Treating the Psychosocial Implications of Parkinson’s Disease Within Physical Therapy: A Case Report

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ABSTRACT

Study Design: Single-subject case design. Background: Parkinson’s disease (PD) affects at least 1% of the population over the age of 65. The cardinal signs of PD are the presence of a resting tremor, rigidity, postural instability, and bradykinesia. These physical implications are easily identified and therefore treated appropriately. Unseen to the eye, however, are the psychological issues that accompany PD. These symptoms are often the most debilitating and have the largest effect on the individual’s quality of life. The purpose of this case report is to discuss the rehabilitation process of a patient with Parkinson’s disease, complicated by psychosocial issues and self-limiting behaviors. Case Description: The patient was a 69 year-old male with PD referred to PT for the treatment of gait and balance issues. The greatest challenge encountered with this patient was managing the multitude of psychosocial issues, including perfectionistic standards and dependency behaviors. Outcomes: Specific interventions were aimed at improving the patient’s trunk strength, dynamic balance, endurance, and lessening his perception of functional impairments. Improvements in strength and balance were noted in manual muscle testing scores and an improved Berg Balance Score. No statistical change was noted on the Dizziness Handicap Inventory. Upon discharge, the patient reported increased ease with functional activities and a feeling of more control in his life. Conclusion: This case described the treatment of a patient with Parkinson’s disease complicated by psychosocial factors. The importance of employing multimodal treatment strategies is discussed, as is the importance of creating an individualized plan of care based on the specific needs of the patient.

Background

It is estimated that Parkinson’s disease (PD) affects approximately 1% of the world’s population over the age of 65. Physical signs and symptoms of Parkinson’s disease include tremor, rigidity, postural instability, and slowed movement (bradykinesia). In addition to the typical physical manifestations of the disease, many patients with Parkinson’s also experience psychological changes related to the disease. Patients’ perceptions of their health and quality of life are influenced more often by their psychological symptoms than the physical implications of the disease.

Often, a decrease in function leads patients to modify their personality, becoming increasingly perfectionistic. Patients with PD often experience internal struggle in managing their idealized former self, which contrasts with their current self, and therefore have a need to be seen as successful in domains of their life. This need can manifests obsessive-compulsive traits, also referred to as impulse control behaviors. These behaviors include hypersexuality, transvestism, compulsive gambling, shopping, eating, and excessive hobbyism. The associated cluster of personality traits includes increased conscientiousness, industriousness, orderliness, and cautiousness.

A patient’s perception of control is also an integral part of coping with the diagnosis of Parkinson’s disease.
a progressive neuromuscular disease. Locus of control (LOC) refers to the belief of the relationship between the actions of the individuals, others, or no one and the outcomes of situations. An internal LOC is the view that personal health-related outcomes are primarily determined by the individual’s own choices and actions. People with a high external LOC believe that their health outcomes are determined more by luck or chance, and that the health care provider will determine those outcomes. People with greater external LOC have more fears about their health and their future.

It is also common to observe an increase in levels of dependency in individuals who have PD. As patients face the fact that their disease will continue to progress independently of their actions, they tend to adopt a learned helplessness. Negative perceptions of one’s physical and emotional wellbeing, in addition to physical symptoms, are correlated with high levels of dependency. Dependency is a personality style characterized by 4 primary components: (1) motivational, (2) cognitive, (3) affective, and (4) behavioral. Typical behavior showcasing these components includes a marked need for guidance from and approval of others, a perception of oneself as powerless, the exhibition of fear and anxiety when required to function independently, and the tendency to seek reassurance and approval from others. It has been noted that when people with dependent personalities access health care, they request and receive a greater number of treatment sessions and have fewer missed treatment sessions than their nondependent counterparts. High levels of dependency, coupled with frequent interpersonal stressors, can also heighten an individual’s risk for depression.

Depression is an additional psychological implication affecting 20 to 60% of the PD population, making it the most common psychiatric condition that accompanies Parkinson’s disease. The rate of severe depression is twice that seen in other disabled populations, and is suspected that is a process independent of PD progression. Depression often goes undiagnosed because of the overlapping symptoms, such as flat affect, inability to work, fatigue, and loss of desire. A positive correlation exists between depression and disease severity, which causes the cyclic effect of greater fatigue levels, leaving patients less inclined to participate in physical activity such as physical therapy.

