Foundation Training

From Pain to Performance

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Introduction

Course Objectives

By the end of this course, participants will be able to:

- Explain the core principles of Foundation Training
- Incorporate decompression breathing into all Foundation Training exercises to enhance spinal decompression and core engagement
- Demonstrate proper form for key Foundation Training exercises, including the Founder, Lunge Decompression, Woodpecker and Woodpecker Rotation
- Develop an understanding of how to integrate a Foundation Training program into their office practice

Learner Outcomes

Participants will leave with the knowledge and practice to:

- Increase their awareness of posture and movement patterns in patients
- Activate and strengthen the posterior chain
- Reduce the occurrence of back pain by improving overall stability and mobility
- Teach patients how to incorporate mindful movement and breathwork into their daily life

The Evolution of Foundation Training

- Started to get one man out of pain
- Just so happens it gets a lot of people out of pain and keeps them out of pain
- Designed to restore proper alignment through joint centration (posture) and movement patterns
- Allows you to take your patients from injury recovery to injury prevention to increased performance
- Data to show decreased injury rates with increased performance in LA County Firefighters
- New research through UCF – improving movement patterns


A


Most common pain areas:
Neck
53%
Shoulder
38%
Wrist
33%
Low Back
63%
* Survey conducted by American Osteopathic Association

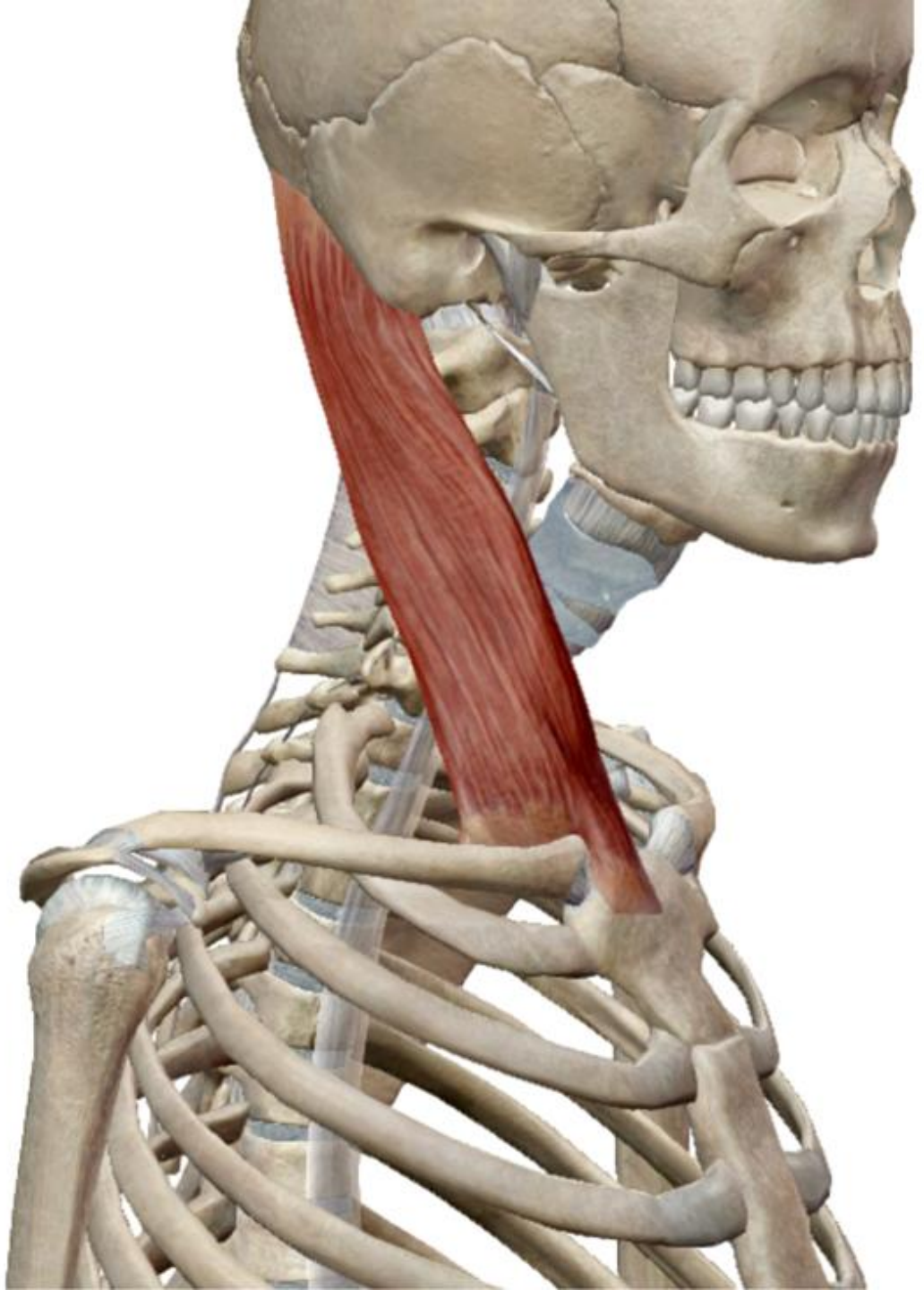
Complacent Adaptation

- Our bodies adapt (that's good and bad) to the positions we frequently put them in

