

# ZeroG<sup>®</sup>

Gait & Balance System



Robotic  
Body-Weight  
Support System



# ZeroG® Gait and Balance System

The most advanced robotic body-weight support system continues to get even better.

In 2007, the ZeroG Gait and Balance System was introduced. Now in its third generation, Aretech's ZeroG continues to be the long-standing leader of innovation and quality.

When using ZeroG, walking overground, sit-to-stand, stairs, getting off the floor and other activities of daily living are all performed in a 'reduced gravity' environment without the risk of falling.



*ZeroG is used by more clinicians than any other robotic body-weight support system*



# ZeroG Industry Leading Features

## Dynamic Body-Weight Support

ZeroG provides constant unloading even during large vertical movements with proven accuracy.<sup>1</sup> With the touch of a button, the level of unloading can be changed by pounds or a percentage of body-weight to alter therapy intensity.

## Advanced Trolley Tracking

The ZeroG robot anticipates and reacts to patient movements so they do not feel any drag from the trolley. ZeroG is the only system with proven accuracy<sup>1</sup>.



## Fall Protection

### DISTANCE

Precisely control vertical range of movement

### VELOCITY

Prevents patients from falling too quickly

1. Hidler, et al, J Rehabil Res Dev. 2011;48(4):287-98

# Training Responses in Postural Rehabilitation

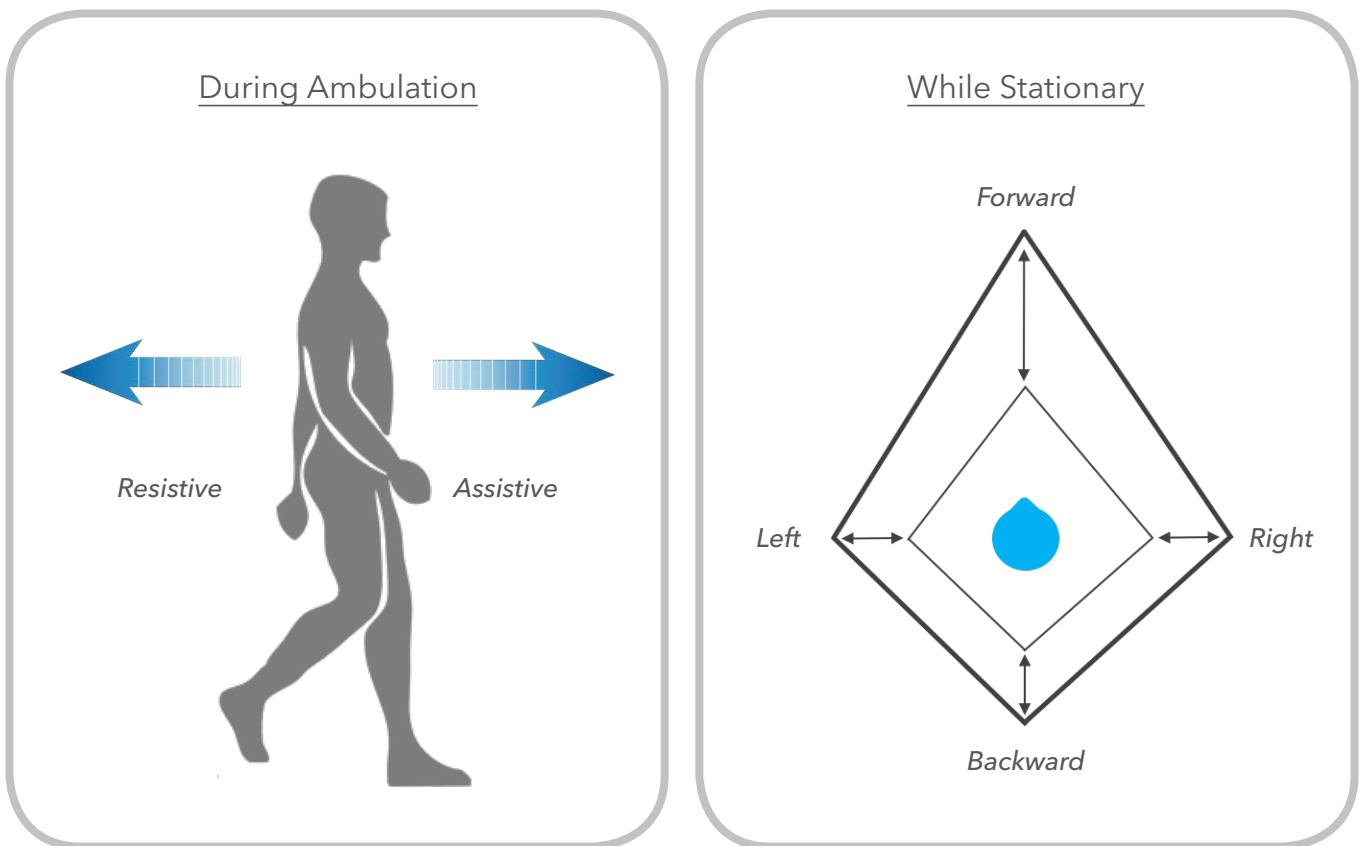


Patent Pending

Balance recovery involving rapid compensatory stepping is essential to prevent falling. Studies have shown that these reactions can be improved by increasing the unpredictability of trips and slips while walking<sup>2</sup>.

However, practicing these skills during rehabilitation are not routinely performed due to safety concerns. Now, for the first time, therapists can safely train their patients to develop compensatory stepping responses in a controlled, measurable manner using TRiP for ZeroG. Therapists can use TRiP to apply perturbations to patients using ZeroG during ambulation or stationary activities. This may improve their stability and reduce the risk for falls.

## Safely train balance recovery with perturbations using ZeroG



Modify the perturbation timing, direction and strength to alter difficulty

In 2019, ZeroG became the first technology in the world that can apply controlled perturbations in a **safe** and **consistent** manner during ambulation.

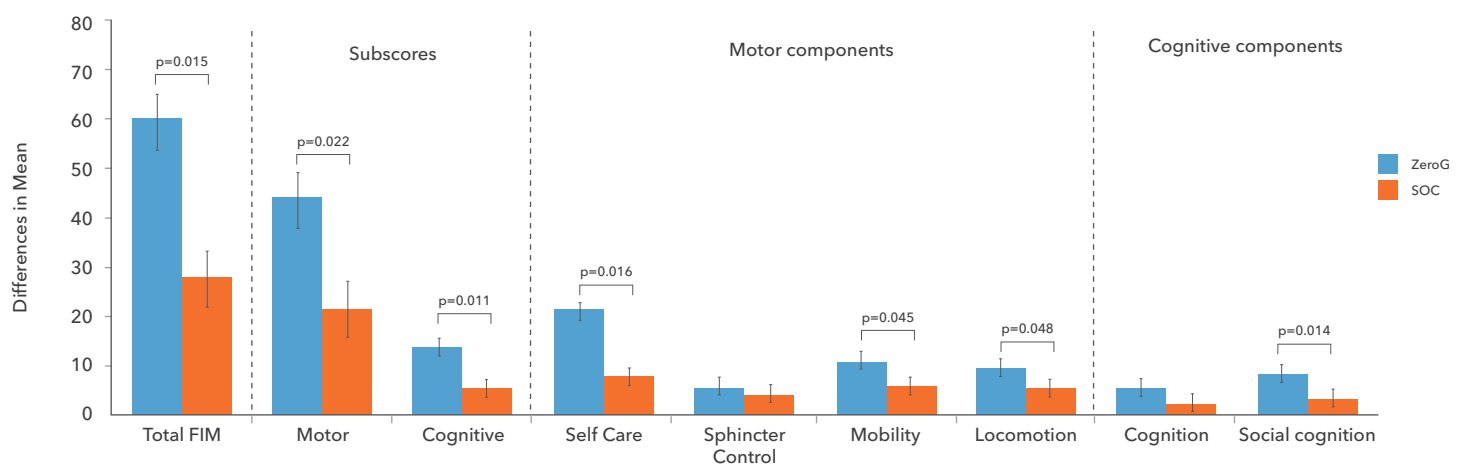
2 Okubo, Yoshiro, et al. "Exposure to trips and slips with increasing unpredictability while walking can improve balance recovery responses with minimum predictive gait alterations." PLoS one 13.9 (2018): e0202913.

