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Collaboration Between Physical Therapy and Music Therapy: A Case Study of the Interventions and Their Effects on Parkinson's Disease

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COLLABORATION BETWEEN PHYSICAL THERAPY AND MUSIC THERAPY: A CASE STUDY OF THE INTERVENTIONS AND THEIR EFFECTS ON PARKINSON'S DISEASE

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Department Physical Therapy

Degree Doctor of Physical Therapy

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ABSTRACT

Background and Purpose: Parkinson's Disease is a chronic and progressive neurological disorder that causes motor dysfunction leading to dyskinesia, bradykinesia, muscular rigidity, resting tremors, postural impairments, and gait impairments. These impairments can have a tremendous negative impact on a person's everyday life. This case study demonstrates the collaboration of physical therapy and music therapy interventions and its effects on a female with Parkinson's Disease.

Case Description: The patient is a 72-year old female diagnosed with Parkinson's Disease around 2010. Her primary reason for seeking treatment is due to an increase in freezing of gait and overall decrease in mobility that affects her activities of daily living. She presents with a hand tremor, dyskinesia, freezing of gait, shuffling steps, muscle stiffness, difficulty maneuvering in small spaces, difficulty maintaining balance or taking a step when reaching, decreased endurance, and a history of falls. She ambulates with a single end cane and hand hold assist from her husband when ambulating in the community.

Interventions: A combination of physical therapy and music therapy interventions were utilized to improve weight shifting, gait, balance, and address patient concerns such as bed mobility. Music therapy interventions included metronome pacing, guitar pacing, guitar strumming for initiation cues, clarinet cuing, paddle drums, and singing. A combination of auditory and visual cues were incorporated to improve the patient's symptoms and promote patient safety.

Outcomes: The patient improved her score on the Parkinson's Disease Questionaire-39, Freezing of Gait Questionnaire, Berg Balance Scale, Timed Up and Go. The patient had improved step length bilaterally for several of the gait activities including fast paced walking and walking with a metronome.

Discussion: In this case study there was an overall improvement in balance and quality of life that was considered significant based on minimal detectable change. Although other measures did not produce significant changes, outcomes of this case study showed that the patient had an increased safety awareness, balance, gait, and confidence improved based on clinical observation and judgement. Due to the complexity and variability of PD, weekly interventions varied based on the patient's ability and the patient could improve over the course of treatment sessions with proper cues. Videos, pictures, and increased detail on documentation would be beneficial in future case studies for increase accuracy in measuring outcomes.

Chapter I

Background

Parkinson's Disease (PD) is a chronic and progressive neurodegenerative disease with an etiology that is still considered unknown. Even though the etiology of PD is idiopathic, there are general beliefs that both the environment and genetic factors play a role in the pathological impact of this disease.[1] The worldwide prevalence per 100,000 is approximately 425 for people aged 65-74 years. It is above 1,900 for individuals older than age 80.[2] It is believed there is an increased risk of PD to those who are exposed to toxic agents (such as pesticides and herbicides), have had a prior head injury, live in rural areas, have a history of Beta Blocker use, work (or have worked) in an agricultural background, and those who consume well water. On the contrary, there is increasing evidence that there are multiple environmental factors that may reduce the risk of developing PD. These may include smoking, coffee, NSAID use, calcium channel blocker use, and alcohol consumption. The consideration that genetics plays a role in developing PD comes from studies in which PD is prevalent amongst more than one family member who has PD or a tremor. There are known specific genetic markers or genetic mutations that have been found to contribute to the development of PD. The genetic mutation in GBA, which encodes β-glucocerebrosidase, predicts the greatest risk for developing PD.[3]

The primary pathological impact of this disease is the effect it has on the basal ganglia, especially the substantia nigra, within the central nervous system.[1] It is associated with protein deposits, known as Lewy bodies, on the brain as well as the death of dopaminergic neurons in the substantia nigra. The primary motor symptoms of

the disease include bradykinesia, muscular rigidity, resting tremors, postural impairments, and gait impairments. Individuals with PD also have a higher prevalence of dementia, postural hypotension, freezing of gait, increased fall risk, dysphagia, speech dysphagia, and urinary incontinence.[3] Non-motor symptoms, such as depression, anxiety, autonomic dysfunctions, sleep disturbances, sensory disturbances, and dementia can be common among individuals with PD as well.[1]

Due to the complexity of the disease it is difficult to make a definitive diagnosis during the early stages of PD. The complexity of the disease has prevented the formation of treatments that may slow the degenerative neurologic processes and made it difficult to manage the symptoms of the later stages of this disease.[3] The progression of PD varies greatly among individuals and starts subtly, usually with asymmetrical signs and symptoms of the upper and lower extremities, but in most individuals it eventually affects both sides of the body. In the early stages individuals may only experience changes in mood, decreased overall speed during activities of daily living (ADL's), stiffness, and difficulty with fine motor skills, such as the ability to write. When these signs and symptoms present they can often be misdiagnosed as depression, arthritis, or normal aging; thus, it is important to pay close attention to these changes, as well as any history of a tremor.[1]

Currently, medications for PD do not modify the disease process or protect the neurological tissue. Rather the medications are symptom-modifying by improving dopamine concentrations or stimulating the dopamine receptors. Treatment of symptoms generally consists of drugs such as levodopa, dopamine agonists, monoamine oxidase type B inhibitors, and amantadine.[3] As the individual ages and the

disease stage progresses, the individual becomes less responsive to medications and will exhibit worsening symptoms. Due to decreased responsiveness to medications and other forms of treatment the disease may begin to be more difficult to manage. Individuals with PD may struggle between trying new medications as well as determining the appropriate dose and combinations of medications that works best for them. This can be time consuming, expensive, and frustrating for those with PD.

Other forms of treatment and intervention exist for PD in addition to pharmacological treatment. These other forms of intervention and treatment include surgery, rehabilitation therapies, exercise programs developed specifically for individuals with PD, such as "LSVT Big and Loud" and "PWR!", alternative therapies and support groups. The future treatment of PD may include stem cell therapy and genetic therapy.[1] In recent research, although limited, Music Therapy interventions have been incorporated into the treatment and management of PD. In this case study, we will consider the effects of the combination of Music Therapy and Physical Therapy interventions in an individual with PD.

Physical therapy (PT) is the study in which licensed healthcare professionals help patients reduce pain and restore mobility to improve the human experience, and often to reduce the need for expensive surgery and prevent long term prescription use.[4] PT is used to evaluate an individual with PD's gait, balance, range of motion, coordination and transfers in order to provide appropriate therapeutic intervention, including therapeutic exercise, to maintain or improve the overall quality of life.[1,5] In addition to focusing on using therapeutic exercise interventions, PT uses cognitive strategies to facilitate effective movements as well. Physical therapy is often used in

collaboration with other rehabilitation therapies including occupation therapy, speech therapy, and in recent years, music therapy.

Music-based interventions also show promise for affecting the symptoms of PD. Music therapy is the clinical and evidence-based practice implemented by a credentialed professional to provide music interventions to accomplish individualized goals in a therapeutic setting. Music therapy interventions can be designed to promote wellness, manage stress, alleviate pain, express feelings, enhance memory, improve communication, and promote physical rehabilitation.[6] All of these strategies are beneficial in treating and improving the overall quality of life in an individual with PD.

This subject has emerged over the past decade and there is limited research available. Currently, there is evidence that music based interventions support the cognition, motor function, and emotional well-being in individuals with PD.[7] Rhythmical cuing may be implemented with various timing protocols and stimuli. It has also been suggested that pleasurable music activates brain regions, including the orbitofrontal cortex and anterior insula which affect the parietal and somatosensory areas. Music can be motivational and influence behavior and cognitive processes.[8]

Purpose

Currently there are minimal research based studies documenting the effect of a collaboration between music and physical therapist treatments to improve the overall quality of life for individuals with PD. In this case study we will study the effects of musical intervention in collaboration with physical therapy interventions to improve gait, balance, and coordination. Outcomes were measured by functional assessments and self-report quality of life assessments with the intent to identify non-pharmacological strategies to improve function and quality of life for individuals with PD.

Chapter II

Case Description

The patient is a 72-year-old Caucasian female diagnosed with PD between 2010 and 2012. She began noticing a hand tremor while at work in years prior to her official diagnosis of PD. In the past few years the patient's condition has progressed to dyskinesia, freezing of gait, shuffling steps, muscle stiffness, and decreased endurance. The patient has noted difficulty with turning in small spaces, such as her bathroom and closet. She also has a history of multiple falls per month, with a total of approximately 24 falls in the last 6 months reported by patient's significant other. Falls are reported to be in a retropulsion motion. Her primary reason for seeking treatment is due to an increase in freezing of gait and overall decrease in mobility that affects her activities of daily living. She is limited in her ability to participate in household chores independently, such as cooking and yard work. The patient is also limited in her ability to go out to public places independently and safely, such as the gym, church, and shopping mall. She primarily uses a cane for ambulation, but occasionally uses a three-wheeled walker for longer distances. The patient's limited mobility causes feelings of loneliness, isolation, depression, and anxiousness about the future.

Patient has a history of thymus cancer (2005), that resulted in damage to the phrenic nerve causing patient to have difficulty breathing. In 2016, patient fractured her left humerus with cause not given. Patient has decreased mobility of her left arm as a result of the fracture in which she did not have surgery to fix. Bilateral neuropathy and arthritis is present in both her hands and her feet. Decreased cognition in recent years is also noted in the history of the patient. Patient also has a history of glaucoma. Family

history is unknown. Patient reports that in addition to pharmaceutical treatment for PD, she has had formal physical therapy but currently uses a pro bono clinic at the University Of North Dakota and stays active at the YMCA in classes for PD.

The patient currently lives with her spouse, her primary caregiver, in a townhome that has one step without a handrail to enter the home. Patient has three children who live out of the state and are not considered primary caregivers. Patient relies on her spouse for a majority of her day to day needs. Patient is able to do small tasks at home independently, such as grooming, eating, and dressing, however she still requires her spouse nearby for safety reasons. Patient currently is sleeping in her chair due to difficulty with breathing in a supine position and increased difficulty getting into and out of bed. Patient is able to ambulate independently with her walker, however when using her cane, she requires assistance from her spouse to reduce the fear of falling and increase overall safety. Patient is unable to drive and relies solely on her spouse for transportation needs. Spouse is also the medical and financial manager of the household. Patient is a retired teacher and postal worker who enjoys spending time with her spouse, participating in church activities, and staying active. Patient currently is a member at the YMCA in the program for PD. She attends Rock Steady Boxing one time per week and participates in community choir one time per week. Patient would like to improve her overall mobility and decrease the amount of freezing to gain back her confidence to engage in community activities.

At the time of the initial evaluation, the patient was currently taking several medications that have potential side effects that could affect the patient's ability to tolerate therapy interventions. She was taking 1-capsule of Rytary 4-5 times per day for

treatment of PD symptoms. This medication is a combination of carbidopa and levodopa with possible side effects, including nausea, dizziness, dyskinesia, and orthostatic hypotension, which may affect therapy intervention. Another PD symptom medication the patient was taking was 1-mg of Azilect once a day. Side effects of this medication that may affect therapy intervention include hypertension, orthostatic hypotension, impulse control/compulsive behaviors, and dyskinesia. Her final PD symptom medication was 0.5-mg of Mirapex 3 times per day. Possible side effects of this drug were similar to the other two but also included the potential for rhabdomyolysis.The patient was also taking 20-mg of Celexa once a day for a mood stabilizer. A side effect of this drug that could potentially affect therapy is drowsiness. While the patient was not likely to exhibit side effects from these medications, it was important to understand the potential side effects in order to monitor the safety of our patient during the therapy session each week. With these side effects in mind, we monitored the patient's blood pressure at the beginning and end of each treatment as well as if she expressed any feelings of dizziness or lightheadedness with activity. We also used dycem for her to sit on for the days she was experiencing dyskinesia in order to prevent falls.[9]

The patient was also taking other drugs that did not have side effects pertinent to the physical therapy treatment. These drugs included Latanoprost and Timoptic, eye drops used for the treatment of elevated intraocular pressure in patients with glaucoma. She also took 250-mg of Depakote twice a day, 600-mg of Calcium once a day, 2000-IU of Vitamin D3 once a day, 1000-mcg of Vitamin B12 once a day.[9]

Systems Review

Next, physiological systems were assessed prior to any physical therapy intervention. Patients vitals, including heart rate (HR), blood pressure (BP), respiratory rate (RR), and oxygen (O2sat) were taken for initial evaluation (see Table 1). Vitals were taken prior to therapy intervention and at the end of the initial evaluation.

Table 1. Initial Vital Signs

Measure	Pre-Eval
Heart Rate	59 bpm
Blood Pressure	120/77
Oxygen	95%

Neuropathy in lower and upper extremities were noted in the patient's chart, but due to prior diagnosis and evaluation by patient's medical provider we did not complete a thorough evaluation of neurological testing. Integumentary system was intact upon evaluation and no other concerns were mentioned by patient. It was noted in the patient's chart that there was damage to the phrenic nerve during treatment for thymus cancer. This causes difficulty breathing with patient resulting in short, quick breaths noted upon respiratory rate. General strength and range of motion (ROM) was measured on initial evaluation. General strength testing and gross ROM were evaluated as well. Overall patient displayed decreased strength and ROM in her left upper extremity. All other extremities were within functional limitations. No other systems were of concern for this case study.

