

Early adopter finds Galileo Training reduces patient spasticity, improves muscle strength



NextSteps Spinal Cord Injury Rehabilitation and Wellness Center, Chicago

SCI and Wellness Center

Training Products: Galileo Advanced (2), Galileo Dumbbell

Training Since: July 2013



The Facility

NextSteps is a nonprofit physical therapy and exercise facility devoted to the overall wellness of those with spinal cord injuries (SCI). The primary goal of the treatments offered at NextSteps is to promote neuro-muscular recovery by encouraging neuroplasticity within the central and peripheral nervous systems.

Galileo Training has become an indispensable tool in NextSteps therapists' and trainers' toolkits.

The User Advantages

When it comes to the user advantages of the Galileo platform, NextSteps doctor of physical therapy, Sakina Valika, points to marked reduction in spasticity, improvement in muscle strength and increased coordination that improves users' ability to balance and generate steps. "The reduction in spasticity allows us to have better outcomes in their gait. In clients who also use the device at home, we notice that core control markedly improves."

Galileo's high repetition rate when set at frequencies between 20-30 Hz also nets improvement in reflexive stepping. "At high frequency, the connection with the spinal cord is stronger. We see neuroplastic response and clients get more in touch with their bodies," Sakina says.

Galileo's side-alternating vibration is also an advantage. "Studies show that side-alternating vibration has a greater impact on spasticity

and it's more like how we actually walk," Sakina notes. "We use Galileo Training frequently because we've seen more neuroplastic changes with it as compared to vertical vibration products."

NextSteps recently added a Galileo Dumbbell to its toolbox and is noticing patients who use them net considerable reduction in spasticity in their finger flexors, allowing for improved range of motion and success at opening and closing their hands.



The Operational Advantages

Therapists/Trainers at NextSteps point to a number of operational advantages to using Galileo products including a short learning curve for the team; little set up time and the ability to bring the device to the client; the ability to use the tool with the client standing, sitting, via tilt-table or in conjunction with other tools; and efficient use of training time that provides clients with same effects of other methods in half the time.

"The Galileo is easy to use, is based on understandable science and has high efficacy and potency. The results we see are very dramatic. It's a matter of employing your clinical skills to identify various ways to use it. It's also versatile for patients with varying levels of function," Sakina describes.

"We added Galileo Training to our pool of interventions and it has become a highly effective tool for modifying spasticity and improving muscle strength in our patients."

Sakina Valika
PT, DPT, NCS



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Galileo Patient Gains

Patient 1:

Age: 22 years old

Dx: C7 Tetraplegia ASIA B

Galileo side-alternating neuromuscular training parameters:

- 3x/week for 12 weeks
- 10.5 Hz-13.5 Hz
- 2.5 amplitude
- 3 min bouts x 5 with 1 min rest breaks

Position: Standing in parallel bars and seated on Total Gym with legs on Galileo platform.

Outcomes:

- Gained the ability to ambulate on level surfaces up to 30 feet with a Second Step Walker with minimum assistance to manage walker only.
- Able to participate in stand pivot transfers with moderate assistance.
- Able to sit without upper extremity support at the edge of the mat with appropriate trunk posture x 10 min without loss of balance.
- Able to stand with a second step walker with modified independence for 10 seconds without buckling his knees.
- Modified Functional Reach: 2" vs 1"

Patient 2:

Age: 19 years old

Dx: Incomplete Tetraplegia due to Transverse Myelitis

Galileo side-alternating neuromuscular training parameters:

- 3x/week for 12 weeks
- 22 Hz-30 Hz
- 2.5 amplitude
- 3 min bouts x 3 with 1 min rest breaks

Position: Standing squats on Galileo.

Outcomes:

- 6 min walk test: Is able to ambulate 37 feet in 6 min vs being non ambulatory prior to onset of Galileo training.
- Sit to stand: Minimum assistance for trunk control only vs PT performed lateral wheelchair to mat transfers prior to onset of Galileo training.
- Stand Pivot: Moderate assistance for trunk control. Patient steps with bilateral lower extremities to complete task.
- Modified Functional Reach: Improved to 3" vs 2" prior to onset of Galileo training.

Patient 3:

Age: 54 years old

Dx: Paraplegia due to h/o Transverse Myelitis

Galileo side-alternating neuromuscular training parameters:

- 3x/week for 12 weeks
- 24 Hz-27 Hz
- 2.5 amplitude
- 3 min bouts x 5 with 1 min rest breaks

Position: Bridging off the edge of the mat, standing squats, single limb squats with upper extremity support, seated trunk flexion and extension on Galileo.

Outcomes:

- 6 min walk test: 150 feet vs 45 feet
- 10 meter walk test: 27 seconds vs 65 seconds
- Ambulation: Able to ambulate 500 feet x 1 with two straight canes and Bioness L 300 + on left lower extremity on all surfaces with modified independence vs household ambulation with walker only.
- Stairs: Able to ascend and descend 4 6" steps with hand rails with minimum assistance. Sit to stand with modified independence.

Patient 4:

Age: 24 years old

Dx: T6 ASIA A Paraplegia

Galileo side-alternating neuromuscular training parameters:

- 3x/week for 12 weeks
- 25 Hz -30 Hz
- 2.5-3 amplitude
- 3 min bouts x 3 with 1 min rest breaks

Position: Standing on platform in parallel bars with support at knees. Assisted squats on total gym with feet on Galileo platform. Treatment administered prior to exoskeleton training to help decrease lower extremity spasticity and hypertonicity.

Outcomes:

- Modified Ashworth Scale (MAS): Quadriceps muscles Bilaterally: 1+ vs 3 ambulation with exoskeleton.
- Able to ambulate in a Rewalk exoskeleton with stand by assistance for 1000 feet on carpeting and tile surfaces vs 3 steps with Rewalk prior to onset of Galileo training.
- Sit to stand with exoskeleton: Modified independence with sit to stand with the Rewalk exoskeleton vs minimum assistance for stability.
- Transfers into and out of the exoskeleton: Modified independence vs moderate assistance due to lower extremity spasticity.



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