1. Multi-System Approach to Pressure System
   a. Let’s widen the Lens – the case for looking above the pelvic floor

   i. The role of the diaphragm
   Smith M et al., Disorders of breathing and continence have a stronger association with low back than obesity and physical activity. *Australian Journal of Physiotherapy*. 2006;52:11-16

   ii. The role of the glottis/larynx – coordination with the diaphragm

   iii. The vagal/trigeminal system – how to modulate the system for function.
Stephen Porges – Polyvagal System – and the myelinated vagal system.

2. **Central Stability Strategies and Pressure Systems:**
   a. **Function** - Understanding function allow us to build strategies that optimize function.
      i. Balanced interaction of the local stabilizers with each other and their interrelationships with global stabilizers.
      
      ii. Balanced interaction of the muscular and pressure systems insures stability; driven by the action of diaphragm.
         1. The diaphragm is the link between ITP and IAP systems, and the emotional, ANS, swallow, phonation, and sensory systems.
         2. Pressure can be a pelvic health foe as a component of incontinence, prolapse and diastasis. Or it can be harnessed as a friend.
            i. How would the video change with breath hold? Glottal hold? Abdominal hold? Pelvic Floor hold? Respiratory infection? Weight belt?

4. Old pre-activation intervention strategies: Navel to Spine
   New pre-activation intervention strategies:
1) Blow before you go,
2) Phonation – talk, hum, sing as you go
3) Variance of phonation during activities
   i. Modulates pressure, triggers recoil, mimics design, promotes balancing the pressure and muscular systems
   j. Requires coordination with the glottis/larynx and the pharyngeal mm.

iii. **Dysfunction:** Pressures have been measured during functional and fitness activities, noting a wide variety of responses across participants.
   a. How they were doing the activity (form, strategy) determined the amount of pressure vs the activity itself.


   i. “It is unlikely that a single threshold exists for IAP that increases risk for PFD. Whether the subtle variations in IAP seen with walking speed or method of carrying a toddler-size load actually increase the risk of PFD is not yet clear. However, during potentially high-risk
times, such as the postoperative or postpartum periods, it seems prudent, based on biologic plausibility, to limit time spent doing higher-IAP activities. Our results suggest that we can recommend that patients evenly distribute their loads, when possible, and to limit fast walking in the immediate postoperative period. Finally, research aimed to redesign heavy appliances that are regularly carried, such as car seats, is warranted in order to help postpartum women achieve a lower IAP profile.”

3. **Alignment/Form:** The purpose for altering form:

i. To increase muscular availability and access by the patient to optimize pelvic health, MSK health and performance simultaneously.


Sapsford RR, Richardson CA, Maher CF, Hodges PW. Pelvic floor muscle activity in different sitting postures in continent and

ii. Optimizes the airway-physiologic priority #1
   1. Brain will not embed a long-term strategy for alignment, movement, function, or performance if breathing is compromised.

iii. Impacts the upper thoracic/cervical/cranial systems:
   1. Cranial nerve function:
   2. Sensory system:
   3. Swallow
   4. Phonation

iv. Goal directed recommendations:
   1. Learning/Recovery Phase: mid-range, ribs over pelvis, cervical positions, TMJ and eye positions
   2. Transition to positional variability

v. Mini-movement Lab

vi. Summary via discussion of:

4. Integration into Movement Strategies:
   i. Movement activities to try in your populations.
      1. Sit to stand with variable inputs
      2. Bending over and lifting with variable inputs
      3. Squatting with variable inputs
      3. Running with variable inputs


Smith MD, Coppieters MW, and Hodges PW. Is balance different

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5. Q and A

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