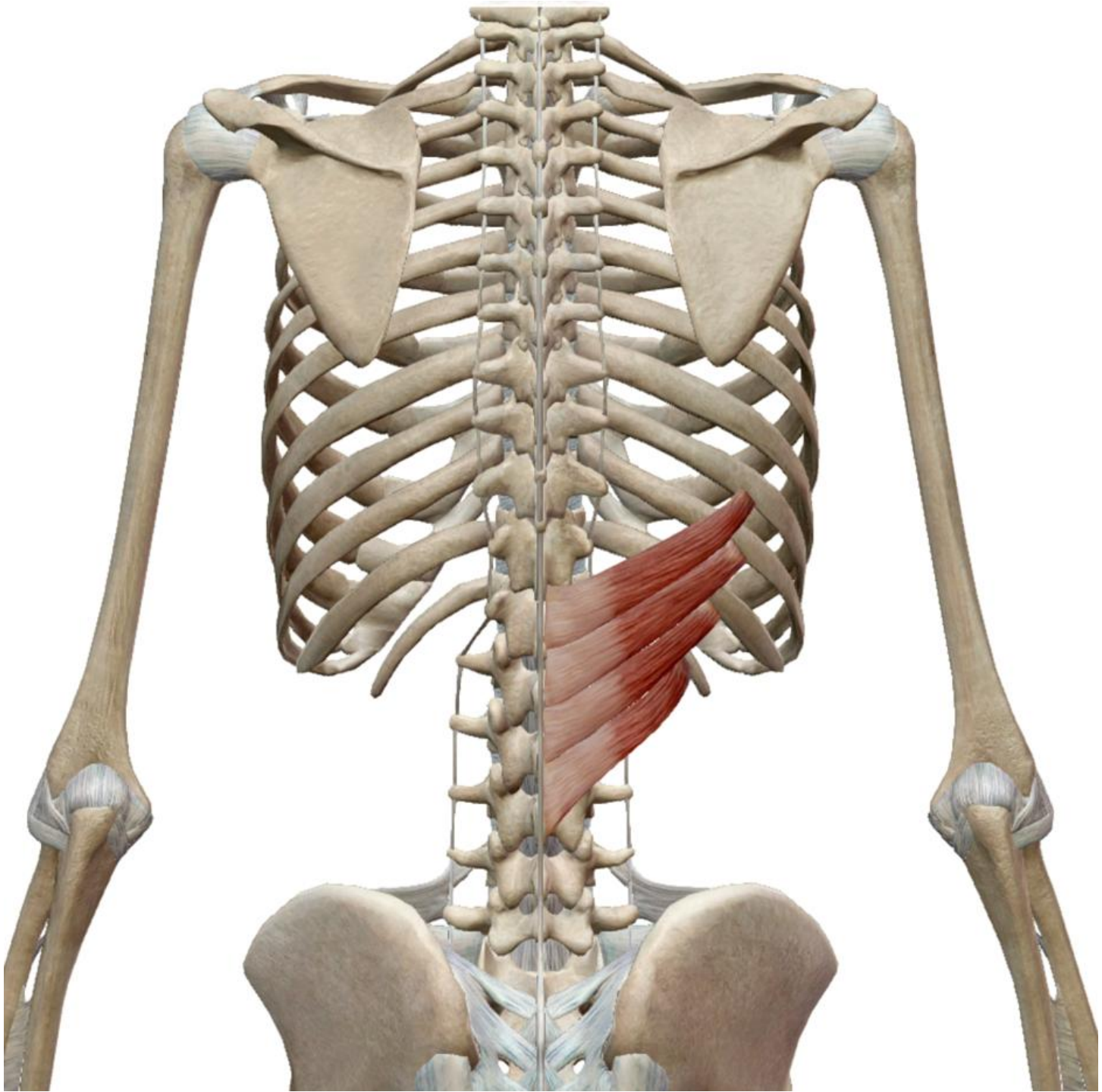
- Our lifestyles cause poor movement patterns which, in turn, cause muscular imbalances in core stability and alignment, which sets you up for injury

Common muscles involved in Complacent Adaptation:

