

ROAD TO PARIS FICS 2023 GLOBAL SYMPOSIUM

17-18 JUNE 2023

Laying the foundation of learning for those on the road to the Paris 2024 Olympics.

Motion-Based Soft Tissue Techniques for Performance

- *PRESENTED BY DR. MARTIN CAMARA*
- *ASSISTED BY DR. AUDREY YARGUI AND DR. HENRY POLLARD*

June 2023



LIFE[®]
University

OVERVIEW

LECTURE FORMAT

- Explain the biological mechanisms
- Explain Clinical relevance
- Present a theory of dysfunction
- Correction of dysfunction

WORKSHOP FORMAT

- Present a correction based on the underlying theory

REFERENCES

- Haavik H, Kumari N, Holt K, Niazi IK, Amjad I, Pujari AN, Türker KS, Murphy B. The contemporary model of vertebral column joint dysfunction and impact of high-velocity, low-amplitude controlled vertebral thrusts on neuromuscular function. *Eur J Appl Physiol.* 2021 Oct;121(10):2675-2720. doi: 10.1007/s00421-021-04727-z. Epub 2021 Jun 23. PMID: 34164712; PMCID: PMC8416873.
- Luomala T, Pihlman M, Heiskanen J, Stecco C. Case study: could ultrasound and elastography visualized densified areas inside the deep fascia? *J Bodyw Mov Ther.* 2014 Jul;18(3):462-8. doi: 10.1016/j.jbmt.2013.11.020. Epub 2013 Dec 3. PMID: 25042323
- McCord KM, Schmitt WH. *Quintessential Applications: A(K) Clinical Protocol.*
<https://qahomestudy.com/>
- Stecco, Luigi & Stecco, Antonio. *Fascial Manipulation Stecco.*
<https://www.fascialmanipulation-stecco.com>

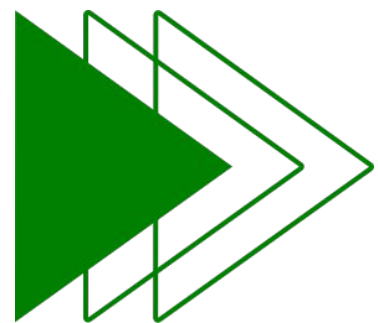
HISTORY OF INJURY



what happened?

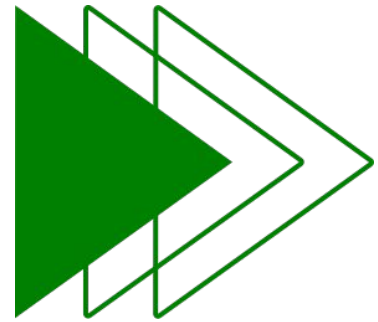


when did it happen?



sprains, strains, surgeries, scars, severe
bruises, cuts, broken bones, burns

HISTORY OF INJURY



Old injuries may cause repetitive or
New injuries by:



**CENTRAL MODULATED REFLEXES
THAT REMAIN ACTIVE**



**LOCALLY DENSIFIED FASCIA FROM
INJURY AFFECTING BIOMECHANICS**

SECTION I:

Resetting Aberrant Neurological Reflexes

review of spinal reflexes

DEVELOPMENT OF REFLEXES

- a reflex is a rapid, predictable motor response to a stimulus
- innate reflexes are unlearned and involuntary
- acquired reflexes are complex, learned motor patterns

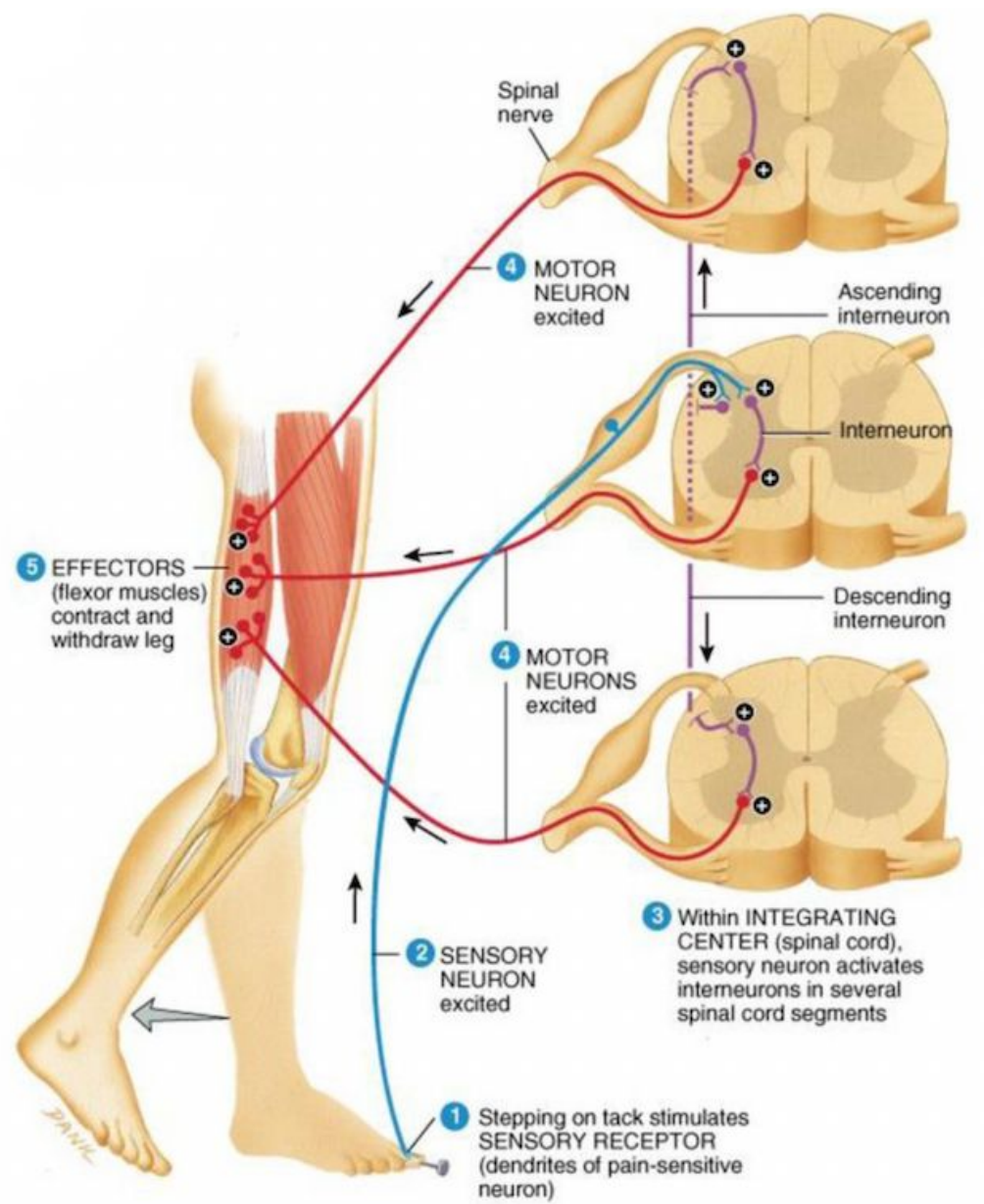
NATURE OF REFLEXES RESPONSES

- somatic: involve skeletal muscles and somatic motor neurons
- autonomic (visceral) reflexes controlled by autonomic neurons
 - heart rate, respiration, digestion, urination, etc
- spinal reflexes are integrated within the spinal cord gray matter while cranial reflexes are integrated in the brain.
- reflexes may be monosynaptic or polysynaptic

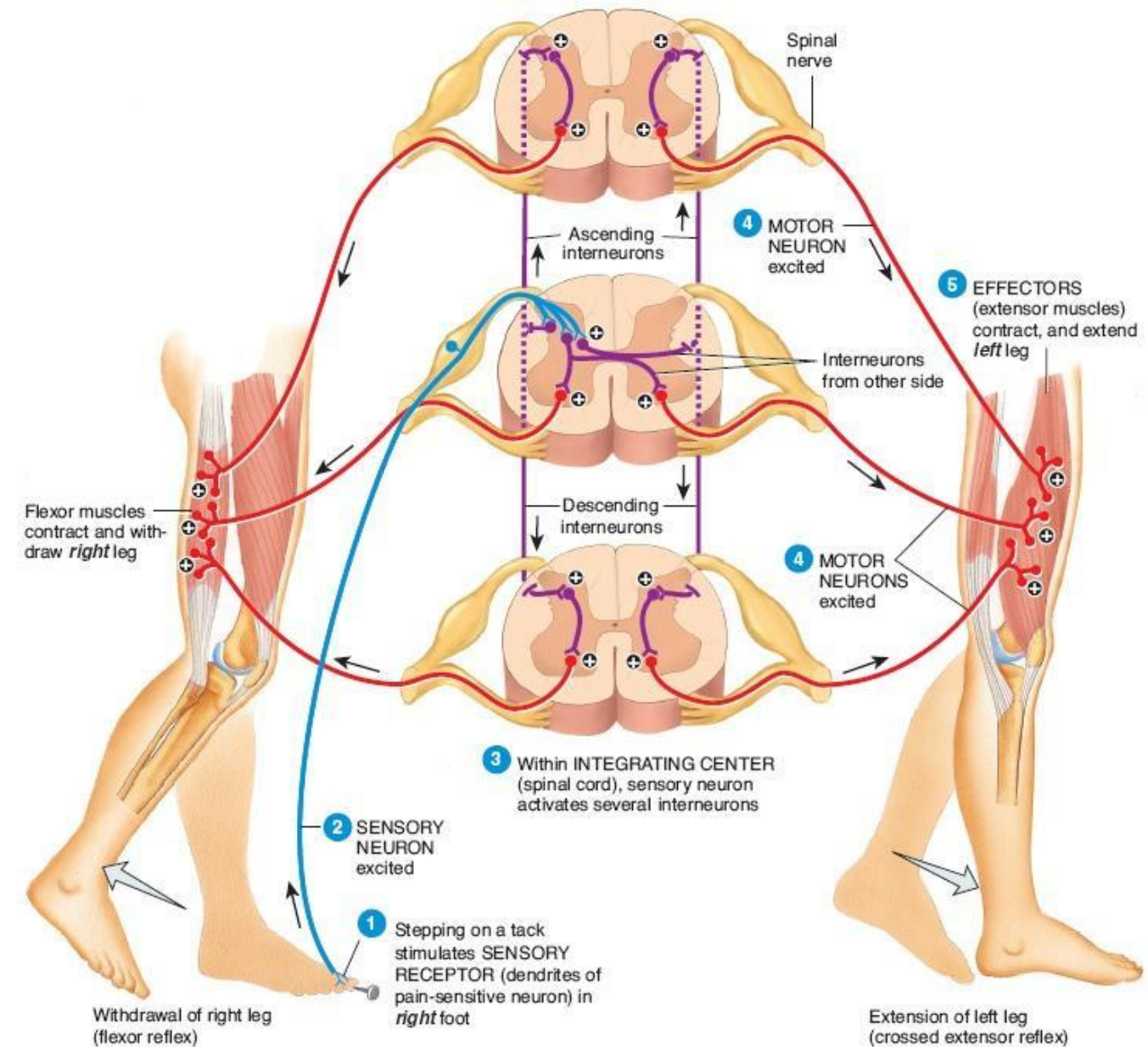
4 IMPORTANT SPINAL REFLEXES

- **STRETCH**
- **TENSION**
- **FLEXOR (WITHDRAWAL)**
- **CROSSED EXTENSION REFLEXES**

SPINAL REFLEXES



FLEXOR WITHDRAWAL



CROSSED EXTENSION REFLEX

Tortora, G. J., & Derrickson, B. (2014). Principles of anatomy & physiology. 14th edition. Danvers, MA, Wiley.

