

Mr. G is 87 years old with Parkinson's Disease. He has a past medical history of controlled high cholesterol and prostate cancer. He uses a rollator and spends most of the time in his home, however he also has a wheelchair for community distances. He lives in a one-story home with a ramp to the back porch and one step from the porch to enter the house. I am seeing Mr. G in the home health setting.

For my examination, I would apply the individual, task, and environment principles of motor control based on my selection of the Dynamic Systems Theory as my theoretical perspective to guide the examination. The individual enjoys his exercises and is motivated to go outside and sit on the deck with the physical therapist. The individual also enjoys watching football on TV and swimming. The task of keeping his balance as he rounds the corners in his house occasionally causes Mr. G to fall. His decreased balance combined with LE weakness, especially in eccentric control when stepping down, makes it unsafe for him to perform the one step that allows him to go outside. His wife is not able to help him do this so his opportunity to go outside comes when the physical therapist visits. Mr. G also has a kyphotic posture and cervical weakness that makes it difficult for him to look up as he is walking and he has difficulty holding his head up when watching TV. Mr. G's environment includes maneuvering around his one story house. The one step from the house to the porch is preventing him from accessing outside without assistance. There are also steps to get to his local pool and though he would like to go swim and has the transportation to get there, he is no longer able to access the pool. I would examine the individual, task, and environment because the interaction of all systems can influence this patient's movement as movement emerges from various systems and not solely the CNS according to the Dynamic Systems Theory.

Based on my exam, I found that Mr. G has LE weakness and decreased balance that prevent him from ambulating around his house safely and accessing his back deck and local pool. My first patient-centered goal to be accomplished in four weeks would be to step down from the back porch step five times without losing his balance and with only the assistance of a grab bar on his left side. My second goal to be accomplished in six weeks would be to increase the patient's gait speed when walking from his bedroom to his recliner chair in the living room based on a determined baseline time without the loss of balance while using his rollator. My third goal would be to improve his functional

balance in eight weeks, getting a baseline measure using the Berg Balance Scale and setting his goal for progression accordingly.

My treatment plan would include step-downs on the steps in the pool using the railing on the left progressing to performing the same activity on his step in his home environment where he must perform the task. I would begin by having the patient perform multiple repetitions of step-downs using blocked practice in order to help the patient understand how to perform the task correctly and safely during the cognitive stage of learning. This activity would use Mr. G's motivation of the pool setting to address his LE strength while working on a functional task. I would have Mr. G walk in the pool, changing the environment in order to promote walking balance in an environment where the force of gravity is reduced making it easier for Mr. G to practice this activity before transferring it to the environment where he must perform the task. I would progress this task by adding resistance to increase LE strength before having him perform the same task in his home, walking back and forth from his bedroom to his recliner chair in the living room. Using the same rationale, I would also have Mr. G perform static and dynamic balance activities in the pool such as single leg stance and tandem walking. I would progress these activities to his home environment on different surfaces such as a couch cushion to challenge his balance while watching football as motivation to look up. For each of these treatments I would provide regular feedback to start as the patient is learning and then decrease feedback, providing knowledge of his performance for retention of the task. My instructions to the patient would be concise, provide an external focus of attention, and include demonstration to enhance comprehension of the task.

Overall, practice would be the most important component of Mr. G's program to promote safe movement. Though I began by using blocked practice with Mr. G, I would progress to variable practice as soon as he moved into the associative phase of learning because this is ultimately more functional for the patient as he needs to have enough LE strength and balance in order to safely maneuver around his home and ambulate in the community when accessing the local pool. Applying the Dynamic Systems Theory to this patient along with motor learning principles will not only assist Mr. G with his movement but will ultimately improve his quality of life by giving him access to his community environment and a very motivating physical activity.