Test and Measures

Multiple self-evaluation questionnaires were provided to patients prior to initial evaluation. The Voice Handicap Index (VHI), Parkinson's Disease Quality Of Life Questionnaire (PDQ-39), and Part B of the Freezing of Gait Questionnaire (FOGQ) were sent out and completed by the patient prior to initial evaluation. The questionnaires were reviewed with patient at the first session to clear up confusion on various questions. These questionnaires were chosen for the relevance to this case in providing vital information to provide proper intervention strategies.

The Voice Handicap Index (VHI) is a questionnaire that examines voice disorders subjectively to help understand the patient's self-perception of voice anomalies and the psychosocial discomfort felt by the patient.[10] This index is commonly used with patients who suffer from PD and is recommended by the Movement Disorders Society Task Force (MDSTF). The MDSTF is a professional society of clinicians, scientists, and other health care professionals who study PD, related neurodegenerative and neurodevelopmental disorders, hyperkinetic movement disorders and abnormalities in muscle tone and motor control. This tool has received clinical validation from MDSTF and demonstrates good feasibility and reliability, especially in the PD population with mild voice complaints making it applicable for our patient.[11] In one study they show that the psychometric attributes of the VHI demonstrated that the questionnaire is feasible (missing less than 1% of data), reliable (Cronbach $\alpha > 0.9$), and valid (71.5% of total variance of five factors). In relation to the validity the five factors included voice severity, PD severity, impairment, and differentiation between patients with PD and without PD.[12]

The higher score indicates a higher level of disability for the VHI. Our patient scored 31/120 placing her in the Moderate level. Refer to Table 2 for levels of the VHI .

Table 2. Voice Handicap Score Interpretation

Score Range	Severity	Common Association
0-30	Mild	Minimal amount of handicap
31-60	Moderate	Often seen in patients with vocal nodules, polyps, or cysts
60-120	Severe	Often seen in patients with vocal fold paralysis or severe vocal fold scarring.

The Parkinson's Disease Quality of Life Questionnaire (PDQ-39) was another self-assessment used to help us understand the overall quality of life experienced by our patient. The PDQ-39 consists of 39 questions, ranking answer 0-4 points. The lower the score the better quality of life the patient has according to the questionnaire. In one study of 100 participants with PD the reliability of this questionnaire had a Cronbach α range from 0.78-0.98 making these coefficients satisfactory. Overall, the PDQ-39 questionnaire has demonstrated good reproducibility as well as construct and criterion validity.[13]

Part B of the Freezing of Gait Questionnaire (FOGQ) was chosen as an assessment because seventy-five percent of PD patients report problems with freezing of gait (FOG) at home and within the community. Giladi et al.,reported there is a poor correlation between self-reported FOG and observed FOG during an office examination. They stated that only extended periods of observation of various activities of daily living could accurately assess FOG. As a result, researchers must rely on a patient's self-report to obtain the most accurate data. The FOGQ has been found to be highly reliable

(Cronbach alpha = 0.94) for assessing FOG.[14] It also has excellent test-retest reliability (Placebo group r=0.83, Two treatment groups r=0.84).[15] Therefore, we felt this would be a good tool for measuring comparing change in the patient's FOG from evaluation to discharge.

During the initial evaluation, assessment tools such as the Berg Balance Scale, TUG, TUG with a cognitive component, GaitRite, and Five Times Sit-to-Stand were utilized to assess the patient's impairments. These assessments were chosen to compliment the self-report forms that the patient had completed and allow us to observe any impairments the patient may have when completing a variety of daily activities.

The Berg Balance Scale (BBS) is a 14-item scale that is designed to measure the balance of older adults in the clinical setting. In the PD population, the minimal detectable change is 5-points.[16] The BBS has excellent test-retest reliability (ICC=0.08) and interrater reliability (ICC=0.95) when testing patients with PD.[16,17] Due to this test's high reliability for PD patients and the variety of movements, we felt this test would be beneficial to our assessment.

A gait analysis was performed using the GaitRite. The results of the GaitRite evaluation are highlighted in Table 3. The GaitRite allowed us to accurately measure step length, stride length, cadence, and velocity when ambulating. GaitRite measurements were also taken at discharge, thus allowing us to analyze specific changes in gait pattern over the course of 12 weeks of PT and MT interventions.

Table 3. GaitRite Initial Evaluation

	Cadence (Steps/min)	Velocity (cm/sec)	Average Step Length: Left (cm)	Average Step Length: Right (cm)	Average Stride Length: Left (cm)	Average Stride Length: Right (cm)
Trial 1	99.7	21.9	11.8	14.6	27.1	26.5
Trial 2	109.5	41.7	21.4	24.4	45.8	45.8
Trial 3	98.0	14.0	5.6	11.5	17.2	17.5
Trial 4	77.1	18.3	12.5	16.1	28.2	29.3
Trial 5	100.6	32.6	20.1	18.7	39.0	39.3

Trial 1: Normal pace, no assistive device. Trail 2: Fast pace with cane. Trial 3: Backwards walking with cane lightly used. Trial 4: Ambulating while holding cane, metronome and self pace with counting 1-2-3-4.Trial 5: Metronome and no assistive device

The Timed Up and Go test (TUG) was used to assess balance, mobility, and fall risk. According to Nocera et al, the cut off score of 11.5 seconds indicates risk of falls for individuals with PD.[18] The minimal detectable change for PD is 11 seconds.[16] This test has been found to have excellent test-retest reliability for this population (ICC=0.80) and excellent inter-rater reliability (ICC 0.99).[19,20] There is a 0.69 sensitivity and 0.63 specificity for predicted fall risk for individuals with PD.[21] The addition of a cognitive task can improve the prediction of fall risk for individuals with PD. A difference of 4.5 seconds between the TUG and the TUG with a cognitive task indicates an increased risk of falls.[22]

The final assessment we used was the Five Time Sit to Stand has excellent test-retest reliability (ICC=0.76).[23] This test is particularly difficult for individuals with PD as

they are unable to use their upper extremities when performing the test. A score greater than 16.0 seconds indicates a risk of falls for individuals with PD.[24]

Evaluation

Table 4 summarizes the findings from the formal initial evaluation assessments. Based on the results, the patient is at a high risk for future falls according to the Berg Balance Scale, Timed Up and Go, Timed Up and Go with a Cognitive Task, and Five Times Sit to Stand. The patient had increased difficulty with the Timed Up and Go with a Cognitive Task compared to the Timed Up and Go without a cognitive task. The patient was unable to count backwards by three so we had her count backwards by two. When the patient had difficulty with subtraction, she would exhibit a freezing episode. The opposite would also happen; during freezing episodes (such as when attempting to turn), she would have difficulty remember her numbers. It is also apparent that the patient has impaired balance according to the Berg Balance Scale. Based on the self-assessment forms, it is evident that the patient's quality of life has been negatively affected by Parkinson's Disease according to the PDQ-39. While her Voice Handicap Index score is not high, it does show that she has noticed difficulty speaking, a common complication of Parkinson's Disease.[25] It is also apparent that she considers her freezing of gait significant as higher scores indicate greater severity when scoring the Freezing of Gait Questionnaire Part B.

Table 4. Impairments in Body Structure and Function as Measured at Baseline

Impairment	Tests and Measures	Finding at Initial Evaluation
Difficulty Speaking	Voice Handicap Index (VHI)	31/120 Higher score indicates greater voice disability
Decreased QOL	PDQ-39	55/100 Lower scores indicate better QOL
Freezing of Gait (FOG)	Freezing of Gait Questionnaire Part B	16/24 Higher scores indicating more severe FOG
Impaired Balance	Berg Balance Scale	35/56 Normative range: 47-52*
Fall Risk	Berg Balance Scale	35/56 Score <45 indicates a greater risk of falling
	Timed Up and Go	61.5 seconds Score > 11.5 seconds indicates fall risk
	Timed Up and Go with Cognitive Task	64.8 seconds
	Five Times Sit to Stand	19.96 seconds Score >16.0 seconds indicates fall risk

*Normative range for individuals with PD

Observation was also utilized as a tool during the evaluation. A resting tremor was noted in the left hand. When attempting to rise from a chair, the patient often needed 2-3 attempts to successfully rise and she used a rocking motion to gain momentum in order to accomplish this. When standing, the patient had a narrow base of support and often crossed her legs. The patient presented with several freezing episodes throughout the session. Freezing episodes were most prevalent when the patient was approaching a chair, approaching a doorway, or attempting to turn around. The patient attempted to self-correct these freezing episodes by singing "Row, Row,

Row Your Boat" or by counting. She stated that she had heard at one of her classes that this may help manage episodes of freezing. She presented with a forward head and forward flexion of the hips and trunk.

The patient's problem list consists of:

- History of falls
- Abnormal gait pattern
- Freezing of gait, especially when approaching doorways
- Impaired quality of life
- Resting tremor of the left hand
- Difficulty with combination cognitive and motor tasks
- Narrow base of support
- Postural instability/retropulsion
- Impaired posture
- Decreased endurance/activity tolerance related to respiratory dysfunction
- Dyskinesia (self-reported, not noted during initial evaluation)
- Cognitive changes resulting in reduced attention and reduced short term memory
- Impaired voice
- Stiff lower extremities
- Requires SBA or CGA for safety with community ambulation

The patient presented with several impairments that lead to functional limitations at the time of the initial evaluation. It was apparent that the patient's abnormal gait pattern (reduced base of support, reduced step length, reduced arm swing, reduced heel strike, forward trunk flexion, and freezing of gait) had a significant effect in her daily life. During the session, the abnormalities were most prevalent when the patient was approaching a doorway, approaching her chair, or when attempting to perform a task that she was apprehensive about. The patient reported these are typical behaviors for her and cause her great difficulties when she goes out to the grocery store or other community outings. She also has difficulty in the comfort of her own home when she is trying to get to the bathroom or work in the kitchen.

The patient had difficulty when combining ambulation with a cognitive task such as counting backwards. She had increased episodes of freezing along with slower cadence and errors in counting. This has the potential to negatively affect her ability to safely and efficiently participate within the community as distractions arise.

The patient presented with a narrow base of support and dyskinesia. She also had characteristics of postural instability and retropulsion. As the patient reported, several of her falls were a result of reaching up (and therefore falling backwards) or having her feet too close together and not being able to catch herself. The combination of these impairments put the patient at a high risk for future falls. The patient required someone close to her at all times to prevent loss of balance. When ambulating in the community, she uses her cane in one hand and holds her husband's hand with the other to feel safe. This negatively impacts her ability to be independent within her community.

The patient fatigued quickly when ambulating. She attributed this fatigue to her legs stiffening and shortness of breath. Due to the patient's history of phrenic nerve damage, the patient has impaired respiratory function. Monitoring her vitals throughout the future therapy sessions was determined to be a necessity to ensure that she was safe.

The physical therapy diagnosis for this patient is abnormal gait, history of falls, and physical deconditioning.

Prognosis and Plan of Care

Based on the initial examination and the nature of the disease, the patient's prognosis is fair. The patient's primary impairments include her abnormal gait pattern, impaired balance, and high fall risk status. The goals of intervention were aimed primarily increasing patient safety, improving her gait, and improving her quality of life. It is expected that the patient has the capacity to achieve these goals. By achieving these goals, the patient will have improved awareness of safety, experience fewer falls, and continue to safely ambulate within the community.

Initial goals were as follows:

Following PT interventions:

1. Patient will improve her base of support in standing by using a cane to achieve a safe three-point stance in order to improve balance and reduce the risk of falling (by 3 weeks).
2. Patient will improve her TUG scores (both normal and dual task) by 15 seconds each score by using PT interventions to overcome freezing and improve gait in order to safely transfer from seated position to short distance in a functional amount of time (by three weeks).
3. Patient will overcome freezing episodes with self-cueing when approaching doorways or change in floor patterns in order to safely ambulate in an open environment (by three weeks).
4. Patient increase gait velocity by 0.25 m/sec (minimal detectable change) during GaitRite assessment for normal and fast paced testing in order to improve her gait to a safe and time efficient pattern (by 6 weeks).
5. Patient will improve Berg Balance Score by 5 points (minimal detectable change), in order to improve standing, transfers, and gait in her home to complete ADL's and household tasks independently with confidence. (by 6 weeks)
6. Patient will report a reduction in falls and near-falls in order to achieve greater independence and safety in her home and community. (by 6 weeks)

Interventions deemed appropriate based on these goals and her initial evaluation included gait training, auditory cueing, visual cueing, balance/proprioception training, and postural training. Music Therapy will be incorporated with physical therapy

interventions. Quality of gait, cadence, episodes of freezing, and history of falls were documented each session to track progress. At the midpoint (week 6), a progress evaluation took place consisting of the Berg Balance Test, TUG, and observational gait analysis as these assessments are able to evaluate each of her primary impairments. The mid-term reassessment will allow us to see if the patient is improving as predicted or if any changes need to be made to the patient's plan of care. The patient will be re-evaluated during the final week (week 12) utilizing the same procedures and self-assessment forms as the initial evaluation. This comparison will allow us to observe any progress that was made over the 12-week treatment phase.