# Research with ZeroG

## ZeroG Improves FIM Scores

Patients with Traumatic Brain Injury who used ZeroG during inpatient rehabilitation achieved significantly higher overall FIM and sub-FIM scores than those who received standard of care.<sup>3</sup>

Difference in mean FIM score from admission to discharge



## ZeroG Improves Gross Motor Function in Toddlers with Cerebral Palsy<sup>4</sup>

- ZeroG was used 3 times a week for 6 weeks
- 80% of toddlers (ages 1–2.3 years) experienced gains in gross motor function that exceeded the expected rate
- Typical toddler motor play and exploration similar to their typically developing peers was mimicked



3 Anggelis E, Powell E, Sawaki L. Impact of Overground Gait and Balance Therapy with Dynamic Body-Weight Support on Inpatient Rehabilitation Outcomes in Traumatic Brain Injury. AAP Annual Assembly, 2019

4 Prosser L, Ohlrich L, Curatalo L, Alter K, and Damiano D (2012). Feasibility and preliminary effectiveness of a novel mobility training intervention in infants and toddlers with cerebral palsy. *Developmental Neurorehabilitation*, 15(4): 1-8.

# Endless Therapeutic Opportunities

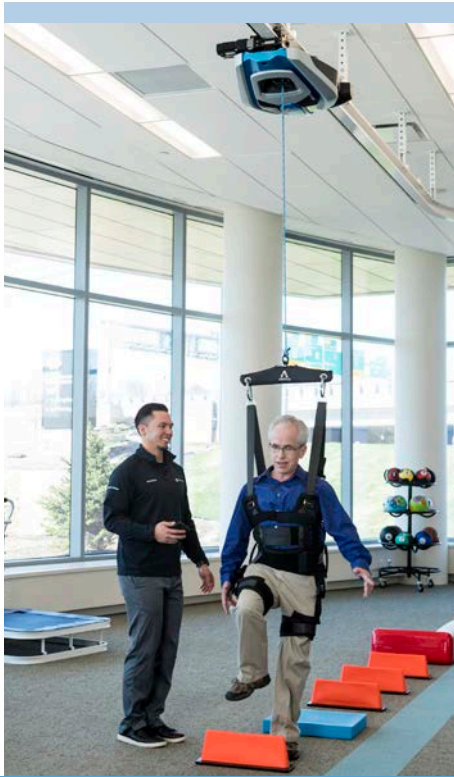
Use ZeroG for functional and intense activities with dynamic body-weight support and fall protection.



Stairs



Balance Training



Object Avoidance

“ ZeroG is a major part of Regions Hospital’s new state-of-the-art Neuroscience Center. ZeroG allows us to provide intense and functional therapy to our patients during gait and balance activities and on the treadmill and we look forward to the progress our patients will make with this technology.”

Marny Farrell  
Director, Rehabilitation



Sit-to-Stand



Reaching Tasks










Overground Walking

# Aretech Innovation

## What makes ZeroG different than the others?





ZeroG has been designed from the ground up to be the safest, most advanced rehabilitation system with the most options to meet rehabilitation needs. This is why ZeroG continues to be the gold standard of robotic body-weight support systems.

### Proprietary Features Exclusive to ZeroG

 <p>TRiP Balance Training</p>	Train patients to improve their postural and dynamic stability by applying perturbations that vary in strength and direction.
 <p>Dynamic Fall Recovery</p>	Dynamic BWS remains on during fall recovery so patients can recover on their own. No button presses required by the therapist to resume session for uninterrupted therapy.
 <p>Fall Cushioning</p>	Reduces the impact when a fall is prevented for improved patient comfort.
 <p>WaveLink™</p>	Backup communication protocol that gives therapists the option to control ZeroG independent of the Wi-Fi signal.
 <p>ActiveAssist™</p>	Automatically provides extra BWS during the most difficult part of fall recovery, improving the ability of the patient to get back to standing.
 <p>ZeroG Kinetics™</p>	Real-time visual biofeedback using interactive balance training modules and games.
 <p>ZeroG Studio™</p>	App to record videos and upload to patient's file for documentation of progress.





