

How music-enabled gait trainer helped patient make gains after stroke

Texas NeuroRehab Center



BIODEX

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Jeff, 52 years old, suffered a left cerebral vascular accident (CVA) in 2015 while vacationing with his wife in Hawaii. After the stroke, he displayed considerable right hemiparesis and global aphasia.



Jeff's therapists at Texas NeuroRehab Center treat him using the Biodex Gait Trainer 3 with Music-Assisted Therapy and biofeedback.

Jeff and his wife dedicated themselves to his recovery. In addition to physical therapy and speech therapy at Texas State University and the University of St. Augustine for Health Sciences, Jeff undergoes therapy at Texas NeuroRehab Center in Austin, TX. At Texas NeuroRehab, his therapists treat him with the new Biodex music-enabled Gait Trainer 3.

“The Biodex Gait Trainer 3 provides specially composed music that encourages more rapid rehab, particularly in patients suffering from a neurological disease or event.”

In June 2017, two years post-stroke, the Texas NeuroRehab team first evaluated Jeff on the Biodex Gait Trainer 3:

- Average walking speed: 0.47 m/sec
- Step length: left 29 cm, right 35 cm
- Coefficient of variation: left 22%, right 19%
- Time on each leg: left 53%, right 47%

By December 2017, after six months of twice-weekly therapy on the Gait Trainer 3 with Music-Assisted Therapy, Jeff demonstrated impressive progress:

- Average walking speed: 0.88 m/sec
- Step length: left 48 cm, right 60 cm
- Coefficient of variation: left 7%, right 11%
- Time on each leg: symmetrical at 50%

Benefits of Music & Biofeedback

The Gait Trainer 3 provides specially composed music that encourages more rapid rehab, particularly in patients suffering from a neurological disease or event. These music compositions help to regularize gait by customizing tempo to the patient's steps per minute. Meanwhile, the Gait Trainer's instrumented track detects where each foot strikes as a patient walks, and displays those footsteps on a large LCD screen. This biofeedback is particularly helpful in rehabilitating patients with neurological involvement because it minimizes the need for verbal instructions.

Many patients like Jeff have difficulty following verbal instructions while walking. It can cause confusion, make them anxious, and hinder their progress during therapy. The Gait Trainer's LCD screen provides visual guides for where each footfall should strike. Actual footfall is displayed in the form of “feet” icons – green for proper strikes, and red for misstrikes.



Jeff experienced right hemiparesis and global aphasia.



Fitting the Music to the Patient

The therapists at Texas NeuroRehab began Jeff's therapy on the Gait Trainer 3 with a therapy-based rendition of "Silvery Moon." This composition, available in the Gait Trainer's library of songs, accommodates a lower range of beats per minute (bpm), which can be adjusted on the Gait Trainer to match a patient's steps per minute (spm). Once Jeff progressed beyond 45-47 steps per minute, his therapist moved to a proprietary composition, "Animals Everywhere" at 78 to 90 spm.

In addition to his music-enhanced gait training, the Texas NeuroRehab protocol for Jeff included pre-gait activities, balance and neuro reeducation training, and exercises to increase his weight shifting ability.



LCD screen on the Gait Trainer 3 provides visual guides for where each footfall should strike.

Progressing with Precision

Thanks to the data logging and normative database built into the Gait Trainer 3, therapists at Texas NeuroRehab were able to objectively document Jeff's precise condition before initiation of therapy, and objectively track his progress. None of that would be possible with conventional treadmills and music from an iPod.

"...therapists at Texas NeuroRehab were able to objectively document Jeff's precise condition before initiation of therapy, and objectively track his progress."

As Medicare and many private payers transition to value-based reimbursement, payers as well as clinicians and patients are increasingly valuing that documentation. Jeff's case was no exception.

Biodex is always advancing our technology to serve you better.

Gait Trainer™ 3

www.biodex.com/gait

Music-Assisted Therapy:

www.biodex.com/musictherapy

For more information on Biodex Physical Medicine & Rehabilitation devices:

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