Because each person’s life situations vary greatly, the individual’s experience with chronic illness also varies greatly. Adults with neuromuscular disorders have identified psychosocial as well as physical benefits from attending physical therapy. When physical therapists are able to treat the whole patient, addressing both physical and psychosocial aspects of recovery, the negative effects of interpersonal stress can be reduced. Interventions that promote personal control and positive attitudes can improve quality of life ratings and reduce associated disability in patients with PD. Often, physical therapy rehabilitation programs for patients with PD do not place enough importance on goals related to personal relationships, curbing potential for successful outcomes. The purpose of this case report is to discuss the rehabilitation process of a patient diagnosed with PD complicated by psychosocial issues and self-limiting behaviors.

Case Description

History

The patient was a 69-year-old Caucasian male referred to physical therapy services for balance issues and gait abnormalities associated with his diagnosis of Parkinson’s disease. The patient received a diagnosis of...
PD 6 years prior to attending this bout of physical therapy.

The patient’s chief concern was the inability to perform at his prior level of function. He reported he was once able to complete difficult physical tasks, such as carrying 2 cases of soda while negotiating stairs. He also stated that he felt simple tasks required much more concentration than they had previously, thus slowing him down. The patient felt his decline in function was the result of multiple factors, including his personal life as well as his medical history.

The patient’s past medical history included diabetes, depression, anxiety, sleep apnea, a stroke in 2005, Bell’s palsy in 2005, and a myocardial infarction in 2013. The patient had a recent weight loss of 60 pounds and had been maintaining an active lifestyle. The patient was independent with all activities of daily living (ADLs) at the time of the initial evaluation. The patient lived at home with his wife and middle-aged son. At the time the patient sought therapy services, the patient’s wife was utilizing a front-wheeled walker for all mobility due to a fall resulting in a foot fracture. The patient acted as her caregiver during this time; in addition, he was the permanent caregiver for their son, who had severe autism.

The patient expressed concerns about attending therapy sessions, as he was anxious about his family being without their caregiver. He reported that his wife was displeased with his seeking therapy services, and had never been supportive of his efforts to maintain an active lifestyle.

Many salient characteristics of the patient’s personality impacted the course of treatment. On the date of the initial evaluation, the patient requested to work only with the therapist by whom he had previously been treated for other issues. He provided a 4-page, typed, subjective statement that included an extensive explanation of his medical history, chief concerns with examples of his limitations, multiple goals, and a list of questions concerning the disease process and his expected outcomes. He expressed concern with the number of sessions that would be approved, as he did not want to be limited. He was explicit about what types of interventions he would participate in, and which ones he did not want included in his plan of care. He requested to view the goals the physical therapy intern established before they were dictated and signed. He made it apparent that he wanted to be involved in the rehabilitation program planning and that he would be seeking verbal updates and assessments frequently.

Due to the psychosocial involvement interwoven with the typical physical symptoms displayed with patients with PD, it was determined this particular patient would be appropriate for a case report. The patient signed a release of information, consenting to be the subject of this case report.

**Examination**

The initial evaluation was completed by the student physical therapist, under the supervision of a physical therapist with 18 years of experience working with neurological diagnoses. The system review indicated the patient’s heart rate and blood pressure were within normal limits. The patient denied any pain, though he occasionally experienced soreness after long bouts of activity, such as gardening or housework.

Upon visual inspection, it was noted the patient had a forward head posture with rounded shoulders and decreased lumbar lordosis. He preferred a wide base of support during standing and ambulation.
**Tests and Measures**

Manual muscle testing and range of motion (ROM) screens were completed due to the patient’s referring diagnosis and chief concerns of strength and balance deficits. All ROM measurements were within 90% of normal limits. See Table 1 for specific strength measurements taken on the date of initial evaluation.

The Berg Balance Assessment was completed during initial evaluation to assess the severity of the reported balance issue. The patient objectively scored 46/56, placing him in the low fall risk category. At this time, the patient also completed the Dizziness Handicap Inventory questionnaire, subjectively assessing himself as being 40% disabled as a result of his impaired balance and dizziness. Both tests have been verified as reliable and valid measures (Appendix A).