Chapter III

Interventions

The goal of the interventions implemented in this case study was to determine the effects of a collaboration between physical therapy and music therapy rehab interventions to address the goals for a patient with PD. Physical therapy has been used as treatment for the symptoms associated with PD for many years in the past and in recent years, music based interventions have been introduced to treating neurological disorders such as PD. Combining the two professions interventions strategies may be beneficial to the overall improvement of those with PD and other neurological disorders. Strength, balance, and gait training in physical therapy have been shown to improve the overall quality of life in patients with PD. The greatest amount of evidence on music based interventions relates to stroke and dementia rehabilitation. There is minimal evidence on the use of music based therapy for other neurological disorders, such as epilepsy, multiple sclerosis (MS), and PD. However, the evidence on these other disorders has shown positive outcomes. Divergent functions such as motor performance, speech, or cognition can be affected by music based interventions in patients with these neurological disorders.[26] The interventions for this case study include music therapy and physical therapy interventions. Music therapy interventions include rhythmic auditory stimulation (RAS), rhythmical cueing, and vocal training. Physical therapy interventions include gait training, weight shifting, balance training, and safety training. Other patient concerns were addressed throughout the course of the 12-week study such as bed mobility, transfers, and patient education on various topics. Interventions were aimed to help improve functional mobility and improve quality

of life based on results of functional assessments administered in initial evaluation. Each week, two physical therapy students and one music therapy student collaborated to develop a plan of care and determine intervention strategies to meet the needs of the patient based on the goals set by the therapy students and the patient as well as findings from the initial evaluation. Each session was supervised by a licensed physical therapist and a licensed music therapist. During all sessions, the patient wore a gait belt to ensure safety.

Interventions were implemented one day per week for twelve weeks in a clinical setting, with additional home exercises prescribed as needed. Each session started and ended with patient concerns, review of home exercise programs (HEP), and vitals. Sessions were approximately one-hour long. Descriptions of the exercises used throughout the treatment are listed in Table 5. The exercises were grouped into five main categories based on the impairments noted in the initial evaluation. These categories included stepping strategies, weight shifts, gait training, balance, and patient concerns.

During the initial weeks, the patient had significant difficulty with festering gait and freezing episodes. Due to her presentation, we decided to focus on her stepping strategies. The patient had difficulty initiating movement on cue when standing so we had the patient begin seated. Stepping strategy interventions are described in Table 5. According to Spaulding et al., visual and auditory cues have been found to improve components of gait including stride length, cadence, and velocity.[27] We chose to implement a variety of visual and auditory cues to determine which method worked best for our patient. For the stepping strategies, we implemented visual markers on the floor

as well as a metronome for pacing, guitar music with the patient singing, and guitar music without the patient singing. It was determined that allowing the patient to sing was too distracting for her as she focused more on singing than the activity so we discontinued that. The patient was able to coordinate her movements to the beat of the music whether we used a guitar or a metronome so these were our chosen auditory cues. Every intervention done with the patient was done at least three times. Once with no auditory cues, once with metronome pacing, and once with guitar playing from the music therapy student. Visual cues were added if the patient was having difficulty with the task and were removed once she mastered the skill.

As the patient progressed with the stepping strategies, weight shifting interventions were implemented in order to transition her to gait training. According to Creath et al., weight shifting prior to gait initiation can improve step initiation by decreasing anticipatory postural adjustment timing and decreasing step initiation time following a stimulus exposure.[28] Paddle drums were chosen to give the patient a target and immediate auditory feedback as to whether or not she had weight-shifted far enough. Weight shifting activities included the upper body to engage the trunk, similar to gait.

Once gait training began during the third week, we attempted to continue to progress distance and quality of gait each week. It was adjusted each week according to the patient's presentation. When the patient was excelling, longer distances were used and the focus was on endurance with good quality gait. We also incorporated functional activities including passing through doorways and turning on these days to challenge the patient. When the patient was having "bad days," distance was decreased

and the focus became the individual components including heel strike, step length, and weight shifting to get through episodes of freezing. During the 3rd, 11th, and 12th weeks, the patient required a wheelchair to get to the therapy room. She could not recall any triggers to these "bad days." On these days, we would start with the foundational activities we introduced during the first several weeks and worked our way back up to the current activities.

Due to the patient's history of falls, difficulty with balance activities during the initial evaluation, and her tendency to stand with a narrow base of support. We included balance activities to promote safety for the patient. Combining balance training with interventions such as strengthening and gait training has been found to decrease postural instability and balance dysfunction in individuals with Parkinson's disease.[29]

As mentioned before, the patient had the opportunity to voice any concerns she had each session and we would address them during our time together. The patient's main concerns were her bed mobility and her shortness of breath. The patient currently got into bed in a quadruped position and then "plopped" down onto her side. We addressed this by providing an alternative position to get into bed and provided trunk and lower extremity strengthening exercises to improve bed mobility (see Table 5). We also provided education on pursed lip breathing to decrease her shortness of breath.

Table 5. Exercise Descriptions

Exercise	Description	Week
Stepping Strategies		
Target Stepping - Seated	Two targets were placed 4 inches, 6 inches, and 8 inches in front of the patient's toes. Patient was seated and alternated feet to tap her heel on the specified target. A metronome was utilized to pace the patient. Targets consisted of a mark on the floor or a 6-inch step.	2, 3, 4, 5, 7, 12
Stepping - Seated and No Target	Patient was seated and encouraged to tap her heels, in an alternating fashion, as far as possible. 2 sets of 15 repetitions.	2
Side Steps	Patient took side steps to the right and then took side steps towards the left. Patient was allowed to use fingertip support on the plinth for balance	9
Weight Shifts		
Cross Body Paddle Drum Using Upper Extremities	Patient was seated and paddle drums were held in front of patient by student far enough away that the patient had to lean forward to reach the drum. Patient alternated arms and was encouraged to shift her weight in order to reach the drum. Patient completed 2 sets of 30 repetitions at 65 bpm.	3,5
Seated Toe Taps with Upper Extremity Cross Body Paddle Drum	Patient was seated and paddle drums were held in front of patient by student. a. Right Arm to Right Paddle & Right Leg, Left Arm to Left Paddle & Left Leg b. Right Arm to Right Paddle & Left Leg, Left Arm to Left Paddle & Right Leg c. Right Arm to Left Paddle & Right Leg, Left Arm to Right Paddle & Left Leg d. Right Arm to Left Paddle & Left Leg, Left Arm to Right Paddle & Right Leg	a. 3,4,5,6, b. 5,7 c. 4,5,6,7 d. 4,5,6,7
Standing Toe Taps	Patient stood next to a plinth and used fingertip touch for balance on her left side. Two targets were placed 6-12 inches in front of the patient's toes. Patient was encouraged to tap her heel to the target	3,4
Standing Weight Shift (side to side)	Patient shifted her weight from side to side so that her heel lifted from the ground. Performed with and without music.	3
Heel Taps to the Side	Targets were placed 12 inches to the side of each foot. Patient was instructed to tap each target with her heel,	3,4

	alternating feet. Patient began seated and progressed to standing.	
Standing Target Heel Taps with Weight Shift	Patient was instructed to tap her heel to the target 12-14 inches in front of her and then shift her weight to the front foot. The patient then shifted her weight back to her back foot and returned to the starting position	5
Gait Training		
Gait Training with SEC	Patient ambulated a distance that was within her tolerance level. Each week varied as to how far she was able to ambulate. Patient was cued on looking forward, heel strike, wide base of support, and big steps. Patient completed without music and with music to pace her gait.	3, 4, 5, 6, 7, 8, 9, 11, 12
Gait Training with Visual Cues	Targets were placed every 12-14 inches (2 columns 12 inches apart). Patient was instructed to reach her heel to the next target to achieve step over step gait.	6, 8, 9
Gait Training-Large Step Length	Patient ambulated a distance of 30-feet several times. Each time the patient was asked to guess how many steps it took her, create ideas for how she could improve this, and then make a goal to make fewer steps the next attempt.	10, 11, 12
Clock Turns	Patient was instructed to imagine a clock when turning. She was told to point her toes towards 3, 6, 9, and 12 o'clock	6, 7
180 Degree Turns	Patient was instructed to pick up a cone from waist-height, turn 180-degrees using the clock turn strategy and stack the cone on a table that was waist height. The patient completed this until all cones were transferred and then the patient completed the task again, returning the cones to the start position. No assistive device was needed, SBA was used for supervision. Metronome was used to pace patient	10, 11, 12
Sit to Stand, Gait, Turn Combination	Patient began seated in a chair. When instructed to go, patient stood up, ambulated 10 feet, turned 180-degrees returned to chair, turned 180-degrees again and then sat down-combining all of the skills she had been working on	12
Balance		
Tripod Stance	Patient was instructed to stand with her feet staggered, shoulder width apart and her cane in front of her to make a triangle between the cane and feet	7,8,9

Upper Extremity Crossbody Paddle Drum with Step	Patient was standing and encouraged to reach across her body to tap the paddle drum. She simultaneously took a step with the foot that was opposite to the arm being used. Patient completed this exercise with all repetitions complete on one side prior to switching sides. Patient was allowed to use fingertip support on the plinth for balance. Patient required cues to pause between steps to maintain wide base of support and prevent loss of balance	9,10
Patient Concerns		
Bed Mobility	Patient was educated on getting into bed by transitioning from sitting to side-lying to supine. The patient was then instructed to use bridging to scoot to a safe position on the bed. **Purpose:** to provide safe alternatives for bed mobility	9, 10
Bridges	Patient was instructed to start in hook-lying position and lift her buttocks has high as possible and then return to start position without a hold at end range. **Purpose**: to improve strength for bed mobility	9, 10
Clamshells	In side-lying position, patient completed hip abduction and external rotation while her ankles stayed together **Purpose**: to improve strength for bed mobility	10
Sit-to-Stands	Patient was instructed to slowly, and in a controlled manner, rise from the chair and then sit down. The patient was not allowed to use her upper extremities for support. Cues were given to tuck feet back and lean trunk forward. Auditory cues included Up-2-3-4, Down-2-3-4, autoharp, guitar, and clarinet. **Purpose**: to improve strength for bed mobility	10, 11, 12
Breathing Techniques	Patient was encouraged to breathe in through the nose and out through the mouth, especially during periods of rest and shortness of breath **Purpose:** to improve respiratory function	11, 12
(Abbreviations List) bpm: beats per minute, SEC: single end cane, SBA: stand-by assistance		

The patient really enjoyed singing and since she had difficulty dual tasking during activities, we found another way for her to sing during her sessions. During her rest breaks, the patient would practice her tripod stance and sing a song of her choice while the music therapy student played the guitar. This time allowed the patient to recover

from the various activities she did during the session and practice using her loud voice since she indicated during the evaluation she had concerns about her voice.

Home Exercise Programs

Home exercise programs (HEP) were given to the patient throughout the course of the treatment. HEP contained therapeutic exercises that would improve the patient's strength, balance, gait, and safety awareness. HEP also addressed functional mobility. HEP included seated weight shifting with reaches, bridges, clam shells, tripod stance, sit to stands, and turning clock cues. The exact HEP provided to the patient can be found in the Appendix.

Outcomes

Final evaluation of the patient was completed on week twelve. VIH, PDQ-39, Freezing of Gait (Part B), Berg Balance, TUG, TUG with cognitive task, and Five Time Sit to Stand were completed at the final evaluation. Berg Balance, TUG, and TUG with a cognitive task were completed at week eight for a mid-term evaluation. Refer to Table 6 for findings in initial, mid-term, and final evaluation. Overall, the patient showed a decline in VIH, TUG with a cognitive task, and Five Time Sit to Stand. However, the patient showed improvement in the PDQ-39, FOG, Berg Balance Scale, and TUG. The patient improved her Berg Balance score by eight points from her initial evaluation to her final evaluation. This change in score is more than the minimal detectable change (>5), meaning results are significant in improvement of the overall assessment. This change shows that intervention strategies used in this case study may be beneficial in improving the overall balance in a patient. All other changes in assessments were not significant. However, in some assessments, such as the Five Time Sit to Stand, we

have to look at the overall quality of movement as well as patient safety. In this case study the patient's time for the Five Time Sit to Stand increased from 19.96 seconds to 27.69 seconds, but her overall control and quality of movement was greatly improved compared to the initial evaluation. The patient was able to rise and lower from the chair independently without the use of her hand or assistive device. She could control her movement in and out of the chair more effectively in the final evaluation and no "plopping down" was present. The patient did use self-verbal cues as described in the interventions section for the sit to stand task.

Table 6. Impairments in Body Structure and Function as Measured at Discharge

Impairment	Tests and Measures	Finding at Initial Evaluation	Mid-Term Evaluation	Final Evaluation
Difficulty Speaking	Voice Handicap Index (VHI)	31/120 Higher score indicates greater voice disability	N/A	35/120
Decreased QOL	PDQ-39	55/100 Lower scores indicate better QOL	N/A	53/100
Freezing of Gait (FOG)	Freezing of Gait Questionnaire Part B	16/24 Higher scores indicating more severe FOG	N/A	13/24
Impaired Balance	Berg Balance Scale	35/56 Normative range: 47-52*	N/A	43/56
Fall Risk	Berg Balance Scale	35/56 Score <45 indicates a greater risk of falling	37/56	43/56
	Timed Up and Go	61.5 seconds Score > 11.5 seconds indicates fall risk	22.2 seconds	59 seconds
	Timed Up and Go with Cognitive Task	64.8 seconds	35.35 seconds	88 seconds
	Five Times Sit to Stand	19.96 seconds Score >16.0 seconds indicates fall risk	N/A	27.69 seconds

The patient had inconsistent results in comparison to the results from the GaitRite initial evaluation. The results from the final evaluation are displayed in Table 7. In the normal pace, no assistive device trial, the patient's cadence increased while her velocity and average stride length decreased compared to the initial results. She also had a large decrease in velocity and average stride length in Trial 2 with fast pace ambulation. The patient had increased cadence and stride length when ambulating backwards and when ambulating with a metronome and self-pacing with counting during the final evaluation.

