



2022 Annual Conference | Course Description & Objectives | April 9, 2022

UNMC Truhlsen Events Center

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President, APTA Academy of Cardiovascular & Pulmonary Physical Therapy



Course Title: **What's Lub(Dub) Got to Do with It? Applying Cardiovascular & Pulmonary Principles**

Course Description:

This presentation will delve into the application of cardiovascular & pulmonary physiological principles to patient populations. This will be presented along 2 major themes – breathing & inflammation. **Part One, the Science of Breath**, will dive deeper into the physiology, assessment and interventions related to breathing. Presenters will discuss physiology of breathing as it applies to ventilatory efficiency and nasal versus oronasal breathing, in healthy and impaired states such as anxiety, chronic pain and dyspnea, as well as acute and chronic Covid. We will explore the strategies for breathing assessment, including breath-holding, heart rate variability, end-tidal CO₂, and breath control with its relationship with dynamic postural control and core stability. We will review the current state of evidence of various breathing strategies and manually-facilitated interventions. Sample cases (including the application to acute and chronic Covid recovery) will be explored for application and adaptation, including exercise/training recovery, sleep, pain, and dyspnea. **Part Two, Put Out the Fire – Controlling Inflammation**, will include comparison and contrast of acute versus of chronic inflammation and the sequela in pathophysiologies, including the currently examined role of acute and chronic inflammation in acute and chronic Covid. Physical therapy management of inflammation will be highlighted.

Course Objectives:

Objectives – Part I: The Science of Breath

- Apply knowledge of pulmonary anatomy & physiology, as it relates to breathing, with emphasis on: CO₂ buffering/pH, Bohr effect, alveolar ventilation, ventilatory efficiency, ventilatory threshold, dyspnea perception, end-tidal CO₂, and peripheral oxygen extraction.
- Define & assess dysfunctional breathing, with emphasis on heart rate variability, end-tidal CO₂, dyspnea/ airway sensitivity and alveolar hypoventilation.

- Discuss the role of self-selected breathing patterns & inefficient/dysfunctional breathing in anxiety, chronic pain, acute & chronic Covid, and other conditions.
- Perform & prescribe breathing interventions, given sample patient cases -- using peer-reviewed evidence in breathing strategies, including nasal breathing, boxed breathing, pursed lip breathing, manually facilitated techniques, resistance training & more, for various healthy and ventilatory-impaired populations

Objectives – Part II: Put Out the Fire – Applying concept of Inflammation

- Review components of the immune system, clotting cascade & arachidonic acid cascade
- Differentiate acute versus chronic inflammation
- Discuss recent literature related to role of inflammation in various pathophysiologies, including COVID-19
- Examine medications that possess anti-inflammatory properties
- Examine nutritional strategies to reduce inflammation
- Consider physical therapy management strategies in acute and chronic inflammatory disorders

Bio:

Dr. Campbell, an Iowa native, is a 1996 DPT graduate of Creighton University. She has worked clinically in critical care, heart/lung transplants, outpatient pulmonary rehabilitation, general acute care and other areas. She has been a PT faculty at Creighton, University of North Carolina, and Springfield College. Currently, she is in her second term as President of the Academy of Cardiovascular & Pulmonary Physical Therapy (APTA CVP). She has been an ABPTS Board-Certified Cardiovascular & Pulmonary Clinical Specialist since 2001. Angela has served on: ABPTS CVP Specialty Council, ABPTRFE Residency Credentialing Committee, and as Chair of APTA CVP Advocacy and Nominating Committees. Angela was the founder/designer of the PACER project (Post-Acute Covid Exercise & Rehabilitation) and part of the leadership group that developed the recently published (2021) *Adult Vital Signs in Acute Care Guidelines* (collaborative between APTA CVP & APTA Acute Care). Dr. Campbell lives in Connecticut with her husband, 2 daughters and a menagerie of animals. Currently, she can be found most evenings at ice rinks or turf fields.