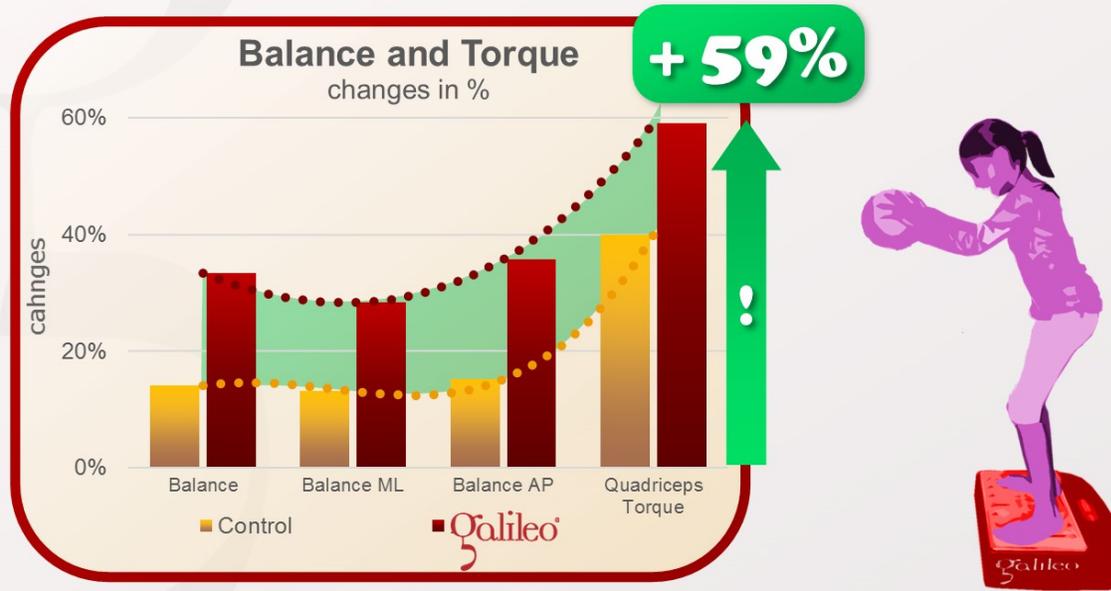


# Is Galileo Training in CP patients more effective than standard physiotherapy ?

## The answer is: YES

This study examined the effects of Galileo Training on balance and quadriceps torque in children with CP (Cerebral Palsy) (3x3min., 12-18Hz, pos. 1-3, 5/week, 10-45° bent knees). Both groups received standard physiotherapy (5x60min. /week) the Galileo group additional 5x9 min. Galileo Training. The Galileo group showed more than double the improvements in balance and almost 60% increase in quadriceps peak torque.



El-Shamy SM: Effect of whole-body vibration on muscle strength and balance in diplegic cerebral palsy: a randomized controlled trial.; Am J Phys Med Rehabil, 93(2):114-21, 2014; PMID: 24434887; GID: 3431

### This study reports the significant effects of Galileo training in children between 8 and 11 with Cerebral Palsy (CP).

Both groups received over a period of 3 months' extensive traditional physiotherapy (5 \* 60 minutes per week). The Galileo group received an additional 3 bouts, 3 minutes of Galileo Training per therapy session. The exercises used were fairly easy; standing with slightly bent legs (10-45°) at mid-frequencies (14 to 18Hz). Even though therapy time in the Galileo group was only 15% higher the therapy effects for Balance were more than doubled.

The effects on muscle torque and power were increased by an additional 50%. This smaller advantage in muscle torque and power can be explained by the used frequency range (#GRFS1): Mid frequencies (12 to 20Hz) focus the Galileo Therapy on coordination, flexibility and balance. High frequencies (25Hz and more) would have been much more effective (e.g. starting with a small amplitude/close foot-position) to build-up muscles and to increase force and power. This is proven by studies (#GRFS21, #GRFS22, #GRFS10, #GRFS11, #GRFS12), which show high frequencies can almost double the muscle activation compared to mid frequencies (#GRFS3, #GRFS4).

Especially in CP the use of high frequencies (25Hz and more) is therefore important and necessary to build up muscles and muscle functions which are not used.



[Am J Phys Med Rehabil](#). 2014 Feb;93(2):114-21. doi: 10.1097/PHM.0b013e3182a541a4.

## **Effect of whole-body vibration on muscle strength and balance in diplegic cerebral palsy: a randomized controlled trial.**

El-Shamy SM<sup>1</sup>.

### **Abstract**

#### **OBJECTIVE:**

The purpose of this study was to investigate the effects of whole-body vibration training on muscle strength and balance in children with diplegic cerebral palsy.

#### **DESIGN:**

Fifteen children were assigned to the experimental group, which received whole-body vibration training (9 mins per day, 5 days per week). Another 15 were assigned to the control group, which participated in a traditional physical therapy exercise program for 3 successive months. Baseline and posttreatment assessments were performed using the Biodex isokinetic dynamometer to evaluate the knee extensors peak torque at 60 degrees per second and 90 degrees per second and using the Biodex balance system to evaluate stability index.

#### **RESULTS:**

The children in the experimental group showed a significant improvement when compared with those in the control group ( $P < 0.001$ ). The peak torque at 60 degrees per second and 90 degrees per second after treatment was  $28.8 \pm 0.45$  and  $47.5 \pm 0.7$  N · m and  $30.9 \pm 0.68$  and  $54.2 \pm 1.7$  N · m for the control and the experimental group, respectively. The overall stability index after treatment was 2.75 and 2.2 for the control group and the experimental group, respectively.

#### **CONCLUSIONS:**

Whole-body vibration training may be a useful tool for improving muscle strength and balance in children with diplegic cerebral palsy.

PMID: 24434887 DOI: [10.1097/PHM.0b013e3182a541a4](#)