 <p>Crawling Accessory</p>	<p>3-point suspension system for even unloading during quadruped activities.</p>
 <p>Treadmill Integration</p>	<p>Control Woodway treadmills using the ZeroG touchscreen. While in ZeroG, DualArrest™ simultaneously prevents a fall and stops the treadmill.</p>
 <p>Aretech Harness</p>	<p>Sizes toddler to bariatric to accommodate a wide range of patient sizes.</p>
 <p>Safety Certifications</p>	<ul style="list-style-type: none"> <li>• FDA Listed</li> <li>• Medical Electrical Equipment - General Requirements for Basic Safety and Essential Performance</li> <li>• Title 47 Code of Federal Regulations, Part 1 Subpart B for a Class A Digital Device</li> <li>• Electromagnetic Compatibility IEC 60601-1-2:2014</li> </ul>

*“ ZeroG has contributed significantly to our ability to maximize functional and gait recovery for our patients.”*

Frank Hyland, MSPT  
 VP of Rehabilitation Services



# The Clinical Difference

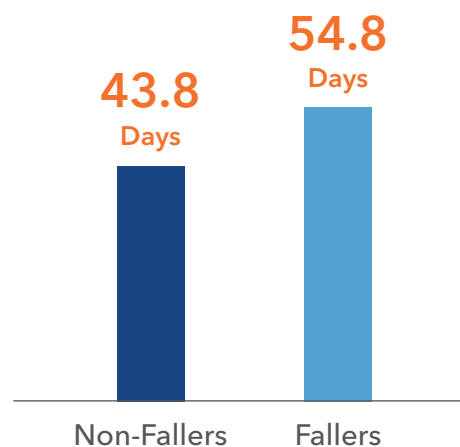


Achieve your clinical goals with help from ZeroG. Research demonstrates that involving patients in rehabilitation earlier, and providing intensive and functional therapy reduces length of stay, lowers risk of readmission, and improves outcomes.<sup>5,6</sup>



Get patients involved in intensive therapy earlier and safer with ZeroG.

Patients are protected from falling which has been shown to decrease the average length of stay. Patients who fall during inpatient rehabilitation stay 11 days longer than non-fallers.<sup>7</sup>



5 Horn et al. Arch Phys Med Rehabil. 2005 Dec; 86 (12 Suppl 2): S101-S114)

6 Andrews et al. Physical Therapy, 95(12), pp. 1660-1667. 2015

7 Archives of Physical Medicine and Rehabilitation; 98(4), 561-566, 2016



## ZeroG Gait & Balance System General Specifications

<b>Body-Weight Support</b>	<ul style="list-style-type: none"> <li>• Static Support: 0 - 450 lbs</li> <li>• Dynamic Support: 10 - 200 lbs</li> </ul>
<b>User-Interface</b>	<ul style="list-style-type: none"> <li>• Touchscreen on Moveable Cart</li> <li>• Wireless Remote</li> </ul>
<b>Safety</b>	<ul style="list-style-type: none"> <li>• WaveLink™</li> <li>• Emergency Lower</li> <li>• Hardwired Emergency Stop</li> <li>• Redundant Sensing</li> <li>• FDA Listed</li> <li>• AAMI ES 60601-1:2005/(R)2012, CSA C22.2 No. 6060101:24, IEC 60601-1-2:2014, Title 47 CFR Part 15 Subpart B For Class A Digital Device, CE (complete reports available upon request)</li> </ul>
<b>Electrical</b>	<ul style="list-style-type: none"> <li>• 1 x 208-230 VAC, 20A dedicated line</li> <li>• 1 x 110 VAC, 10A line</li> </ul>



ZeroG is hand-crafted in the United States and designed for durability with an emphasis on quality.

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