**Evaluation/Prognosis**

The patient was considered an appropriate candidate for therapy services because of his diagnosis of PD combined with a complex medical history. Differential diagnoses included other basal ganglia disorders, such as Parkinson’s plus syndromes. These were ruled out based on the referring medical diagnosis of PD and the patient’s positive response to Levodopa medication. Objectively, the patient exhibited only minor strength deficits in his extremities, consistent bilaterally. The patient presented with a slight balance deficit, as indicated by the Berg. The patient also displayed only minor parkinsonian symptoms and was independent with all necessary day-to-day activities. The patient’s greatest limitations were related to his self-limiting, perfectionistic behavior that resulted in reliance of physical therapy services. The psychological implications accompanying the PD (anxiety/depression, fear-avoidance behaviors, and an external locus of control) were seen as potential impediments to successful outcomes. Goals set forth for the patient included lower extremity strengthening, balance training, and a subjective report of greater comfort with mobility and the completion of daily tasks. It was determined the patient’s prognosis was fair when all factors were considered.

**Plan of Care**

The patient attended two 45-minute therapy sessions per week. The patient’s interventions were selected to address short-term and long-term goals established on the date of initial evaluation (Table 2).

Specific interventions were aimed at improving the patient’s trunk strength, dynamic balance, and endurance, and at lessening his perception of functional impairments. See Table 3 for specific interventions used.

The patient was also prescribed an initial home exercise program (HEP) for lower extremity strengthening and a subsequent program for balance and core stabilization (Appendix B).

Throughout the course of treatment, the patient would often question the practicality of certain interventions and continually refined his goals, making them more difficult to achieve. If he was unable to complete a task according to his standard of perfection, he would fixate on the imperfections, and his level of performance with activities decreased. The patient had a difficult time realizing the gains he was making in therapy, and would express his concern with being discharged from therapy services each session. He underestimated his functional abilities to the point of self-limitation and demonstrated dependency on the advice of the physical therapy intern and supervising physical therapist. The patient
**Table 1.** Manual Muscle Testing Grades at Initial Evaluation

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<td>Hip adduction</td>
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<td>Dorsiflexion</td>
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**Table 2.** Short-term and Long-term Goals

**Short-term goals — to be met within 2-3 weeks**
1. The patient will be independent with the initial home exercise program targeting lower extremity and core strengthening to improve functional mobility.
2. The patient will tolerate 45 minutes of continuous activity to demonstrate increased functional endurance.
3. The patient will be educated regarding fall prevention in order to minimize his risk of falling.

**Long-term goals — to be met within 4-6 weeks**
1. The patient will be independent with the upgraded home exercise program for hip and core strengthening.
2. The patient will demonstrate improved balance, as evidenced by an increase in the Berg Balance Assessment score, so that it is no less than 50/56.
3. The patient will subjectively report greater comfort and less fear with mobility to allow a return to prior activities such as walking dogs.
4. The patient will report a reduction on the Dizziness Handicap Inventory, so he objectively rates himself as less than 20% impaired due to dizziness.

**Table 3.** Specific Interventions Utilized During Therapy Sessions

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<tr>
<th>Neuromuscular Re-education</th>
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<tr>
<td>Bolster kicks</td>
<td>Nu-step</td>
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<td>Alternating toe taps</td>
<td>Wall squats with physioball</td>
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<td>Diagonal ball pass with rotation</td>
<td>Standing 4-way hip</td>
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<td>Various obstacle courses</td>
<td>Heel raises</td>
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<td>Airex balance activities</td>
<td>Wobble board</td>
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<td>Walking drills (marching, tandem, carioca, side-stepping, retro-walking)</td>
<td>Floor transfers</td>
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<td>Walking with resistance band</td>
<td>Postural exercises</td>
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<td>Catch-and-throw balance drills</td>
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<td>Cone tap to encourage rotation</td>
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<td>Simulated dog walk drill</td>
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Table 4. Manual Muscle Testing Grades on Date of Discharge

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requested frequent feedback regarding the quality of his performance. Care was taken by the physical therapy intern when articulating a response with the focus being on patient safety and functional ability rather than perfection.

As a means of improving the patient’s psychosocial functioning, a specific strategy was implemented. The patient’s communication style was mirrored; the student physical therapist would often write out any progress noted to enhance patient understanding. A subjective explanation of his status was also provided to him upon discharge from skilled therapy services. The physical therapy intern made an effort to maintain a positive atmosphere during treatment sessions, providing constructive, encouraging verbal and tactile feedback. Time was devoted each session to listen to the patient’s concerns and assure him that the plan of care addressed these issues. The therapy staff showed the patient they were supportive of his efforts to improve his functioning by being flexible to his wants and needs.