Table 7. GaitRite Final Evaluation

	Cadence (Steps/min)	Velocity (cm/sec)	Average Step Length: Left (cm)	Average Step Length: Right (cm)	Average Stride Length: Left (cm)	Average Stride Length: Right (cm)
Trial 1	102.4	18.2	8.2	13.2	21.4	21.5
Trial 2	71.1	6.7	3.0	8.4	11.3	11.5
Trial 3	82.8	19.6	14.1	14.3	28.5	28.1
Trial 4	83.8	21.1	15.1	15.2	30.9	31.7
Trial 5	102.6	34.4	20.2	20.0	39.8	40.9

Trial 1: Normal pace, no assistive device. Trail 2: Fast pace with cane. Trial 3: Ambulating while holding cane, metronome and self-pace with counting 1-2-3-4. Trial 4: Backwards walking with cane lightly used. Trial 5: Metronome and no assistive device

Discussion

This case report has shown how the collaboration between music therapy and physical therapy interventions over a course of 12 weeks have helped a 72-year-old female with PD to improve her overall quality of life, balance, gait and coordination, and in some areas, a significant change. This case report helps add evidence to already existing, although minimal, data on the benefits of music therapy and physical therapy and its effects on PD. A systematic review from 2017 states that there is positive evidence to support the use of music-based movement therapy on treatment of motor function.[30] The detail of this case report also shows the variations of PD over a period of time and how interventions have to be adjusted from day to day to overcome the symptoms of PD.

Although outcomes of function assessments may not show significant change, looking into the patient's progress over the course of 12 weeks shows the patient's balance, gait, safety awareness, and confidence improved. It is not atypical for a patient with Parkinson's disease to have a variation in functional mobility over the course of days, weeks, or months. We were able to see this over the course of the 12 weeks and the daily notes describe the day to day changes we saw. Multiple factors may play a role in the day to day effects of PD, such as mood, medications, and other activities affecting the person's life.

Over the course of the treatment the patient also showed increased awareness about overall safety. Due to the patient's dyskinesia, with it being worse on some days, it was necessary to provide the patient with the proper intervention on how to remain safe. Safety education included implementing a tripod stance for standing activities,

such as talking, drinking water, or reaching. The tripod stance allows for a wider base of support with the use of a cane to help improve overall balance to prevent falling. Cues were continuously implemented throughout sessions for the tripod stance and included in the HEP. Over the weeks the patient was able to self-cue herself due to the constant verbal cues implemented by the therapists.

Variation in gait initiation and patterns can be affected by multiple things including medications, mood, amount of sleep, nutrition, and environmental factors. When working with our patient with PD we had to understand the roles that these factors play in order to provide proper intervention. There was often a correlation between the patient's mood and her ability to perform on some days. On days that were more difficult for the patient we noticed a negative mood associated with it as well. On these days patient had an increase in freezing, decreased step length, and overall lower energy. Our patient was often verbal about not feeling as well mentally and physically on these days as well. A study by Lagravinese et al. has demonstrated that mood may play a role in the ability of a person with PD to initiate gait. It was demonstrated that gait initiation was influenced by the emotional valence of the visual stimuli in addition to cognitive load of the task. With this being said, the study suggests that the limbic system may be involved in the freezing of gait.[31] Motivation and encouragement were often used to build confidence and attempt to improve mood on such days. This often helped improve the patient's performance from the beginning of the session to the end of the session.

Additional cues were often used to help initiate freezing of gait, as well as improve functional movement patterns. Auditory stimulation via rhythmic cues were

used throughout the course of the treatment to initiate movements for gait as well as turning cues. Coupling steps to external rhythmic cues, such as musical beats or a metronome, has been shown to lead to long term motor improvements like walking speed and increased stride length.[32] With this in mind, we implemented snapping cues, counting cues, metronome beats, and musical beats with various instruments into our gait training. These were implemented in addition to visual cues, paced tapping tasks, and dual task activities.

Overall, we need to continue to provide research on the benefits of Music Therapy combine with Physical Therapy interventions to improve functional mobility, gait, balance, coordination, and improve overall quality of life for those with PD or other neuromuscular movement disorders. When performing further research, it is important to consider the variability in the symptoms associated with PD, thus it is important to ensure detailed and precise documentation on day to day changes in patients with PD. This would improve the overall quality and quantity of data collection for future studies.

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APPENDIX

PT/Music Therapy Initial Evaluation

Name: x **Date**: 1-23-18

SUBJECTIVE
Age 71
History of Present Illness: Pt was diagnosed with Parkinson's Disease between 2010 and 2012. Pt states that her initial symptom was a hand tremor while working at the post office.
Medical History: Pt reports she has a history of thymus cancer (2005) which resulted in damage to the phrenic nerve. Pt has a history of neuropathy in bilateral hands and feet. Pt states she has arthritis of bilateral hands. Pt fractured her left humerus in 2016 but did not have surgery. Pt reports a history of formal physical therapy as well as the UND physical therapy pro bono clinic (Fall 2017). Pt also has a history of glaucoma. Pt reports some decreases in cognition over the past several years. See attached PMH form in chart.
Medications:

- Rytary - 1 capsule, 4-5 times/day
- Azilect - 1 mg, 1 time/day
- Celexa - 20 mg, 1 time/day
- Depakote - 250 mg, 2 times/day
- Mirapex - 0.5 mg, 3 times/day
- Timoptic
- Latanoprost
- Calcium - 600 mg, 1 time/day
- Vitamin D3 - 2000 IU, 1 time/day
- Vitamin B12 - 1000 mcg, 1 time/day

Social History/Recreational Activities: Pt reports that she likes to stay active. Currently the pt is taking weekly boxing classes, music classes, and Parkinson exercise classes at the YMCA. She is also involved in her church choir. Pt states she enjoys being active in the community as she has always been a people person (former teacher)
Living Environment: Pt lives at home with her husband. The house is single-level with one step at the garage (no railing). Pt uses a 3-wheeled walker at home. Pt uses a cane when ambulating in the community. Often sleeps in recliner chair. Does not drive. Pt and husband are retired.
Chief Complaint: Pt states that her primary concerns at this time include her walking, balance, and freezing episodes.

The pt arrives to the session today with her husband. The pt reports that in the morning, she feels stiff in her lower extremities and that it takes a while to loosen up in the morning. She states that the stiffness returns in the evening each day. Pt reports a history of falls. Pt states she has had 7+ falls within the last year. The pt's spouse reports she has had 24 falls within the last 6 months, 8 falls within the last 3 months. The pt states that the majority of her falls are outside in a backwards direction. She states that she has hit the back of her head multiple times due to falls. The pt states that she has several episodes of freezing daily, especially when she is going through doorways, reaching into the fridge, or grocery shopping the in freezer aisles. Pt reports that freezing episodes frustrate her greatly and that she currently has no strategies for overcoming these episodes.

OBJECTIVE

Observation: Pt presents with a freezing episode at the doorway upon arrival to the session. Pt also presents with a tremor of the left hand. Pt ambulates with a single end cane in the right hand.

Systems Review:

- Cardiovascular:
  HR: 59
  BP: 120/77
  SO2: 95%
- Neuromuscular:
  Motor function: Pt presents with freezing episodes when ambulating through doorways, stepping over the threshold of the GaitRite, when turning around, and when approaching a chair to sit down. Pt does not present with delayed initiation. Pt needs extra time when asked to do a cognitive task such as counting backwards by 3 from 100.
  Tone: Not assessed at this time due to time limitations, will assess at a later date
  Balance: Not assessed at this time due to time limitations, will assess at a later date
  Gait: able to ambulate without an AD when prompted.
  AD: SEC cane
  Gait Pattern: short step length

Functional Status

Transfers: able to transfer from sit to stand without use of her upper extremities; tendency to brace legs against chair and/or crash back. Occasionally needs 2-3 attempts to stand safely.

Donning/Doffing Jacket: able to complete independently in sitting position; unsteady and with narrow base of support when attempting task in standing

Tests and Measures

Posture: slight forward flexion at hips and trunk, slight forward head posture

Sensory Integrity (light touch/sharp or dull/proprioceptive):not assessed at this time due to time limitations. Will assess at a later date

Strength: Not assessed at this time due to time limitations.

Range of Motion: Not assessed at this time due to time limitations.

Tone (modified ashworth scale): Not assessed at this time due to time limitations.

Gait: Pt presents with a decreased step length in which heel does not clear the toe of the opposite foot when ambulating without an assistive device. Pt is able to demonstrate a functional gait pattern when using her single end cane. Her heel is able to clear the toes of the opposite foot.

Functional Assessments/Disease-Specific Measures:

- GaitRite: See Attachment. Pt completed normal paced, fast paced, and backwards ambulation with use of her cane. Pt repeated the test at her normal pace with a metronome. Pt also ambulated without use of her cane.
- TUG: Patient completed timed up and go in 1:01:50. Pt utilized a SEC and demonstrated freezing as she approached her chair.
- TUG with Dual Task: Pt completed timed up and go with dual task in 1:04:82. Dual task for this assessment was counting backwards by 2 from 100. Pt demonstrated freezing at the blue line when she was turning around as well as when she was approaching the chair to sit down. Upon freezing episodes, the patient had difficulty completing the cognitive task as well. She was able to resume the cognitive activity once the freezing episode was done and she resumed ambulation.

- Five Time Sit to Stand: Time began once we said Go. Total time was 19.96 seconds. Assist level was independent. Patient did not require use of her arms or bracing of her legs against the chair. Pt had one descension that was uncontrolled.
- Freezing of gait questionnaire: see attached
- Voice handicap index: see attached
- PDQ-39 Quality of life measure: see attached

Assessment

Problem list:

1. Freezing of gait
2. Postural instability (retropulsion) with history of frequent falls
3. Reduced endurance and reduced activity tolerance related to respiratory dysfunction
4. Difficulty with turns and transfers
5. Gait pattern changes including reduced base of support, reduced step length, reduced arm swing, slight forward flexion of trunk, reduced heel strike at initial contact, intermittent freezing.
6. Intermittent dyskinesia which interferes with her ability to sit or stand safely
7. Cognitive changes including reduced attention, reported reduced short term memory
8. Requires at least SBA to CG for safety with community mobility.

Medical Diagnosis: Parkinson's disease
PT Diagnoses: Abnormal gait, history of falls, physical deconditioning

Goals:
Following PT interventions:

1. Patient will improve her base of support in standing by using a cane to achieve a safe three point stance in order to improve balance and reduce the risk of falling (by 3 weeks).
2. Patient will improve her TUG scores (both normal and dual task) by 15 seconds each score by using PT interventions to overcome freezing and improve gait in order to safely transfer from seated position to short distance in a functional amount of time (by three weeks).
3. Patient will overcome freezing episodes with self cueing when approaching doorways or change in floor patterns in order to safely ambulate in an open environment (by three weeks).
4. Patient increase gait velocity by 0.25 m/sec (minimal detectable change) during GaitRite assessment for normal and fast paced testing in order to improve her gait to a safe and time efficient pattern (by 6 weeks).
5. Patient will improve Berg Balance Score by 5 points (minimal detectable change), in order to improve standing, transfers, and gait in her home to complete ADL's and household tasks independently with confidence. (by 6 weeks)
6. Patient will report a reduction in falls and near-falls in order to achieve greater independence and safety in her home and community. (by 6 weeks)

Plan

Next week we plan to complete the evaluation by completing the Berg Balance Scale, range of motion, and strength assessments. Gait training will be initiated using music focusing on the beat of the music and her heel strike. The session will end with singing to allow the patient to unwind.

Mercedes Stein, SPT Kristyn Bergh, SPT Kristin Thomanschefsky, PT, DPT, GCS, NCS

PT 511 Clinic – Weekly SOAP Note Documentation Date: 1-30-18 Week: 1 2 3 4 5 6 7

Status at Arrival: _X_ No concerns _____ Concerns reported (list specifics):

Vitals at arrival: BP: 117/74 HR: 60 bpm RR: 33 breaths/min O_2 Sats: 94%

Subjective (S):
Did new activities at boxing today, tolerated them well. Patient states that she feels her left side is usually weaker than her right side.

Objective (O):
Gross ROM of the upper extremities was assessed. Shoulder external rotation & internal rotation, elbow flexion & extension were found to be within functional limits bilaterally. Shoulder flexion and abduction were found to have limitations.

Shoulder flexion:	L: 98	R: 111
Shoulder Abduction:	L: 96	R: 110

Gross ROM of the lower extremity was also assessed and found to be within functional limits bilaterally. Gross strength of the lower extremity was done in sitting and found to be strong and pain-free.