REFLEX REACTION TO INJURY/TRAUMA



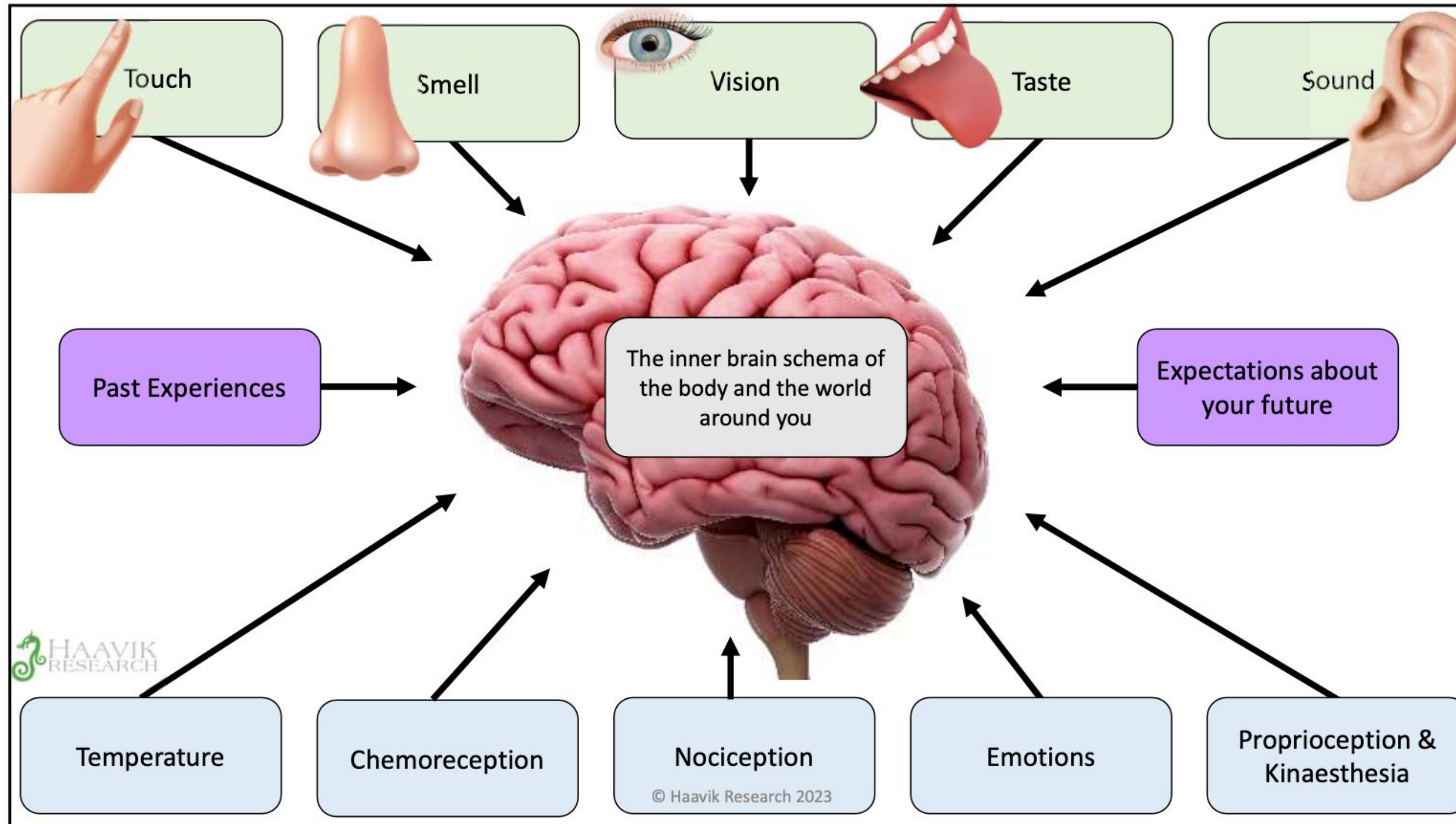
EXTENSION OF ATLANTO-OCCIPITAL

FLEXOR WITHDRAWAL

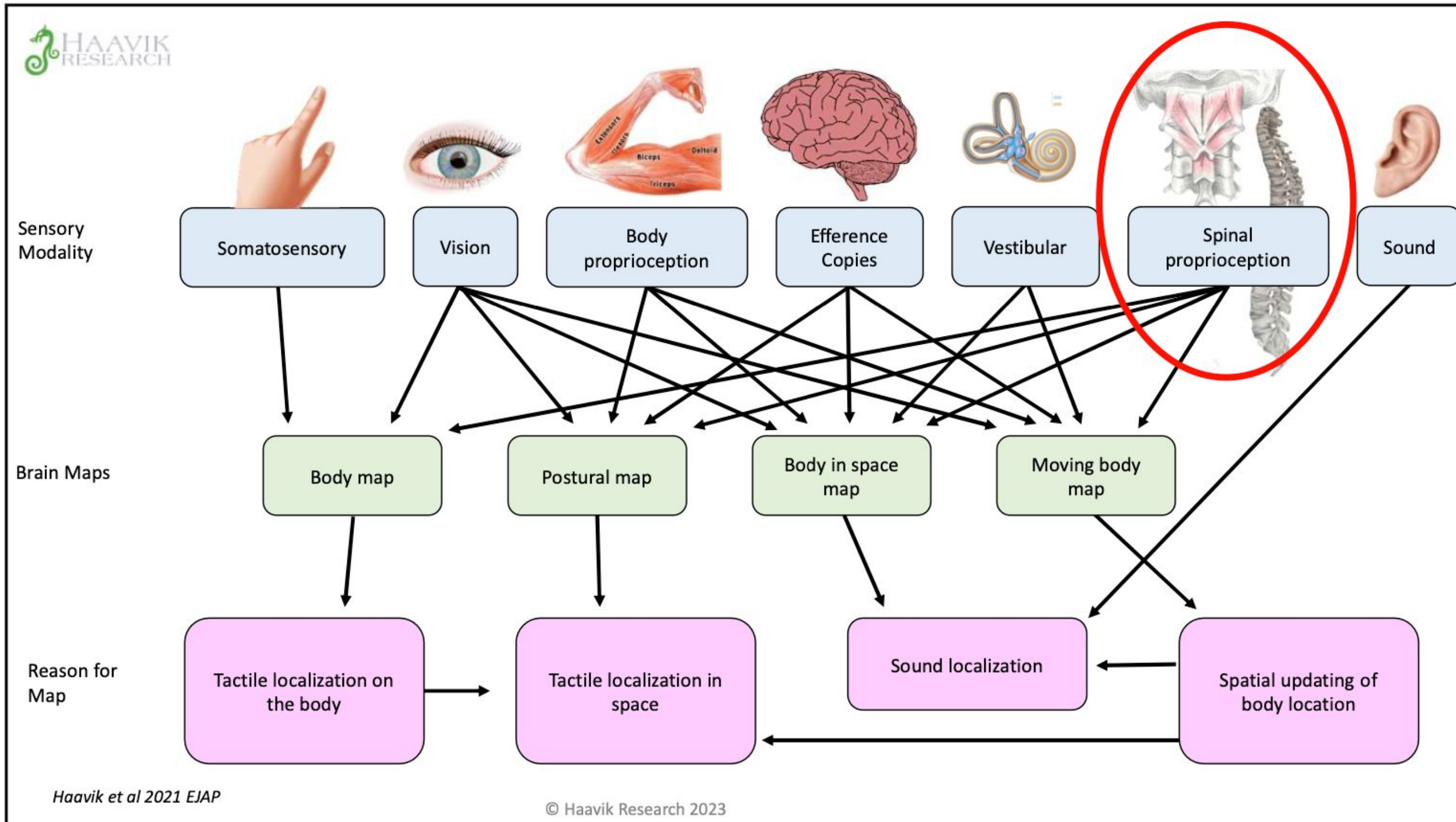
Photo Reference: <https://www.latimes.com/sports/lakers/la-xpm-2012-dec-26-la-sp-ln-lakers-nuggets-live-updates-20121226-story.html>

review of brain maps

MODEL OF BRAIN MAPS



MODEL OF BRAIN MAPS



YOUR BRAIN FILLS IN THE GAPS

... and/or your reality based on past expectations, surrounding information and intentions

““Ceoinsdr the anmzaig pweor of the hmuan biran.

*It dseno't metatr in waht oredr the lrttees in a wrod
are, the olny tihng taht is iproamtnt is the frsit and
lsat ltetres are in the rghit pclae. The rset can be a
tatol mses and you can sitll raed it wuhotit a
plboerm. Azanimg huh?”*

THEORY OF DYSFUNCTION:

1. Active Spinal Reflexes
2. Faulty Brain Maps

DYSFUNCTIONAL REFLEX REACTIONS

- ACTIVE FLEXOR WITHDRAWAL/
CROSSED-EXTENSION REFLEX
- ACTIVE ATLANTO-OCCIPITAL EXTENSION REFLEX
- ACTIVE INJURY PATTERN TO PELVIC LIGAMENTS

WORKSHOP

Resetting Aberrant Neurological Reflexes: Injury Recall Technique

- Head and Neck Technique
- Below Neck Technique
- Low Back Pain Technique

HOW TO TELL IF INJURY RECALL TECHNIQUE (IRT) IS NEEDED:

1

FIND A WEAK MUSCLE

2

ELICIT A MUSCLE SPINDLE
/ STRETCH REFLEX

3

ABSENCE OF AUTOGENIC
FACILITATION



HEAD AND NECK TECHNIQUE

1

FIND A STRONG INDICATOR
MUSCLE

2

IF TOUCHING THE AREA PLUS
EXTENSION OF THE HEAD
CAUSES A WEAKENING OF A
PREVIOUSLY STRONG MUSCLE
IS A POSITIVE TEST

3

CORRECTION: THERAPY
LOCALIZATION (TL);
NOCICEPTIVE INPUT WHILE
FLEXING THE
ATLANTO-OCCIPITAL AREA



BELOW NECK TECHNIQUE

1

FIND A WEAK INDICATOR MUSCLE

2

ILLICIT A STRETCH REFLEX

3

TOUCH AREA OF PREVIOUS INJURY; A POSITIVE TEST IS STRENGTHENING OF A PREVIOUS MUSCLE

4

CORRECTION: THERAPY LOCALIZATION (TL); NOCICEPTIVE INPUT WHILE MICRO-MANIPULATION OF THE TALUS ON THE IPSI-LATERAL SIDE



LOW BACK PAIN TECHNIQUE

ILIO LUMBAR LIGAMENT

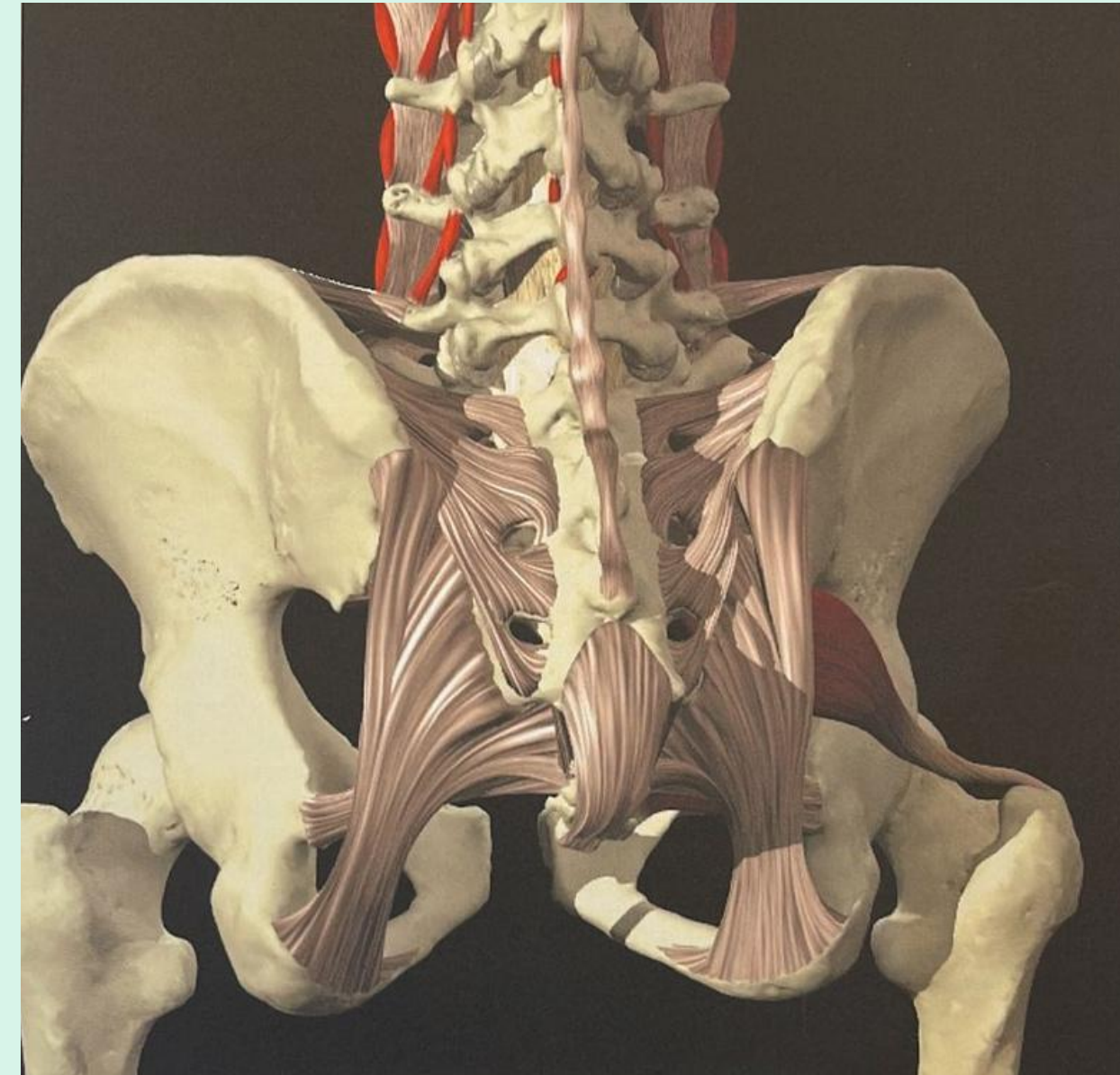
ORIGIN: TP OF L5 (SOME TEXTS INCLUDE L4) INSERTION: BASE OF SACRUM AND CREST OF ILIUM

SACROTUBEROUS LIGAMENT

RUNS FROM ISCHIAL TUBEROSITY TO THE LATERAL SURFACE OF THE SACRUM AND COCCYX

SACROSPINOUS LIGAMENT

RUNS FROM ISCHIAL SPINE TO THE LATERAL SURFACE OF THE SACRUM AND COCCYX



- 1 TEST THE HAMSTRING STRENGTH (HM)
- 2 STIMULATE ILIO-LUMBAR LIGAMENT, COMPRESS IPSI-LATERAL TALUS THEN RE-TEST HM
- 3 A POSITIVE TEST IS INHIBITION OF THE HAMSTRING MUSCLE
- 4 REPEAT FOR SACROTUBEROUS AND SACROSPINAL LIGAMENTS
- 5 CORRECTION: TL WHICH CAUSES A WEAKENING OF THE HM WHILE MICRO-ADJUSTING IPSI-LATERAL TALUS



SECTION II:

