A Comprehensive Physical Therapy Program for Adult-Onset Dystonia: A Case Report

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Unique
- Dystonia can present with symptoms of involuntary muscle contractions, resting tremors, and diminished muscular control.
- Patients with dystonia can present similarly to patients with Parkinson’s disease due to the association with the basal ganglia.
- While there is significant research on physical therapy (PT) interventions for patients with Parkinson’s disease there is limited research on the PT evaluation and treatment of patients with dystonia.

Description
- 34 year-old female nursing assistant who was diagnosed with dystonia 3 years prior to initiation of PT.
- The patient was unsafe at work and this required her to take short-term disability.
- Interventions included strengthening exercises, core stabilization, neuromuscular re-education, balance exercises, and stretching with relaxation.
- The patient was seen for 30-45 minutes/session, 1-2x week for 4 weeks.
- Outcome measures included manual muscle testing (MMT), gait assessment using the Dynamic Gait Index (DGI), and balance assessment using the BERG balance scale.
- The patient’s goals were to return to work without extreme exacerbations of her symptoms and to return to the gym.

Observations
- Manual Muscle Testing (MMT) increased from 4+/5 for all upper extremity (UE) and lower extremity (LE) to 5/5 for all UE and LE.
- The patient was able to work 10-12 hour shifts at the end of 4 weeks.

Purpose
The purpose of this case report was to describe a comprehensive PT regimen, based on Parkinson’s disease research, for a patient diagnosed with adult-onset dystonia.

Foundation
- Dystonia affects approximately 16.4 per 100,000 people.2
- There is no known single effective treatment for dystonia as there are many subtypes of the disease, 2 and limited research on the most beneficial therapies.
- Parkinson’s disease treatment includes resistance training, balance training, therapeutic exercise, neuromuscular re-education, and relaxation techniques.
- It was hypothesized that a PT approach based on therapeutic exercise, neuromuscular re-education, and relaxation techniques could improve symptoms in a patient with dystonia.

Interventions

Therapeutic Exercise
- Recumbent bike
- Bird-dogs
- Squats
- Sink exercises
- Hoist © leg press
- Hoist © hamstring curl

Neuromuscular Re-education
- Wobble board
- Single limb stance on foam
- Tandem stance on foam
- Heel walking
- Toe walking
- Tandem walking

Stretching/Relaxation
- Lying in prone 5 minutes
- Manual hamstring stretch
- Manual gastrocnemius stretch

Conclusions
- This case report suggested that a comprehensive PT program similar to one that is used with patients with Parkinson’s disease was beneficial for a patient with full body dystonia.
- Future research should investigate a comprehensive PT program that focuses on therapeutic exercise, neuromuscular re-education, and relaxation techniques in a larger cohort of patients with dystonia.

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References

Figure 1. Basal Ganglia
Figure 2. Bird-dog exercise
Figure 3. Wobble board
Figure 4. Specific order of treatment utilized during each session.
Figure 5. Graph comparing initial evaluation to final re-evaluation measurements