When it was determined that the patient had plateaued and was no longer benefiting from skilled therapy services, he was presented with the option to resume the wellness program and to participate in the balance training class offered once a week in the fitness center attached to the rehab gym. The patient reported he did not feel he was ready to be discharged. On the date of this last treatment session before the established discharge date, the patient arrived with a revised list of goals he felt he needed to achieve prior to discharge from physical therapy. His concerns initiated a lengthy conversation about setting realistic goals, accepting his minor limitations, and adjusting his focus to those things over which he had control. In order to mirror the patient’s preferred communication style, the physical therapy intern typed a response addressing his lingering concerns and questions. The patient expressed relief after reading the response, knowing that his questions were answered and that his concerns were not being ignored.

Outcomes

The patient attended a total of 11 treatment sessions over the course of 5 weeks. Upon discharge, the patient objectively exhibited improved balance, strength, and endurance. All short-term goals were met by the end of the first week of treatment. The patient reported adherence to his initial HEP and demonstrated the ability to perform all HEP...
exercises during therapy sessions without referencing his handout. The patient did not require rest breaks during the therapy sessions, and often requested more challenging activities.

Three out of four long-term goals were met. The patient reported greater comfort with mobility due to his perceived improvements in his strength. See Table 4 for manual muscle testing grades assessed on the date of discharge.

When assessing balance, a change of 5 points on the Berg Balance Assessment is required to reveal genuine change in patients with PD. On the date of discharge, the patient scored a 53/56, demonstrating a 7-point improvement from his initial evaluation score, exceeding the minimum change required. The areas where points were deducted included reaching forward with outstretched arm while standing, standing unsupported with one foot in front, and standing on one leg.

The goal not met was related to the patient’s perception of impairment according to the Dizziness Handicap Inventory. The patient rated his impairment due to dizziness/balance as 32%. This demonstrated an 8% decrease from initial evaluation, which did not meet the MCID of 18% change. Therefore, the patient’s perception of his impairment due to dizziness was neither statistically or clinically relevant. He also failed to meet the goal of rating himself no more than 20% impaired.

Upon discharge, the patient reported that he noticed improvements in his balance and strength. He stated he felt that participating in the balance class and fitness program would be a good alternative to no services at all. He expressed his appreciation for the open communication that characterized the course of physical therapy, as well as for being included in the decision-making process concerning his plan of care. He reported he was very satisfied with his level of care and the outcomes attained.

Discussion

The purpose of this case report was to provide an example of a patient with Parkinson’s disease who required multimodal treatment to address both the physical and psychosocial aspects associated with his diagnosis. Almost all patients diagnosed with Parkinson’s disease experience difficulty accepting the inconsistency between who they once were and who they are now. Each patient endures a battle that is individualized based on resources available to them.

Overall, the patient made excellent gains in both strength and functional balance. The challenge in this particular case was not in selecting appropriate interventions to address patient goals; rather, it was making the patient aware of his capabilities and progress.

Early in the rehabilitation process, it became clear that the amount of time devoted to patient education should be increased, ensuring the patient understood the purpose of each activity and how it would benefit him. Involving the patient in the plan of care was an integral part of the process of working toward patient mastery, or the extent to which he viewed himself as being in control of his health and behaviors. As healthcare providers, our priority was to administer individualized treatment to address the patient’s main concerns as well as the objective deficits noted on the initial evaluation. If one aspect of the care was lacking, such as frequent reassurance of progress, repercussions were evident in all realms of the rehab process. If the patient fixated on the still present deficit rather than the gains he had made, his anxiety level
would increase, impacting his physical performance negatively. Effective communication was imperative, as the patient’s assessment of gain and purposeful activities relied on feedback from the physical therapy intern. The patient’s communication style was mirrored, both as a means to ensure he understood what was being said and also to display commitment to his success in therapy. A delicate balance of compassion and accountability was required not only to provide the patient with the support he was lacking in his personal life, but also to transition him to developing an internal locus of control. When patients do not receive adequate support from loved ones and friends, they may look to physical therapists to fulfill these needs. When these needs are fulfilled, patients’ tendency to catastrophize their symptoms declines.

