Bill Keele’s Zoom Presentation

Saturday, April 24, 2021, 2:30 pm–4:00 pm, Pacific Time
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Please print this handout if possible rather than viewing on screen during Zoom Presentation.

Props to have handy

- Something to lie down on (mat or blankets for on the floor, or massage table, or bed)
- Pillow for under the head while lying on your side, and under head while on your back
- Pillows for under the knees while lying on the back, and with legs opened outward
- If possible, locate Zoom screen near floor or table so you can see, hear, and be able to do movements.

Intention of presentation

- Expand the experience and education of Self-Pandiculation as it relates to the pelvis and lumbar spine.
- Understand what you are trying to achieve via movement. Individuals typically come to us due to issues of pain, postural concerns, and/or lack of mobility. Why have these concerns presented themselves? The following conditions are all part of Sensory Motor Amnesia (SMA).
  1. Hyper-contracted muscles are stuck in a “turned-on” state. When this condition persists over time, random dysfunction can present in the neuromuscular system.
  2. Unstable joints, via injury or strain, require awareness and education to re-establish muscle control. These injuries oftentimes inhibit muscle activation. Typical muscles effected are transverse abdominus, multifidus at specific joint level, pelvic floor, and gluteus maximus.
  3. Lack of synergy or coordination between muscle groups can limit our activities of daily life, leading to reduced sensory motor function. This relates to connections running vertically, diagonally, as well as front to back (agonist/antagonist).
  4. Integration
In preparation for the presentation... **SHOW BOOKS**

I went back and reviewed several books. There is a common thread that runs through the following four; the newer perspective of tissue continuity.

- **Somatics—Reawakening the Mind’s Control of Movement, Flexibility, and Health**, Thomas Hanna

  From Thomas Hanna’s discussion of Sensory Motor Amnesia (SMA) and how it can become a debilitating condition:
  1. “Viewed internally and functionally, SMA is a single somatic problem. Viewed externally and structurally, SMA is a multitude of mysterious medical problems”.
  2. “The sensory-motor system is a “feedback loop”; in other words, if you cannot sense it, you cannot move it, and the more you move it, the more you will sense it. This is the rule of the sensory-motor system, one solid part of the neurophysiological foundation of somatic education.”


  I have shared this book with many clients over the years because it is an elementary book that explains anatomy and recovery in a way I fully support. Highlights from his book:
  1. “In order to properly control our spinal muscles and maintain spinal joint stability, the nervous system needs to be aware of even the most subtle changes in spinal joint position.”
  2. “Recent research strongly suggests that if the nervous system is deprived of this position-sense information, it will lose the ability to activate certain middle layer muscles, muscles which protect and stabilize the joints of the spinal column.”
  3. “Therefore, once almost any form of spinal pathology develops, our nervous system is unable to exert optimal control over certain muscles—spinal muscles which are critical to maintaining spinal stability.”
  4. “If any part of the spinal joint is injured or experiences even the slow wear and tear of types of problems seen with the ‘older spine’, two different deficits develop. First, the mechanical stabilizing ability of the disc or ligament will diminish, allowing more motion to occur at the spinal joint. Second, and even more importantly, once injury or wear and tear affects the disc or ligaments, the positional information these structures normally generate become faulty.” “This combination of mechanical and neurological problems is the basis for what we now refer to as a clinical spinal instability”.
  5. “prescribed exercises...are to be done gently, with minimal exertion”.
  6. “In fact, it is entirely accurate to describe this approach as one which re-trains the nervous system more so than the muscular system”.
  7. “when people get correct control of both TA and multifidus, they have a very high likelihood of gaining complete control of their back pain.”
8. General introduction and understanding of how lines of force and effort are continuous, not confined to origins and insertions.

9. Forward by Leon Chaitow—"The body heals itself, and our primary role is to remove obstacles to the process which allows this to occur."

10. "Clinically the gluteus maximus appears to become inhibited whenever the SIJ is irritated or in dysfunction. The consequences to gait can be catastrophic when the gluteus maximus is weak. The stride length shortens and the hamstrings are overused to compensate for the loss of hip extensor power."

11. "Due to the tightness of the fibrous connections and the specific architecture of the sacroiliac joint (SIJ), mobility of the SIJ is normally very limited, but movement does occur and has not been scientifically challenged."

12. "The main movements of the SIJ are forward rotation of the sacrum relative to the iliac bones (nutation) and backward rotation of the sacrum relative to the ilia (counternutation)."

13. "An electromyography (EMG) study found that, during lifting, the activity of the gluteus maximus muscle paralleled that of latissimus dorsi and erector spinae muscles. These observations indicate that self-bracing of the pelvis can be established by contraction of the mentioned muscles and core muscles like the transversus, multifidus, the pelvic floor and the diaphragm."