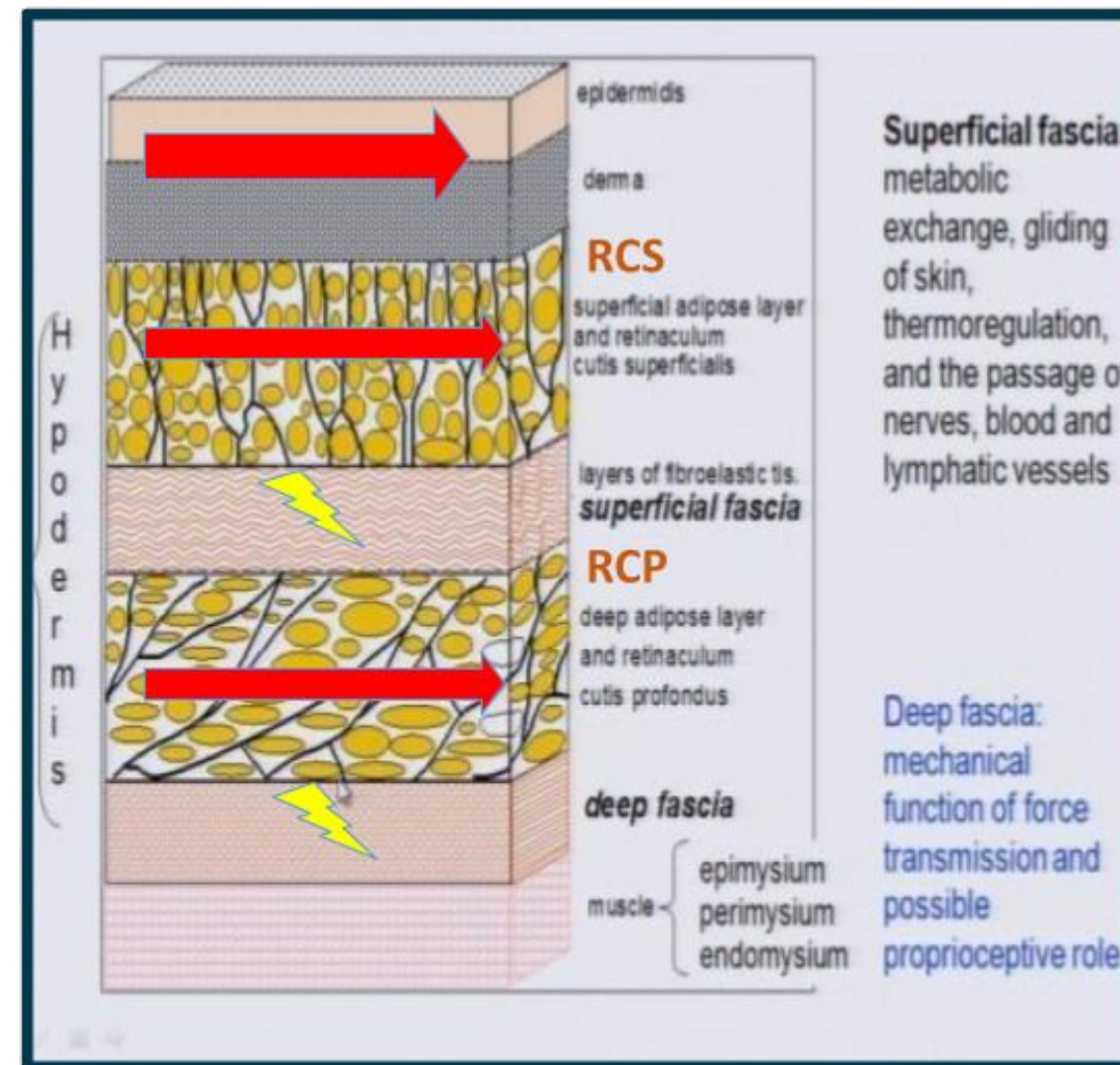
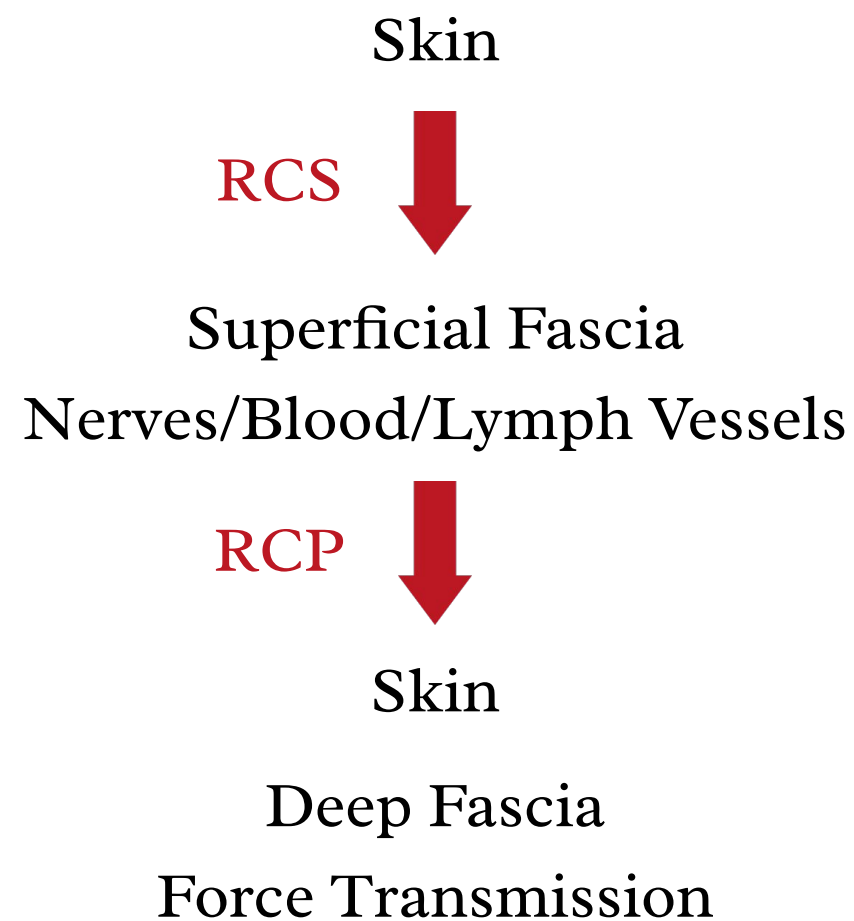
Releasing Densified Fascia

Fascial Manipulation

STECCO METHOD

WHAT IS FASCIA?

Layers from Skin to Deep Fascia



Deep Fascia is separated into 2 layers:

- Aponeurotic
- Epimysial

Functions of which are:

- Apo - Force Transmission
- Epi - Proprioception - Feedback

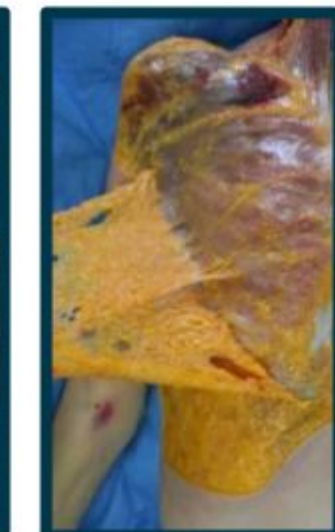
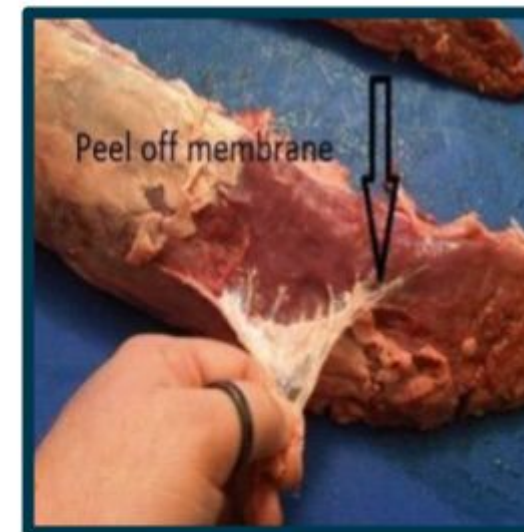
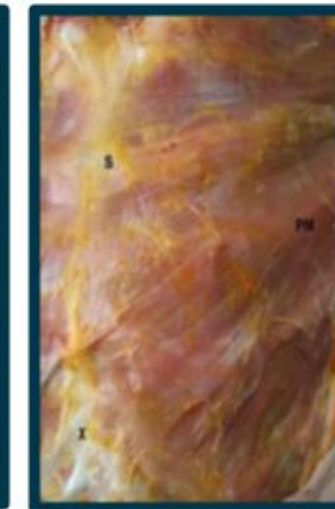
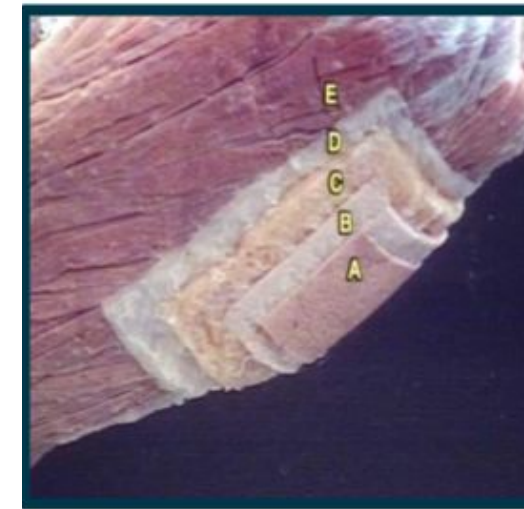
WHAT IS FASCIA?

Extent of Fascia: Skull to Toes from Skin To Bone



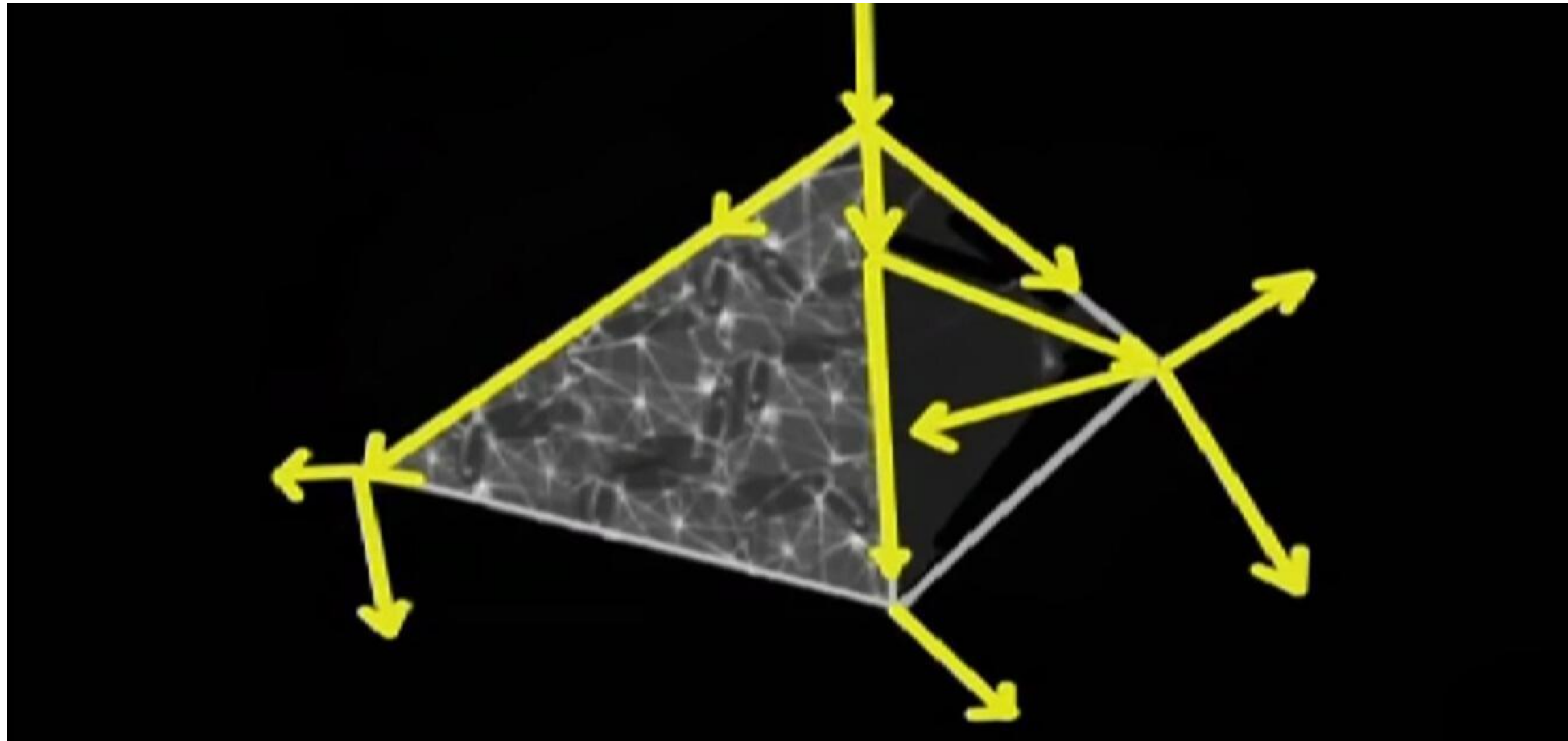
WHAT IS FASCIA?

Extent of Fascia: Skull to Toes from Skin To Bone



TENSEGRITY:

FORCES ARE TRANSMITTED TO ALL ELEMENTS OF THE STRUCTURE



OPPOSING FORCES OF COMPRESSION AND TENSION GIVE:

- Stability in all directions
- Shape and Solidity
- Multi-directional Movement
- Independence of Gravity

WHAT IS FASCIA?



Reference: Strolling under the skin. Basic Science. Dr. Jean-Claude Guimberteau. Retrieved from: <https://youtu.be/eW0lvOVKDxE>

WHAT IS FASCIA?



