

- *The following represents the typical North American course structure for the 3-day introductory course: 20.5 contact hours.*
- *An extended 4-day format is used for overseas courses and includes more lab sessions: 28.0 contact hours.*

IF YOU CAN'T BREATHE, YOU CAN'T FUNCTION

Integrating Cardiopulmonary and Postural Control Strategies
in the Pediatric and Adult Populations

Instructor: Mary Massery, PT, DPT, DSc or Faculty

COURSE DESCRIPTION

This course, developed by Mary Massery, will challenge the practitioner to make a paradigm shift: connecting breathing mechanics and postural control with management of trunk pressures. Using Dr. Massery's model of postural control (Soda Pop Can Model), the speaker will link breathing mechanics with motor and physiologic behaviors (a multi-system perspective). The speaker will present novel research demonstrating the role of vocal folds as postural stabilizers, extending the concept of "core stability" from the vocal folds on the top of the trunk to the pelvic floor on the bottom. Numerous interventions will be presented that use positioning and ventilatory strategies to optimize motor performance. Neuromotor breathing retraining techniques and manual assistive cough techniques will be the focus of treatment labs. Multiple patient cases will be presented throughout the course. The emphasis of the course will be on developing practical, quick clinical solutions for pediatric and adult patients in all practice settings.

DAY-1 Topics (7.5 Contact Hours)

<u>Discussion:</u> Overview of course topics
<u>Lecture:</u> Breathing and posture: Part 1 - Pressure control (Soda pop model)
<u>Lecture:</u> Breathing and posture: Part 2 - The diaphragm
<u>Lecture:</u> Breathing and posture: Part 3 - The vocal folds
<u>Mini-lab:</u> What can you do in 90 Seconds or less that has a profound and lasting effect? Positioning strategies
<u>Lecture:</u> Normal and abnormal chest wall development and function
<u>Mini-lab:</u> Ventilatory strategies: Integrating breathing strategies with movement for optimal motor performance

DAY-2 Topics (7.5 Contact Hours)

<u>Discussion</u> : Review, synthesis and Q&A
<u>Lecture/demo</u> : Chest assessment: Focus on musculoskeletal alignment and breathing patterns
<u>Lab</u> : Assessing breathing patterns and postural implications
<u>Lecture</u> : Airway clearance: From Sherlock to solution
<u>Lab</u> : Facilitating efficient breathing patterns and endurance training: Neuromotor techniques for diaphragm, chest and other breathing patterns
<u>Patient demonstration</u> (if possible)

DAY-3 Topics (5.5 Contact Hours)

<u>Discussion</u> : Review, synthesis and Q&A
<u>Lecture/Discussion</u> : Differential diagnosis (patient demo): “Find the Problem”
<u>Lab</u> : Airway clearance: Focus on manual assistive cough techniques
<u>Lecture/Mini-lab</u> : Brief introduction to rib cage and trunk musculoskeletal restrictions associated with breathing difficulties – Quick Screening!
<u>Lab</u> : Enhancing breath support for phonation and postural control
<u>Discussion</u> : Group problem solving: Putting it all together

COURSE OBJECTIVES

At the conclusion of Day 1, participants should be able to:

1. Describe how trunk pressures link breathing and postural control using the Soda Pop Can Model.
2. Describe the multiple, simultaneous roles of the diaphragm as related to breathing, postural control, gastroesophageal reflux, constipation, and venous return.
3. Demonstrate the role of the vocal folds in normal postural stability responses (balance) and make the case for using speaking valves for patients with tracheostomies.
4. Contrast normal infant chest wall development to those with impaired breathing mechanics.
5. Position patients for optimal physiological and biomechanical support of breathing with simple equipment (towels, pillows, etc.).
6. Use a ventilatory strategy algorithm presented in class to optimally match breathing with movements from bed mobility to athletic endeavors.

At the conclusion of Days 2- 3, participants should be able to:

7. Present a multi-system (physical and physiologic) evaluation of motor impairments.
8. Identify the variations of “normal” breathing patterns and discuss the efficiencies/inefficiencies for individual patient conditions.
9. Evaluate need for, and demonstrate, appropriate neuromotor retraining techniques for patients with ineffective breathing/postural control strategies (health or participation deficits).
10. Participate in a live patient demonstration (if a patient is available) and suggest possible evaluation and treatment ideas based on the course material.
11. Design a targeted airway clearance program using the principles of mobilization, expectoration and oral management.
12. Demonstrate airway clearance techniques, with an emphasis on manual assistive cough techniques, and apply an airway clearance algorithm to specific patient conditions.
13. Identify thoracic cage/spine restrictions as they pertain to breathing mechanics and postural control (a very brief introduction musculoskeletal issues).
14. Evaluate need for, and demonstrate, neuromotor retraining techniques to improve breath support for voicing and postural control (eccentrics).
15. Suggest means for incorporating the course material into therapy activities in your clinical setting immediately.