Pilates for Parkinson’s Disease
With Focus on Muscle Rigidity and Postural Instability

Rhenana Grimes
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Abstract

Parkinson’s Disease is a progressive disease that results from a loss of brain cells that control movement, and affects how you move, act and feel. It is reported that approximately sixty thousand cases are diagnosed each year. The stages can be broken down into stages; early stage (little assistance/manageable), moderate stage (needs assistance/lifestyle changes), and advanced stage (difficult to manage/end of life). Some symptoms include, tremors (uncontrollable shaking), rigidity (muscle stiffness), gait shuffling, postural instability, bradykinesia (slowed movements), freezing (muscles won’t move), difficulty swallowing, depression, and pain.

Although there is no known cure for Parkinson’s Disease, management of its symptoms can increase the quality of life throughout the lifespan of the illness. Medication is one of the treatments, but proper diet and exercise are of great importance in the day to day regime of a person with Parkinson’s. Pilates, in particular is known for its mind-body connection, making it a vital in helping with anxiety and depression, as well as, strengthening and stretching the weakened muscles caused by Parkinson’s.
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Diagrams of Postural Instability and Rigidity

Tremor

Tremor of one hand is an early manifestation of Parkinsonism

Tremor often improves or disappears with purposeful function

Bradykinesia

Difficulty in performing simple manual functions may be initial symptom

Rigidity and Gait Disorders

Stage 1: unilateral involvement; blunt facies; affected arm in semiflexed position with tremor; patient leans to unaffected side

Stage 2: bilateral involvement; early postural changes; slight shuffling gait with decreased excursion of legs

Stage 3: pronounced gait disturbances and moderate generalized disability; postural instability with tendency to fall

Stage 4: significant disability; limited ambulation with assistance

Stage 5: complete invalidism; patient confined to bed or chair; cannot stand or walk even with assistance

Late Stage Disabilities

Clients “Normal” Stance

Corrected Stance Goal
Right Shoulder “hiked”

Corrected Position

Use of Long Box for comfort
Due to muscle stiffness

Upright Foot Work
Useful for balance & Control. Feet don’t flex
And toes curl

Leg Press Standing usually assisted with a goal
of doing unassisted, very challenging
Case Study

My client, Joella is a 53-year-old female who was diagnosed with Parkinson’s Disease two years ago. It is believed that she has had the disease for over 6 years but had been misdiagnosed. By now her symptoms are in the moderate stages and seem to be quickly progressing. Joella does take a mild medication and has dramatically changed her diet to accommodate her disease. Upon her research of other available treatments, Joella sought out Pilates as a way of coping with day to day life. Her symptoms include leg shuffling, muscle rigidity, imbalance, slowed movement, pain, depression, tremors, slowed speech and difficulty swallowing. Joella has worked an office job for over 20 years, where she sits and types the majority of the work day. It is especially difficult for her to get up and down from sitting or lying positions. Movement in general is difficult for her and the realization of her illness has caused depression. She was recently able to be taken off work due to her progressing symptoms and with this schedule will be able to come to Pilates more regularly. Otherwise, this program is based on a once a week attendance.

Joella hopes to slow the progression of her symptoms by strengthening the weak and rigid muscles with weight resistance. Another goal is to work on her balance to prevent falls and injury. She also needs to be able to get up and down from sitting and lying positions as these tasks are becoming more of a challenge for her. Joella states she “needs to work on left side/right side exercises” because one side of her body is weaker than the other. The mind-body connection is also a great need for Joella, in order to exercise her brain as well, in hopes to rid her of anxiety and depression.
BASI Conditioning Program

Upon arrival of her first visit, Joella was in a great deal of pain, stiffness and was walking very slowly. I knew it would be challenging to get her down on the reformer, so we started on the Cadillac and worked our way to the reformer. The initial 3 workouts were only 30-45 minutes, as Joella was lacking endurance. I gave her a few stretches and exercises to practice at home to build endurance and strength in between visits. By week 4, she was able to complete the hour workout.