Universally, individuals wish to be people first and patients second. Oftentimes, the patient incorporates the rehabilitation process into their person to prevent them from being separate entities. When patients with Parkinson’s disease are able to integrate their illness into their sense of self, they have a more realistic outlook on life. Therefore, the role of the physical therapist in the treatment of patients with PD is multifaceted. A thorough assessment of the patient’s physical and psychological implications of the disease process is necessary to create an individualized plan of care. While the scenario will differ from patient to patient, the concept of developing a personalized solution can be generalized to all situations.

Like many reports, this case study has limitations that need to be considered. First, the single-subject design does not allow direct generalization to other patients. Second, the author was given short notice to collect case report data, and therefore was unable to administer outcome measures that would have been helpful to objectify the patient’s psychosocial symptoms.

Future research should focus on the effects of depression and inadequate social support on the physical rehabilitation process. It would be helpful to research which strategies are most effective in providing multifaceted treatment and thus result in the most successful outcomes.

Conclusion

This case report describes the evaluation and treatment of a patient with Parkinson’s disease, complicated by multiple psychosocial issues. The report outlined the treatment plan that was developed based on the functional deficits found in the initial evaluation in conjunction with the specific goals of the patient. Research has suggested that the most successful outcomes are attained when a multifaceted treatment strategy is employed, which was implemented in this case. By listening to and further assessing the specific needs of the patient, the physical therapy team was able to address more than just the physical symptoms of Parkinson’s disease. By including the patient in all phases of the rehabilitation process and demanding accountability for the control he had concerning his quality of life, excellent outcomes were achieved. Generation of an individualized plan of care along with management of the entire person should be the focus of the treatment of Parkinson’s disease.

References


Acknowledgements

The author would like to thank Dan O’Malley, PT, for his guidance in the treatment of this patient. The author would also like to thank Susan Dolter, Jen Mai, PT, DPT, PhD, MHS, NCS and Jennifer Berning, DPT, for their contributions in the drafting and editing process of this case report.
Appendix A: Standardized Outcome Measures

Berg Balance Assessment: Initial Evaluation

1. **Sitting to StANDING**
   - Instructions: Please stand up. Try not to use your hands for support
     - 4 able to stand without using hands and stabilize independently
     - 3 able to stand independently using hands
     - 2 able to stand using hands after several times
     - 1 needs minimal aid to stand or to stabilize
     - 0 needs moderate or maximal assist to stand

2. **Standing Unsupported**
   - Instructions: Please stand for two minutes without holding
     - 4 able to stand safely 2 minutes
     - 3 able to stand 2 minutes with supervision
     - 2 able to stand 30 seconds unsupported
     - 1 needs several tries to stand 30 seconds unsupported
     - 0 unable to stand 30 seconds unsupported

   If subject is able to stand 2 minutes unsupported, score full points for standing unsupported. Proceed to #4

3. **Sitting with Back Unsupported But Feet Supported on Floor or Stool**
   - Instructions: Please sit with arms folded for 2 minutes
     - 4 able to sit safely and correctly 2 minutes
     - 3 able to sit 2 minutes under supervision
     - 2 able to sit 30 seconds
     - 1 able to sit 10 seconds
     - 0 unable to sit without support 10 seconds

4. **Standing to Sitting**
   - Instructions: Please sit down
     - 4 able to sit safely with minimal use of hands
     - 3 able to sit independently but with uncontrolled descent
     - 2 able to sit independently with minimal use of hands
     - 1 unable to sit without support 10 seconds
     - 0 needs assistance to sit

5. **Transfers**
   - Instructions: Arrange chairs for a seated transfer. Ask subject to transfer on way toward a seat with armrests and one way to a seat without armrests
     - 4 able to transfer safely with minimal use of hands
     - 3 able to transfer safely with definite use of hands
     - 2 able to transfer safely with verbal cueing and/or supervision
     - 1 needs one person to transfer
     - 0 needs two people to assist or supervision to be safe

6. **Standing Unsupported with Eyes Closed**
   - Instructions: Please close your eyes and stand still for 10 seconds
     - 4 able to stand 10 seconds safely
     - 3 able to stand 10 seconds with supervision
     - 2 able to stand 3 seconds
     - 1 unable to keep eyes closed 3 seconds but stays safely
     - 0 needs help to keep from falling