Today's Intervention:
Evaluation Continuation:
ROM with paddle drums
Berg Balance Test
Interventions:
Target Stepping (seated)

4 inches in front	no music	1 set of 15 repetitions	
6 inches in front	no tempo and with tempo	1 set of 15 repetitions	70-80 bpm
8 inches in front	no tempo and with tempo	1 set of 15 repetitions	75 bpm

Stepping without a target: patient had difficulty stepping forward, tended to step to the side with 2 inch steps. Left steps were shorter than right steps.
Singing while seated.

Assessment (A):
Patient had difficulty with more complex items on the Berg Balance Scale (#11-14) and presented with episodes of freezing. Patient voiced concern that she was scared of falling with these tasks. Patient demonstrated a shuffling gait pattern without a swing phase. With the auditory beat, patient was able to increase step length (with swing phase) and frequency.

Plan for next visit (P):
Stepping up-knee up
Ambulation: No auditory cuing, metronome beat, and singing
Paddle Drum: arm swing and stepping

Vitals at departure: BP: 120 / 72 HR: 64 RR: ____ O_2 Sats: 95%
Status at Departure: _X_ No concerns _____ Concerns reported (list specifics):

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Date: 2-6-18 Week: 1 2 3 4 5 6 7

Status at Arrival: __X__ No concerns _____ Concerns reported (list specifics):

Vitals at arrival: BP: 124/74 HR: 61 bpm RR: 32 breaths/min O_2 Sats: 89%
96% after breathing techniques

Subjective (S):
Patient reports she had a fall this morning during her boxing class. Patient states she slipped off her chair and ended up on the floor. She reports she also had a fall at home in which she fell backwards. Patients reports she has been having a bad day and is having trouble walking

Objective (O):
Patient presented with small shuffling steps and multiple freezing episodes. Freezing episodes were not limited to going through the doorways but there were exacerbated at this time. Patient required use of wheelchair to get up to the 3rd floor today as she felt she would fall if she continued to walk.

Today's Intervention:

1) Toe taps seated
2) Cross body paddle drum taps upper extremity (65 bpm)
3) Toe taps with cross body paddle drum taps (52 bpm)
4) Standing toe taps (6 inch target). Patient was unable to initiate forward toe taps
5) Weight shift side to side seated
6) Sit and sing
7) Sing with seated weight shift
8) Seated side steps → Standing side steps
9) Ambulate with a 4WW—113 feet. Increased difficulty with the addition of corners

Assessment (A):
Patient had ncreased difficulty initiaiting movement. It took a progression of seated weight shifting to standing weight shifting to enable patient to walk at the end of the session. Patient required verbal, auditory/rhythmic cues for weight shifting and ambulating.

Plan for next visit (P):
Seated warm up,
seated& standing toe taps with upper extremity paddle drum taps and rhythmic cuing
gait training

Vitals at departure: BP: 130 / 74 HR: 64 RR: 32 O_2 Sats: 95%
Status at Departure: __X__ No concerns _____ Concerns reported (list specifics):

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Date: 2-13-18 Week: 1 2 3 4 5 6 7

Status at Arrival: __X__ No concerns _____ Concerns reported (list specifics):

Vitals at arrival: BP: 118/76 HR: 67 bpm RR: 42 breaths/min O_2 Sats: 95%

Subjective (S):

Patient reports that she continued to have difficulty initiating movement last week. Patient reports that she is feeling really good today and did not have difficulty with any of the stations at her exercise class this morning. She reports that she is eager to try the step taps again because she thinks she can do them today.

Objective (O):

Patient did not exhibit episodes of freezing when walking through doorways or approaching her chair. Patient slides forward when practicing weight shifting. Patient had an increase in dyskinesia in her arms and legs. She had a tendency to cross her legs when standing and patient had an increase in dyskinesia in her arms and legs. She had a tendency to cross her legs when standing and standing with a narrow base of support.

Today's Intervention:

2) Seated-heel taps to targets (use of autoharp at heel strike, metronome at 60 bpm)
   - 8 inches forward
   - 16 inches to the side
   - Paddle drums at side, tamberine at center. Focus on weight shift. Opposite arm to paddle drum. Arm only and then progressed to arm and opposite foot with the autoharp
2) Standing (SBA with finger tip assistance on table for balance)
   - 12 inch step forward, emphasizing heel strike
   - 12 inch step sideways with weight shift
   - 12 inch step forward with weight shift
3) Walking
   - No music (1 minute 12 seconds) demonstrated good heel strike and step length-no episodes of freezing. Took corners wide
   - Music (1 minute 16 seconds) more control around corners, good heel strike and step length

Assessment (A):

The patient's performance improves if the activity is demonstrated before hand. The patient did better at concentrating on tasks today as we used singing only during breaks and a beat for activities

Plan for next visit (P):

Continue to utilize a beat to cue stepping and weight shifting and walking-continue plan of care. Work on turning without a beat and then with a beat

Vitals at departure: BP: 124 / 76 HR: 64 RR: 44 O_2 Sats: 96%

Status at Departure: __X__ No concerns _____ Concerns reported (list specifics):

[signature] SPT — Student Signature | Kristen Bergh SPT — Student Signature | Kristin Johnson Thomas-Lefsky, PT — Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Date: 2-20-18 Week: 1 2 3 4 5 6 7

Status at Arrival: ___ No concerns __X__ Concerns reported: Calf tightness and stiffness bilaterally

Vitals at arrival: BP: 126/74 HR: 64 bpm RR: 40 breaths/min O_2 Sats: 96%

Subjective (S):
Patient reports not feeling the best today. She has been having difficulty with gait and turning in bathroom. She reports no falls in the last week. Complains of stiffness in her calves/shins from boxing class. Patient reports starting new medication (Namenda) on 2/19/18.

Objective (O):
Small shuffle steps with turning and gait unless cued. Increased fatigue with gait training.

Today's Intervention:

1) Seated (1x15 alternating legs)
    a. Heel taps (8 inch forward then 16 inches to the side). Metronome and autoharp used for rhythmic cuing
    b. Heel taps on block (Forward and then sideways)
    c. Cross body paddle drum focus on weight shift, tambourine in the middle
    d. Paddle drum in front (L arm L leg L paddle → L arm L leg R paddle → L leg R arm L paddle)
2) Singing seated
3) Standing-SBA, gait belt, and fingertip assistance for balance
    a. 12 inch forward step with heel strike
    b. 12 inch side step with weight shift
    c. Forward 12 inch steps with turn
4) Walking-SBA, gait belt, and cane, 70 bpm
    a. Trial 1: 3:03 one stop at 2:40 to correct small steps
    b. Trial 2: 5:53 verbal cues and demonstration needed
5) Heel cord stretches on wall

Assessment (A):
Pt required increased verbal cues for base of support, step length and heel-toe pattern. Patient tended to have knowledge of exercises today. Patient performed gait overall at slower pace, especially with music. With music patient was more focused on beat which slowed her gait.

Plan for next visit (P):
Continue with rx listed above for seated and standing and progress weight shifting. Gait train with music before no music or add song during gait rather than beat. Gait train at beginning and end of session. Use blocks to help with base of support activities. Give HEP for seated exercise and heel cord stretches.

Vitals at departure: BP: 124 / 74 HR: 63 bpm RR: 32 breaths/min O_2 Sats: 99%
Status at Departure: __X__ No concerns _____ Concerns reported (list specifics):

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Date: 2-27-18 Week: 1 2 3 4 5 6 7

Status at Arrival: __X__ No concerns _____ Concerns reported (list specifics):

Vitals at arrival: BP: 122/78 HR: 73 bpm RR: 36 breaths/min O_2 Sats: 97%

Subjective (S):
Patient reports she has had an average week. Patient reports increased fatigue after her boxing class today. Patient states she only had ½ a container of yogurt for lunch today.

Objective (O):
Patient began walk with small step length-had an increased tendency to ambulate on her toes with fatigue. Patient fatigued easily upon activity

Today's Intervention:
1) Ambulate around the room with auto harp 3:06 min SBA and use of SEC
2) Seated weight shift with paddle drum (R leg R arm R paddle, R arm R leg L paddle, R arm L leg L paddle)
3) Ambulate around the room with continuous upbeat music on guitar-SBA and use of SEC
4) Target ambulation with targets 12 inches apart x 5. Patient turned around at the end and repeated the sequence 10 times : : : : :
5) 30 foot walk without visual or audio cues. Had to terminate after 15 feet due to fatigue

Assessment (A):
Patient was given a home exercise program that consists of heel cord stretching and seated weight shifts. Patient presented with increased fatigue with standing activity and required more breaks than normal. Patient was encouraged to eat a bigger lunch next week. Patient was able to take large strides when there were visual cues on the floor. She was unable to continue this without the visual cues. Patient had better quality of gait with continuous upbeat music on guitar than with the strumming on the autoharp.

Plan for next visit (P):
Practice more target step walking/turning for a longer distance, progress to no visual targets. Practice turn step (clock steps, marching). Count number of steps to complete a turn each side initially, count at end.

Vitals at departure: BP: 120 / 80 HR: 64 bpm RR: ____ O_2 Sats: 98%
BP after standing 1 minute: 118/80

Status at Departure: __X__ No concerns _____ Concerns reported (list specifics):

SPT Kristyn Berger SPT PT

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Date: 2-13-18 Week: 1 2 3 4 5 6 7

Status at Arrival: __X__ No concerns _____ Concerns reported (list specifics):

Vitals at arrival: BP: 122/76 HR: 64 bpm RR: 36 breaths/min O_2 Sats: 96%

Subjective (S):
The patient stated she continued to have fatigue following the last session and into the next day and ended up having a fall. She stated she felt like she was foggy. The fall occurred at home and she fell backwards. After the fall, the fogginess and fatigue dissipated and she proceeded to have a good rest of the week. She states she is feeling good today.

Objective (O):
Patient had a good step length and pace during gait with no visual/audio/verbal cues. Patient had decreased step length and increased time with audio cues. Patient counted the beat when walking.

Today's Intervention:

1) Walk around the room with no verbal, visual, audio cues. R and L foot clearance visible. 0:59
2) Walk around the room with self-counting cues. Shorter stride length and increased time 1:52
3) Seated singing
4) Seated:
    a. forward step-ups
    b. side step downs
    c. paddle drums (Same arm same leg, same arm/leg with cross over drum; Attempted opposite arm and leg but was unsuccessful)
5) Singing with standing tripod stance
6) Walk with turns, emphasis on proper turning (Clock turns)
7) Walk outside the room 2:34. Minor freezing episode at first door.

Assessment (A):
The patient had decreased ambulation speed with the audio cuing and the quality of gait was poorer than the ambulation without audio cueing. The patient focuses on counting the musical beat rather than the quality of gait. The patient did have increased endurance today. She had one small freezing episode and demonstrated improved turning strategies.

Plan for next visit (P):
Re-assess balance and gait using measures from the initial evaluation
TUG and Parts of Berg Balance Scale (turns and step toe taps)

Vitals at departure: BP: 122 / 78 HR: 66 RR: 32 O_2 Sats: 96%
Status at Departure: __X__ No concerns _____ Concerns reported (list specifics):

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Name: _____ Date: _____3/20/2018___ Week: 1 2 3 4 5 6 7 8

Status at Arrival: __X__ No concerns Vitals: BP: ____118/70_ HR: _74_ O_2 sat:_93_ RR:__34__

_____ Concerns reported (list specifics):

Subjective (S):

The patient stated no concerns over the last two weeks and said she is feeling fairly good today. She is still participating in boxing at the YMCA as well as other exercise classes during the week. She reports no falls or near falls in the last two weeks. She has been able to do her HEP some days. Patient reports that she still has difficulty with freezing of her UE when reaching for things from a cupboard or the freezer section at the grocery store so she does not even attempt to do that anymore. Patient also states that her new medication is not working the best but she is using a combination of medications and seems to be feeling how she should be. It is unknown when she sees her MD again for a check-up.

Objective (O): (re-eval results, posture, etc)

Patient is moving at a fairly good pace today with the assistance of her cane. No freezing upon arriving to therapy room, however minimal freezing during gait assessment during therapy. Freezing occurred in doorway transitions only. Patient presents with rounded shoulders and narrow base of support.

Today's Intervention: (be very specific/list activities, reps, time, resistance, etc):

We started therapy by doing a re-evaluation of the TUG and portions of the Berg Balance assessment.

TUG was completed x 2. First attempt: no cognitive distraction, use of cane for support and completed in 22. 22 seconds. Second Attempt: cognitive distraction used (counting backwards from 78 by 2's), use of cane for support and completed in 32.35 seconds.

Next tasks 1, 4, 11, and 12 were re-evaluated on the Berg Balance Scale. Scoring is marked on attached sheet. Cane was used for tasks 11 and 12.

Next a song was sung in the standing position, using the tripod stance with patient's cane for support and balance. The second song was sung in the seated position.

Gait training was assessed next. Patient completed gait training x 2 around the therapy room, out the south door down the hallway and entered back through the west door (approx. 136 foot loop). During gait training patient attempted to open doors by self but was assisted due to doors being heavy. Freezing occurred when going through the door ways for 5-10 seconds but was corrected by patient using verbal and self-cues. During gait training 4 sets of 14.4 ft sections were marked off within the loop to determine the time it took to walk the distance and how many steps it took to complete the distance. Starting and ending the loop had 14.4 ft marked out which are trials #1 and #4. In the middle of the loop there were two sections each being 14.4 ft, these sections were back to back, the first section contained step lines at 14 inches apart and the second section did not have these lines. This was to determine carry over effect of increased stride lengths. These two sections are trials #2 (lines) and #3. First completion of loop did not have music and the second complete did. Music was a beat adjusted to

cadence of patient, begining of loop 105 bpm, middle section 70 bpm (during marked lines), end of section 100 bpm. Patient was unaware of sections not containing lines.