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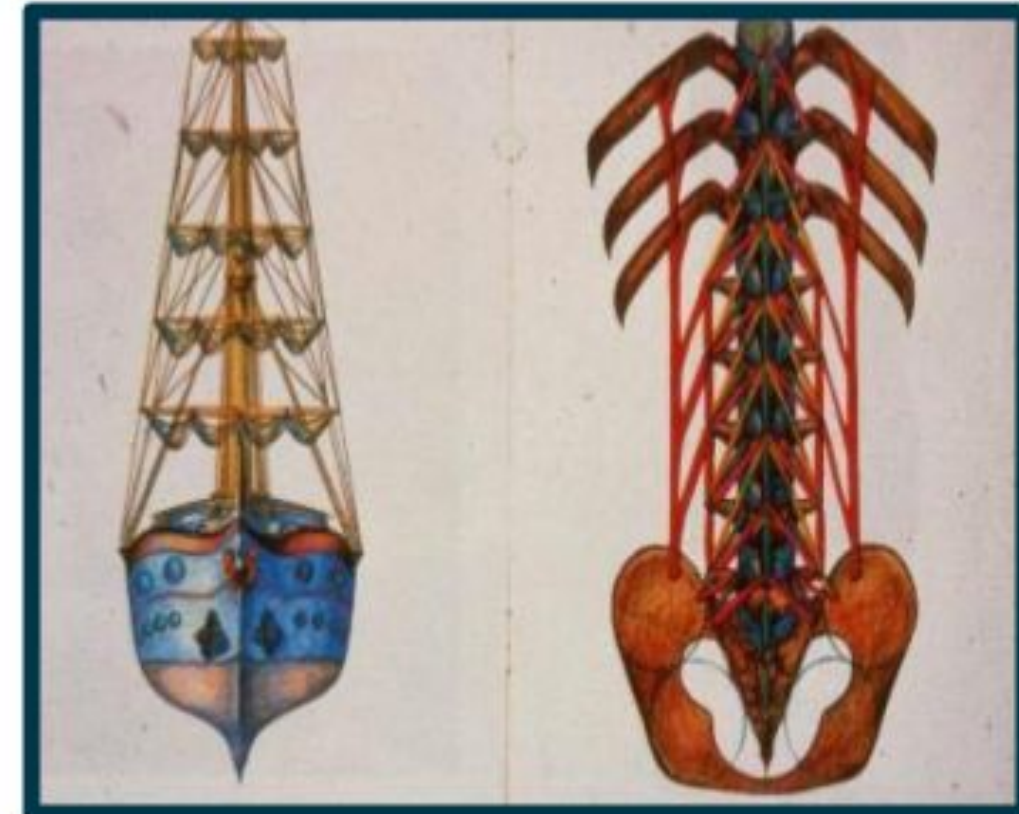
WHAT IS FASCIA?



Reference: Strolling under the skin. Basic Science. Dr. Jean-Claude Guimberteau. Retrieved from: <https://youtu.be/eW0lvOVKDxE>

WHAT IS A MYOFASCIAL UNIT (MFU)?

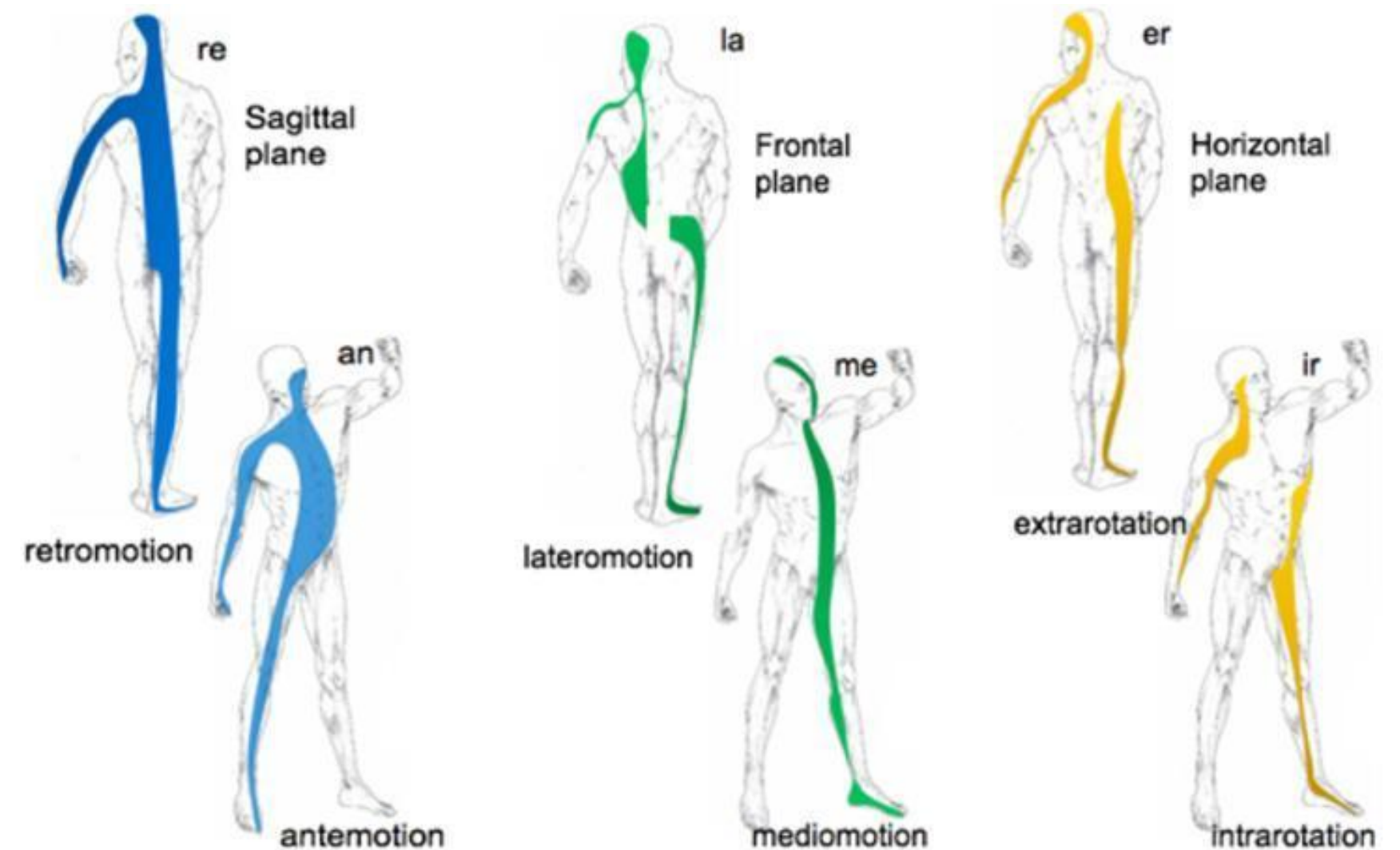
- An MFU is anything and everything that makes movement possible.
- The different layers of Muscle, the ligaments, the joint, the capsule, the nerves, and the fascia.
- So we move based on a synchronized pattern of firing of MFUs from one part of the body to the another. A linked system of MFUs.



WHAT IS A MYOFASCIAL UNIT (MFU)?

Each MFU has one Centre of Coordination (CC) for each movement:

- AnteMotion and RetroMotion in the Sagittal plane
- MedioMotion and LateroMotion in the Frontal Plane
- IntraRotation and ExtraMotion in the Horizontal Plane
- So there are 6 CC's for every area of the body.



CENTER OF COORDINATION (CC)

- A CC is the center of Coordination of Movement.
- This is like a Horseman - controlling all the different vectors of the different horses (muscle contraction) to come up with a single force to move the carriage in the right direction.
- The result is a smooth coordinated movement with no strain on joints muscles and ligaments.

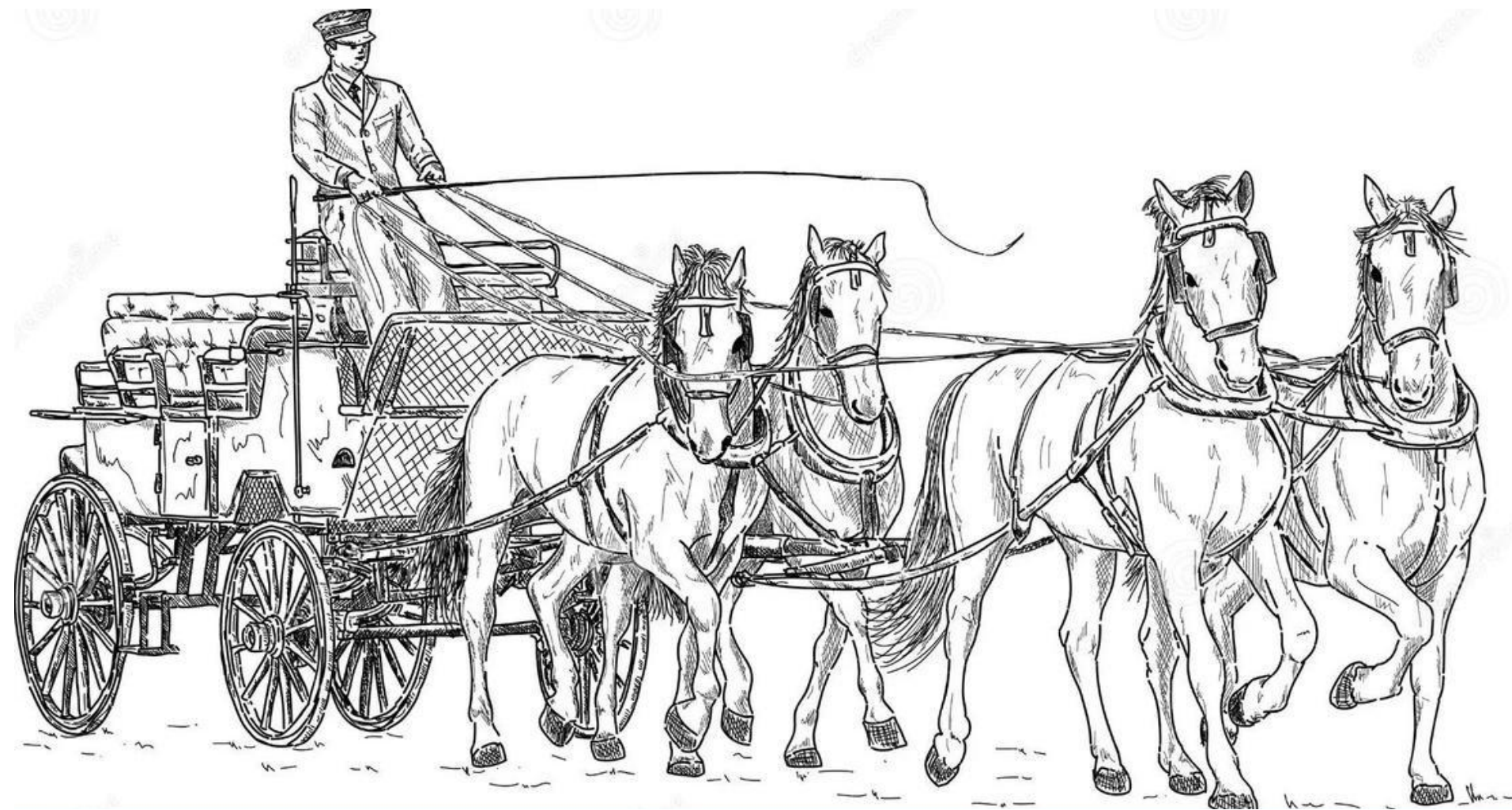
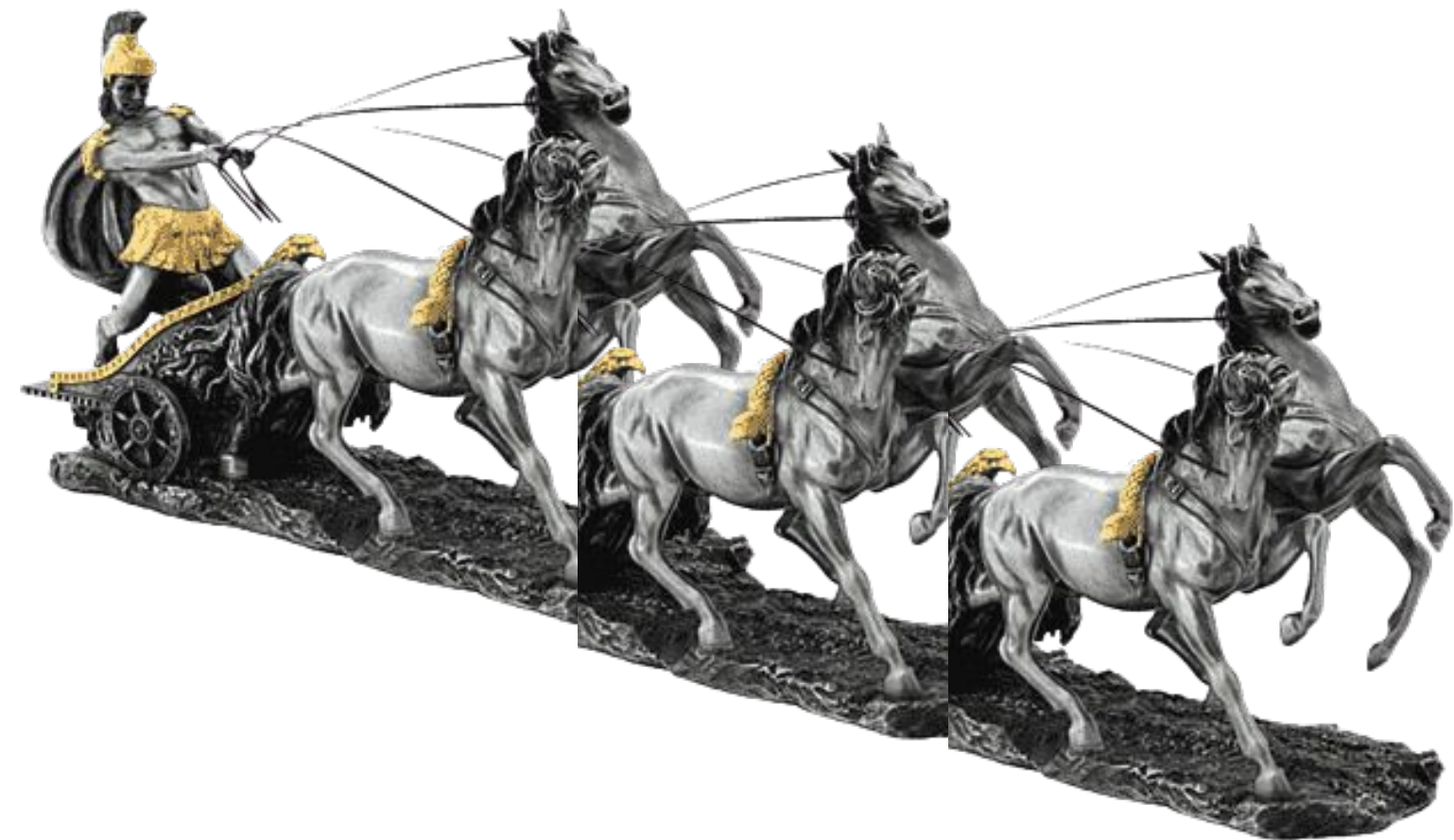


Photo Reference: www.depositphotos.com

CENTER OF COORDINATION (CC)

If the Horseman is not doing his job,

- then horses pull in different directions (aberrant forces)
- creating a dysfunctional movement pattern which is not smooth and does not coordinate well
- causing injury or pain over time.