ASSESSMENT

I could gather much information from simply looking at a straight forward stance of the client. With a weaker left side, it cased Joella to bear much of her weight on her right side causing her to be tense on this side. Because Joella was unable to do a rolldown from a standing position due to her imbalance, I had her sit first on the Cadillac with her feet against the poles facing the PTBar as in the (FBI) Sitting Forward exercise. I then had her hold the PTBar with a light spring and roll down while cueing her to draw in her abdominals, rounding her trunk into a C curve to emulate a rolldown. I kneeled behind her on the Cadillac in order to assess the curvature of her spine in forward motion. She could not bend too far at first, but it was enough for me to get some good information. I concluded that Joella was “hiking” her right shoulder up. This made sense due to the left weaker side. She was compensating by squeezing more on the right. I cued her to relax her right shoulder and put my hands on her to help her feel where central alignment was. She stated that it felt like she was then leaning to the side, and although she wasn’t, it was a good indicator of how long she had been using this unbalanced formation. With the reminder cues, she would then repeat the move 4-5 times each time trying to stretch a hair deeper. I was very “hands on” in the first few weeks to aid in the execution of the movements. Movements were small as Joella became aware and familiar with muscles and muscle groups and how to engage them.
**Weeks 1-3 Workout**

**Warm up:** Fundamental Mat (on Cadillac for platform/easier access than floor)

**Pelvic Tilt/Curl** – started with just pelvic tilts/rocking  
**Spine Twist Supine** – I held her legs for control and worked our way up to small unassisted movement  
**Chest Lift**  
**Chest Lift w/ Rotation**- Detailed cueing helped to find and engage these muscles that had been unused.  
*Focus on abdominal awareness & control/pelvic lumbar stabilization/breathing from diaphragm*

**Foot Work:** Wunda Chair  
Client has difficulty getting up and down so I chose the chair to keep upright.

**Parallel Heels** – During bilateral exercises, I cued to distribute weight evenly, pressing from both sides  
**Parallel Toes**  
**Open V Heels**  
**Open V Toes**  
**Single Leg Heels** – Single leg was especially good for left/right strengthening  
**Single Leg Toes**  
*Focus on hamstrings/foot & ankle control/trunk stabilization/bilateral & unilateral muscle control*

**Abdominal Work:** Fundamental Mat (on Cadillac for platform)

**Hundred Prep** – Baby steps are better than compromising form. I had her really focus on the move with breath and how to use abs rather than pulling from neck.  
*Focus on deepening the awareness of abdominal muscles/layering abdominal muscle groups/using abs not neck*

**Hip Work:** Strap Work, Reformer (with assistance)

**Frog** – Focus to keep heels together was a mind-body connection  
**Circles Down** – cueing not to rock pelvis and for movement to come from hips  
**Circles Up** – client has pain and stiffness in hips so this was helpful toward gaining mobility  
**Openings** – Good for strengthening adductors  
*Focus on hip adductors/abductors/pelvic stabilization*
Spinal articulation and Stretches: Reforme (improvised)

Both feet in straps lying supine as a follow up from hip work, legs together, straighten both legs to perpendicular position (as much as possible), stretching hamstrings then slightly lowering legs. Then rocking legs back up to perpendicular. This was a realistic and effective spinal and hamstring stretch connecting breath to body.
*Focus on breathing thru the stretch

Full Body Integration: Fundamental Reformer

Bottom Lift – Foot bar down/feet on platform- I was pleasantly surprised to see the focus and use of muscle groups
*Focus on spinal articulation/hamstrings/abs

Arm Work: Fundamental Reformer, Arms Supine Series

Extension – Used a light weight on these due to rigidity and tremors in hands
Adduction
Up Circles
Down Circles
Triceps
*Focus on shoulder mobility/coordination

This was about the time where I noticed anything much passed this would not be beneficial with the level of fatigue Joella was experiencing as she had not exercised in quite some time. The act of getting up from the reformer consisted of its own forms of full body integration, leg work and lateral flexion. The new-found awareness of her abdominal muscles was immediately noticeable and put to use as she worked her way up from the reformer.

I finished the session with some standing movement as follows:

Cool Down

Interlaced hands behind back
Neck movement from side to side/front to back – especially good for persons with Parkinson’s
Shoulder shrugs/rolls
Side reach/lateral flexion
*Focus on breathing from diaphragm/bilateral & unilateral movement
**Weeks 4-10 Workout**

* Sitting Forward or my version of a “Sitting Roll down” on Cadillac (as described in assessment above) has been the preferred start to each session. I have now added a spring for resistance.

