

# “BRAKING BAD” ECCENTRIC CONTROL FROM TALKING TO WALKING

## Instructors

Mary Massery, PT, DPT, DSc  
Nechama Karman, PT, MS, PCS

## Sponsored by

**Location**

**DATE**

(7.5 Contact Hours)

## DESCRIPTION:

Eccentric muscle contractions are the brakes of the human movement system. Although there is yet little direct research on voicing eccentrics, preliminary data shows that glottal control (airway) is integral to upright postural control. Modulation of glottal constriction, such as during voicing, regulates intra-thoracic pressure, and by extension, intra-abdominal pressure, both of which are necessary for finely tuned postural control. The speakers will present novel ideas on the role of eccentrics in trunk control from talking to walking. In the normal gait pattern, the majority of muscle contractions are eccentric, yielding remarkable efficiency: harnessing momentum and ground reaction forces to minimize the energy cost of walking. In individuals with neurological injuries, movement impairments impede the ability to generate eccentric contractions or to time muscle contractions correctly, yielding co-contraction and inefficiency. The speakers will identify how these impairments impede postural control and gait ability and how to specifically address them using voicing as a mechanism to promote eccentric muscle contractions in intervention programs to minimize negative effects on gait and maximize walking performance. Interactive laboratory experiences will allow participants to practice applications of these methods across a variety of functional tasks.

## OBJECTIVES

Upon completion of this course, you will be able to:

1. State how the mechanics of breathing, talking, and postural control are inter-active and inter-dependent components of normal movement strategies using a soda-pop can as a conceptual model.
2. Discuss the potential benefits of utilizing voicing/breathing strategies with eccentric trunk activities to refine postural control.
3. Identify inefficient elements of gait patterns that may be present in individuals with neurological impairments.
4. Select and perform intervention strategies and/or techniques to elicit eccentric muscle contractions and address timing and alignment deficits that adversely affect reach, gait, transfers, sustained phonations, and voice volume in a wide range of patients across the lifespan.

<b>TIME</b>	<b>TYPE/ INSTRUCTOR</b>	<b>TITLE</b>
7:30 - 8:00		Registration
8:00 – 8:30	Lecture MM	Introduction to topic: eccentrics!
8:30 – 9:45	Lecture MM	Biomechanical and neuromuscular links between respiration, posture and movement
9:45 – 10:00	Break	
10:00 – 11:25	Lecture NK	Elements of, and impediments to, achieving an energy-efficient gait pattern (importance of eccentric control)
11:25 – 12:15	Lab NK/MM	Introduction to PNF Agonistic Reversal technique: eccentric resistance training and neuromotor re-education
12:15 – 1:15		Lunch
1:15 – 2:15	Lab NK/MM	treatment techniques: practicing eccentric resistive exercise techniques with a wide variety of activities and postures with the goal of optimizing postural control for safety and efficiency of movement
2:15 – 2:30	Break	
2:30 – 4:30	Lab NK/MM	Lab continued...
4:30 – 5:00	Lab and course summary	Show ‘n Tell: In small groups, solve a motor problem and show your results to the class. And course summary

## **SPEAKER'S BIOGRAPHY**

### **Mary Massery, PT, DPT, DSc**

Dr. Massery received her BS in Physical Therapy from Northwestern University in 1977, her DPT from the University of the Pacific in 2004 and her DSc from Rocky Mountain University in 2011. Her publications and interests focus on linking motor behaviors to breathing and/or postural mechanics in both pediatric and adult patient populations. Dr. Massery has been invited to give over 1,000 professional presentations in all 50 US states and in 18 countries worldwide, including more than 100 presentations for the American Physical Therapy Association. Mary's research pioneered the concept of managing trunk pressures as a new way to visualize core stabilization. She has delivered keynote and major addresses on topics such as cystic fibrosis and posture, pectus excavatum (chest deformities), connections between posture & breathing, and PNF (proprioceptive neuromuscular facilitation).



Mary has received national awards from the APTA, including its highest clinical award, The Florence Kendall Practice Award, honoring "one's outstanding and enduring contributions to the practice of physical therapy." She has been honored as Outstanding Alumnus of the Year by each of her 3 universities. She was also awarded Northwestern University's Alumnae Research Achievement Award. Mary continues to maintain a private practice in Chicago, specializing in breathing and postural dysfunction.

## **SPEAKER BIOGRAPHY**

### **Nechama Karman, PT, MS, PCS**

Nechama Karman received her MSPT from Columbia University in 1994, her Advanced MS in orthopedic PT from Touro College in 1998, and has completed her Health Sciences PhD coursework at Seton Hall University. Nechama is an APTA board-certified pediatric clinical specialist and the chief clinical educator at Mobility Research for LiteGait nationally and internationally. In addition, Nechama owns a private practice in NYC focusing on complex neurological conditions and complex pelvic conditions.



Nechama has completed two invited Massery faculty apprenticeships. In 2016, she became Mary's first certified faculty member for the "Breathing" course! And in 2019, she was the first certified faculty for Mary's "I Survived" musculoskeletal course. Two huge accomplishments! In addition, she co-authored a new one-day course with Mary: "BRAKING BAD: ECCENTRIC CONTROL FROM TALKING TO WALKING."

One of Nechama's proudest "Mary Massery" moments occurred when she treated a man suffering from prostatectomy-related incontinence using Mary's approach. She taught him to transfer without incontinence for the first time in 9 months - all in under 15 minutes! She is passionate about helping other therapists learn these important concepts.

**Disclosure:** Speakers are paid an honorarium for this presentation.