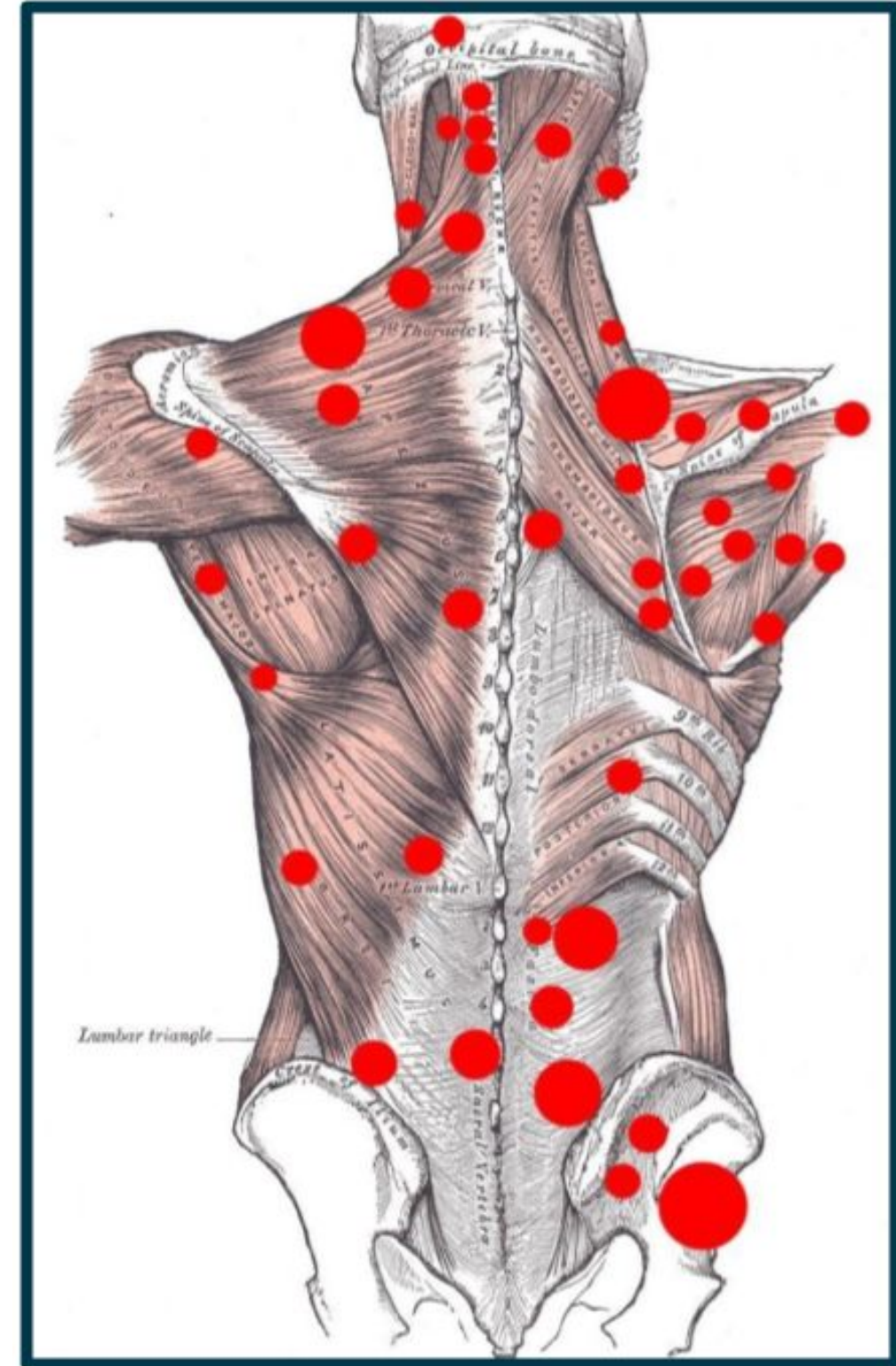
CENTER OF COORDINATION (CC)

The fascial system functionally is a sliding and gliding system in order to give information (Proprioception so we can coordinate our movements from one MFU to another) and to transmit force properly.



CENTER OF COORDINATION (CC)

- Oftentimes this sliding system can be interrupted when we have a densification (accumulation of Hyaluronic Acid Cells) in the deep fascia leading to a dysfunctional CC (lazy horseman).
- So the fascia can not transmit force or information effectively which leads to chronic injury and pain over time.



CASE STUDY: COULD ULTRASOUND AND ELASTOGRAPHY VISUALIZED DENSIFIED AREAS INSIDE THE DEEP FASCIA?

Journal of Bodywork & Movement Therapies (2014) 18, 462–468



FASCIA SCIENCE AND CLINICAL APPLICATIONS: FASCIAL PATHOPHYSIOLOGY IMAGING

Case study: Could ultrasound and elastography visualized densified areas inside the deep fascia?



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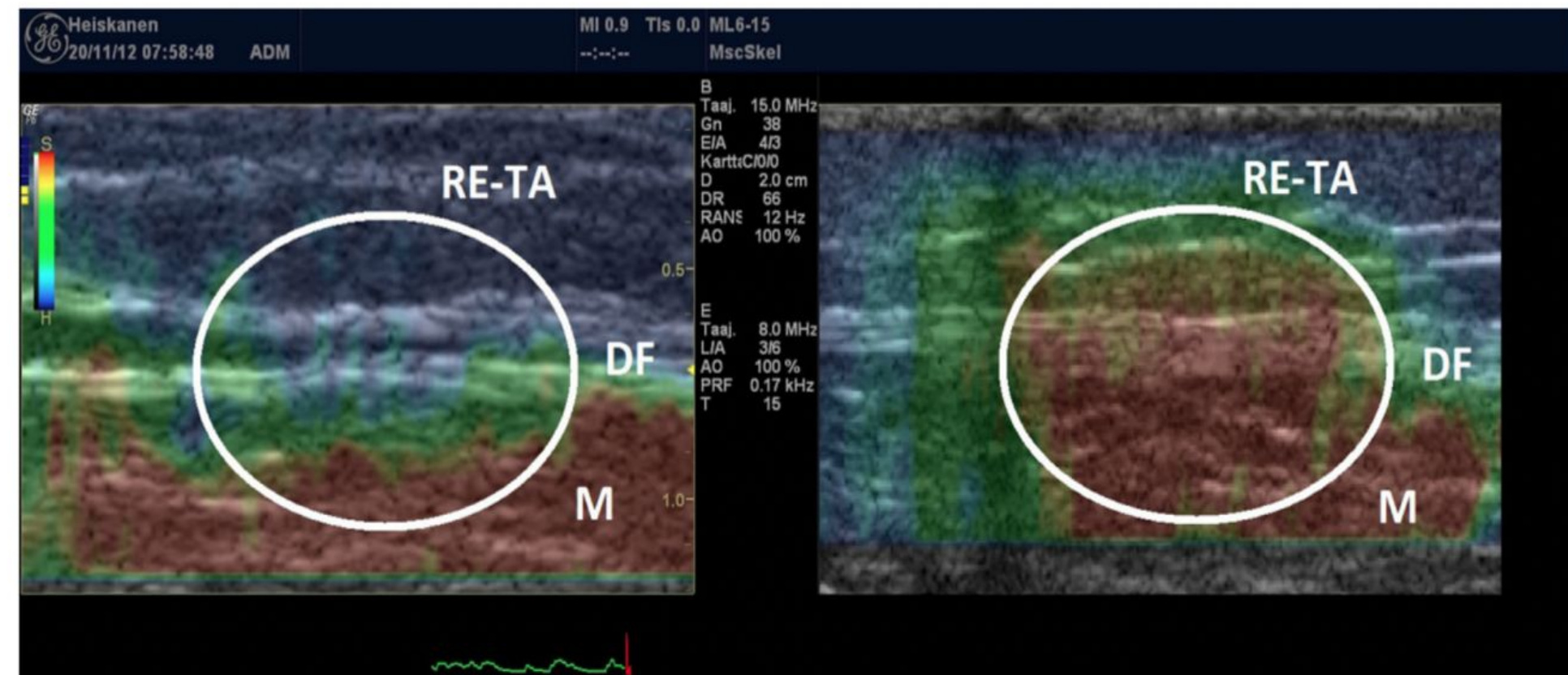


Figure 5 Elastography image of the center of coordination of RE-TA. Left side image before Fascial Manipulation© and right side after the treatment. The color blue indicates stiffer tissue, the color green softer and the color red the softest tissue. DF = deep fascial layers, M = muscle.

Luomala T, Pihlman M, Heiskanen J, Stecco C. Case study: could ultrasound and elastography visualized densified areas inside the deep fascia? J Bodyw Mov Ther. 2014 Jul;18(3):462-8. doi: 10.1016/j.jbmt.2013.11.020. Epub 2013 Dec 3. PMID: 25042323.

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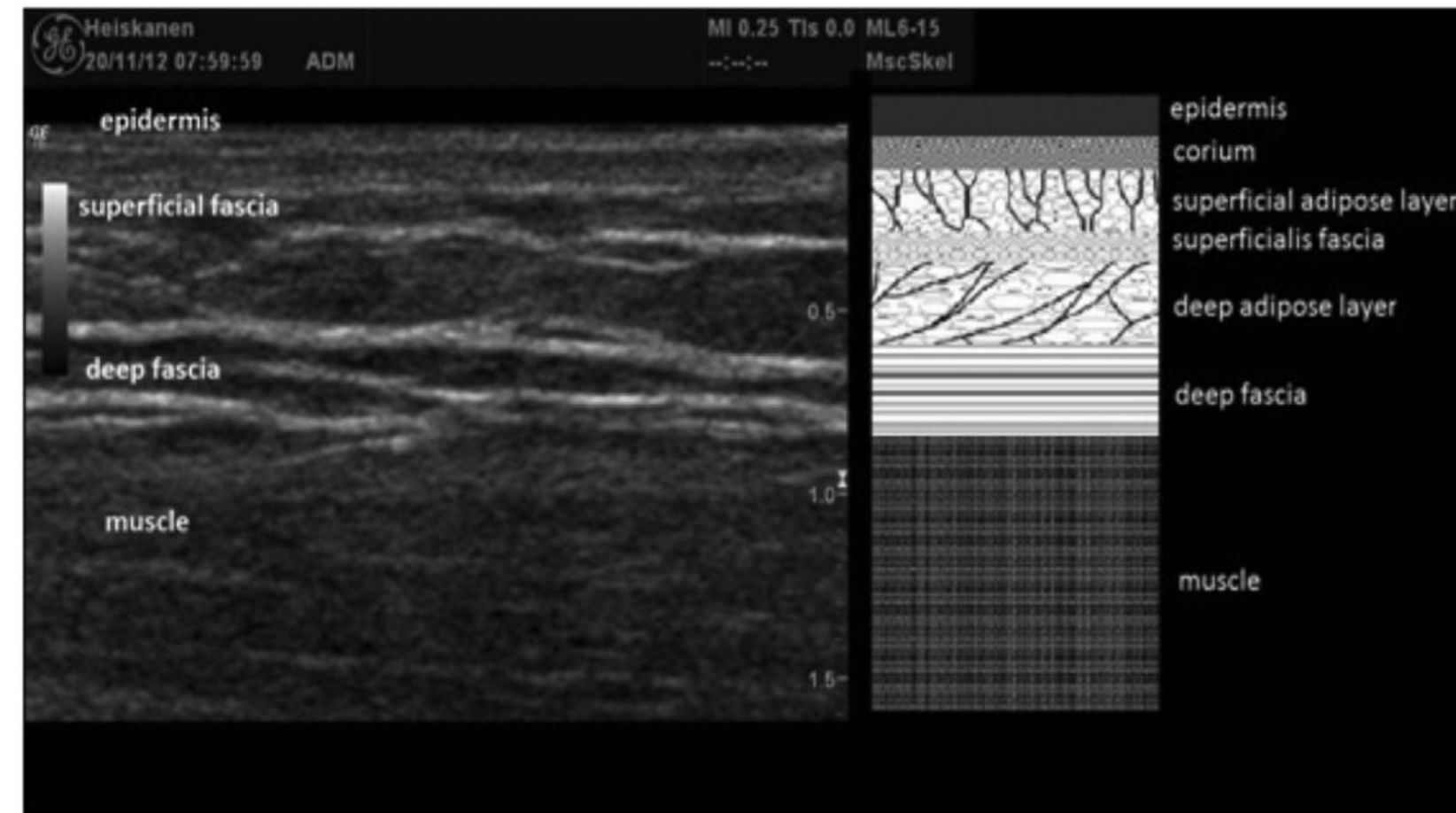


Figure 1 Comparison between the scheme of the subcutaneous tissue and fascial layers by Stecco (right side) and the subcutaneous tissue of the calf area as visualized by ultrasound (left side).

