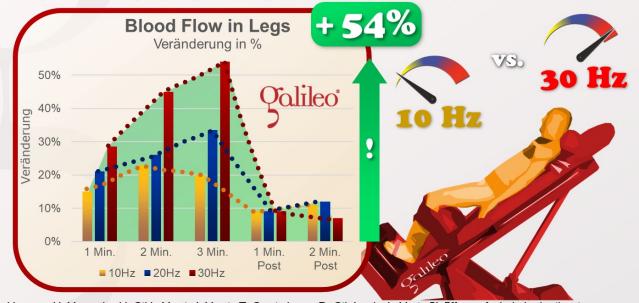


# Can high frequency Galileo Therapy improve blood-flow in spinal cord injury

### The answer is: YES

This study investigated the effects of Galileo Therapy on blood-flow in spinal cord injury (SCI, ASIA A) patients. They received Galileo Therapy on a Galileo Delta tilt-table (45° tilt, 10-30Hz, pos. 2.5, 60° flexed knees, 3 min., then 2 min. test, blood-flow was measured using ultrasound Doppler). The blood flow improved significantly with increasing frequency and time by up to 54% compared to rest (also at 45° tilt).



Herrero AJ, Menendez H, Gil L, Martin J, Martin T, Garcia-Lopez D, Gil-Agudo A, Marin PJ: Effects of whole-body vibration on blood flow and neuromuscular activity in spinal cord injury.; Spinal Cord, 49(4):554-9, 2011; PMID: 21042329; GID: 2667

Galileo Research Fact Sheet #116

Therapy: SCI (Spinal Cord Injury), Blood-Flow

www.galileo-therapy.com

This study examines the effect of Galileo therapy at different frequencies (10, 20, 30Hz) on blood flow in paraplegic patients (ASIA a).

Patients received Galileo therapy for 3 minutes on a Galileo Delta tilt table (inclination angle 45°) and then for 2 minutes without vibration (10, 20, 30 Hz, position 2.5). The patients were fixed so that a knee angle of 60° resulted.

Blood flow was measured with an ultrasound Doppler system every minute (1-3 minutes during Galileo Therapy, minute 1 and 2 after the end of therapy).

The results show a significant and significant increase in blood flow with increasing time and frequency by up to 54%.

These findings are consistent with other studies in other paraplegics (# GRFS63) as well as in healthy volunteers in different age and fitness groups (# GRFS81, # GRFS24, # GRFS21, # GRFS20).



Spinal Cord. 2011 Apr;49(4):554-9. doi: 10.1038/sc.2010.151. Epub 2010 Nov 2.

## Effects of whole-body vibration on blood flow and neuromuscular activity in spinal cord injury.

Herrero AJ<sup>1</sup>, Menéndez H, Gil L, Martín J, Martín T, García-López D, Gil-Agudo A, Marín PJ.

#### STUDY DESIGN:

Crossover trial.

#### **OBJECTIVES:**

To investigate the effects of whole-body vibration (WBV) on muscular activity and blood flow velocity after different vibration treatments in patients with spinal cord injury (SCI).

#### **SETTING:**

Research Center on Physical Disability (Spain).

#### METHODS:

Eight individuals with SCI received six 3-min WBV treatments depending on a combination of frequency (10, 20 or 30 Hz) and protocol (constant, that is, three consecutive minutes of WBV, or fragmented, that is, three sets of 1 min of WBV with 1 min of rest between the sets).

Femoral artery blood flow velocity was registered at minutes 1, 2 and 3 of WBV, and at minutes 1 and 2 after the end of the stimulus. Electromyography activity (EMG) of vastus lateralis (VL) and vastus medialis (VM) was registered at baseline and during WBV.

#### **RESULTS:**

Peak blood velocity (PBV) increased after 1, 2 and 3 min of WBV. The 10 Hz frequency did not alter blood flow, whereas the 20 Hz frequency increased PBV after 2 and 3 min of WBV, and the 30 Hz frequency increased PBV after 1, 2 and 3 min of WBV and during the first minute after the end of the stimulus.

No protocol effect was observed for blood parameters. EMG activity of VL and VM increased independently of the applied frequency or protocol.

#### CONCLUSION:

WBV is an effective method to increase leg blood flow and to activate muscle mass in SCI patients, and could be considered to be incorporated in their rehabilitation programs.

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