Gait Training Without Music		
Trials	**Time (seconds)**	**Steps**
1	9.69	15
2	13.5	12
3	12.07	15
4	11.06	18

Gait Training Music		
Trials	**Time (seconds)**	**Steps**
1	12.23	17
2	11.29	12
3	11.63	14
4	10.97	18

Following gait training, another song was sung in the seated position. Vitals were also taken at the end of the session.

Assessment (A):

Overall patient had a good day in therapy. Patient stated no concerns upon completion of treatment today. Patient showed an increased pace today with her gait training as well as bigger stride lengths. Minimal cues were needed today in gait training. Patient also used verbal "clock" cues during her 360 degree turns that were explained to her two weeks ago when working on her turning. She said these cues are helpful. She shows more awareness about her narrow base of support in therapy—reminding her each session as been helpful in getting her to remember herself. Patient improved 2/4 of her re-test scores on the Berg Balance Scale which will be re-evaluated again at the end of the therapy sessions. Freezing today was minimal and isolated to gait training when crossing through doorways. Continue to encourage patient to work on HEP and therapy strategies we work on in therapy.

Plan for next visit (P): _____ Refer to PT Clinic Weekly Plan of Care – Week: 1 2 3 4 5 6 7 8 9

Plan is to continue with interventions for gait training, balance and coordination, and transfer training. We will also continue to implement music therapy for rhythmic entrainment.

Status at Departure: __X_ No concerns Vitals: BP: __118/72__ HR: __67__ RR:__40__ O_2 sat:_95%_

_____ Concerns reported (list specifics):

______, SPT ______, SPT ______, PT

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Name: _____ Date: _____3/27/2018___ Week: 1 2 3 4 5 6 7 8 9

Status at Arrival: __X__ No concerns Vitals: BP: ____120/68_ HR: _69_ O_2 sat:_97_ RR:__48__

_____ Concerns reported (list specifics):

Subjective (S):

Patient is doing well today and reports no falls in the last week since our last session. She also states that there a no new concerns other than her same amount of difficulty with movements in general. She still does not think she can tell a difference in her new medications but is scheduled to have a re-check with her MD next week. Patient also reports that she has been working on exercises that help with her BOS that we went over in therapy sessions of the past few weeks. Midway through the session patient arises concern about her bed mobility which we addressed after the concern was brought to our attention.

Objective (O): (re-eval results, posture, etc)

Patient is moving at a faster pace today, with festering steps throughout gait cycle, but is also taking very short steps. Cues are needed constantly throughout the session to be aware of her stride length and reach with her heels to increase her stride length and ultimately slow her gait. Patient has rounded shoulders and poor posture. Patient has cane for assistive device today.

Today's Intervention: (be very specific/list activities, reps, time, resistance, etc.):

We started therapy today with gait training like the previous session. Patient completed gait training x 2 around the therapy room, out the south door down the hallway and entered back through the west door (approx. 136 foot loop). During gait training patient attempted to open doors by herself but needed assistance due to doors being heavy. Freezing occurred again this session when going through the door ways for 5-10 seconds. At some points of freezing patient was able to overcome freezing on her own with little festering steps—this contributed to her having a decreased base of support and decreased balance. For the next sets of freezing student PT's gave cues for patient to stop, perform lateral weight shifts for four counts and then instructed patient to proceed forward through doorway. Patient was educated on the importance of using the cues we have went over to overcome freezing episodes in a safe manner. During gait training 4 sets of 14.4 ft sections were marked off within the loop to determine the time it took to walk the distance and how many steps it took to complete the distance. Starting and ending the loop had 14.4 ft marked out which are trials #1 and #4. In the middle of the loop there were two sections each being 14.4 ft, these sections were back to back, the first section contained step lines at 14 inches apart and the second section did not have these lines. This was to determine carry over effect of increased stride lengths. These two sections are trials #2 (lines) and #3. First completion of loop did not have music and the second complete did. Music was a beat adjusted to cadence of patient. Patient was unaware of sections not containing lines. Two songs were completed with Music Therapy Student between walks. One song was standing to work on tripod stance for improved balance and increased BOS. Second song was sung seated to allow for rest for patient. Songs were also sung to help improve respiratory and vocal function. Timing and steps are as follows:

Gait Training Without Music		
Trials	**Time (seconds)**	**Steps**
1	11.40	17
2	14.96	20
3	16.40	27
4	20.5	28
Total Time:	3:20 min	

Gait Training Music		
Trials	**Time (seconds)**	**Steps**
1	11.20	18
2	13.60	14
3	14.30	20
4	13.36	23
Total Time:	3:07 min	

During gait training patient needed cues to overcome freezing and cues to take longer stride lengths as her feet were not clearing each other thus resulting in a high number of steps in a short amount of time during gait training. Towards the end of each loop patient needed additional cues for short steps as well as freezing that occurred near the markings of tape for the 14.4 ft trial runs in each loop.

After gait training patient completed stationary backwards lunges x 4 each side, using a table for support.

Next, patient brought about concern about her bed mobility at home. Patient currently climbs onto bed into a quadruped position and drops her hips down to get onto her side or back—husband is there for supervision. Patient stated she did not feel like she was mobile enough to do it this way. Next we went over bed mobility from seated to side-lying to prone. Patient was given cues to move about bed while in the prone position as well as bridging exercises to help with LE strength needed for effective bed mobility. Patient was educated on the importance of these exercises as well as how her other HEP for weight shifting and core strengthening play a role.

Next we completed forward step with opposite arm reaches in which patient had to strike a paddle drum. 1 x 15 each side. Patient was educated that this exercise is beneficial in functional movements

such as reaching into a bathroom cabinet or a cabinet in the kitchen. This method allows for her to have a wider BOS of support thus improving her balance. Patient was able to use PT table for support during exercise. Next we finished with some side steps and patient was allowed to use the PT table for support as well.

We finished the session with 2 songs performed between the patient and the music therapy student.

Assessment (A):

Overall patient did fairly well today. She needed continuing cues about her short stride length and fast gait pattern that was leading to decreased control during gait. Patient also complained of SOB as well as showed increased levels of fatigue after and during gait training today. Rest was given as needed by patient. Patient does fairly well with all exercises given however she needs to work on knowing when to give herself cues and be aware of when he safety is being compromised. We will continue to identify and work on cues to overcome these areas. Patients respiratory rate was up this session compared to previous sessions which may be from fatigue of exercises. O2 saturation was consistent with previous sessions.

Plan for next visit (P): _____ Refer to PT Clinic Weekly Plan of Care – Week: 1 2 3 4 5 6 7 8 9 10

We will plan to continue gait training as previous two sessions and work on overcoming freezing episodes. We will also work on self-awareness so patient is able to understand and identify when she is moving in ways that jeopardize her balance and safety. We will also continue to work on turning, weight shifting, go over bed mobility, and try new exercises for the possibility of being added to her HEP.

Status at Departure: __X_ No concerns Vitals: BP: __122/78__ HR: __67__ RR:__52__ O_2 sat:_97%_

_____ Concerns reported (list specifics):

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Name: _____ Date: _____4/3/2018___ Week: 1 2 3 4 5 6 7 8 9 10

Status at Arrival: ____ No concerns Vitals: BP: ____116/68_ HR: _68_ O_2 sat:_97_ RR:__44__

___X_ Concerns reported (list specifics): Patient is concerned about her breathing and her difficulty to move the past few days. Further detail described in subjective portion of note.

Subjective (S):

Patient reports feeling exhausted today. She said this is how she has been feeling the last few days as well (about 4). She reports stiffness in her extremities and is having increased difficulty moving. She still has not seen any improvement from the new medication she is on to help with Parkinson's. She is to see her MD this Friday and will report back to us on how that appointment goes. In regards to the patient's difficulty with breathing, she reports that it feels the way it did after a surgery she had previously for treatment of thymus cancer. She reports feelings of chest tightness and shortness of breath for the last three weeks. No positions or breathing techniques seem to change her breathing status. We recommended that this was something to discuss wither MD at their next visit. Due to not feeling the best today she avoided certain exercises in her boxing class at the YMCA this morning, including exercises that dealt with balance and coordination.

Objective (O): (re-eval results, posture, etc)

Patient is using her cane for an assistive device today. She is usually shorter and slower steps upon arrival compared to last session—this may be due to her not feeling well today.

Today's Intervention: (be very specific/list activities, reps, time, resistance, etc):

Today we started the session reviewing bed mobility that we went over last session. Patient said she used a mixed combination about how she was able to get into and out of bed over the past week. Patient completed bed mobility by sitting on edge of bed, side lying, and segmentally rolling to lay on her back in a hook-lying position. Two pillows were placed under her head and shoulders to help improve breathing in supine position. Next we went over exercises that are being added to her home exercise program. Patient completed bridging 1 x 10 reps and clam shells 1 x 10 reps each side. Patient was cued on core engagement and proper alignment for exercises. One more exercise was added to her HEP which was sit to stands. Patient was instructed to go from sitting to standing without the use of her hands or cane. We also focused on the control in returning to seated position. Cues were needed to instruct patient to tuck feet back, lean forward for nose over toes, reach out with hands and then stand up. These instructions were implemented with "up, 2, 3, 4 and down, 2, 3, 4". Once cues were given patient was able to complete the sit to stands with increased balance, decreased attempts, and in a smooth movement. Musical cues were also added to initiate standing and sitting with guitar.

Next, instead of walking laps like the previous sessions we walked a distance of 30 feet multiple times focusing on the number of steps it took to complete the distance. This intervention was done to hopefully help improve stride length during gait. Patient first completed the 30 feet unaware that we were counting her steps. Then she was told how many steps it took and we asked her to work on taking

bigger steps to decrease the amount of steps needed to complete the marked distance. Patient improved after first few attempts as indicated by table below:

Trial:	Steps	Time (sec):
1.	29	18.57
2.	30	21.40
3.	23	17.38
4.	25	-
5.	23	17.40
6.	25	-
7.	23	-
8.	27	-
9.	26	-
10.	27	-

Once the goal of lower steps per distances mark was made aware to patient she was able to decrease the amount of steps it took. She still needed occasional verbal cues to take bigger steps. Timing trials was not effective this session and only a few were able to be recorded as patient was moving through activity quickly. Trails 8,9,10 were done without patient using her cane and was completed in a safe manner with minimal LOB—one SBA needed throughout entire exercise with gait belt on.

Next we worked on 180 degree turns both ways. For the activity patient transferred cones during turn. EX: Patient grabbed cone in the 12 o'clock position form one student PT and turned to place then in the 6 o'clock position to other student PT and then returned to the 12 o'clock position to grab another cone. This continued until patient completed 16 turns each way. Patient was able to complete this exercise without her cane—2 SPT's for SBA with gait belt on. Verbal cues were given to work on bigger steps as practiced in previous sessions. Toward end of exercise patient was able to complete 180 degree turns with increased control of balance and better awareness of her feet. Patient was stopped anytime her turn was not complete 180 degrees, once she made the turn complete she was able to continue on with the exercise. Rhythm was played on guitar by MT student. Patient continued to walk back to the therapy room without her cane but with one PT student for SBA with tactile touch on gait belt.

Next "God Bless America" was played with the MT student. Patient sang along while seated.

We finished the session with reaching exercises that we did the previous session. Patient had increased difficulty understanding the task today. We started with stepping forward and opposite arm hit the drum and then patient stepped back. We started with stepping with the L foot forward and reaching to hit the drum with the right arm. This exercise was meant to be continuous however patient would step too quickly and she would decrease her step length as well as would lose her balance. We changed the exercise so patient was taking a 4 second pause between steps—this time was dedicated to her checking to make sure her feet were wide enough apart to help her from losing her balance. We continued with this exercise 1 x 15 each side. Once cueing was indicated patient improved her timing, coordination, step length and balance during exercise.

Vitals and concerns were discussed at end of session as indicated below.

Assessment (A):

Today's session went really well especially since patient came to therapy not feeling the best and complained that she had difficulty the last few days with moving and that she had a difficult time this morning in her boxing class at the YMCA. Patient was able to complete all interventions today and was able to improve her coordination, control her balance, and improved overall movement patterns throughout interventions. Patient stated feeling better overall than when she first came to therapy today. She was excited about not having to use her cane for certain interventions today as well. We continued to encourage her to do her HEP on days that she does not see us or go to classes at the YMCA. Thera-cycle was also discussed with spouse and a handout with information on the benefits of it were also provided.

Plan for next visit (P): _____ Refer to PT Clinic Weekly Plan of Care – Week: 1 2 3 4 5 6 7 8 9 10 11

We will continue to work on gait, sit to stands, and turning. With this we will incorporate balance activities and work with the music therapy student to incorporate rhythmic cues for initiation of movement in turning and sit to stands. We will also address any further concerns patient may have and check in out her HEP is going. We may incorporate a check off system so she is able to report back on how many days per week she does her HEP.