7. **Standing Unsupported with Feet Together**
   - Instructions: Place your feet together and stand without holding
     - 4 able to place feet together and stand without holding
     - 3 able to place feet together independently and stand for 1 minute with supervision
     - 2 able to place feet together independently but unable to hold for 30 seconds
     - 1 needs help to attain position but able to stand 10 seconds feet together
     - 0 needs help to attain position and unable to hold 15 seconds

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*Little stagger*
Psychosocial Implications

REACHING FORWARD WITH OUTSTRETCHED ARM WHILE STANDING
Instructions: Lift arm to 90°. Stretch out fingers and reach forward as far as possible.
- 4: Can reach forward comfortably > 10 inches
- 3: Can reach forward > 5 inches
- 2: Can reach forward > 2 inches
- 1: Reaches forward but needs supervision
- 0: Loses balance while trying, requires external support.

PICK OBJECT FROM THE FLOOR FROM A STANDING POSITION
Instructions: Pick up shoe/slipper which is placed in front of your feet.
- 4: Able to pick up shoe/slipper safety and easily
- 3: Able to pick up shoe/slipper but needs supervision
- 2: Unable to pick up shoe/slipper, reaches < 12 inches from shoe/slipper and maintains balance independently
- 1: Unable to pick up shoe/slipper, needs supervision while trying
- 0: Unable to try, needs external assistance to keep from losing balance

TURNING TO LOOK BEHIND OVER LEFT AND RIGHT SHOULDERS WHILE STANDING
Instructions: Turn to look directly behind you toward the left shoulder. Repeat to the right.
- 4: Looks behind from both slides and with shifters well
- 3: Looks behind one slide only, other slide shows less weight shift
- 2: Turns sideways only, but maintains balance
- 1: Needs supervision while turning
- 0: Needs assistance while turning

TURN 360 DEGREES
Instructions: Turn completely in a full circle. Pause, then turn a full circle in the other direction.
- 4: Able to turn 360 degrees safely in 4 seconds or less
- 3: Able to turn 360 degrees safely one side only, 4 seconds or less
- 2: Able to turn 360 degrees safely but slowly
- 1: Needs close supervision or verbal cueing
- 0: Needs assistance while turning

PLACE ALTERNATE FOOT ON STEP OR STOOL WHILE STANDING UNSUPPORTED
Instructions: Place each foot alternately on the step/stool. Continue until each foot has touched the step/foot 4 times.
- 4: Able to stand independently and safely and complete 8 steps in 20 seconds
- 3: Able to stand independently and complete 8 steps > 20 seconds
- 2: Able to complete 4 steps without aid with supervision
- 1: Able to complete >2 steps needs minimal assistance
- 0: Needs assistance to keep from falling/unable to try

STANDING UNSUPPORTED ONE FOOT IN FRONT
Instructions: Place one foot directly in front of the other. If you fall that you cannot balance your foot directly in front, try to step far enough ahead that the heel of your forward foot is ahead of the toes of the other foot. To score, turn your foot, length of the step should exceed the length of the other foot and width of the stand should be normal stride width.
- 4: Able to place foot together independently and hold 30 seconds
- 3: Able to place one foot ahead of the other independently and hold 30 seconds
- 2: Able to take small step independently and hold 30 seconds
- 1: Needs help to step but can hold 15 seconds
- 0: Loses balance while stepping or standing

STANDING ON ONE LEG
Instructions: Stand on one leg as long as you can without holding.
- 4: Able to lift leg independently and hold > 10 seconds
- 3: Able to lift leg independently and hold 5-10 seconds
- 2: Able to lift leg independently and hold = or < 5 seconds
- 1: Tries to lift leg to hold 3 seconds, but remains standing independently
- 0: Unable to try or needs support to prevent fall

Total Score: 410/560
Date: 5-23-14
Evaluator: [Signature]
Berg Balance Assessment: Discharge

1. **SITTING TO STANDING**
   - Instructions: Please stand up. Try not to use your hands for support.
   - 4: able to stand without using hands and stabilize independently
   - 3: able to stand independently using hands
   - 2: able to stand using hands after several tries
   - 1: needs minimal aid to stand or to stabilize
   - 0: needs moderate or maximal assist to stand

2. **STANDING UNSUPPORTED**
   - Instructions: Please stand for two minutes without holding.
   - 4: able to stand safely 2 minutes
   - 3: able to stand 2 minutes with supervision
   - 2: able to stand 30 seconds unsupported
   - 1: needs several tries to stand 30 seconds unsupported
   - 0: unable to stand 30 seconds unsupported

   If subject is able to stand 2 minutes unsupported, score full points for sitting unsupported. Proceed to #4.