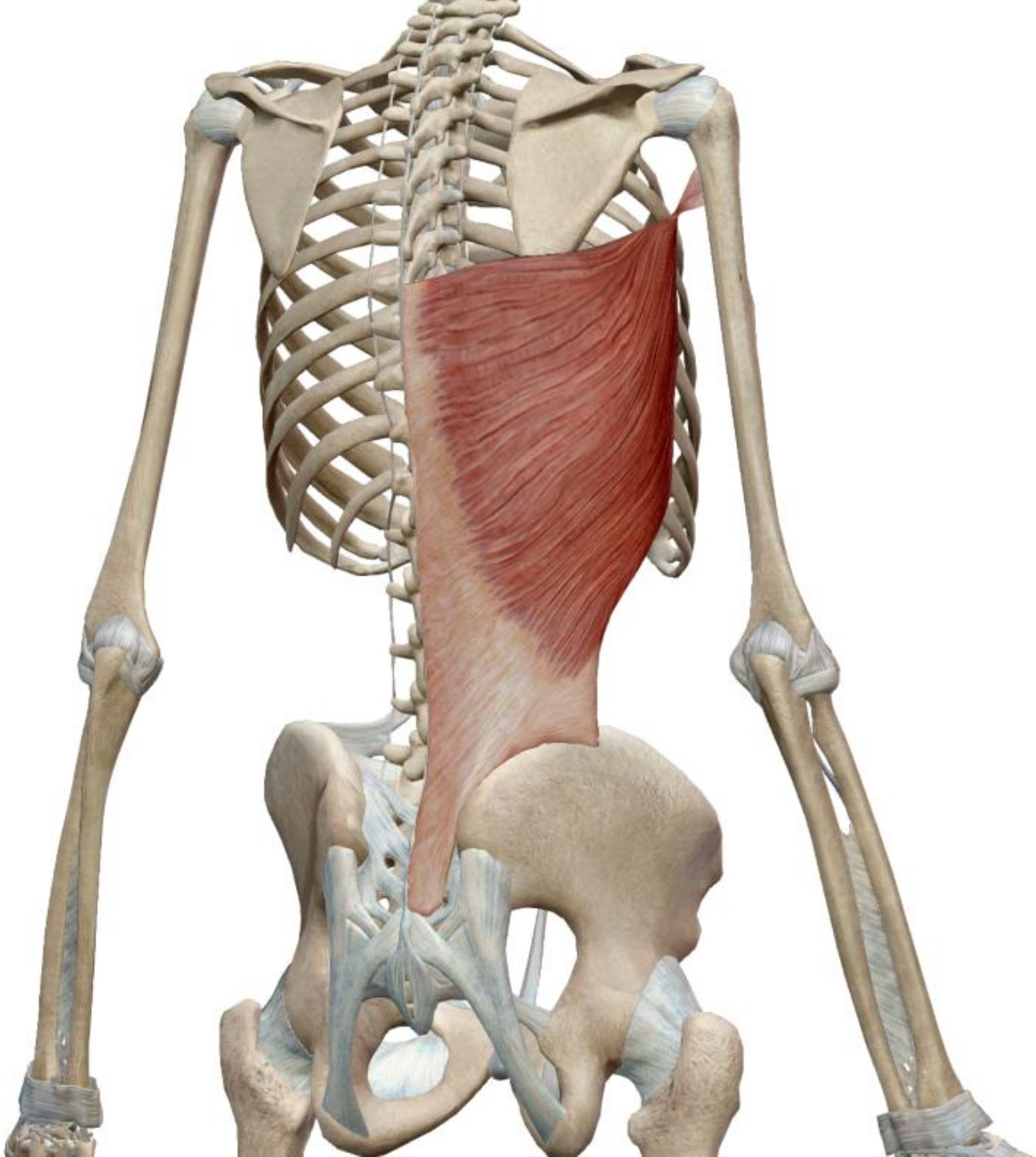
SCM



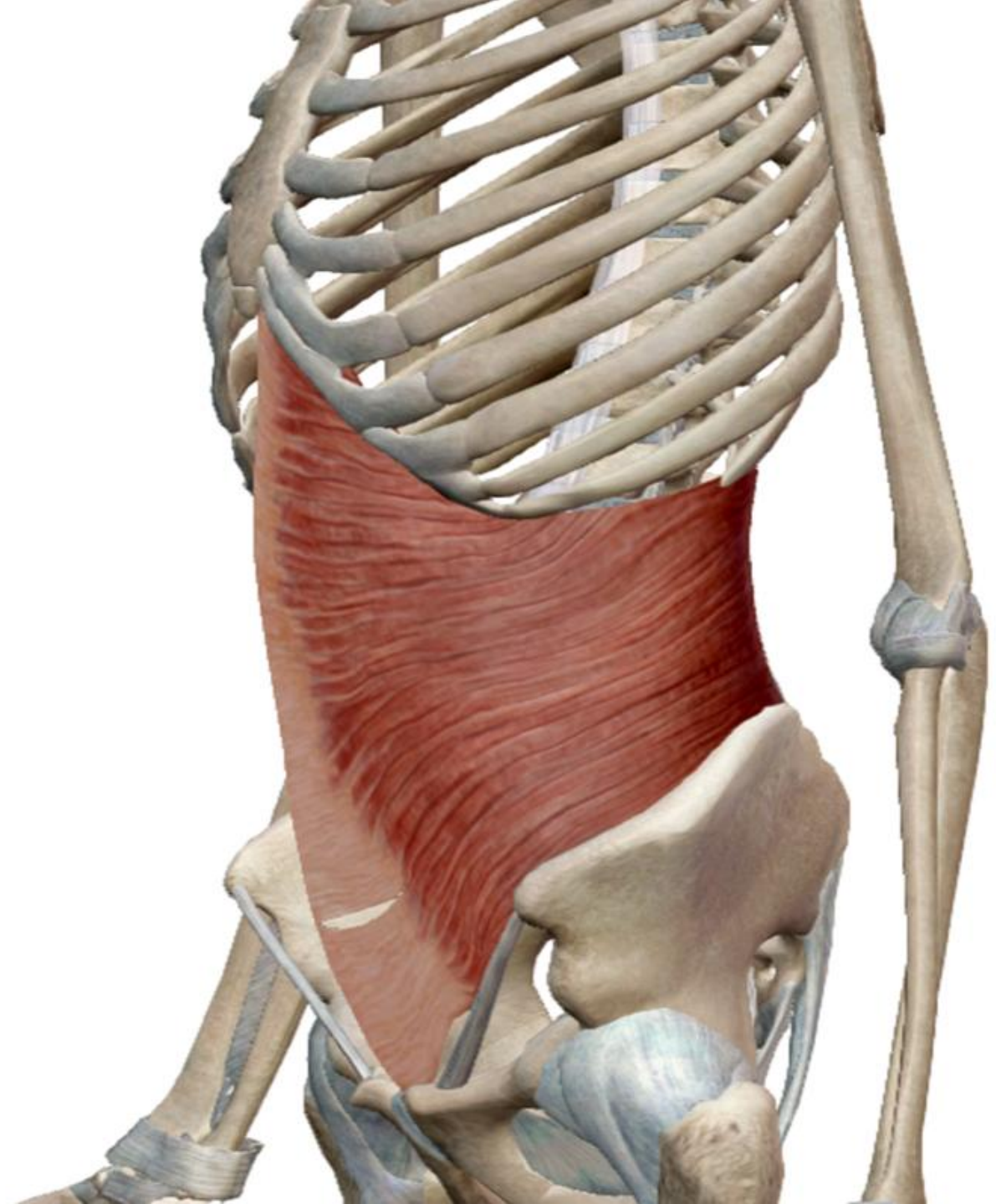
Serratus Posterior Inferior



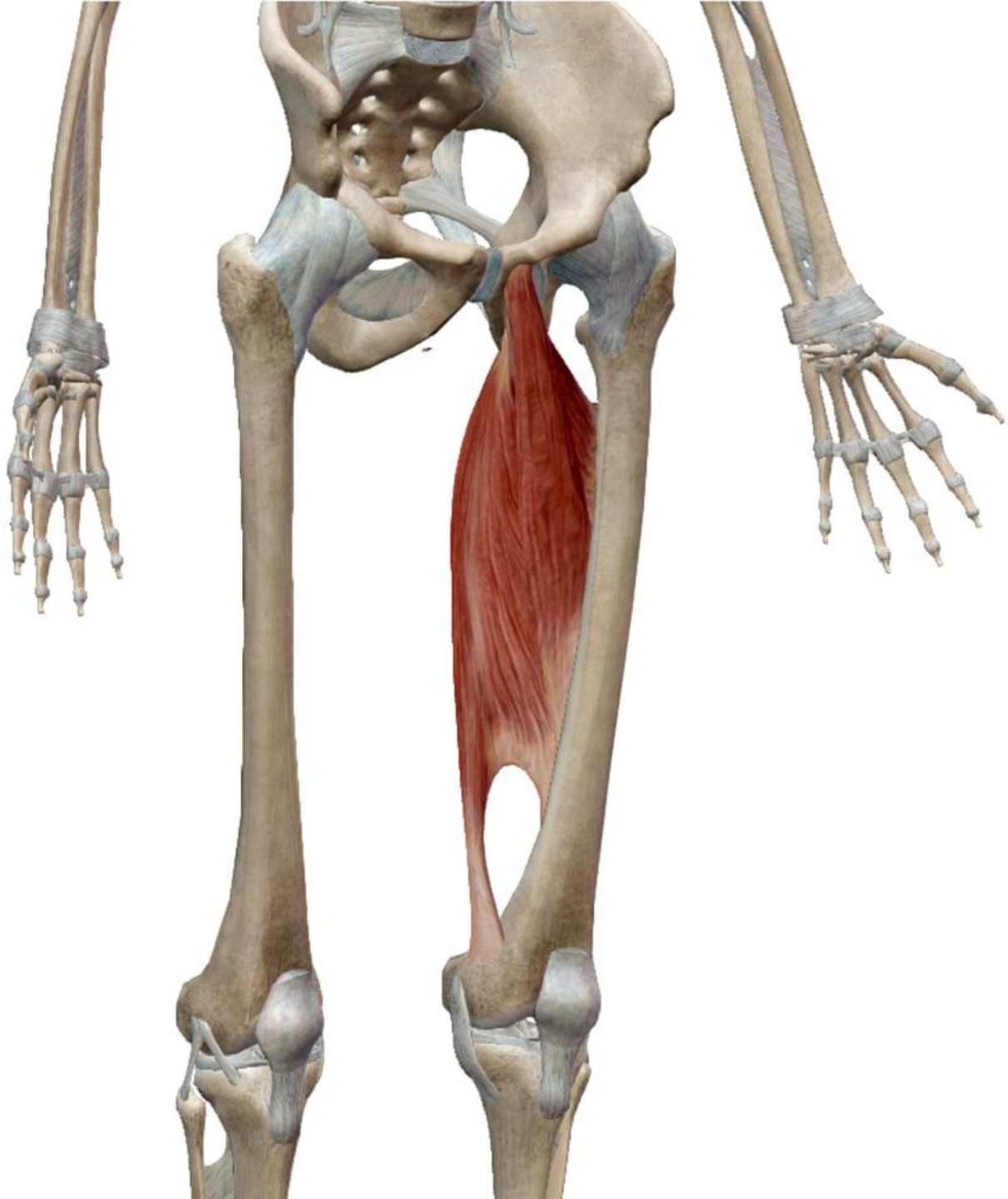
Latissimus



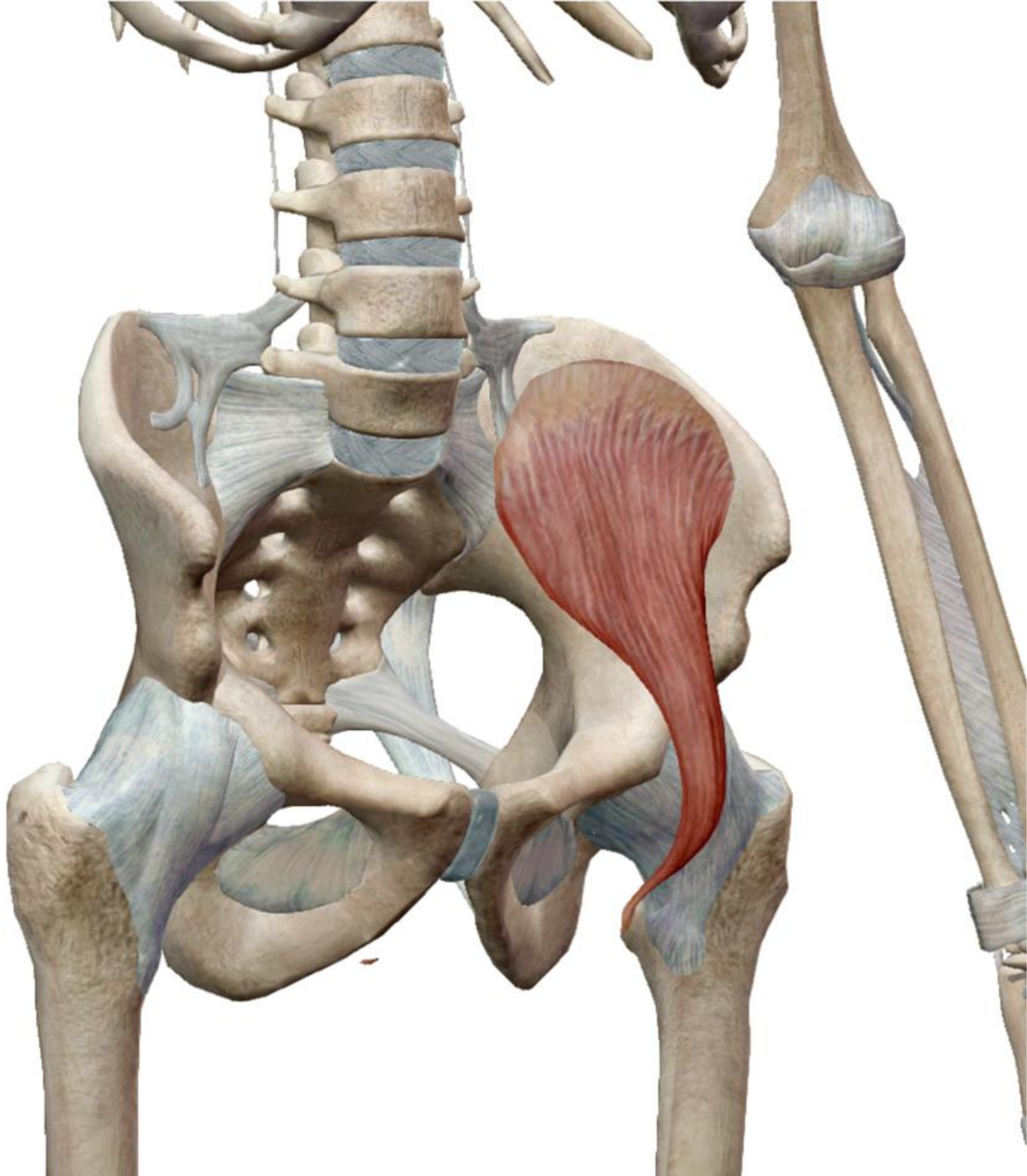
Transverse Abdominus



Adductor Complex



Iliacus



Hamstrings

(Bio)Tensegrity

- Tensegrity - Buckminster Fuller (1960’s) "tensional integrity"
- Bio tensegrity - Stephen Levin (1970’s) - extending theoretical application of tensegrity principles to biological structures