Luomala T, Pihlman M, Heiskanen J, Stecco C. Case study: could ultrasound and elastography visualized densified areas inside the deep fascia? *J Bodyw Mov Ther.* 2014 Jul;18(3):462-8. doi: 10.1016/j.jbmt.2013.11.020. Epub 2013 Dec 3. PMID: 25042323.

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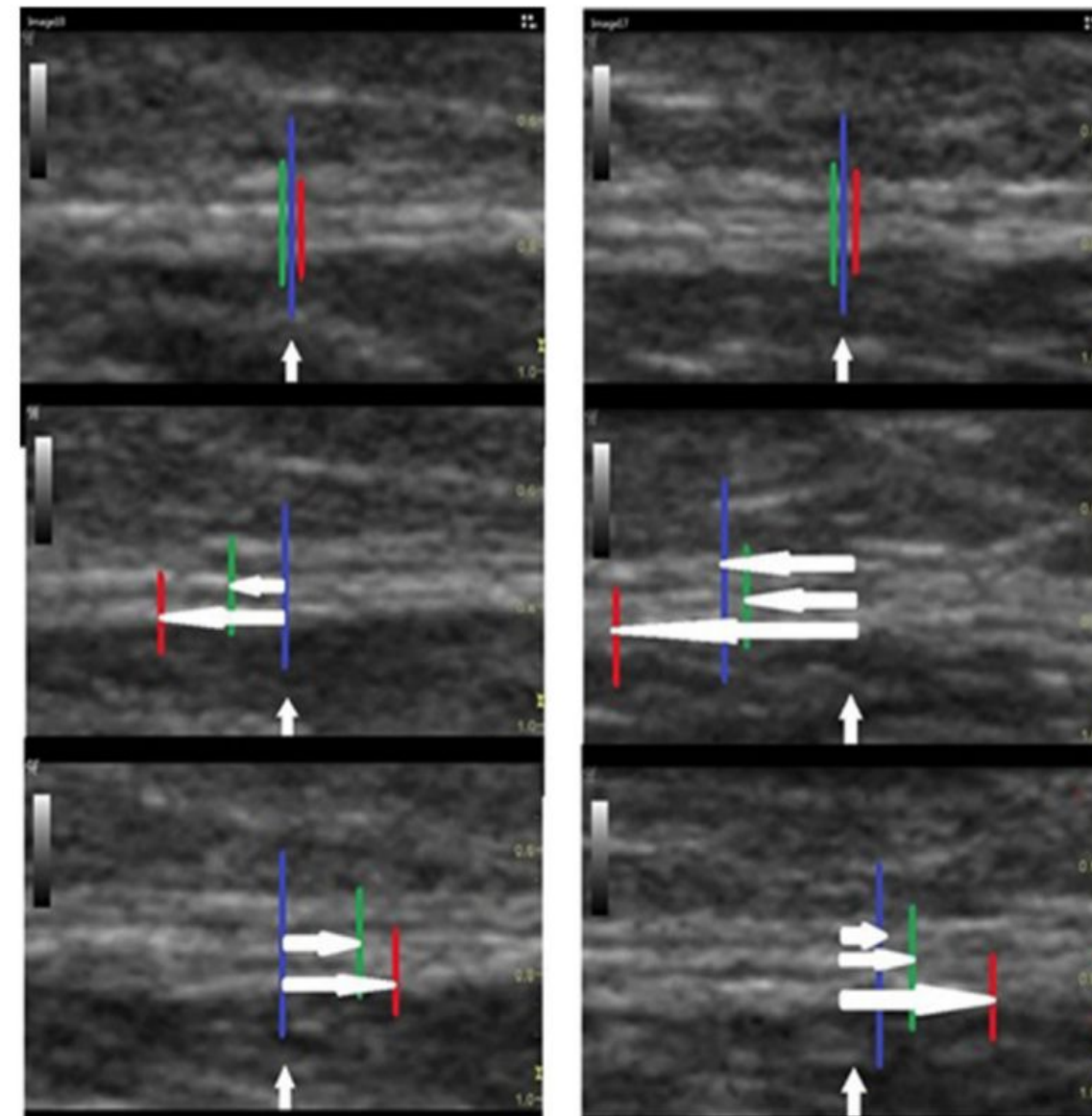
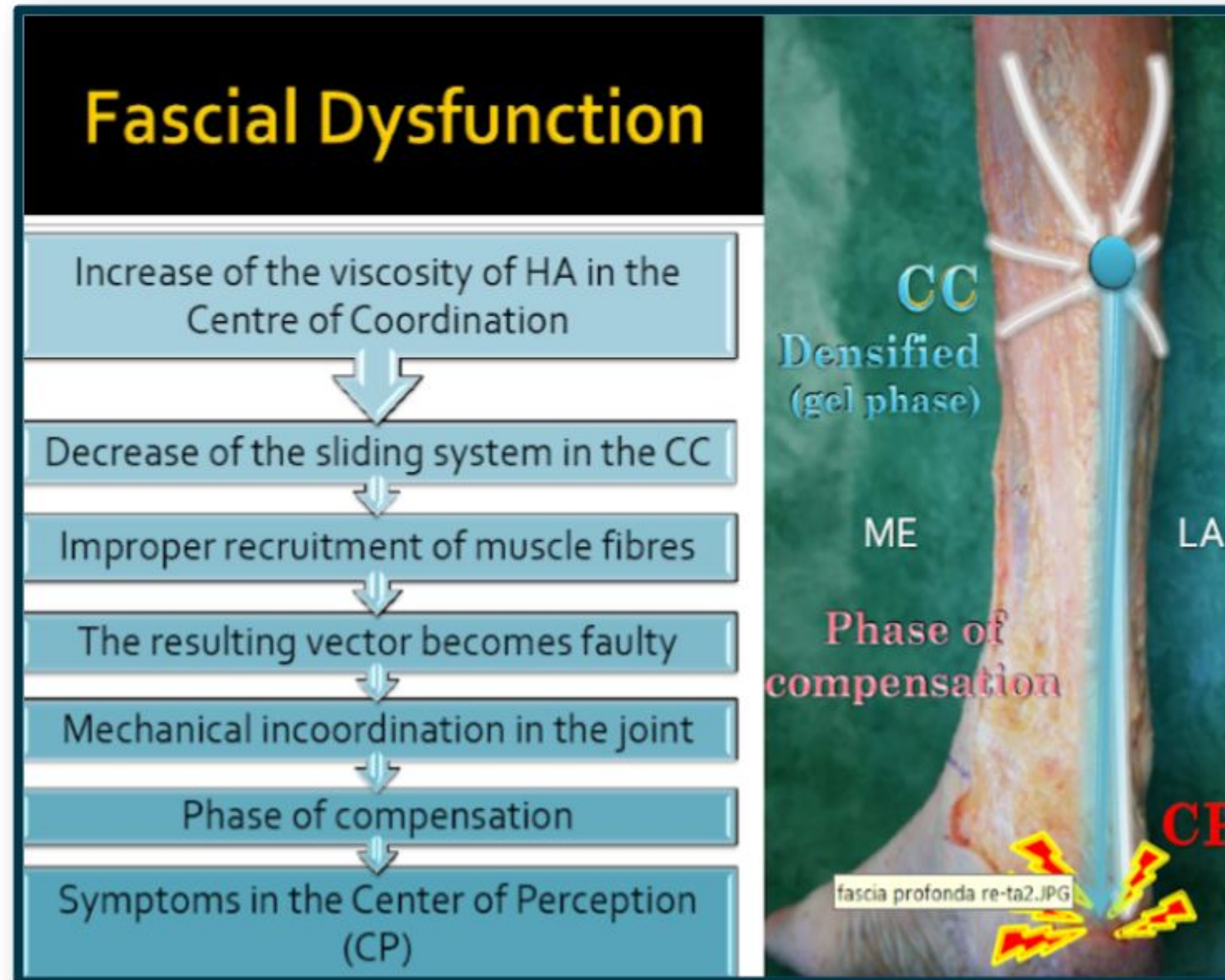


Figure 7 Relative movement of the fascial layers. The arrows and lines are markers of the level of fascial movement in the different layers. Vertical arrows point to the relative center point during the resting state. The blue line points to the superficial layer of the deep fascia, the green line to the middle layer, and the red line to the deepest layer. Finally, the white vertical arrow marks the relative center point of the resting state. In turn, the white horizontal arrows mark the movement of the each fascial layer. Before Fascial Manipulation[®], no movement is visible in the superficial part of the deep fascia. However, the middle layer and the deepest layers moved slightly. After Fascial Manipulation[®], all of the layers seem to glide more freely. The largest movement appears to occur in the deepest part of the deep fascia, although the superficial layer gained the most, movement compared to the starting point. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

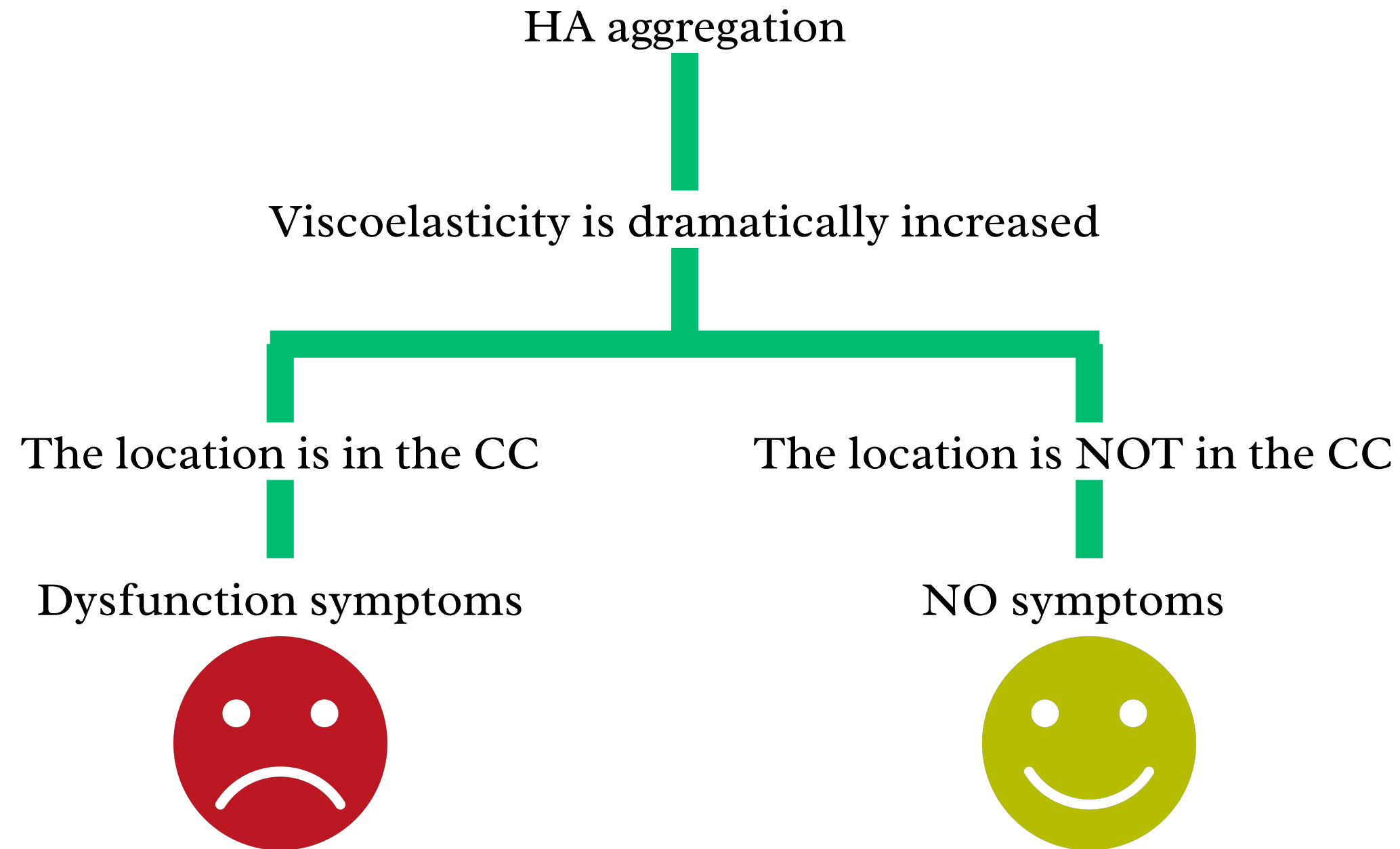
Luomala T, Pihlman M, Heiskanen J, Stecco C. Case study: could ultrasound and elastography visualized densified areas inside the deep fascia? J Bodyw Mov Ther. 2014 Jul;18(3):462-8. doi: 10.1016/j.jbmt.2013.11.020. Epub 2013 Dec 3. PMID: 25042323.