3. **SITTING WITH BACK UNSUPPORTED BUT FEET SUPPORTED ON FLOOR OR STOOL**
   - Instructions: Please sit with arms folded for 2 minutes.
   - 4: able to sit safely and securely 2 minutes
   - 3: able to sit 2 minutes under supervision
   - 2: able to sit 30 seconds
   - 1: able to sit 10 seconds
   - 0: unable to sit without support 10 seconds

4. **STANDING TO SITTING**
   - Instructions: Please sit down.
   - 4: able to sit safely with minimal use of hands
   - 3: controls descent by using hands minimally
   - 2: used back of legs against the chair to control descent
   - 1: sits independently but has uncontrolled descent
   - 0: needs assistance to sit

5. **TRANSFERS**
   - Instructions: Arrange chair for a pivot transfer. Ask subject to transfer on way toward a seat with armsrest and one way to a seat without armrests.
   - 4: able to transfer safely with minor use of hands
   - 3: able to transfer safely with major use of hands
   - 2: able to transfer safely with verbal cueing and/or supervision
   - 1: needs one person to transfer
   - 0: needs two people to assist or supervise to be safe

6. **STANDING UNSUPPORTED WITH EYES CLOSED**
   - Instructions: Please close your eyes and stand still for 10 seconds.
   - 4: able to stand 10 seconds safely
   - 3: able to stand 10 seconds with supervision
   - 2: able to stand 5 seconds
   - 1: unable to keep eyes closed 5 seconds but stays safely
   - 0: needs help to keep from falling

7. **STANDING UNSUPPORTED WITH FEET TOGETHER**
   - Instructions: Place your feet together and stand without holding.
   - 4: able to place feet together and stand without holding on
   - 3: able to place feet together independently and stand for 1 minute with supervision
   - 2: able to place feet together independently but unable to hold for 30 seconds
   - 1: needs help to attain position but able to stand 15 seconds feet together
   - 0: needs help to attain position and unable to hold 15 seconds
1. REACHING FORWARD WITH OUTSTretched ARM WHILE STANDING
   Instructions: Lift arm to 90°. Stretch out fingers and reach forward as far as possible.
   - 5: Can reach forward confidently > 10 inches
   - 3: Can reach forward > 5 inches
   - 2: Can reach forward 2 inches
   - 1: Reaches forward but needs supervision
   - 0: Loses balance while trying, requires external support

2. PICK OBJECT FROM THE FLOOR FROM A STANDING POSITION
   Instructions: Pick up shoe/shoebox which is placed in front of your foot.
   - 5: Able to pick up shoe/shoebox safely and easily
   - 3: Able to pick up shoe/shoebox but needs supervision
   - 2: Unable to pick up but reaches 1-2 inches from shoebox and keeps balance independently
   - 1: Unable to pick up and needs supervision while trying
   - 0: Unable to try; needs assistant to keep from losing balance

3. TURNING TO LOOK BEHIND OVER LEFT AND RIGHT SHOULDERS WHILE STANDING
   Instructions: Turn to look directly behind you toward the left shoulder. Repeat to the right.
   - 5: Looks behind from both sides and with stability
   - 3: Looks behind one side only; other side shows loss of balance
   - 2: Shows slight loss of balance only; maintains balance
   - 1: Needs supervision while turning
   - 0: Needs assistance while turning

4. TURN 360 DEGREES
   Instructions: Turn completely in a full circle. Pause, then turn a full circle in the other direction.
   - 5: Able to turn 360 degrees safely one side only 4-5 seconds or less
   - 4: Able to turn 360 degrees safely one side only 6-7 seconds
   - 3: Able to turn 360 degrees safely both sides
   - 2: Needs assistance to complete circle
   - 1: Needs assistance to keep from falling
   - 0: Needs assistance while turning