- Muscles, bones, fascia, ligaments, tendons, even cell membranes, are made strong by the unison of tensioned and compressed parts
  - The musculoskeletal system consists of a continuous network of muscles and connective tissues
  - Bones provide discontinuous compressive support
  - Nervous system maintains tension in vivo through electrical stimulus

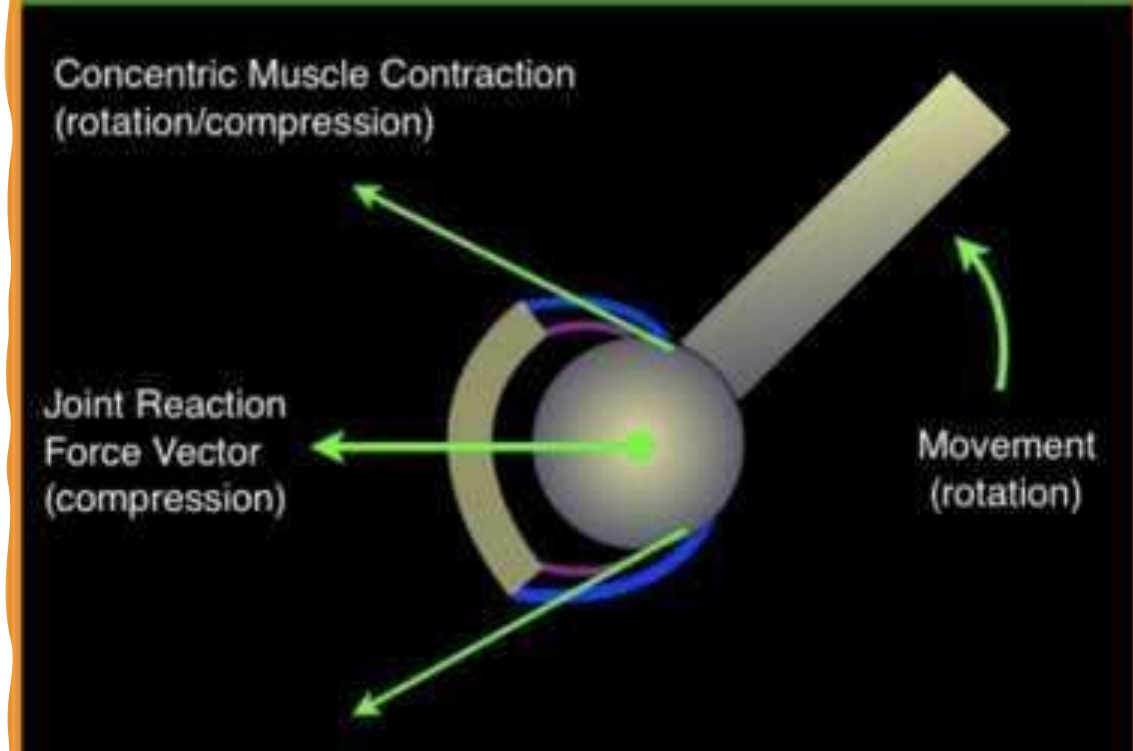
Levin, Stephen (2015). "16. Tensegrity, The New Biomechanics". In Hutson, Michael; Ward, Adam (eds.). *Oxford Textbook of Musculoskeletal Medicine*. Oxford University Press. pp. 155–56, 158–60. ISBN 978-0-19-967410-7.