**Warm up:** Fundamental Mat (on Cadillac for platform)

Pelvic Curl – helpful with balance when rolling all the way up  
Spine Twist Supine – no assistance  
Chest Lift  
Chest Lift w/ Rotation – good for left/right side strengthening  
*Focus on abdominal awareness & control/pelvic lumbar stabilization/breathing from diaphragm*

**Foot Work:** Reformer

Parallel Heels – performing these feet exercises are good for strength, balance and shuffling gait  
Parallel Toes  
V Toes – mind body connection to keep heels together  
Open V Heels  
Open V Toes  
Calf Raises – great strengthening for calves also held heels under for a stretch on last rep to help with stiffness and rigidity  
Prances  
Single Leg Heels  
Single Leg Toes  
*Focus on hamstrings/foot & ankle control/trunk stabilization/bilateral & unilateral muscle control*

**Abdominal Work:** Fundamental, Reformer

Hundred Prep (w/o straps weeks 4-6; with straps weeks 7-10)  
Hundred (w/o straps weeks 4-6; with straps weeks 7-10)  
*Focus on deepening the awareness of abdominal muscles/layering abdominal muscle groups/using abs not neck*
**Hip Work:** Strap Work, Reformer (w/o assistance)

Frog
Circles Down
Circles Up
Openings
*Focus on hip adductors/abductors/pelvic stabilization

**Stretches:** Fundamental, Reformer

Some days I have her stretch with feet in straps as described above in weeks 1-3. Other days I have her practice Standing Lunge Only (omitting part 2 of the stretch; dorsi flex foot on floor)
*Focus on balance throughout the move/ hamstring & hip flexor stretch

**Full Body Integration:** Fundamental, Reformer

Introduction to
**Long Spine** w/o roll up or with slight beginning of roll up
*Focus on Abdominals/Hamstrings/control

**Arm Work:** Intermediate, Reformer, Arms Sitting (sitting on long box which is easier to get up/down from and with lighter springs)

**Chest Expansion** – this is where I saw the right shoulder “hiked” and the lean toward the left side. After a few weeks, client had made the corrections w/o being cued
**Biceps** – all arm exercises aid in prevention of arm tremors progressing
**Rhomboids**
**Hug A Tree**
**Salute**
*Focus on shoulder mobility/shoulder & elbow extensor strength/trunk stabilization

**Leg Work:** Fundamental, Wunda

**Leg Press Standing** – this is especially helpful for much needed balance
*Focus on balance & control of hip and knee extensors

**Lateral Flexion/Rotation:** Reformer or Pole

**Mermaid** (with modified leg positioning due to lack of flexibility; feet in front sitting position)
**Pole** sitting on ball; Reaching up and over with a slight twist
*Focus on lateral flexor stretch

**Back Extension:** Fundamental, Cadillac

**Prone 1** *Focus on back extensor strength*
Conclusion

On her first visit, my client Joella could barely walk into the studio due to her muscle stiffness, shuffled gait and pain from Parkinson’s Disease. She had not exercised on a regular basis and worked a desk job, which didn’t help matters. I had to be very strategic in her plan and stayed on the safe side the first few visits. By the end of the first visit she stated that much of her pain had subsided and instantly fell in love with Pilates. I showed her how she could do some stretches from her bed upon waking in the mornings to help with her muscle stiffness. She could not wait to return to class.

One day about 5 weeks into her program, Joella was leaving the studio, and had fallen outside after tripping on an uneven surface. She was calling me on my cell phone, still on the ground, stating she needed help getting up. As I ran outside, I saw her in the distance and all of a sudden, she sprang up to her feet. I saw her facial expression, and she saw mine, both completely surprised! She said she could hear my voice reminding her “Use your abs”. It was a proud moment for us both. One of the BASI Pilates principals, Awareness, had made the mind-body connection in her, allowing her to do something incredible…get up from off the ground by herself! Her new found skills had not only helped her get up, but restored hope and confidence within her. She since has continued to improve the way she moves, thinks and feels adding a better quality to her life. She is now off work and attending Pilates twice a week. She tells everyone how it has changed her life.
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