

# Impact of Cognitive Distraction on Six-Minute Walk Test and Gait Mechanics in a Patient With Functional Movement Disorder: A Case Report

Erin Kenny, SPT, Arcadia University  
Susan Tomlinson, PT, DPT

## Introduction

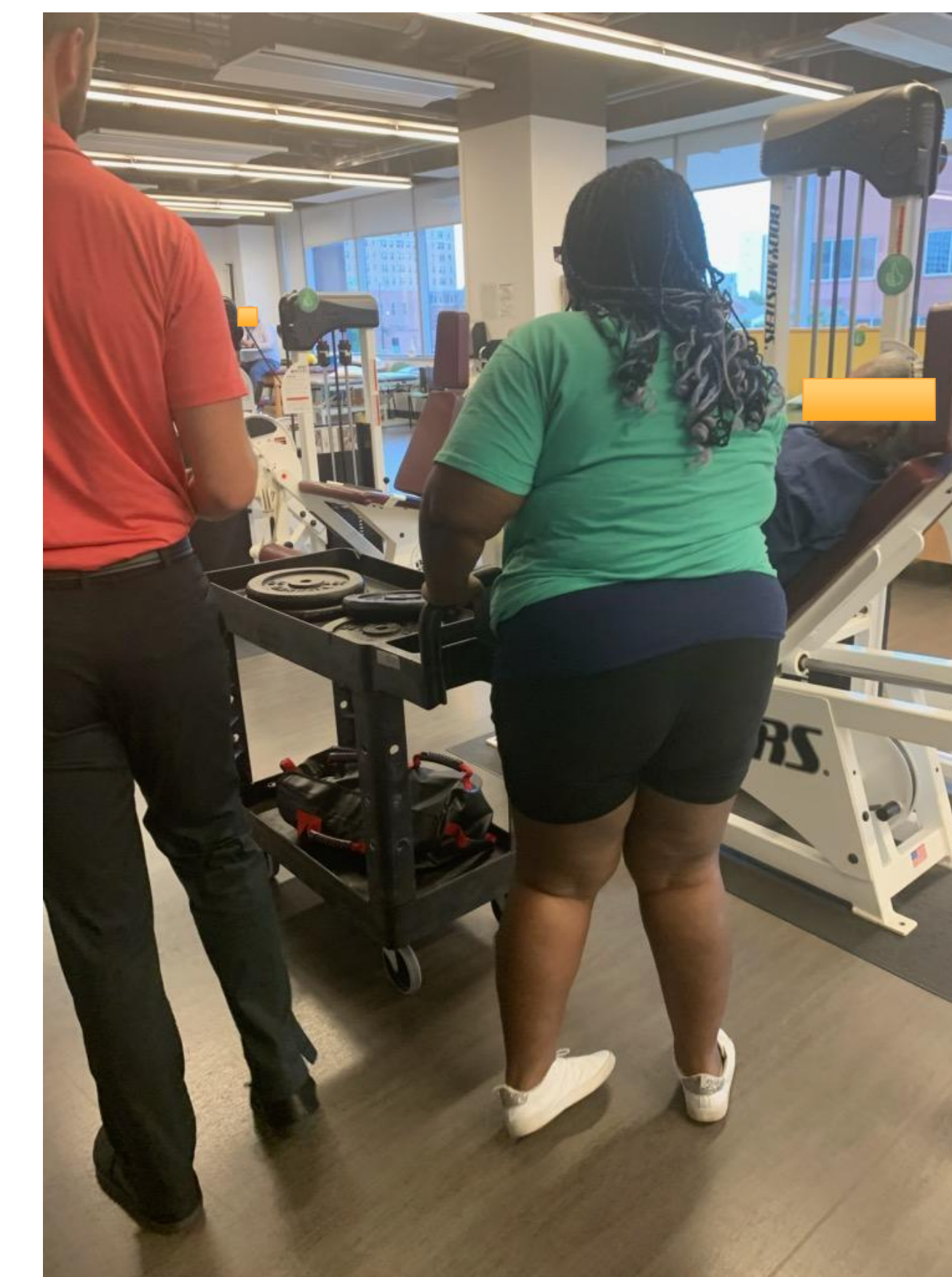
- The term functional movement disorder is used to describe symptoms such as paralysis, weakness, tremor and dystonia that are not caused by a standard neurological disease and which are assumed to be due to psychological factors.<sup>1,2</sup>
- Treatment is not well established and there are no established outcome measures for this condition.<sup>1,2,3,4,5</sup>
- This case examines two different clinical approaches to the treatment of functional movement disorder and their effect on Six-Minute Walk Test outcomes:
  - Treatment 1: traditional gait training approach
  - Treatment 2: cognitive distraction, de-emphasis of gait mechanics

## Background

- 28-year-old female who began experiencing abnormal L LE movement about 10 years ago
- Gait mechanics: Variable step length, decreased push off B/L, decreased heel strike B/L, crouched position with excessive knee flexion during mid stance, L hip internal rotation which switches at random to L hip external rotation
- Primarily uses manual wheelchair
- Ambulates short distances with forearm crutches - baseline 6MWT of 48ft.

## Interventions

Traditional Treatment (months 0-8)	Use of Cognitive Distraction (month 9)
Bodyweight supported TM training	Pushing heavy (>200 lbs) cart
Dorsiflexion wrap to prevent foot drop	Removed dorsiflexion wrap
Focus on correcting gait mechanics	Walking with cognitive distraction
Mat level strengthening exercises: bridges, clamshells	Rebounder balance training
Use of FES to facilitate normalized contractions	Use of Wii for balance and endurance
No exercise bike	Exercise bike



## Outcomes

Six-Minute Walk Test (Performed with Forearm Crutches)		
Baseline	Traditional Gait Training: After 8 months	Cognitive Distraction: After 1 month
46 ft	80 ft	263 ft

## Discussion

- Physical therapy is often cited as an important treatment for functional movement disorders but little evidence for best practice exists
- This case study highlighted two different treatment approaches for functional movement disorder and their impact on walking endurance
- An approach de-emphasizing gait mechanics and focusing on cognitive distraction during standing/walking tasks led to improved walking endurance and standing time compared to a traditional gait training approach
- This case report suggests that cognitive distraction may be a viable form of treatment for patients with functional movement disorders

## References

1. Nielson G, Stone J, Matthews A, et al. Physiotherapy for functional motor disorders: a consensus recommendation. *J Neural Neurosurg Psychiatry*. 2015;86,1113-1119. doi:10.1136/jnnp-2014-309255.
2. Nielsen G, Stone J, Edwards M. Physiotherapy for functional (psychogenic) motor symptoms: A systematic review. *J Psychosom Res*. 2013;75,93-102
3. Edwards MJ, Stone J., Lang A. From psychogenic movement disorder to functional movement disorder: Its time to change the name. *Mov Disord*. 2014;29(7),849-852.
4. Ricciardi L, Edwards MJ. Treatment of functional (psychogenic) movement disorders. *Neurotherapeutics*. 2014,11, 201-207. Doi:10.1007/s13311-013-0246-x
5. Jabusch HC, Zxchucke D, Schmidt A, Schuele S, Altenüller E. Focal dystonia in musicians: Treatment strategies and long-term outcome in 144 patients. *Mov Disord*. 2005;20(12),1623-1626.