Joint Centration

- The optimal position of a joint during static and dynamic movements
- Active loading strategy that manages joint position and minimizes passive tissue load
- Occurs through a balanced co-contraction of surrounding musculature
- Leads to optimal dispersion of loads rather than focal loading on any one tissue

Optimal Load Distribution -> Improved Movement Efficiency -> Pain Reduction

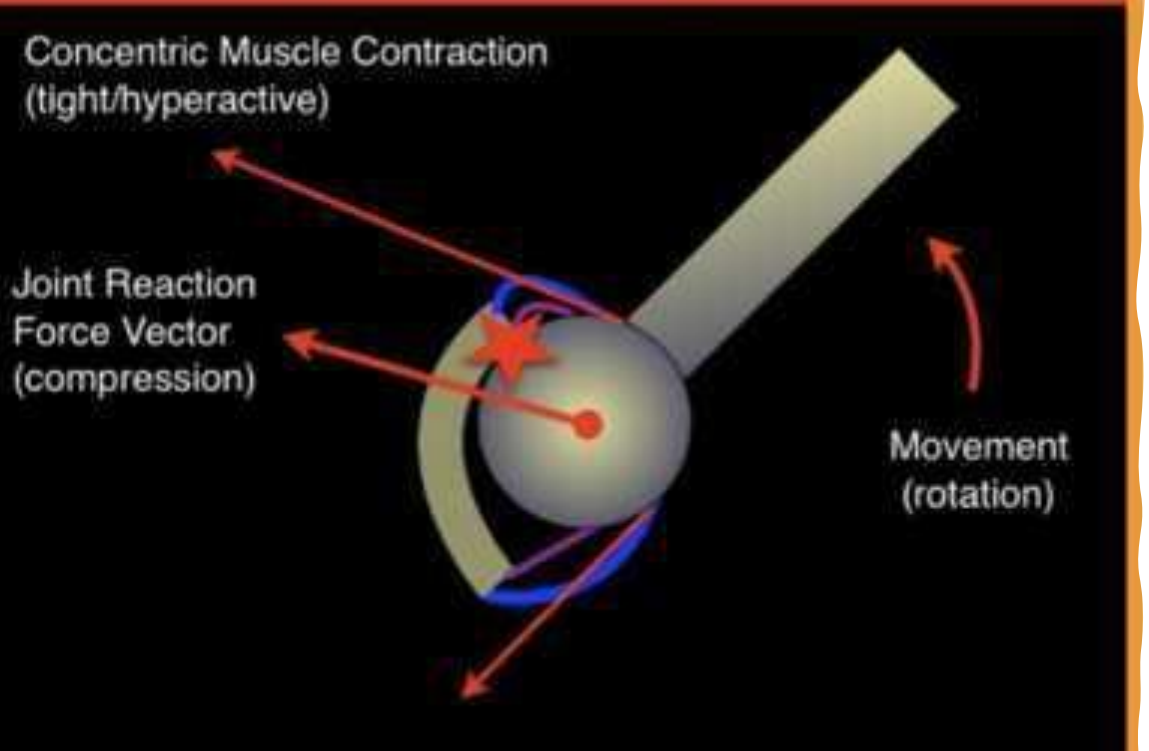
Centrated Joint



✔ Maximal joint surface contact

✔ Balanced co-contraction of muscles around the joint

Decentrated Joint



✘ Only partial joint surface contact

✘ Imbalanced muscle activity around the joint

Joint Centration

- How to get it:
  - Proper Alignment
  - Muscle Balance
  - Movement Patterns
  - Manual Therapy
  - Mindful Movement

Principles of Foundation Training

- **Anchoring**
  - The intrinsic muscles of the feet, tibialis anterior, gastrocnemius and soleus create a stable supportive base to build off of
  - The muscles of the pelvis, glutes, hamstrings adductors and iliacus help to create a downward pull on the pelvis (anchor)
  - This creates space and tension (good balanced tension) for those muscles of decompression breathing to pull against
  - This anchor allows us to keep our posture expansive

Principles of Foundation Training

- **Decompression**
  - Decompression Breathing
    - Inhale
      - Front sides and back of ribcage pulled up and away from the pelvis
      - Ribcage expands and clavicles lift (serratus posterior inferior)
      - Chin pulls back lengthening SCM's
      - Shoulder stay relaxed
    - Exhale
      - Bellybutton sucks in (transverse abdominus) allowing ribcage to remain elevated
      - "Every breath in, new height, every breath out, keep that height"

Principles of Foundation Training

- **Hip Hinging**
  - The basic foundation of proper movement
  - When this begins to break down (puberty) we compensate in many ways which leads to chronic breakdown of our joints producing pain

Principles of Foundation Training

- **Integration**
  - Foundation Training involves the whole body
  - In order for proper movement to occur there must be an integration or sharing of muscular work
  - This sharing of the workload eliminates the potential for one muscle to become overactive or dysfunctional resulting in injury
  - It’s not about how far you go, it’s about creating (…and maintaining) tension

There is an entire industry built around correcting anterior and posterior pelvic tilt, but these are compartmentalized views of the integrated human body.

1. Forget about correcting your pelvic angle until you have taught your body to use the arches of the feet nearly every moment of the day.
2. Forget about pelvic angle until you have taught the rib cage to expand appropriately with each inhalation and the torso to support this new found axial expansion efficiently.
3. Forget about pelvic angle until your head is able to remain supported easily over your shoulders instead of your toes.
4. Forget about pelvic angle until you feel the muscles of the body beginning to naturally support you instead of the joints most of us rest upon.