14. "...advice is to treat and prevent low back pain by appropriately strengthening and coordinating trunk and leg muscles to reach core stability. Initially, big levers like the legs and spine in the case of sub/optimal stability should not be used and only trained when core stability is sufficiently established."

15. See Book #2 on how to
Movement strategies

- In this presentation, I am not doing assessments other than receiving verbal feedback and watching as they do the "Elementary Movements". I have chosen the first four movements to see how the individual can move.
- Advanced movements are intended to bring focus to the topic underlined in black.
- All the movements are in red, my intention for choosing the movements in black.

A. **Elementary - Movements to reveal starting “Starting Point”**
   1. p&F (*capacity to demo Pelvic Tilts*)
   2. Knees standing, dropping knee medially towards opposite foot (*hip mobility, preparation for later movements*)
   3. Hip hikes (*symmetrical movement?, understanding of concept*)
   4. Clam (*initial intake, any pain with movement?, SI initiation*)

B. **Advanced**
   1. **Movements to identify muscle inactivity; discuss inhibition**
      Abdominals; pelvic floor anterior vs posterior, TA, IO, EO, rectus
   2. **Pelvic Stability:** A&F Progressive; w/head, then legs
   3. **Contralateral Movement Pattern Enhancement, Cross Body Connections, & fascial raphe**
      A&C Diagonal Progression
   4. **Asymmetric Backline Trauma, fascial raphe**
      Side-lying erector/QL/buttock contraction w/elbow & leg
   5. **Non-specific complaints on one side of thoracic/ lumbar/ pelvic intersection**
      Prone quadratus/psoas
   6. **Movements to enhance agonist-antagonist relationships; neuromuscular balance**
      Side-lying Backline
   7. **Training psoas, inhibiting extensors**
      "Knee to the Wall" supine
   8. **Glut Max activation**
      Supine Pelvic lift, Prone Single Leg Lift w/bent knee, Bird-dog
   9. **Integration**
      Pelvic Clock
Anterior Superficial Musculature

Note how high the External Oblique comes up onto the ribs!
Anterior Deep Musculature

Note origin of Piriformis on anterior surface of sacrum!

I particularly like this anterior depiction of the QL, as it lies anterior to all lumbar extensors. Superior fibers become one with fascia of arcuate ligaments of diaphragm, and psoas.
Lateral Superficial Musculature

Note size and power the Gluteus Maximus portrays. When this muscle is weak or not “turning on”, hamstrings and extensors try to compensate.

Lateral Deeper Musculature

Notice Piriformis connection to sacrum. Then look at Multifidus and Iliocostalis insertions onto sacrum on page 12. This image makes it easier to visualize how the muscles on either side of the sacrum can strain the SI joint.
Use these images to visualize and feel more clearly lines of force in relation to abdominal musculature.
This drawing is a perfect aid for me to both visualize, and to feel the vectors of connections. The TA is the corset, the IO secures the pelvis “headward” and contributes to the action of posterior tilt, while EO secures the ribs downward to the pelvis and centrally to the fascial web of the abdomen.

A real-life example: There is a wonderful area on the side of Haleakala with a 6 mile loop and 1100’+ elevation change. The first three miles are up (glut max!). As I begin to walk downhill, I notice the low back can begin to ache. By consciously engaging these muscles, a cylinder of support is created by reducing the anterior pelvic tilt, so the weight of the upper body is not solely resting on bones, discs, and the ligamentous connections. Consequently I have no negative repercussions from the activity.
Posterior Musculature

Notice the size of the Latissimus Dorsi, and the long intersection with the superficial dorsal fascial raphe. This depiction relates to the fascial image on last page.
Here is a good image to see the extensors all inserting onto the iliac crest and sacrum; some culprits in the “Green Light” condition.

Notice the iliocostalis relating to the sacrotuberous ligament, and then to the hamstrings; this Tom Meyers refers to as part of the Superficial Backline.

Also notice on the left side how the piriformis and iliocostalis/multifidus are related. Play with conscious contraction and release of these muscles in side-lying or supine. It may help to understand how these perpetual contractions can create compression of the sciatic nerve leading to “Piriformis Syndrome”.

Posterior Deeper Musculature
Thoraco-Lumbar Superficial Fascial Raphe

Here we can see the superficial musculature interlacing with the broad fascial raphe.

The Lats have a big potential roll in connecting via the posterior sling" to the opposite glut max. This relates to all contralateral movements.

Images can be an aid in visualization, and then lead to better sensing of lines of connection in the body. Consequently, less sensory motor amnesia SMA).