

# Galileo providing dramatic results in children with cerebral palsy



## Susan Hastings Pediatric Physical Therapy

San Jose, Calif. Physical Therapist

**Training Products:** Galileo Basic

**Length of use:** 22 months



### The Facility

Susan Hastings, PT, DPT, PCS, C/NDT, owns and operates a pediatric physical therapy practice where she provides functional electrical stimulation for clients with various types of cerebral palsy (CP), as well as teaching continuing education courses for therapists.

### The User Advantages

Due to Susan's background in functional electrical stimulation, the science behind Galileo training made sense. "I felt the Galileo would work similarly to electrical stimulation in giving sensory input to the muscle spindles. I tried it with several clients and got very positive results in a short amount of time – and it was easier to use," she describes.

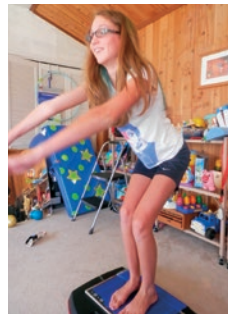
Susan is currently using Galileo Training with clients diagnosed with cerebral palsy, including dyskinetic, spastic diplegia, spastic tetraplegia and hemiplegia. The outcomes are measurable from the first training session in both function (clients report it is easier to get dressed after its use) and in range of motion gains.

The most significant benefit for children with cerebral palsy has been reduction in previously stubborn co-contraction strategies. By releasing the tone, which lasts for two to three hours after the session, the children are better able to dissociate their extremities, and some even see improved speaking ability as the vibration effects the entire body.

Following Galileo Training, Susan is better able to do other types of training with the children, including using a treadmill and over-ground walking.

The children are also benefiting from improved balance, both sitting and standing. Not only are clients able to sit or stand independently after treatment, they are also able to walk better, and even have improved their running, she says.

Susan also points to increased muscle strength as a Galileo benefit, especially through the trunk. "In one client with dyskinetic CP, her ability to stand, keep her trunk up and take steps has improved dramatically."



"Galileo gets the whole body involved, the co-contraction strategies/tone is taken away and the children don't posture anymore; it carries over into the world for them," Susan explains.

### The Operational Advantages

Susan says learning to use the Galileo with clients was effortless. It's extremely easy to use and the therapist does not have to expend a lot of physical energy to get really amazing results," she explains.

She also appreciates the many variations in training that Galileo allows. Clients can be standing or seated, and the platform can be used in combination with other therapy tools.

"I've gotten dramatic results in a short time. The Galileo can be used to work on breaking up co-contraction strategies which carries over to patient participation." Susan says.

*"In all patients, what jumps out is the increased motor control and balance, especially in those with spasticity.*

*As one patient said, 'After six months use, it's a miracle.'"*

Susan Hastings

PT, DPT, PCS, C/NDT



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**Patient 1 (GMFCS Level IV, Improved to Level III):**

**Age:** 3-year old girl

**Dx:** ataxia, cerebral palsy

**Galileo Training:** Has used the Galileo daily for a year-and-a-half. Gains in gross balance and strength, and she is now able to sit independently for 5 to 10 minutes. Patient went from walking with moderate to maximum assistance to consistently requiring minimum assistance. Has moved from needing full trunk support during sessions to only needing support at lower legs while on Galileo.

**Results:** Gains continue with her home therapy program daily. Functionally she can stand with stand-by assist for up to 20-30 seconds during therapy and when she loses balance is learning to correct herself. She needs minimal assistance to get into half-kneel, and minimal to moderate assistance to go into standing from half-kneel, but continues to improve. She is able to cruise around a play table with minimal assistance. Her speech has made dramatic improvements; she has an amazing vocabulary and is understood by therapists and family 85% of the time. She has never sung before, but last week she broke out into song, singing 3 verses and the refrain.

**Patient 2 (GMFCS Level II, Improved to Level I):**

**AGE:** 12-year old boy

**Dx:** cerebral palsy, spastic hemiplegia

**Past Treatment:** Had been serially casted to gain ankle range of motion, but had not made gains. Two orthopedic doctors had recommended Achilles lengthening to gain range and preserve foot alignment (forefoot was adducted and dorsi-flexed on the hind foot). He was only able to walk for less than five minutes at .2 mph on the treadmill.

