

# Enhancing the Physiological Well-being of Individuals with Neuromuscular Movement Disorders, Through Community Based Fitness Programming

Stephanie Mims DPT

*Lehigh Valley Health Network, Stephanie.Mims@lvhn.org*

Craig Souders DPT

*Lehigh Valley Health Network, Craig\_M.Souders@lvhn.org*

Giselle Monosa-Hefele MSPT

*Lehigh Valley Health Network, Giselle.Monosa-Hefe@lvhn.org*

Eric Witzel EP

*Lehigh Valley Health Network, Eric.Witzel@lvhn.org*

Karla Plasco DPT

*Lehigh Valley Health Network, Karla\_E.Plasco@lvhn.org*

Follow this and additional works at: <http://scholarlyworks.lvhn.org/medicine>



Part of the [Medical Sciences Commons](#)

---

## Published In/Presented At

Mims, S., Souders, C., Monosa-Hefele, G., Witzel, E., Plasco, K. (2015, November 19). *Enhancing the Physiological Well-being of Individuals with Neuromuscular Movement Disorders, Through Community Based Fitness Programming*. Poster presented at: National Medical Fitness Association Annual Conference, New Orleans, LA.

This Poster is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact [LibraryServices@lvhn.org](mailto:LibraryServices@lvhn.org).

# Enhancing the Physiological Well-being of Individuals with Neuromuscular Movement Disorders, Through Community Based Fitness Programming

Stephanie Mims DPT, Craig Souders DPT, Giselle Monosa-Hefele MSPT, Eric Witzel EP, Karla Plasco DPT  
Lehigh Valley Health Network, Allentown, Pennsylvania, USA

## Objective

Does group-based exercise for individuals with Neuromuscular disorders improve functional level, decrease fall risk and enhance quality of life?

## Background

- Over 700,000 patients a year are hospitalized because of a fall injury, most often because of a broken hip or head injury.<sup>2</sup>
- Regular exercise is essential for individuals with Neuromuscular disorders to delay the physiological effects of progressive disease.
- Supervised group exercise class formats promote a safe, fun and educational environment, in which, individuals with Neuromuscular disorders can maximize their physiological response to exercise and be subjected to a positive social dynamic.

## Method

- Individuals with Neuromuscular disorders enter a continuum of care that begins with their neurologist's referral in to physical therapy, then, upon discharge, enter into the network fitness program.
- Initial assessment with standardized testing is performed by the physical therapist, and through collaboration with an Exercise Physiologist, the individual is placed into the appropriate group program, based on functional level.
- Functional gains following the completion of a PT program have been proven, but benefits are transient if regular exercise is not maintained; continued exercise is needed for longer-term improvement.<sup>3</sup>
- Bi-annual assessments provide objective data to support the benefits of regular exercise for individuals with Neuromuscular disorders.

### Class Format - 60 minutes in duration

- Warm up
- Strengthening exercises
- Cardiovascular exercises
- Functional movement patterning
- Dynamic movement exercises
- Fun game (that emphasizes balance, coordination and cognitive conditioning)
- Cool down



## Results

Table 1. High Functioning Group				
Measurement Tool	LE	Baseline	12 Month	% Increase
Dynamic Gait Index (DGI)		21.24	22.29	4.7%
Timed Up & Go (TUG)		7.31	7.54	3.1%
Single Leg Stance (SLS)	Right	9.99	12.08	17.3%
	Left	11.51	13.52	14.9%
EuroQol (EQ-5D)		82.22	86.85	5.3%
Functional levels increased, fall risk decreased and quality of life improved, as expected				

Table 2. Lower Functioning Group				
Measurement Tool	LE	Baseline	12 Month	% Increase
Dynamic Gait Index (DGI)		12.25	14.4	14.9%
Timed Up & Go (TUG)		13.12	13.62	3.7%
Single Leg Stance (SLS)	Right	1.52	3.28	53.7%
	Left	1.66	2.11	21.3%
EuroQol (EQ-5D)		64.99	65.66	1.0%
Functional levels increased, fall risk decreased and quality of life improved, as expected				

## Conclusions

Pre and post-test data was collected over a 12 month period, using standardized outcome tools administered by Physical Therapists and Exercise Physiologists.

Class Participants experienced:

- Improved functional level
- Decreased fall risk
- Enhanced overall quality of life
- Benefits of PT and EP collaboration
  - Timely referrals along the continuum of care between PT and Fitness to promote patient safety and independence.

Overall, this program supports National Goals for Better Health by promoting lifelong wellness and optimized function in those individuals with movement disorders. Further investigations could identify a correlation between structured exercise programs focused on supporting population health and a reduction in hospital admissions.

### References:

1. Huang S, Hsieh C, Wu R, et al. Minimal detectable change of the Timed "Up & Go" Test and the Dynamic Gait Index in people with Parkinson's Disease. Phys Ther. 2011;91(1):114-121.
2. CDC <http://www.cdc.gov/homeandrecreationalafety/falls/fallcost.html> (Oct 2015).
3. Tomlinson CL, Patel S, Meek C, et al. Physiotherapy versus placebo or no intervention in Parkinson's disease. Cochrane Database Syst Rev. Aug 2012;8:1-101

© 2015 Lehigh Valley Health Network

A PASSION FOR BETTER MEDICINE.™

610-402-CARE LVHN.org