Theory of Fascial Dysfunction



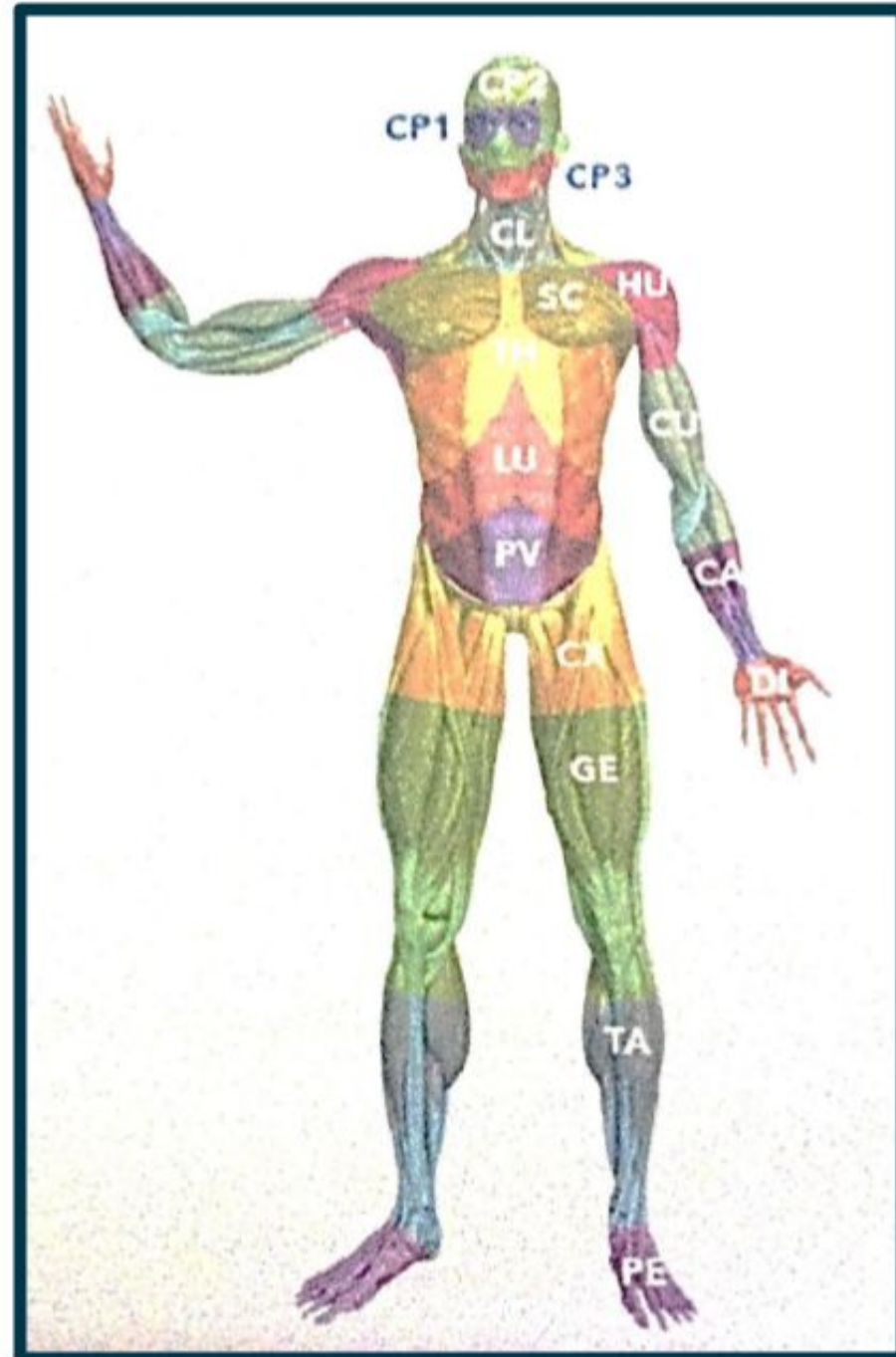
WITH FULL ATTRIBUTION TO DR ANTONIO STECCO - PRESIDENT FASCIAL MANIPULATION

The symptoms appear only if the HA's gel phase is present also in the CC!



WITH FULL ATTRIBUTION TO DR ANTONIO STECCO - PRESIDENT FASCIAL MANIPULATION

CENTER OF COORDINATION (CC)



CC's and MFU's are sequenced in the body so there are 96 different CC's and 16 different MFU's possible which are all related to each other.

WHAT IS FACIAL MANIPULATION?

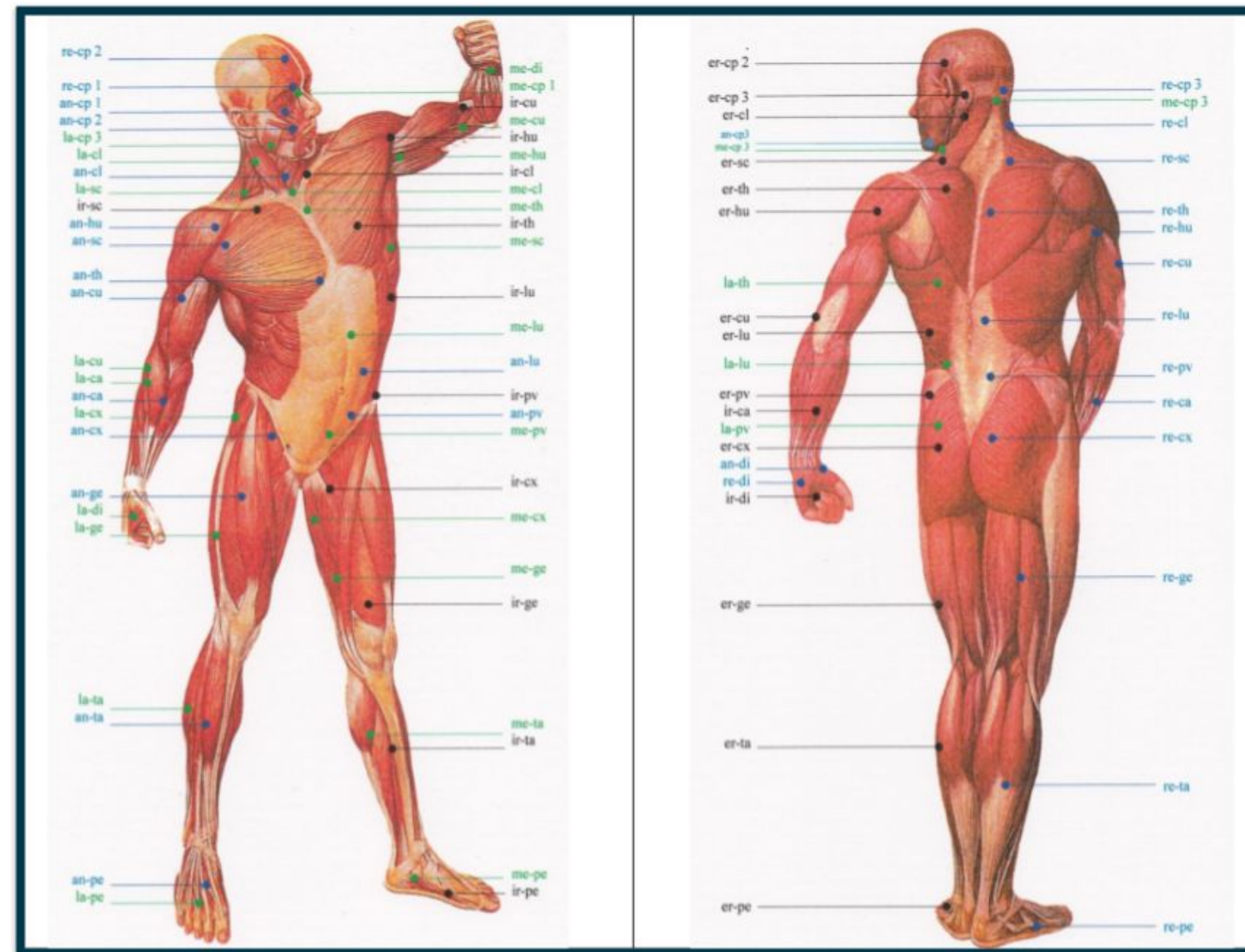
Stecco Method

- Is a unique system of evaluating and treating dysfunctional MFU's and CC's in our body thru deep pressure and friction.
- The heat and friction release the densified cells and allow the fascia to glide and slide more efficiently and effectively thereby getting rid of chronic pain and dysfunction.

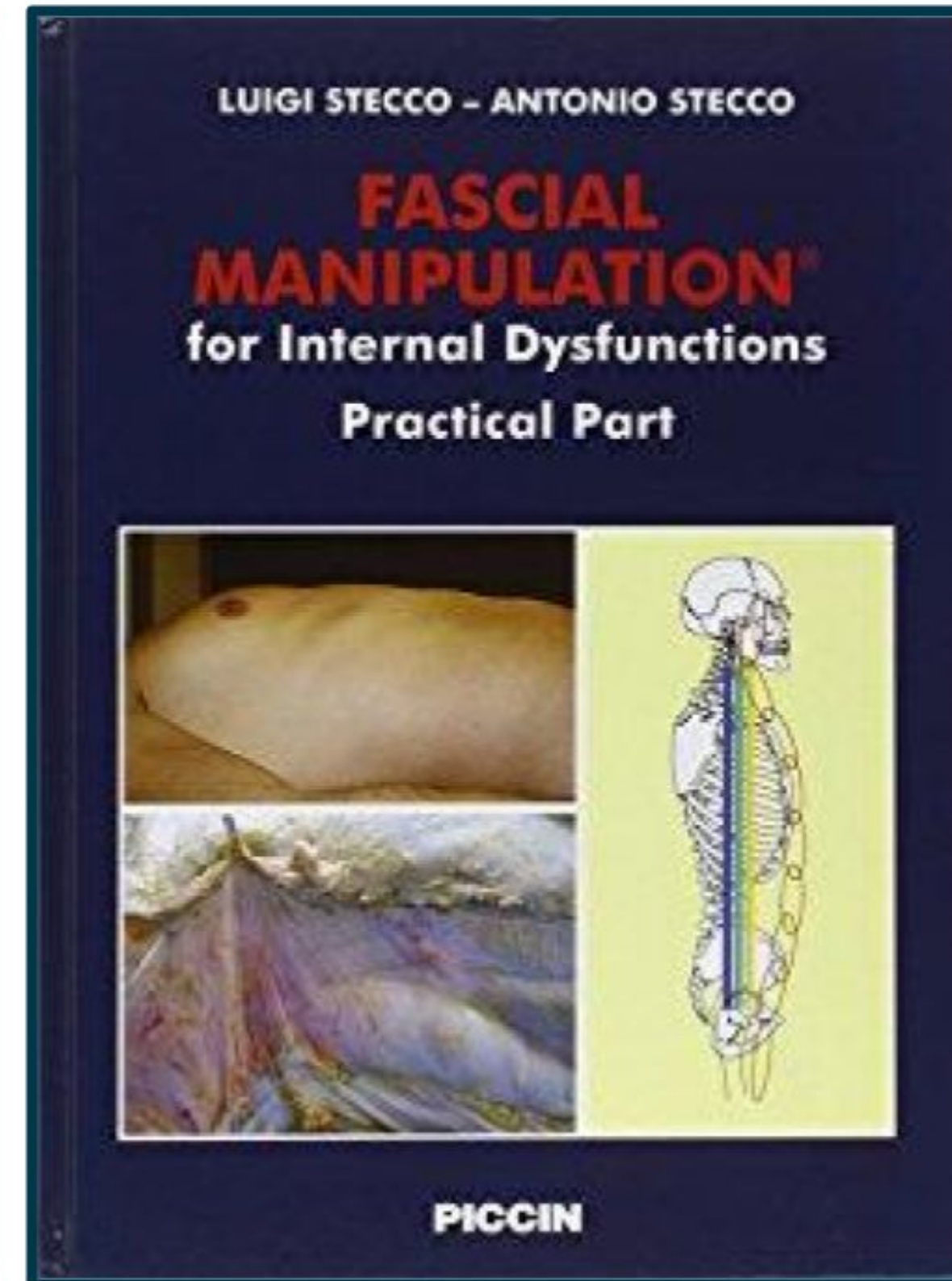
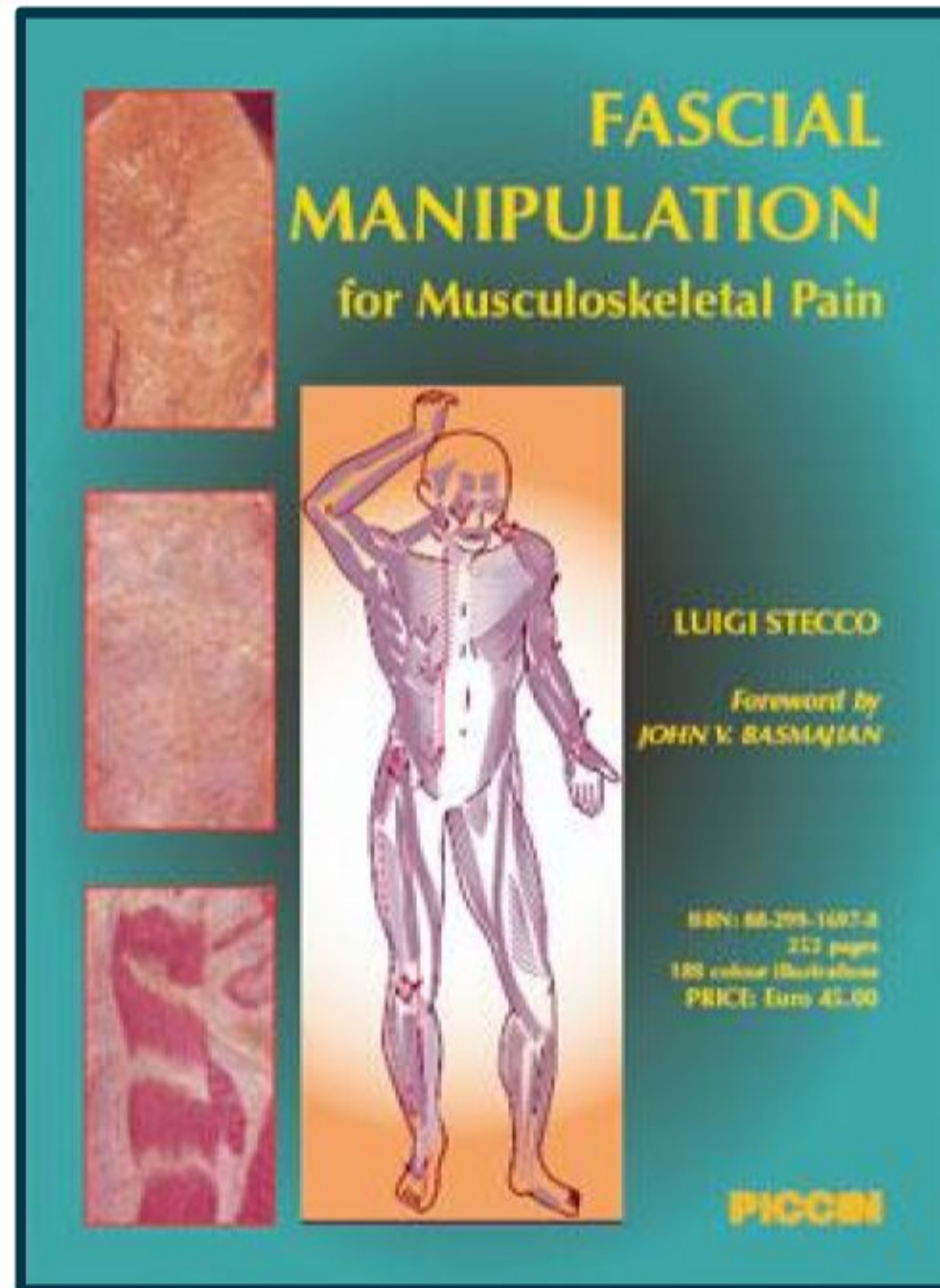


