

# Won't stop - Determined to Walk!



## Arash Bayatmakou

**Level of Injury:** T9 ASIA C, Incomplete

**Training Product:** Galileo TiltTable

**Training Since:** August 2013

### The Background

A fall from a balcony in 2012 left Arash Bayatmakou a C5-C6 tetraplegic. With intensive training that includes the use of a Galileo TiltTable, Arash is now a T9 ASIA C paraplegic and continues to improve.

He describes his hand function as "pretty good," and has 100% of normal use of his arms and shoulders. He has sensation at varying levels throughout his body: 100% at chest level, 70% at the thighs and knees and about 90% at his ankles, feet and toes.

Arash says his upper body is now as strong as it was before the accident, and he continues to work on his abs and core balance stability. Within six months after his injury, he gained the ability to wiggle a toe on one foot.

He's convinced that Galileo Training played a decisive role in all his improvements.

### The Training

For the first 2 years Arash independently used the Galileo TiltTable for 30 to 50 minutes daily and now he trains 1-2 times a day for 20-40 minutes. All along Arash has trained like a high performance athlete with a diverse program. Currently his exercise routine includes Neurokinetic Pilates; 3-4 times a week for 2-3 hours; lap swimming, independent walking in the pool 3-4 times per week; Easy Glide training postural reprogramming exercises while standing in a frame 30 minutes a day; and exercise at the No Limits Foundation at UC Berkeley.

The goal of his combined training is to "get out of the wheelchair," Arash says. "Having seen how the Galileo has helped others do that, I've incorporated it as part of my training regimen in order to improve as much as possible." Galileo's high repetition, high intensity, high power training has been a game changer in helping me quickly improve muscle power, function, flexibility, balance and feeling the connection to my body.

### The Gains

Arash points to a number of physical improvements since he began using the Galileo – gains he calls "pretty significant." In the beginning he could only stand locked out and needed the help of another person to do knee bends.

Just two months after starting Galileo Training, Arash was able to begin using his legs to do independent squats when the machine was on and set at maximum frequency. And the gains just keep coming.

Arash says he has improved muscle function and power, enabling him to reduce the frequency and turn it off and still do voluntary squats. He's also seen increased muscle mass in his legs and he's experiencing involuntary movement that did not occur before using the Galileo. "For me, more spasticity is better. Having more movement and energy in my legs is a good thing."

By also using the Galileo for core



exercises, Arash says he's gained control of his abdominals, sits straighter in his wheelchair and has better posture. Improved circulation in his legs and feet has been an additional outcome, along with improved digestion.

In the course of now three years of Galileo Training, along with a comprehensive program, Arash has made amazing progress. He says the vibration from the Galileo has allowed him to create new communication pathways to his lower body. His overall muscle power, muscle volume and coordination have also significantly improved. And, the high repetition in a short training time has allowed him to optimize motor relearning.

Ongoing progress continues to re-invigorate his dedication to Galileo training, Arash describes his overall gains: the ability to stand independently using a walker and walk independently in a pool, improved assisted walking, increased core strength and stronger back and calf muscles.

"I cannot emphasize enough how incredibly beneficial the Galileo has been for my recovery," Arash says. "I'm totally invested in recovery. While I do a wide variety of daily training, Galileo has been a key muscle-building tool for me."



*"Improvements from a traumatic spinal cord injury can be excruciatingly slow, but I am confident that my intensive muscle training with the Galileo speeds up the process and allows me to make functional gains that I otherwise could not imagine."*



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## Arash Galileo Training Gains

