

Reactive Step Trainer™

Dimensions and Specifications



Intended Use

The Biodex Reactive Step Trainer is both a gait assessment and fall recovery training tool. It is a versatile product, providing capabilities for objective measurements of specific gait parameters as well as physiological measures of kinesthetic, proprioceptive abilities and neuromuscular control. It is intended to be used as a training tool to assist patients with Gait Velocity, Average Step Cycle Time, Average Step Length, Co-efficient of Variation, and Time on Each Foot. The Biodex Reactive Step Trainer includes the option to utilize Music-Assisted Therapy™ – an effective evidence-based tool for physical therapists and neurologists to enhance treatment of movement disorders and drive faster outcomes.* Reactive Step Training (RST), described in detail below, uses different types of perturbations – Slip, Trip, Step, Walk and e-Trip – to improve step recovery and dynamic balance and thereby reduce the incidence of falling.



Indications for Use

The Biodex Reactive Step Trainer is a gait training tool that can be used for various populations such as neurological disorders, orthopedic, deconditioned, concussion management and other general conditions. The Reactive Step Trainer provides the same populations with dynamic postural perturbations in a safe controlled environment to improve step recovery and dynamic balance to reduce the incidence of falling.

Contraindications for Use

The Reactive Step Trainer should not be used for patients with severe osteoporosis, non-union fractures, debilitating dizziness, or poor safety awareness/cognition. Do not use for patients weighing greater than 400 lbs (bariatric) or less than 60 lbs. Do not use for patients with acute conditions such as pulmonary embolus, thrombus, acute MI, acute fractures, or BP over 180/110 Hg.

Dimensions: 86" l x 27" w (218x69cm)

Walking Area: 64" l x 20" w (160x51cm)

Printer Stand: 24" l x 24" w (61x61cm)

All-In-One Flat Panel PC: 15.6" Color Touchscreen, Windows Operating System, Ethernet, USB, Video/Audio Out, Built-In Speakers, and Color Printer (HP Deskjet). Bolsters connectivity options to other devices enabling remote operation for data transfer and software upgrades.

Deck: 1" thick (2.5 cm) reversible Teflon™ impregnated high-density composite fiber

Motor: 2HP with 2Q-Pulse Width Modulation Control

Treadmill Speed Range:

Forward: 0-10 mph (0-16km/h)

Reverse: 0-3 mph (0-4.8km/h) in 0.1mph (.16km/h) increments

Gait Training Speed Range: .3 – 4.5 mph (.48 – 7.2 km/h)

Elevation: 0-15% Grade

Heart Rate Monitoring: Polar® contact handgrips (telemetry compatible)

Power: 115VAC, 50/60Hz, 20AMP dedicated line, or 230 VAC, 50/60 Hz, 20 AMP dedicated line. Includes hospital grade plug with 12' (3.7m) power cord.

User Capacity: 60-400 lb (27-182 kg)

Weight: 395 lb (179 kg)

Reactive Step Training


Reactive Step Training (RST) can be incorporated into any balance exercise program. Through RST, patients are conditioned to control their center of mass and to respond with an appropriate balance strategy to avoid losing their balance and falling. RST exposes patients to environmental challenges that mimic real-world situations in a safe environment which teaches the patient how to respond to each scenario.



CAUTION: An overhead safety harness must be used during Reactive Step Training. Refer to the Biodex NxStep™ Unweighing System:
<https://biodexrehab.com/products/nxstep-unweighing-system/>


There are five types of events addressed by RST.

- **Trunk Stability Slip** - The belt moves a small distance in reversed direction, after quickly accelerating then decelerating. The patient should attempt to maintain balance while not taking a step and relying only on trunk movement.

		Level 1	Level 2	Level 3
	Duration (msec)	100	120	100
	Maximum Velocity (cm/s ²)	-24	-41	-72

Negative velocity denotes belt movement in reverse direction.

- **Trunk Stability Trip** – The belt moves a small distance after quickly accelerating then decelerating. The patient should attempt to maintain balance while not taking a step and relying only on trunk movement.


		Level 1	Level 2	Level 3
	Duration (msec)	100	150	190
	Maximum Velocity (cm/s ²)	37	55	70

- **Step Stability** - The belt starts abruptly, maintains a constant speed for a short period of time, and then stops abruptly. The patient is asked to take one recovery step as the belt moves a longer distance than the Trunk Stability profiles.




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		Level 1	Level 2	Level 3
	Duration (msec)	650	410	280
	Maximum Velocity (cm/s ²)	31	48	67

- **Walk Stability** – The belt starts abruptly and maintains a constant speed before gradually slowing to a stop. The patient is asked to take a recovery step and transition into normal walking gait.

		Level 1	Level 2	Level 3
	Duration (msec)	500	500	500
	Maximum Velocity (cm/s ²)	31	48	67

- **E-Trip** – The patient begins walking at a constant walking speed until presented with an abrupt acceleration followed immediately by deceleration back to constant speed. This rapid change in belt speed simulates a trip. The patient recovers from this event through step and balance recovery.

		Level 1
	Duration (msec)	565
	Maximum Velocity (cm/s ²)	112

Maximum speed for RST is 2 mph.

Certification:

ANSI/AAMI ES60601-1:2005 + A1:2012 + C1:2009 and A2:2010

CAN/CSA-C22.2 No. 60601-1:14. IEC 60601-1:2012

EN 60601-1:2006/A1:2013 (CE) and IEC 60601-1:2005/A1:2012 (IEC)

Test to EMC Standard EN 60601-1-2:2015 and IEC 60601-1-2:2014

Warranty: Two years on parts; one year on labor

**Music-Assisted Therapy is being included at launch as a limited time offer.*