SIMPLY SPICY 2017

July 8-9, 2017 ♦ Sagebrush Inn & Suites, Taos, New Mexico

3B/4B (repeat): Tending the Garden Within: Cultivating GI Wellness

Sally Fisher, MD & Satkirin Khalsa, MD

Sunday, July 9, 2017
1:30 p.m. – 3:00 p.m.
3:15 p.m. – 4:45 p.m.
Tending The Garden Within: Cultivating GI Wellness

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Simply Spicy
July 9, 2017

Objectives
- Review the Brain-Gut & Microbiota Axes
- Discuss the physiology of breathing
  - Neuro-endocrine mechanical pathways and functions
- Review pulmonary anatomy
- Correlate Brain-Gut-Microbiota Axis & Lung physiology
  - Inflammatory cascade
  - Neuro-endocrine modulation
  - Microbiota harmony

Brain-Gut-Microbiota Axis
- Stress
  - Traumatic
  - Life event
  - Physical
  - Emotional
  - Situational/environmental
- Inflammatory Cascade
- Bi-directional central integrative interactions
  - Brain-Gut-Microbiota-Gut-Brain
Symphony of Nerves and Microbes

Dysregulation of Microbiota via BGA

Breathing Anatomy
  - Diaphragm and the crural diaphragm
  - Slow adapting stretch receptor distribution
  - Vagal Nerve: Afferent/efferent neurons & signaling pathways

Breathing A&P

- Anatomy
- Posture
- Chest Capacity
- Intra-thoracic Pressure and Atmosphere
- Alveolar Sensors
  - Slow adapting stretch receptors
- Paced breathing
  - Baroreceptor modulation
  - Heart Rate Variability sensitivity

Breathing & Brain-Gut Axis

- Crural diaphragm

- Afferent/Efferent Neurons of the Autonomic Nervous System

- Lower esophageal sphincter tone
  - Mechanical barrier for acid reflux

Physiology of Long Deep Breathing

- Recruit & expand more alveoli
- Stimulate slow adapting stretch receptors: SARS
- Baroreceptors in carotid arteries detect stretch
- Baroreceptors communicate through neuro-endocrine pathways to affect kidney function
- Salt and water filtration increased as:
  - Autonomic nervous system altered:
    - Sympathetic tone decreases, as parasympathetic tone is favored
Autonomic Tone in Parasympathetic Favor

Anatomy
- Larynx - breathing tube

Anatomy: chest Cavity
Anatomy: The Diaphragm

Diaphragm Muscle, View From Below

When Parasympathetic is Favored:
Overall Decrease in
- Vascular tone
- Muscle tension
- HR, Blood Pressure
- Improve HR variability and synchronicity
Practice Makes Perfect

- Back to basics: baby posturing, belly breathing,

Practice

- Retrain body to breathe long, deep

At Baseline:

- Clavicle angle
- Distance between head of clavicles, articulation to sternum
- Ribs, Intercostals
- Shoulders internal rotation
- Apex of lung situated....
External rotation of shoulders (anatomic):

- Clavicle angled up
- Distance between head of clavicles, articulation to sternum increased
- Apex of lung situated… higher

Breathe Control, with Postures

- Patients can use at any time
- Always in ‘back pocket’
- Useful, immediate, effective tool
- Can be done anywhere
- It’s free
- And…..we’re already breathing

Happy Humans
Happy Microbiota
Happy Gut

Thank You!