Injury 4 yrs.	Year 1 Galileo	Year 2 Galileo	Year 3 Galileo
<b>Functional Goals</b>	Independently train and regain some leg function	Stand using a walker	Independently walk in water and over ground
<b>Targeted Muscles</b>	Glutes, core, hamstrings, quads	Add more calves and target different core muscles	Improved quads, deeper hip flexion
<b>Galileo TiltTable</b>	2x/day, 35-50 min.	2x/day, 30 min.	1-2x/day, 20-40 min.
<b>Frequencies</b>	18Hz warm-up & cool down, 24-26Hz power	18Hz warm-up & cool down, 24-26Hz power	8-10Hz connecting to brain, 14-16Hz flexibility, 23-25Hz power
<b>Exercises</b>	7 sessions - 3 min. <b>Knee bends</b> 60° angle. <b>Core forward &amp; back</b> holding a person's hands. <b>Shallow squats</b> with support from straps. Knee bends independently at 26Hz.	<b>More upright (90°) squats</b> with less support from straps. <b>More core exercises</b> and arm movements with legs straight and standing up on platform. <b>Move legs independently</b> standing without the Galileo on. <b>"Bridges"</b> on Galileo Platform.	<b>Target hip flexors and quads</b> , facing the table, hands on the side bars, 70-90° tilt, roller under ankles and squats. <b>Upper core</b> , pelvic tilts, forward bends and back extensions back against table, 60-70° tilt. Focused weight through heels to target quads. <b>Lower core</b> stand straight legged and lean torso 90° forward to target multifidi and back muscles.
<b>Insights</b>	Could only stand with locked out legs and needed assistance to do knee bends. Used high frequencies 26Hz to gain power in glutes, hamstrings and a bit of quads.	Galileo helped speed up recovery process with its high repetition, intense muscle training in a short time, leaving more time for other functional training. With stronger quad muscles, worked on balancing all weak upper and lower extremity muscles.	Continue to work on building and strengthening existing muscle connections, to improve overall body function and enhance communication between the brain, core and lower body.
<b>Other Training</b>	<b>SCI-FIT</b> - 4 hrs. 3x/wk. with trainer <b>Home exercise</b> - 20 min. postural-control regimen <b>Easy Glide</b> - 1 hr./day gliding & standing <b>Swimming</b> - 1x/wk. <b>Neuro-acupuncturist</b> - 1x/wk. Pilates - exercise stretches <b>EKSO</b> - 1x/month	<b>SCI-FIT</b> - 3 hrs. 3x/wk. with trainer <b>FES Bike</b> - 1 hr. 3x/wk. cycling with electrical stimulation <b>Easy Glide</b> - 1 hr./day standing & exercise <b>Postural Reprogramming Exercises</b> - 30 min./day standing in standing frame <b>Neurokinetic Pilates</b> - Integrated into everyday exercises <b>Swimming</b> - 2x/wk. Lap swimming, standing practice and assisted walking in the water	<b>No Limits Foundation at UC Berkeley</b> <b>Neurokinetic Pilates</b> - 3-4x/wk., 2-3 hrs. <b>Swimming</b> - 3-4x/wk. Lap swimming 1-1.5 miles & independent walking in water <b>Easy Glide</b> - 30 min. standing & dynamic exercise 2-3x/wk. <b>Independent standing &amp; balance</b> - 20-30 min. /day <b>Stretching spinal decompression, and stretching</b> - 30 min./day <b>EKSO</b> - 6x/year
<b>Gains</b>	<b>Independent squats</b> on Galileo at 26Hz after 2 months. <b>Rapidly increased muscle power</b> with intense Galileo sessions. <b>Increased muscle mass in legs</b> and involuntary movement that didn't occur before. <b>Gained control of abdominal</b> with core exercise, sitting straighter in wheelchair and better posture. <b>Improved circulation</b> in legs, feet and digestion.	<b>Stand on own contracting muscles</b> while using a walker to maintain balance with muscular strength. <b>Dramatically improved assisted walking</b> that indicates hip stability. Increased stamina & can walk for 1 hr. <b>Improved core strength</b> to maintain better body position to & improved efficacy. Able to do assisted sit-ups, planks and other core exercises. <b>Stronger erector spinae and other stabilizing back muscles.</b> Back extensions are easier to complete; can sit upright as opposed to being crouched or leaning forward. <b>Gained the ability to bridge</b> with minimal support from a trainer. Fully engage glutes, low back and abs to bridge up. <b>Improved calf muscles.</b> Able to do calf raises and engage calves in various weight-bearing positions -- on Galileo.	<b>Walk independently in the pool</b> lifting up each leg and taking steps forward as well as maintaining lockouts (without the constrictions of gravity on land). <b>Deep squats intentionally putting weight on the heels.</b> Maintain a squat for any period of time in standing, to now being able to hold a squat in one leg for up to 20 seconds at a time, which will help significantly in gait and walking training.