Status at Departure: __X_ No concerns Vitals: BP: __122/78__ HR: __67__ RR:__52__ O_2 sat:_97%_

_____ Concerns reported (list specifics):

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Name: _____ Date: _____4/10/2018___ Week: 1 2 3 4 5 6 7 8 9 10 11

Status at Arrival: __X_ No concerns Vitals: BP: ____118/76_ HR: _79_ O_2 sat:_96_ RR:__43__

____ Concerns reported (list specifics):

Subjective (S):

Patient reports she is doing well today; she is still having the same shortness of breath however as the past few weeks—it was mentioned that this is something she should talk to her primary MD about. She also reported that she saw her doctor last week about her Parkinson medications. She mentioned that she has had more involuntary movements since the MD increased her medication. She also mentioned that her doctor wanted the patient's family to get more involved with her care. Patient reports no falls in the last week. She completed some of her HEP.

Objective (O): (re-eval results, posture, etc)

Patient is using her cane for assistance today. She has more dyskinesia than previous weeks. She presents with short, slow steps and needs initial cueing to increase stride length upon arrival. Patient seems to be in a good mood today, even though she was unable to make boxing class this morning due to family issues.

Today's Intervention: (be very specific/list activities, reps, time, resistance, etc):

Today we started the session with walking increments of 30 feet like the previous session to work on stride length. Patient completed 7 different sets of walking 30 feet, each time with feedback on how many steps it took her. She was not given the time it took to complete each walk. Patient was educated in between walks on on how to improve stride lengths and focus on how her gait presents—including reaching with heel, heel to toe, and looking straight ahead. Patient used her cane for support. Gait belt was present with contact guard assist by student PT for safety. Patient trials are as follows:

Trial:	Steps	Time (sec):
1.	27	16.69
2.	25	17.43
3.	27	19.28
4.	24	20.20
5.	26	17.83
6.	25	17.90
7.	26	16.39

Next we worked on walking a lap around the therapy room, including out one door and in the other. The distance is approx. 107 feet. Patient had gait belt on and 1 CGA with cane for gait training. The first time around a song was played on the iPhone since the music therapy student was not present today. The first time it took the patient 1 minute 48 seconds with music. The second time took 1 minute 35 seconds

with no music. Patient had minimal freezing at doorways and was able to continue in a continuous pattern with self-cues at these spots. Patient required assistance with doors as they are heavy.

Next we worked on 180 degree turns both ways like last week's session. For the activity patient transferred cones during turn. EX: Patient grabbed cone and 12 o clock position form one student PT and turned to place then in the 6 o clock position to other student PT and then returned to the 12 o clock position to grab another cone. This continued until patient completed 8 turns each way. Patient was able to complete this exercise without her cane—2 SPT's for SBA with gait belt on. Verbal cues were given to work on bigger steps as practiced in previous sessions. Toward end of exercise patient was able to complete 180 degree turns with increased control of balance and better awareness of her feet. Overall patient was able to improve over the session faster than last session as she had better control of her balance, was more aware of her feet positioning, and she had better safety awareness by stopping herself is she was losing her balance. Patient was stopped anytime her turn was not a complete 180 degrees, once she made the turn complete she was able to continue on with the exercise. Beat was played metronome app on phone to 70 beats per minute. Patient continued to walk back to the therapy room without her cane but with one PT student for SBA with tactile touch on gait belt.

We finished the session with sit to stands with the same count as the previous session of "up 2, 3, 4" and "down 2, 3, 4". Initial cues were given to patient to keep feet shoulder width apart as she was losing her balance with them too close together. She was also cued to tuck her heels back toward her buttocks and reach out in front of her with both arms to stand up. Metronome on iPhone was playing at 70 beats per minute for this activity. SPT also mimicked the movement in front of the patient for a visual cue. Patient improved and was able to complete this task easier than last week. Sit to stands were completed x 6.

Breathing techniques were also completed throughout the session. Patient was cued to breath in through the nose out through the mouth in between activities or when she felt short of breath. She also was cued to focused on the exhale to improve overall respiratory function. Rest was taken as needed as well.

Vitals and concerns were discussed at end of session as indicated below.

Assessment (A):

Overall patient did very well today. She had more dyskinesia than previous sessions and needed additional cues to make her aware of her feet positioning, especially in standing. She was cued to move her feet so she achieved the tripod stance with her cane. Patient improved in her tasks over the course of the tasks and was able to complete the last set or two independently without cues. Patient has continued to make improvements, especially in the last few weeks that has improved her overall balance, gait, and safety. We will continue to work on these interventions.

Plan for next visit (P): _____ Refer to PT Clinic Weekly Plan of Care – Week: 1 2 3 4 5 6 7 8 9 10 11 12

We will continue to work on gait, sit to stands, and turning. With this we will incorporate balance activities and work with the music therapy student to incorporate rhythmic cues for initiation of movement in turning and sit to stands next session as the music therapy student was not available this week. We will also check in on patient's compliance to HEP. We will review breathing techniques to help

with her SOB. We will also observe and assist patient to and from care to help if there are any area of need to improve overall safety.

Status at Departure: __X_ No concerns Vitals: BP: __120/68__ HR: __80__ RR:_40__ O_2 sat:_94%_

_____ Concerns reported (list specifics):

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Name: _____ Date: _____4/17/2018___ Week: 1 2 3 4 5 6 7 8 9 10 11 12

Status at Arrival: __X_ No concerns Vitals: BP: ____132/78_ HR: _55_ O_2 sat:_95_ RR:__43__

____ Concerns reported (list specifics):

Subjective (S):

Patient reported feeling okay today. She is a little tired but was able to make it to boxing class this morning at the YMCA. She reports that her involuntary movement gets worse as the day progresses (afternoon and evening). She reports no falls in the last week, she has gone multiple weeks without falling according to the patient, however she did state that she had a few loss of balance that could have resulted in a fall. She could not remember what she was doing at the time of losing her balance. We discussed keeping a journal about when falls, near misses, or loss of balance occurs along with tracking when she does her home exercise program. She reports doing her home exercise some days.

Objective (O): (re-eval results, posture, etc)

Patient arrived using her cane. She was having more difficulty walking today and was taking short slow steps. Her dyskinesia was reduced this week compared to last week. Little to no dyskinesia but overall at a slower pace. Patient was too fatigued to make the trip up to elevator and needed w/c assistance.

Today's Intervention: (be very specific/list activities, reps, time, resistance, etc):

Today we started class with a song provided by the music therapy student. We started with a song and incorporated seated weight shifts. This was done to get the patient warmed up and moving.

Next we began walking increments of 30 feet like the previous sessions to work on stride length. Patient completed 5 different sets of walking 30 feet, each time with feedback on how many steps it took her. She was not given the time it took to complete each walk. Patient was educated in between walks on on how to improve stride lengths and focus on how her gait presents—including reaching with heel, heel to toe, and looking straight ahead. Patient used her cane for support. Gait belt was present with contact guard assist by student PT for safety. Patient trials are as follows:

Trial:	Steps	Time (sec):
1.	46	46.53
2.	39	28.5
3.	40	38.39
4.	35	22.32
5.	-	60.04

During trail five the total number of steps taken was not accounted for due to patient having a festering gait towards the end which needed additional cues from both student PT's to ensure safety. Overall this week on the gait training interventions patient had increased time and increased steps during the measurement of 30 feet. Patient had slow short steps that often did not clear the opposite fight. Patient also had increased difficulty with festering gait and freezing towards the end of each 30 feet. This could be due to the markings on the floor—however markings on the floor could be a realistic representation

of changes in floor patterns or doorways when patient is out in the environment so it is a good time to work on strategies to overcoming freezing and festering gait patterns.

Next we worked on some seated toe taps up to a standard 6 inch step. Patient completed toe tap/step ups which seated x 10 each leg.

Sit to stands were completed next x 8. Patient was given cues to initiate standing and a count of "scoop, 2, 3, 4" and "down, 2, 3, 4". This was first demonstrated by the student PT 2 times, then the music therapy student added a tune to go with the motion of sitting to standing on her clarinet. A long high note was used for the "scoop" phase and shorter lower notes were used for "2,3,4" for the motion of sit to stand. A long low note was used for "down" followed by shorter low notes for "2,3,4" for the motion of stand to sit. SPT performed the sit to stand motions mirroring the patient.

Next we worked on walking a lap around the therapy room, including out one door and in the other. The distance is approx. 107 feet. Patient had gait belt on and 1 CGA with cane for gait training. The first time around a song was played on the iPhone since the music therapy student was not present today. The first time it took the patient 1 minute 48 seconds with music. The second time took 1 minute 35 seconds with not music. Patient had minimal freezing at doorways and was able to continue in a continuous pattern with self-cues at these spots. Patient required assistance with doors as they are heavy.

Next we worked on some interventions similar to the TUG test. We continued to incorporate the sit to stand along with sit to stand, walk 10 ft, turn and sit down. Patient completed this sequence 4 times. We focused on stride length, sit to stand motion, and turning. Patient had increased difficulty with this exercise compared to previous sessions as she had shorted stride lengths, and used greater than 6 steps to turn and be seated. However, by the 3rd and 4th trial with cues given patient was able to do this intervention in a safe manner.

Next patient sang a song with the music therapy student—You Are My Sunshine. This was completed in a seated position.

Next we worked on 180 degree turns both ways like previous sessions. For the activity patient transferred cones during turn. EX: Patient grabbed cone and 12 o clock position form one student PT and turned to place then in the 6 o clock position to place the cone on a counter and then returned to the 12 o clock position to grab another cone. This continued until patient completed 6 turns each way. Music therapy student used a tune on her clarinet again to initiate the first step and additional steps after on the turning exercise. This was first demonstrated by the STP 3 times for a visual demonstration so the patient had a better understanding of the exercise. Patient had a lot of difficulty performing this, especially to the tune on the clarinet. After two attempts with the musical cues, we stopped the musical cues and focused on counting to improve turning. By the last few sets patient was able to do turns in 6 steps---last week she was able to do turns in 4. This was completed with gait belt on and 1 PT with SBA.

Breathing techniques were also completed throughout the session. Patient was cued to breath in through the nose out through the mouth in between activities or when she felt short of breath. She also was cued to focused on the exhale to improve overall respiratory function. Rest was taken as needed as well.

Vitals and concerns were discussed at end of session as indicated below.

The final part of our intervention was walking her out to her car. She was fairly fatigued after the session and needed a w/c to the exit of the building. We completed this to asses patients safety getting through public doors and getting into her car. Patient continued to need verbal cues, including counting and snapping to initiate steps and increase her stride lengths. When patient got to the door to hit the handicap button she stopped and quickly used her cane to push the button. 2 SPT's were SBA, and patient education was given on how that is not a safe way to open a door. We talked about using the cane and the tripod stance and then using a hand to hit the button. Patient was able to get in her car safely with assistance from her spouse.

Assessment (A):

Overall patient showed a decline in interventions this week compared to last week. She had increased difficulty with tasks and needed additional cueing during gait training and Ther Activity to ensure safety. This may be due to patient not feeling well this week. However, patient was able to make improvements over the course of the session but was not able to do as well as the previous two weeks. Patient was fatigued at the end of session. She also resorts back to her short step length gait pattern indicating a poor carry over affect from therapy. Patient also had an increased BP this week at pre and post therapy testing. Continue to monitor next week.

Plan for next visit (P): _____ Refer to PT Clinic Weekly Plan of Care – Week: 1 2 3 4 5 6 7 8 9 10 11 12 13

Next week we will complete a final evaluation of the patient. Patient was also given questionnaires to complete and bring back this week. We will complete the TUG, Berg Balance, Sit to Stand, and GAITrite. We will also address any further concerns by the patient.

Status at Departure: __X_ No concerns Vitals: BP: __138/82__ HR: __59__ RR:_36__ O_2 sat:_97%_

_____ Concerns reported (list specifics):

Student Signature Student Signature Faculty Signature

PT 511 Clinic – Weekly SOAP Note Documentation

Name: _____ Date: _____4/24/2018___ Week: 1 2 3 4 5 6 7 8 9 10 11 12 13

Status at Arrival: __X_ No concerns Vitals: BP: ____132/78_ HR: _54_ O_2 sat:_96_ RR:__28__

____ Concerns reported (list specifics):

Subjective (S):

Patient reported not feeling the best today. She said she seems to not be moving as good as normal.. She reports no falls in the past week. She also reports no near miss falls, or any instances where she felt unsafe. She reports her breathing the same as previous weeks such as she still feels SOB often and sometimes becomes light headed. She states that her sleeping has not been as good lately and she is going back and forth between the chair and the bed. She no longer uses the sit and segmental log roll we taught her to get into bed, she has resorted back to crawling into bed because it is easier for her as her bed seems a little too high for the other technique. Patient reported having an ultrasound on her chin today and that has taken some of her energy today. Patient returned all questionnaires filled out.

Objective (O): (re-eval results, posture, etc)

Patient arrived using her cane. She was having more difficulty walking today and was taking short slow steps. No noticeable dyskinesia today. She is moving at a slower pace and requires multiple cues upon arrival for gait training. Patient was too fatigued to make the trip up to elevator and needed w/c assistance.

Today's Intervention: (be very specific/list activities, reps, time, resistance, etc):

Today is our final session with our patient. Today's interventions consisted of re-evaluation of the patient based on our initial evaluation with her.

