

CASE HISTORIES—MULTIPLE SCLEROSIS

Featuring:

Aggressive Functional Capacity Training with Whole Body Vibration

Submitted by

Charles G. Oakes, PhD

to

Leader Enterprises, Inc. in behalf of Power Plate USA, Inc.

NOTE:

We have received signed releases from the three clients cited herein.

Name: Lynn Mitchell  
Age: 31  
City: Nashville, TN

Diagnosed: 1996  
Attends two sessions/week

#### Week 1: Initial Impressions

Used cane, held onto wall for balance, walked with a spread-legged gait; cognitive limitations re speech, memory, eyesight; limited stability, tending to fall backward. Uses elevator to enter training facility.

#### Whole body vibration 1:

At time of second appointment, with little conditioning at this point, conducted a 5-minute session, comprised of four 40-second intervals at 35-40Hz

Initial effect: immediately following WBV, stepped off PP platform, and, without use of cane, walked around gym for 15 minutes with a normal gait. Initial acute effect lasted four days with elevated hedonic tone and reported overall physical well-being. With repeated WBV sessions, gait improves.

#### Week 11: Later Impression:

Lynn no longer uses a cane, does not lean on wall for stability; climbs up two flights of stairs to enter training facility and walks down the stairs after the training session.

We have progressed to stability/core training, using a variety of challenges, including step-ups, where client is required to place stronger leg on 4" step-platform, shift weight forward using stronger leg as a post, and then bringing weaker leg up onto platform, and straightening body to an upright position. There is a tendency to lean and fall backward, but she has learned the routine, although with hesitancy. We immediately go to WBV after this training session.

#### Whole body vibration 2:

Three 40-second intervals at 40Hz, followed by an immediate step-up challenge. Completes the challenge fully balanced and without delay of lifting weaker leg to platform. Shifts body to upright position with no tendency to lean or fall backwards. Repeats this five times.

Name: Sonya Copeland  
Age: 38  
City: Nashville, TN

Diagnosed: 2005  
Attends two sessions/week

#### Week 1: Initial Impressions

Dependent on a walker, with major weakness in left leg, taking short steps of 8" only. At time of initial assessment, was unable to lie on side and do straight-leg abduction with left leg and only 2" abduction with right leg.

#### Whole body vibration:

Initial WBV was at 35HZ with no sensitivity of vibration; increased to 40Hz and felt into buttocks. Did three intervals of 40 seconds at 40Hz. Returned to lying on sides with legs extended. Did abduction of right leg to 4" and about 1" with left leg.

On subsequent WBV sessions, client opened up her stance and now takes steps of 10-12" and can take 4-5 steps without aid of walker.

Name: Linda Purnell  
Age: 59  
City: Manchester, TN

Diagnosed: 1979  
Attends one session/week

#### Initial Impression:

Linda is paraplegic and confined to a wheelchair. Her husband brings her to her sessions once a week, in the afternoon. She does a number of exercises with limited ability. She increased in strength and endurance over the time of 10 sessions, after which she terminated her time with us, explained mostly by the distance traveled from Manchester to Nashville (65 miles). She is unable to stand on her own.

#### Whole body vibration as a diagnostic technology:

My use with WBV in a part is its utility as a “diagnostic” technology, in that I want to determine where and to what extent the client senses the vibration. Sensing vibration is not necessarily a predictor of motor control, but, perchance, it might be, and in this sense I assess the client’s motor control in any of the muscles where there is feeling. This is an important element in the use of WBV with persons having neurological limitations, and it has become one of our local diagnostic modalities in working with MS clients.

#### Whole body vibration:

- Linda has no motor control in her legs, and this did not change appreciably following WBV, despite our efforts to stimulate the legs over numerous sessions. However, the residual effect, after she got home, was experienced in her ability to tighten her thigh muscles and exert mild foot flexion when lying in bed.
- During WBV Linda did sense vibration in her legs, buttocks and up to the level of her lower thoracic vertebrae. With this information, we began to assess her core muscle motor control, and here we hit pay dirt. Today, Linda can remove the sides of her wheelchair and reach sideways—left and right—to the floor to pick up objects. Further, she can lean forward, grab rubber tubing anchored in a door and, with the tubing providing resistance, she can straighten her torso to a fully seated position. This improvement provides considerably more torso control and enables her to function more effectively from her wheelchair doing mild housework.