Once the body begins supporting itself properly you will naturally fix your pelvic angle, but only because you did not give it an alternative. Posture is exercise when done well.

EVALUATING THE FOUNDER EXERCISE TECHNIQUE: IMPROVING MECHANICS AND CONFIDENCE IN THE HIP HINGE

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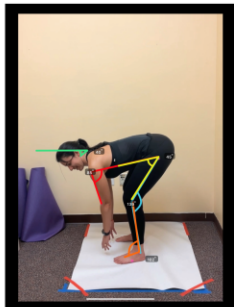
Introduction

- The hip hinge is a fundamental movement for safe and effective bending and lifting.
- It involves coordinated lumbar flexion and anterior pelvic rotation, requiring adequate lumbopelvic motor control to protect spinal integrity and prevent injury.
- Because individuals with chronic low back pain—one of the most costly conditions in our healthcare system—often present with impaired lumbopelvic motor control, teaching safe movement patterns is essential for this population.
- Traditional teaching methods often lack adaptability and fail to ensure functional carryover.
- This study evaluated the effectiveness of the Founder Exercise—a novel instructional technique—to address the following aims:
- **Aim 1**: To evaluate if the Founder Exercise will significantly change participants joint kinematics when performing a hip hinge.
- **Aim 2**: To evaluate if the Founder Exercise will improve confidence in performing a hip hinge.

Methods

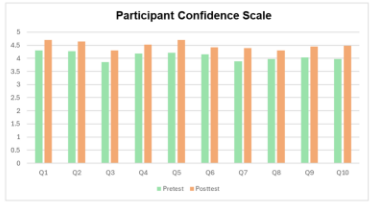


Anatomical Landmarks
- Spinous process of C7
- Head of humerus
- Lateral epicondyle of humerus
- Greater trochanter
- Lateral joint line of the knee
- Lateral malleolus
- Base of the fifth metatarsal

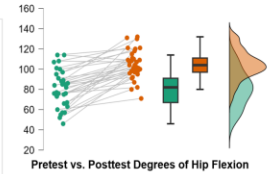
Joint Angles Measured
- Craniovertebral angle
- Shoulder flexion
- Hip flexion
- Knee flexion
- Ankle dorsiflexion

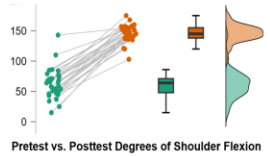
- Within-subjects design, 33 healthy adults (18-50).
- **Pretest**: Completion of a questionnaire ranking level of confidence in using a hip hinge to accomplish various daily tasks. Markers were placed at anatomical landmarks before the participant performed an uninstructed hip hinge to the best of their current knowledge and ability while being video recorded.
- **Intervention**: Standardized verbal and tactile instruction in the Founder Exercise followed by 10 practice repetitions.
- **Posttest:** Completion of the same confidence questionnaire followed by a final hip hinge utilizing the new movement pattern while being video recorded.
- **Analysis:** The OnForm app was used to analyze joint angles at the conclusion of the hinging motion.

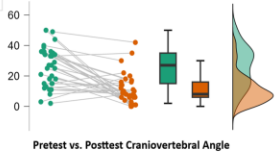
Results

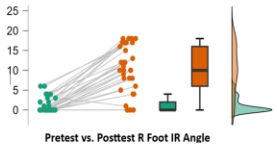


- Confidence in performing a hip hinge increased after participation in the Founder Exercise intervention.
- **All 10 questionnaire items showed significant improvement** in scores (all $p \leq .009$) with moderate to large effect sizes.









- **Increase in hip flexion** from pretest (M = 80.70°, SD = 18.05) to posttest (M = 104.58°, SD = 14.32), $t(32) = -5.58$, $p < .001$.
- **Increase in shoulder flexion** from (M = 62.82°, SD = 23.90) to (M = 145.27°, SD = 13.91), $t(32) = -16.94$, $p < .001$.
- **Decrease in craniovertebral angle** from (M = 25.73°, SD = 12.86) to (M = 11.18°, SD = 9.96), $t(32) = 5.17$, $p < .001$.
- **Increase in R foot IR** from (M = 1.09°, SD = 1.84) to (M = 10.12°, SD = 5.97), $t(32) = -8.21$, $p < .001$.

Conclusion

- A single session of instruction in the Founder Exercise created meaningful change in joint kinematics and confidence in utilizing a hip hinge.
- The Founder Exercise may be an effective tool for teaching the hip hinge that can be incorporated into rehabilitation programs to support functional outcomes and reduced risk of low back injury.

References

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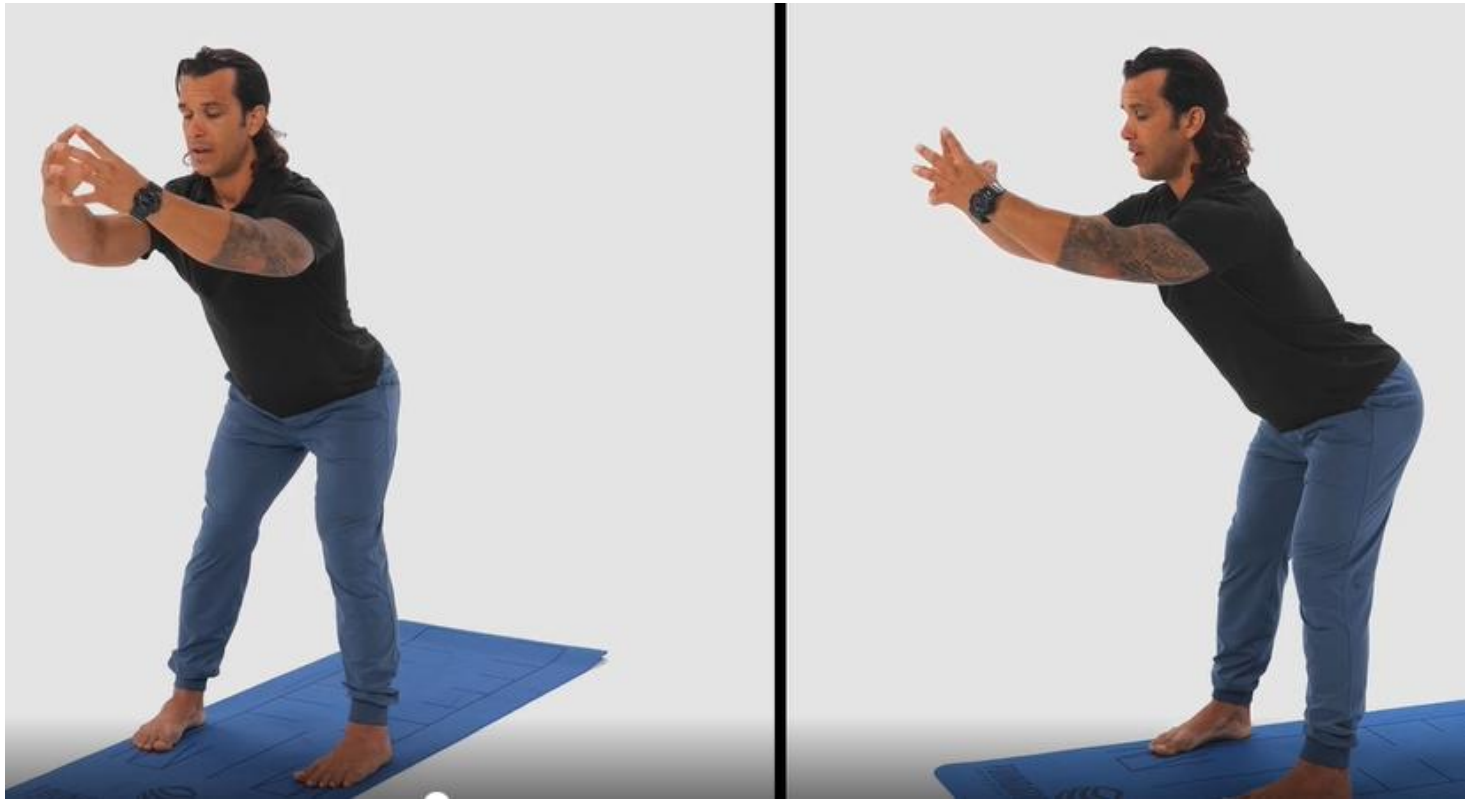
- Michaud F, Pérez Soto M, Lugrís U, Cuadrado J. Lower Back Injury Prevention and Sensitization of Hip Hinge with Neutral Spine Using Wearable Sensors during Lifting Exercises. Sensors (Basel). 2021;21(16):5487. Published 2021 Aug 14. doi:10.3390/s21165487