Patient had difficulty rising from the wheel chair today prior to starting therapy, she needed to use all her upper extremity strength to rise from the chair. Next, we went on to test the 5 x sit to stand test. Prior to testing we reviewed cues given in previous session to initiate a sit to stand. We cued, feet shoulder width apart and feet back. The cue "scoop, 2,3,4 and down, 2,3,4" was used. Patient completed 3 sit to stands prior to testing with SPT mirroring her. Patient was able to complete sit to stand independent with no use of UE or LOB. Patient completed a time Five Time Sit to Stand Test (FTSST) using self-cues and the SMT mirroring her. SPT was SBA and gait belt was on patient.

5 Times Sit to Stand Test (FTSST): 27.69 seconds (19.96 seconds initial eval)

Sit to stand was safe with no LOB and slow and controlled movements. No freezing occurred.

Next we completed the TUG. 3 x Standard TUG performed and 1 x Cognitive TUG (counting backwards by 2 from 100).

1: 1:03

2: 56 seconds

3: 58 seconds

Cognitive TUG: 1:28

Patient Stopped counting on turns.

Minimal freezing occurred when approaching line to turn around and when approaching chair. Turning cues were given by SPT during TUG for safety reasons. Patient was wearing gait belt and SPT was SBA for safety. No LOB occurred.

Next a song was sung with the student music therapist.

We finished the session by completed the same trials on the GAITrite as the initial evaluation. Seated rest and breathing techniques were incorporated as needed during session. See attached for GAITrite results.

Vitals were taken.

Assessment (A):

Overall patient improved throughout the session. She came in not feeling the best and was unsure how she would do but overall patient was able to complete all tasks and evaluation for the final session. Patient continues to need cues for safety and to improve overall gait. Patient was given a review of her HEP as well as a new hand out to help her remember to use her tripod stance and clock cues to help her with turning in a safe manner. Patient will continue her routine at the YMCA as well.

Plan for next visit (P): _____ Refer to PT Clinic Weekly Plan of Care – Week: 1 2 3 4 5 6 7 8 9 10 11 12 13

This was our final session with patient.

Status at Departure: __X_ No concerns Vitals: BP: __138/76__ HR: __57__ RR:_-__ O_2 sat:_97%_

_____ Concerns reported (list specifics):

M Stein SPT — Student Signature

Kristyn Bergh SPT — Student Signature

Kristen [illegible] Thomas [illegible], PT — Faculty Signature

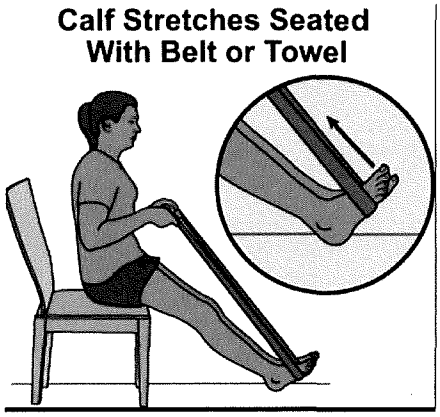
Home Exercise Program #1

This home exercise program is designed for _____. Complete the following exercise as directed below. Any additional comments may be added by the physical therapist students.

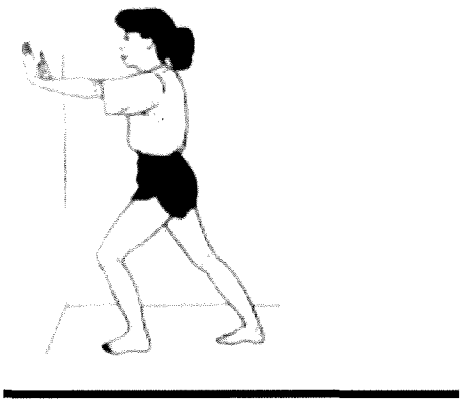
Complete these exercises _____ times per day.

Heel Cord Stretch

1.



2.

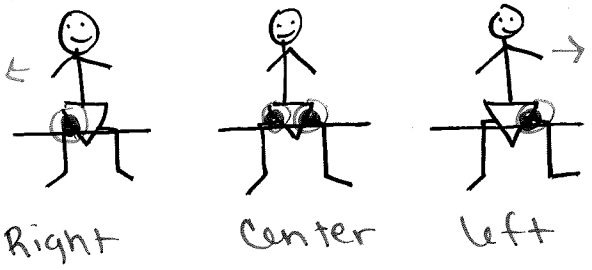


1. **Seated Heel Cord Stretch**
   - Sit on a supported seat
   - Use a towel or belt and hook it around the bottom of your foot. (picture shows around both feet but you may do one foot at a time and use opposite foot for seated support)
   - Gently pull towel towards your chest until you feel a slight stretch in your calve.
   - **Hold 20-60 seconds each side**
   - **Repeat 2-3 times**

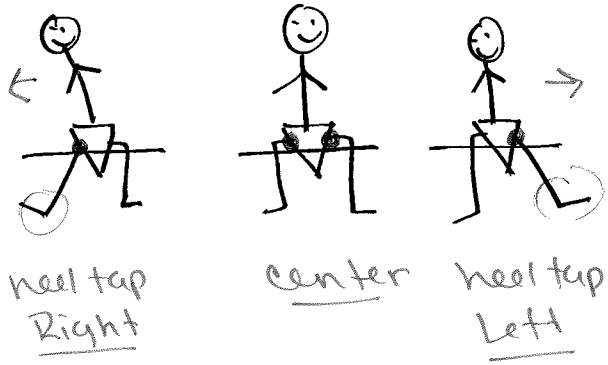
2. **Standing Heel Cord Stretch**
   - Stand facing the wall
   - Place hands on wall for support
   - Stagger feet-one in front of the other
   - Learn towards the wall with trunk (this may increase the bend in your elbows and knee which is closer to the wall)
   - You should go until you feel a gentle stretch in the calve of the leg farther from the wall.
   - **Hold 20-60 seconds.**
   - **Repeat 2-3 times each side**

Seated Weight Shifts with Heel Taps

1.



2.



1. **Seated Weight Shifting**
   - Sit on support seat where your feet can reach the ground
   - Work on shifting your weight while seated between: **Right, Center, Left, Center, Right**
   - As you shift between positions the weight should be put through your sit bones (as indicated by the colored dot)
   - Keep feet positioned on the floor while doing this exercise
   - Avoid moving just your upper body—weight should be shifted through sit bones and hips

2. **Seated Weight Shifts with Heel Taps**
   - Progressing from the exercise above add heel taps with weight shifting
   - Ex:
     -right weight shift with right heel tap
     -center weight shift with feet on floor
     -left weight shift with left heel tap

Continue exercise #1 and #2 for 3-5 five minutes.

These exercises are intended for _____ on 2/27/18 to help client strengthen their hip muscles. These exercises will also benefit the client in balance and weight shifting needed to improve overall gait. If any **pain or discomfort occurs, please stop these exercises until you see us the following week. Also stop these exercises if you feel unsafe or a sense of losing your balance.** General muscle soreness may occur from increased daily exercise. Please call us if you have any questions. Info on following page.

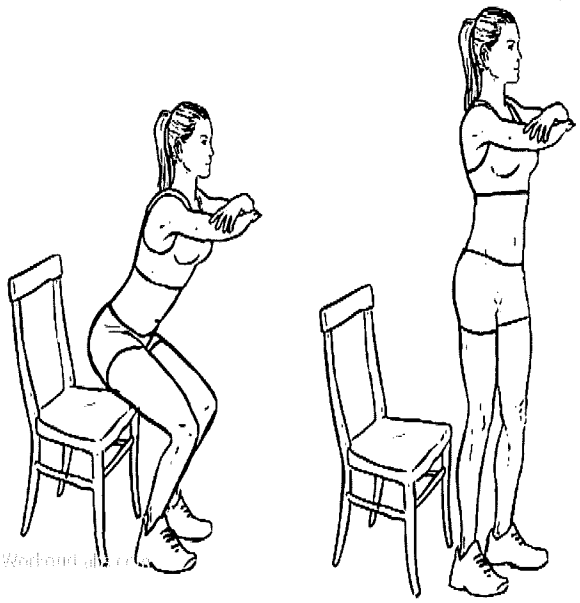
Student Physical Therapist | Student Physical Therapist | Supervisor

Home Exercise Program 4/3/2018

Purpose: To improve hip and abdominal strength in order to enhance bed mobility.

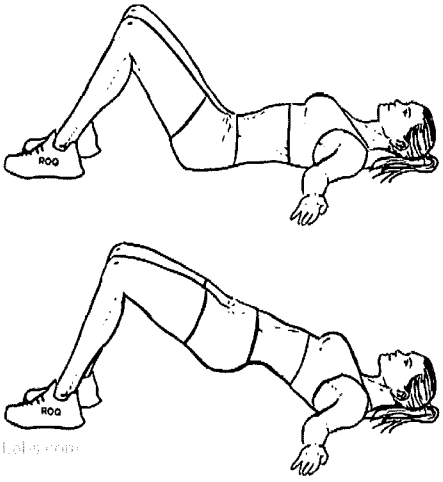
Sit to stand:

1. Sit in a chair with your feet flat on the floor, toes pointed forward and shoulder width apart.
2. Scoot to the front of the chair, keeping your feet flat on the floor and toes pointed forward.
3. Lean forward so your nose is over your toes.
4. Stand up without using your arms to help (NOTE: if this is too difficult, or your feel unsteady, you may use your arms to assist you with the movement)



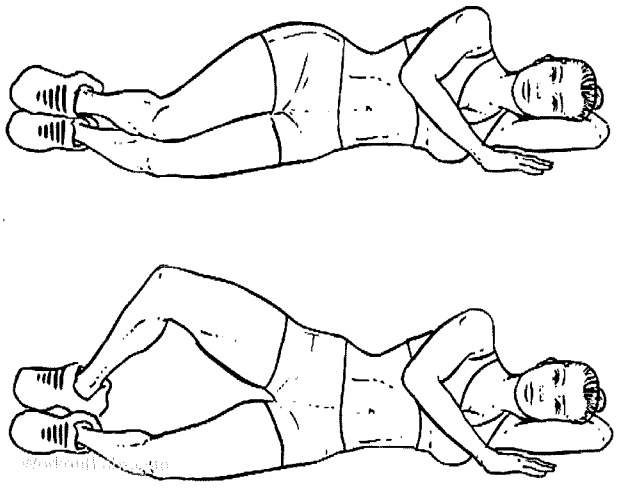
5. Slowly return to sitting without the use of your arms. (NOTE: if this is too difficult, or your feel unsteady, you may use your arms to assist you with the movement.
6. Complete 2 sets of 10.

Bridging



1. Lying on your back, bend your hips and knees so that your feet are flat on the ground (or bed) and shoulder width apart.
2. Place your arms on the floor next to your sides
3. Tighten your butt muscles.
4. While keeping your butt muscles tight, push down into your heels and lift your bottom up as high as you can.
5. Slowly return to the start position.
6. Repeat 2 sets of 10

Clamshells

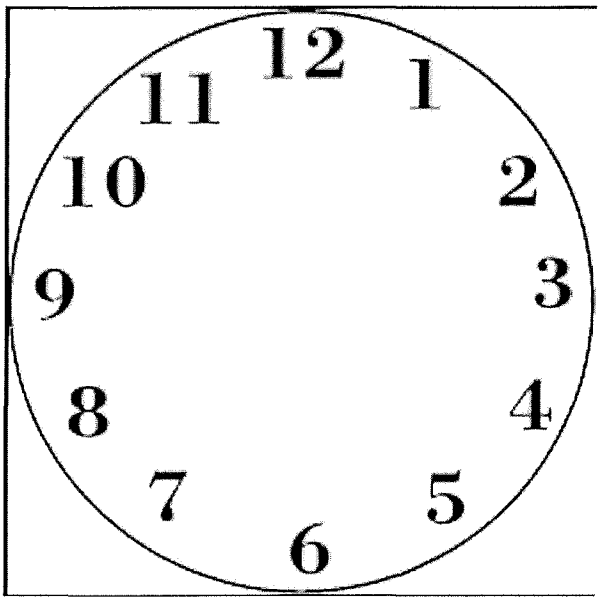


1. Lying on your side, bend your hips and your knees so that your feet are behind your bottom.
2. Cross your top arm over your body and place it on the ground (or bed) for support.
3. Tighten your stomach muscles and slowly lift your top leg while keeping your feet together.
4. Slowly return your leg to the start position
5. Repeat 10 times and then switch sides
6. Complete 2 sets of 10 on each side.

Note: Make sure you are not leaning forward or backward when completing this exercise. Try to stay upright.

Clock Technique to Turn

- Use the image of clock when taking steps to turn
  - Keep feet shoulder width apart during entire motion
  - Use can or other assistive device for support if needed
  - Open hips to make big steps
    - Starting at 12 o'clock aim to step towards 3 o'clock and then 6 o'clock
    - Additional steps may be needed but these times are good goals for keeping a wide base of support and offers a safer strategy than multiple smaller steps



Tripod Stance with Cane

- Use this stance when standing stationary such as when you are:
  - Singing
  - Talking to someone
  - Reaching for an object
  - Pushing the button to open a door
- Have your feet shoulder with apart and one foot slightly in front of the other
- Cane should be out in front of feet
  - Your feet and the can should form a triangle