**Galileo Training:** Began Galileo training 22 months ago at home daily with immediate gains in ankle dorsiflexion. Within the first week of daily use, he was able to consistently walk with heel contact.

**Results:** With Galileo training, child can now run on the treadmill at 2.5 to 3.0 mph for 5 to 10 minutes and go up and

down steps without hand support. Foot alignment is now normal and has gained dorsiflexion bilaterally to +0-5 degrees (was -15 degrees). Balance and single-leg stance has improved to being unable on the involved side to being able to stand for 3 to 5 minutes. His arm has gone from being completely non-functional to being able to throw a baseball. Galileo training has helped him to integrate his core, which was previously dissociated. He participates in all aspects of his life, where he was previously limited by endurance and strength, including a 10 mile ride without parents. His grades have improved as a result of being able to sit up and attend to what was being taught.

**Patient 3 (GMFCS Level I):**

**AGE:** 14-year old girl

**Dx:** cerebral palsy dystonic hemiplegia

**Galileo Training:** Used the Galileo during weekly sessions and periodically in the clinic.

**Results:** In first session, noticed immediate improvement in balance and relaxation of muscle co-contraction. She was only able to stand on the more affected leg for <3 seconds, and 5 seconds on the "uninvolved" leg before using the Galileo. She is now able to stand for 10 seconds on the more affected side, and > 15 seconds on the uninvolved side. Before beginning Galileo, patient walked with lower extremities in a windswept position; now walks in a normal forward pattern. Patient continues to improve her ability to keep her hand open and relaxed. Balance and gross motor performance continue to improve. Prior to using the Galileo, she was unable to go more than 15 seconds without grabbing her involved wrist and placing it in full flexion. When not using the Galileo, she almost subluxed her wrist, and when she returned to using it, the grabbing was no longer as noticeable. In 6 months met her goal to ride a bike independently.

**Patient 4 (GMFCS Level V):**

**Age:** 5-year old boy

**Dx:** cerebral palsy, spastic quadriplegia

**Pre Galileo:** Before using Galileo, child was unable to talk without trunk extension.

**Galileo Training:** Used Galileo during twice weekly physical therapy sessions.

**Results:** Immediate changes in sitting and standing balance and posturing into extension improved significantly. Child was able to sit with minimum assistance and talk to others for the first time. Physical therapy sessions were more productive following using WBV, and it was easier to place and maintain half-kneeling while playing with a toy. Spasticity was significantly decreased during the two to three hours following treatment, so therapist was able to work on strengthening over time. During this period of use, and after starting body weight support treadmill training, patient was able to spontaneously take steps, which was impossible previously, due to tone. Galileo was recently added to his speech therapy and today the child can keep arms down and sit in wheelchair without seat belt or chest harness. Therapist worked inside of his mouth while on the Galileo without his gag reflex being activated, which is usually consistently present.

**Patient 5 (GMFCS Level II, Improved to Level I):**

**Age:** 9-year old boy

**Dx:** diagnosis of cerebral palsy, spastic diplegia

**Galileo Training:** Has used the Galileo twice daily for one-and-a-half years. Shows dramatic changes in balance and strength.

**Results:** Has sufficient balance and control to ride a bike without training wheels and was able to boogie board in the ocean for 1 to 2 hours. His dressing went from 10 to 2 minutes. Gains in balance are notable; can easily balance on a BOSU ball upside down and carry on a conversation, ankles have normal SCALE motor control in all movements, able to keep body midline and independently self-corrects. Even though this boy had a huge growth spurt, his isolated control at the ankles, and his balance, have remained good. He is more fluid when using the Galileo and his muscles are more easily recruitable, which translates into better overall movement patterns.

**All patients used FES during physical therapy sessions, and NMES home programs, during the time period while using the Galileo -Whole Body Vibration (WBV).**