NeuroGym® Mobility Enablers: Enhancing the Nintendo Wii Experience

Many long term care homes and Seniors' facilities are experiencing increased resident participation in activity programs by making use of new 'virtual reality' activities like the Nintendo Wii Sports or Wii Fit. Such computerized activities allow participants to engage in simulated sports activities such as bowling, golf, boxing or tennis by using a wireless handheld sensor that controls the player on the screen. This type of activity is now widely used in therapeutic recreation and as part of physical therapy[1].

The Wii program is excellent for motivating Seniors to participate and become more active, however there are limitations to it's usefulness on a number of fronts. Many residents who are unable to safely stand on their own to 'swing a racket' or 'throw a bowling ball' cannot participate unless they do so while seated. In addition, facility program managers may not have the staff to provide safe supervision. While some of the activities can be done from a wheelchair, the benefit of this type of activity from a physical exercise standpoint is negligible. Some residents are unable to participate or are left frustrated if they try because of difficulties matching the speed of response or body position necessary to play the games successfully.

NeuroGym® Technologies Inc. produces a line of mobility training devices that can be used to greatly enhance the Wii experience, increase the number of residents who can safely participate, and provide alternative mobility activities for those who are not able to keep up the to speed required of the virtual reality games.

The NeuroGym® Bungee Walker is a versatile body weight support mechanism enabling safe, intensive motor retraining. The unique patented design enables the re-training of gait and natural protective reactions by counteracting loss of stability as naturally as possible. Comparable to a pool environment in terms of support, the Bungee Walker allows graduated weight bearing while normal protective reactions such as sidestepping are re-developed.

A number of long term care facilities are using the Bungee Walker to assist residents who were once avid golfers to participate again in the activity (Figure 1). The Bungee Walker's unique, adjustable support system from below provides a safe environment for standing and practicing the golf swing or putting a ball. Aside from again participating in a beloved activity, residents are practicing their standing endurance and balance shifting skills.

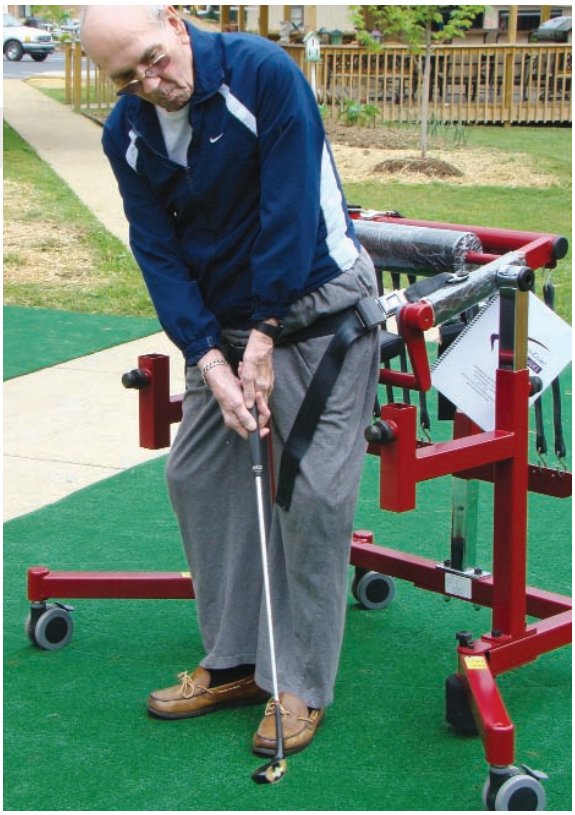

Figure 1. Fred hadn't golfed in four years. Within the mobile support and safety of the Bungee Walker, he can now participate again.

Facilities that currently use the Wii games often note that balance is their biggest safety challenge[1]. If the games are played while in the Bungee Walker, this is no longer an issue. All of the Wii activities can be safely carried out while in the Bungee Walker, thus preventing falls, and providing graduated support for those who have not yet regained the ability to stand and move independently. For those who want a greater variety of therapeutic and fitness activities, the Bungee Walker is perfect for other motivating exercises that are excellent for increasing standing endurance and improving core strength, shifting balance and improving both upper and lower limb strength and range of movement. Activities such as balloon

Figure 2. Practicing the standing motion and strengthening the lower limbs with the Sit-to-Stand Trainer.

badminton, kicking a soccer ball, putting a golf ball or even ballroom dancing are all safe possibilities to help encourage increased activity levels among residents. An added benefit is that staff, too, enjoy the interactions, adding to the positive atmosphere created.

For residents with much more limited physical abilities, the NeuroGym Sit-to-Stand Trainer is designed to help regain the ability to stand independently, or at a minimum improve transfers (Figure 2). It can be wheeled up to the bedside, or a resident can be positioned in front of it in their wheelchair. With its unique counterweight mechanism, the Sit-to-Stand Trainer actively assists a resident to relearn the standing skill and develop the necessary lower limb strength to be able to regain some independence in this skill. Unlike other 'Standers' that passively lift a resident, the Sit-to-Stand Trainer is designed with adjustable counter weight such that as ability increases, the amount of assistance provided by the Trainer can be decreased, leading to an increase in lower limb strength and standing ability. Easily set up for the sedentary resident, the Sit-to-Stand Trainer can, with only a few minutes of use each day, lead to improvements in lower limb strength and stability that pave the way for smoother transfers and greater independence.

Too often, physical frailty is seen as a fact of life for the elderly. Reduced strength in the lower limbs and overall weakness can lead to increased risk of falls and increasingly reduced active participation in Activities of Daily Living. Activity restriction due to fear of falling has been shown to be an independent predictor of decline in physical function[2]. It is widely accepted too, that increased dependency can also lead to low self-esteem and depression. The Illinois Council on Long Term Care notes that many elderly enter today's nursing homes in 'dire physical condition'. They note that the National Institute on Aging has revealed statistics that show that 40% of those beyond the age of 75 cannot walk two blocks; 22% cannot lift ten pounds; and 50% who fracture hips never walk independently again[3]. Facts such as these, stress the urgent need for more effective fitness programs for our aging population. NeuroGym Technologies Inc. with this innovative line of mobility training equipment, can help provide today's nursing homes and long term care facilities with a solution.

REFERENCES

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3. Illionis Council on Long Term Care web site: http://www.nursinghome.org/fam/fam_012.html . Accessed June 8, 2008.

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