5. PLACE ALTERNATE FOOT ON STEP OR STOOL WHILE STANDING UNSupported
   Instructions: Place each foot alternately on the stepstool. Continue until each foot has reached the stool 4 times.
   - 5: Able to stand independently and safely and complete 8 steps in 20 seconds
   - 4: Able to stand independently and complete 8 steps in 20 seconds
   - 3: Able to complete 8 steps without aid with supervision
   - 2: Needs assistance to complete 8 steps
   - 1: Needs assistance to keep from falling
   - 0: Needs assistance while turning

6. STANDING UNSUPPORTED ONE FOOT IN FRONT
   Instructions: Place one foot directly in front of the other. If you feel that you cannot place your foot directly in front, try to step far enough ahead that the heel of your forward foot is ahead of the toes of the other foot (in order to score 3 points, the length of the step should exceed the length of the other foot and width of the step should be the normal stride width).
   - 3: Place foot forward independently and hold 30 seconds
   - 1: Able to place one foot ahead of the other but needs supervision
   - 0: Needs assistance to keep from falling

7. STANDING ON ONE LEG
   Instructions: Stand on one leg as long as you can without holding.
   - 5: Able to lift leg independently and hold > 10 seconds
   - 3: Able to lift leg independently and hold 5-10 seconds
   - 1: Able to lift leg independently and hold < 5 seconds
   - 0: Unable to try or needs assist to perform

Total Score: 52

Date: 10/14
Evaluator: Audrey Nesto
Dizziness Handicap Inventory: Initial Evaluation

<table>
<thead>
<tr>
<th>Item</th>
<th>Question</th>
<th>Y</th>
<th>N</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does looking up increase your problem?</td>
<td>P</td>
<td>Y</td>
<td>S</td>
</tr>
<tr>
<td>2</td>
<td>Because of your problem, do you feel frustrated?</td>
<td>E</td>
<td>X</td>
<td>F</td>
</tr>
<tr>
<td>3</td>
<td>Because of your problem, do you restrict your travel for business or recreation?</td>
<td>F</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
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<td>Does walking down the aisle of a supermarket increase your problem?</td>
<td>P</td>
<td>X</td>
<td>Y</td>
</tr>
<tr>
<td>5</td>
<td>Because of your problem, do you have difficulty getting in or out of bed?</td>
<td>F</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>Does your problem significantly restrict your participation in social activities such as going out to dinner, the movies, dancing or to parties?</td>
<td>F</td>
<td>X</td>
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</tr>
<tr>
<td>7</td>
<td>Because of your problem, do you have difficulty reading?</td>
<td>F</td>
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<tr>
<td>8</td>
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<td>P</td>
<td>X</td>
<td>X</td>
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<tr>
<td>9</td>
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<td>E</td>
<td>X</td>
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<td>E</td>
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<td>Does your problem interfere with your job or household responsibilities?</td>
<td>F</td>
<td>X</td>
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\[ P \times 2 = 18 \quad E \quad 4 \quad F \quad 8 + 10 = 18 \quad \text{Total} \quad 40 \]
### Dizziness Handicap Inventory: Discharge

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Total: 32

Note: The total score is calculated by summing the values of each item.
Appendix B: Home Exercise Programs

Heel Raises
Stand at the kitchen counter. Using the counter for support as needed, keep your knees straight and raise your heels up off the ground as high as you can. Repeat 20 times.

Standing Hip Extension
Stand at the kitchen counter. Using the counter for support as needed, raise your leg out behind you keeping your knee straight. Do not lean forward. Return your leg to the starting position. Repeat 20 times with left legs, alternate legs.

Standing Hip Flexion
Stand at the kitchen counter. Using the counter for support as needed, raise your leg up in front of you as if you were marching. Repeat 20 times. Alternate legs.

Standing Knee Flexion
Stand as close as you can to the kitchen counter. Using the counter for support as needed, bend your heel up toward your bottom as far as you can. Do not let your knee move forward toward the counter. Repeat 20 times with left legs, alternate legs.

Standing Hip Abduction
Stand at the kitchen counter. Using the counter for support as needed, raise your leg out to the side keeping your knee and toes pointing straight ahead, then lower it. Repeat 20 times with left legs.

Partial Squats
Stand at the kitchen counter. Using the counter for support as needed, bend your knees and squat down keeping your back straight and your feet flat on the floor. Return to upright. Repeat 20 times.