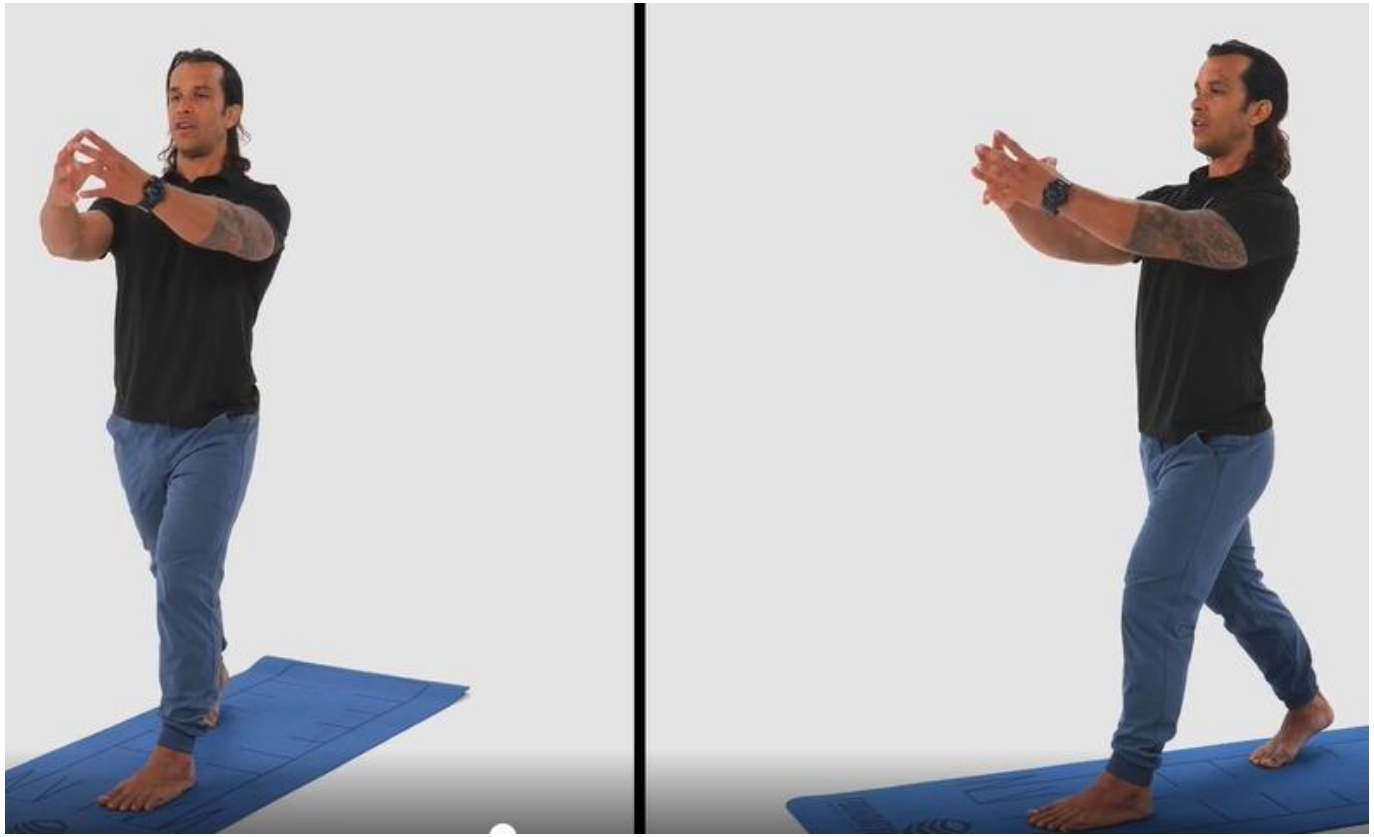
Founder

- Feet slightly wider than shoulder width
- Anchor
- Decompression Breathing
- Hip Hinge
- Sphere of Tension
- Engage



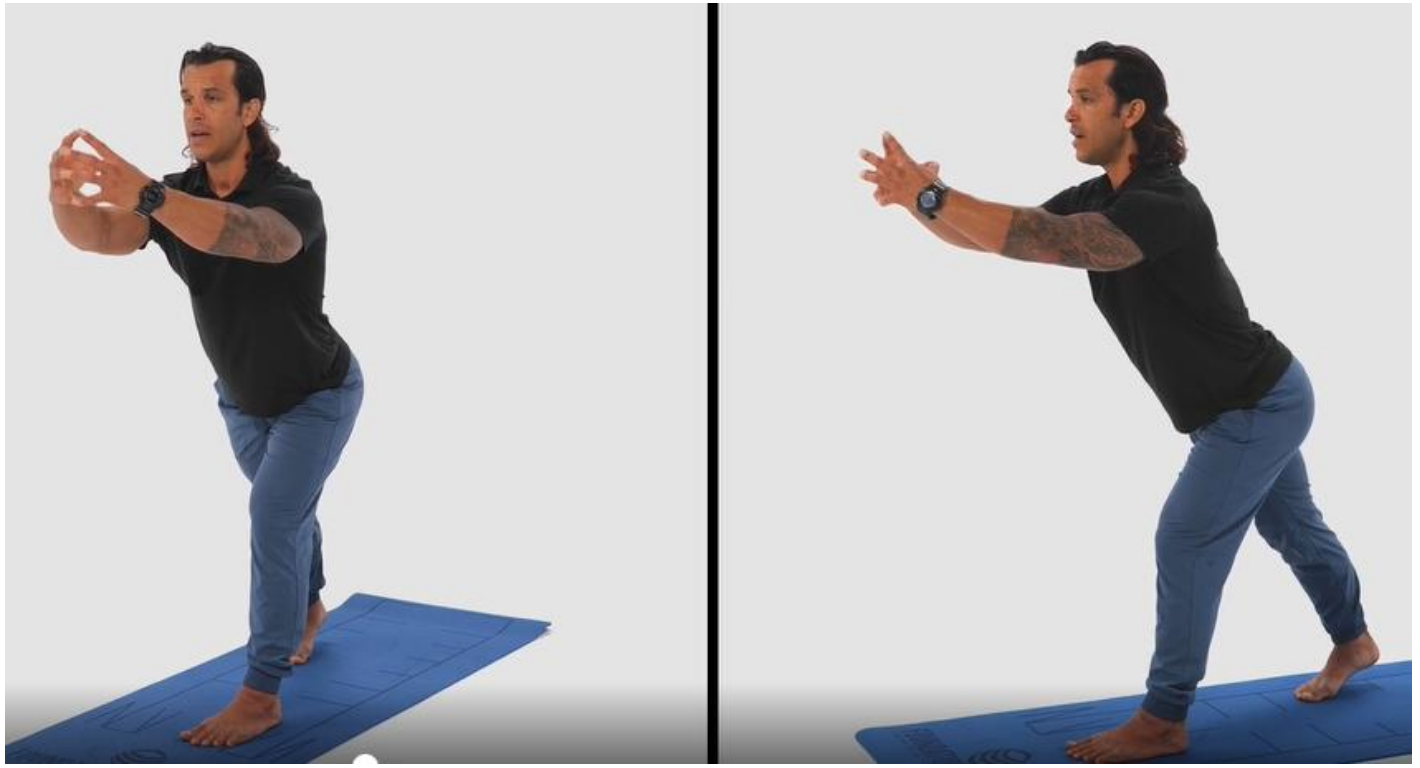
Lunge Decompression

- Lunge stance
- Anchor
- Decompression Breathing
- Sphere of Tension
- Engage



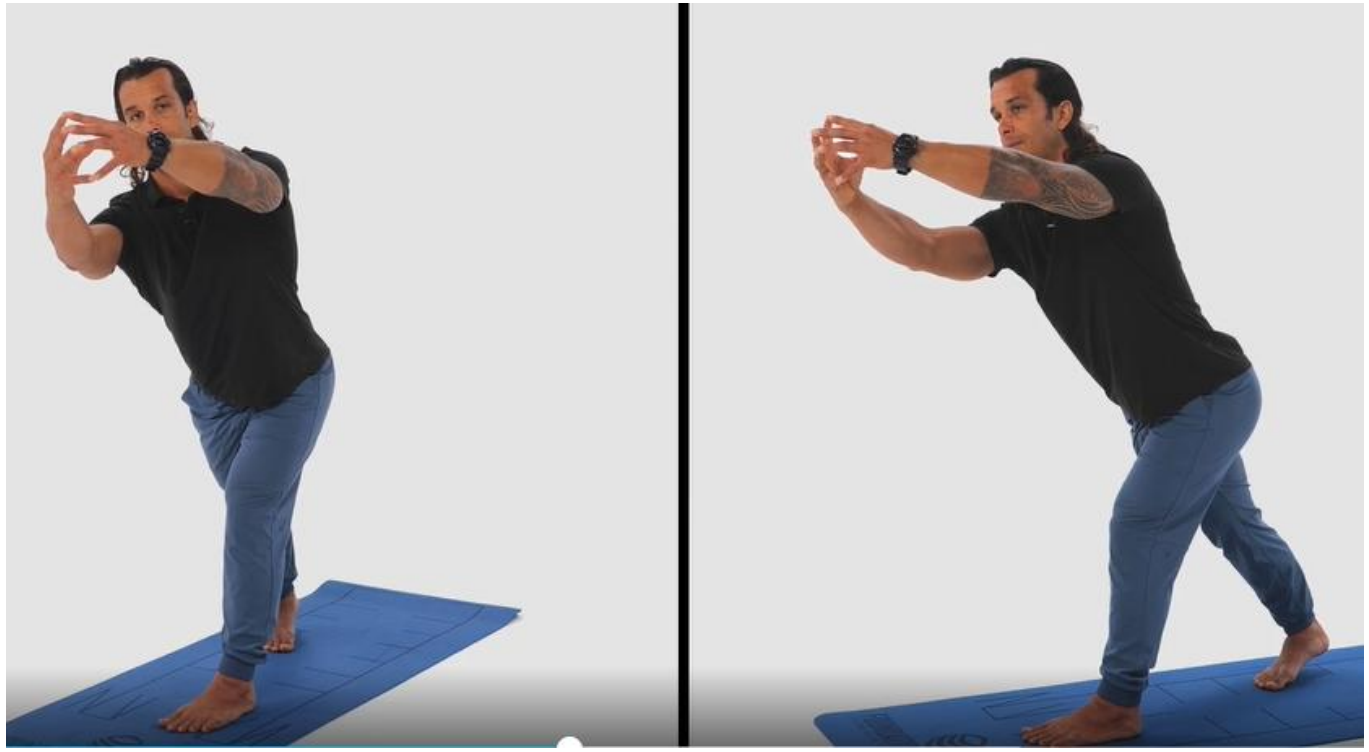
Woodpecker

- Lunge stance
- Anchor
- Decompression Breathing
- Sphere of Tension
- Chest over thigh as hips pull back
- Engage



Woodpecker Rotation

- Lunge stance
- Anchor
- Decompression Breathing
- Sphere of Tension
- Chest over thigh
- Engage
- Back hip pulls towards lead knee
    - One of the few movements that lengthen and shorten glutes in proper form



Workout

Pay Attention to what you **FEEL!**

- **Founder**
- **Founder Integrated Hinges**
- **Lunge Decompression**
- **Woodpecker**
- **Woodpecker Rotation**

Questions / Resources

- www.foundationtraining.com
  - Find a Trainer
- www.ftstreaming.com
  - Thousands of videos
- eric@foundationtraining.com
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- jessie@foundationtraining.com
  - Reach out to find a Foundation Training Instructor to work with your team
- phelma@uws.edu


Gravity is a law worth resisting
- Dustin DeRyke