REFERENCE: Stecco A, Stecco C, Macchi V, Porzionato A, Ferraro C, Masiero S, De Caro R. RMI study and clinical correlations of ankle retinacula damage and outcomes of ankle sprain. *Surg Radiol Anat.* 2011 Dec;33(10):881-90. doi: 10.1007/s00276-011-0784-z. Epub 2011 Feb 9. PMID: 21305286.

Centers of Coordination - are small areas of fascial where the sum of tensional vectors coincide



WITH FULL ATTRIBUTION TO DR ANTONIO STECCO - PRESIDENT FASCIAL MANIPULATION

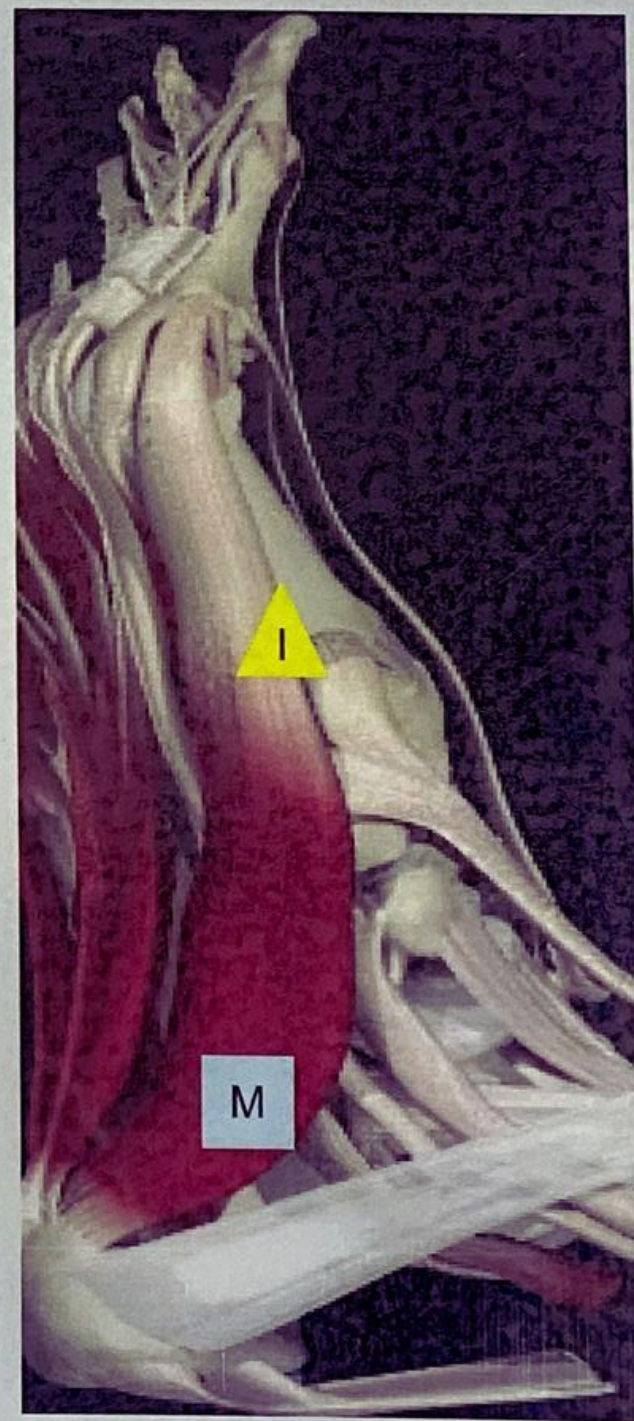
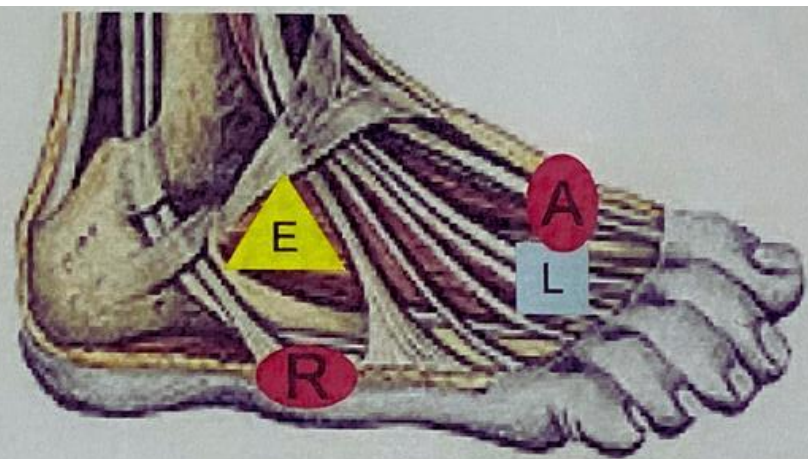
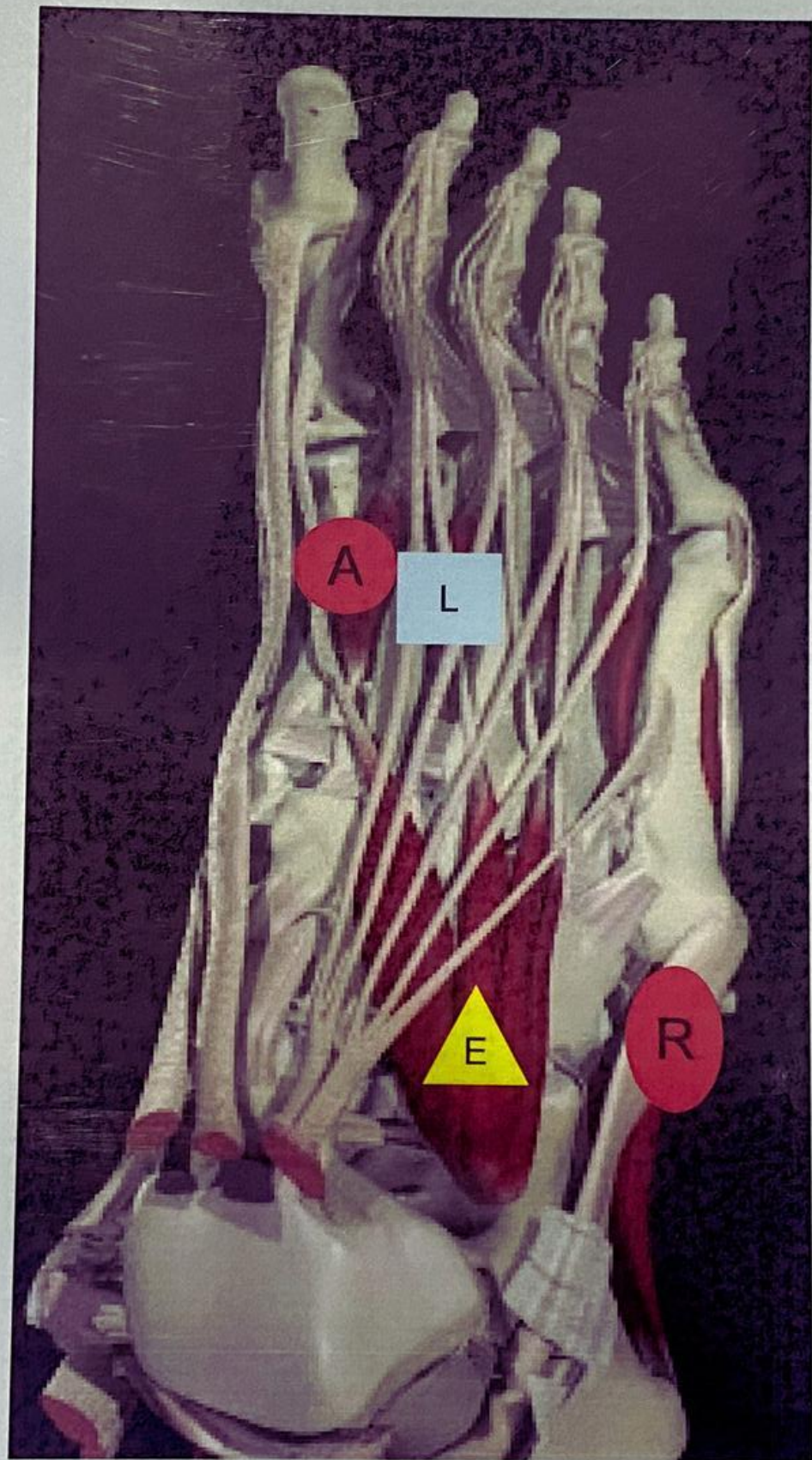
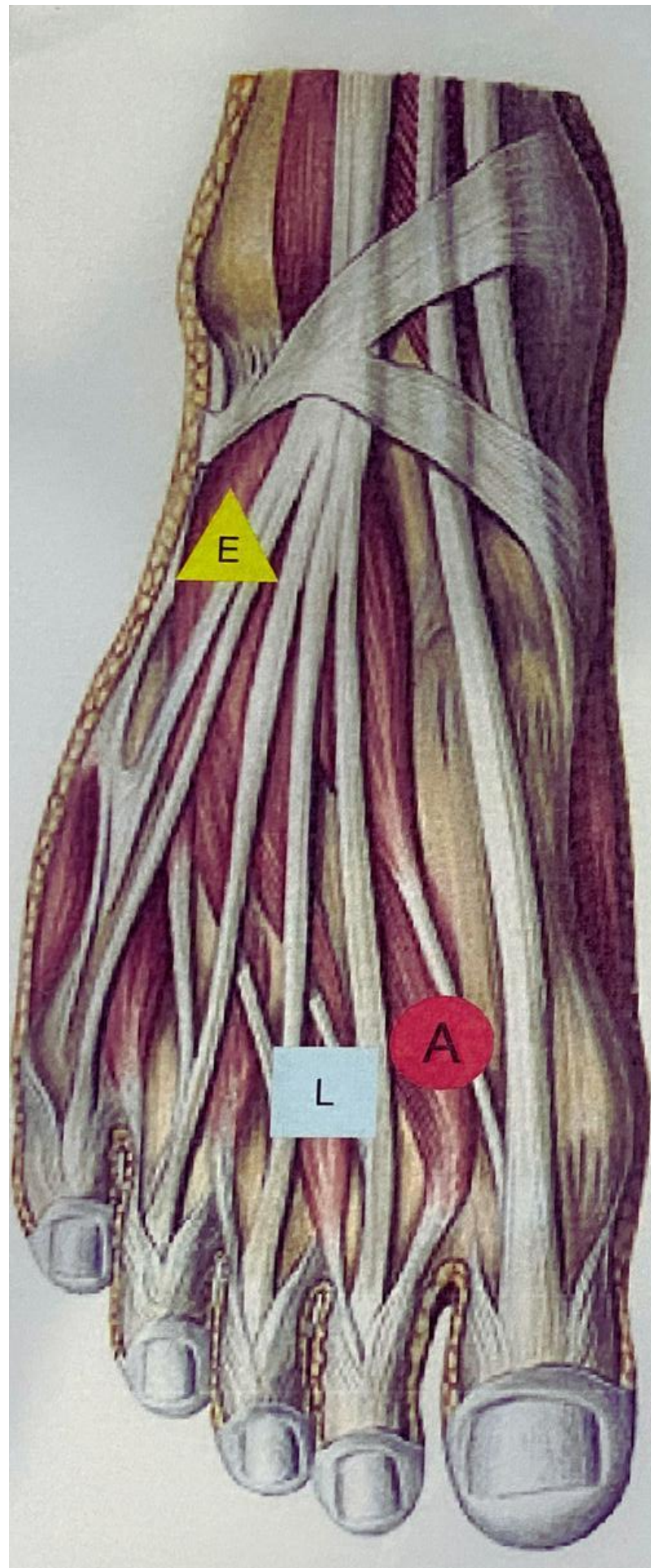


WORKSHOP

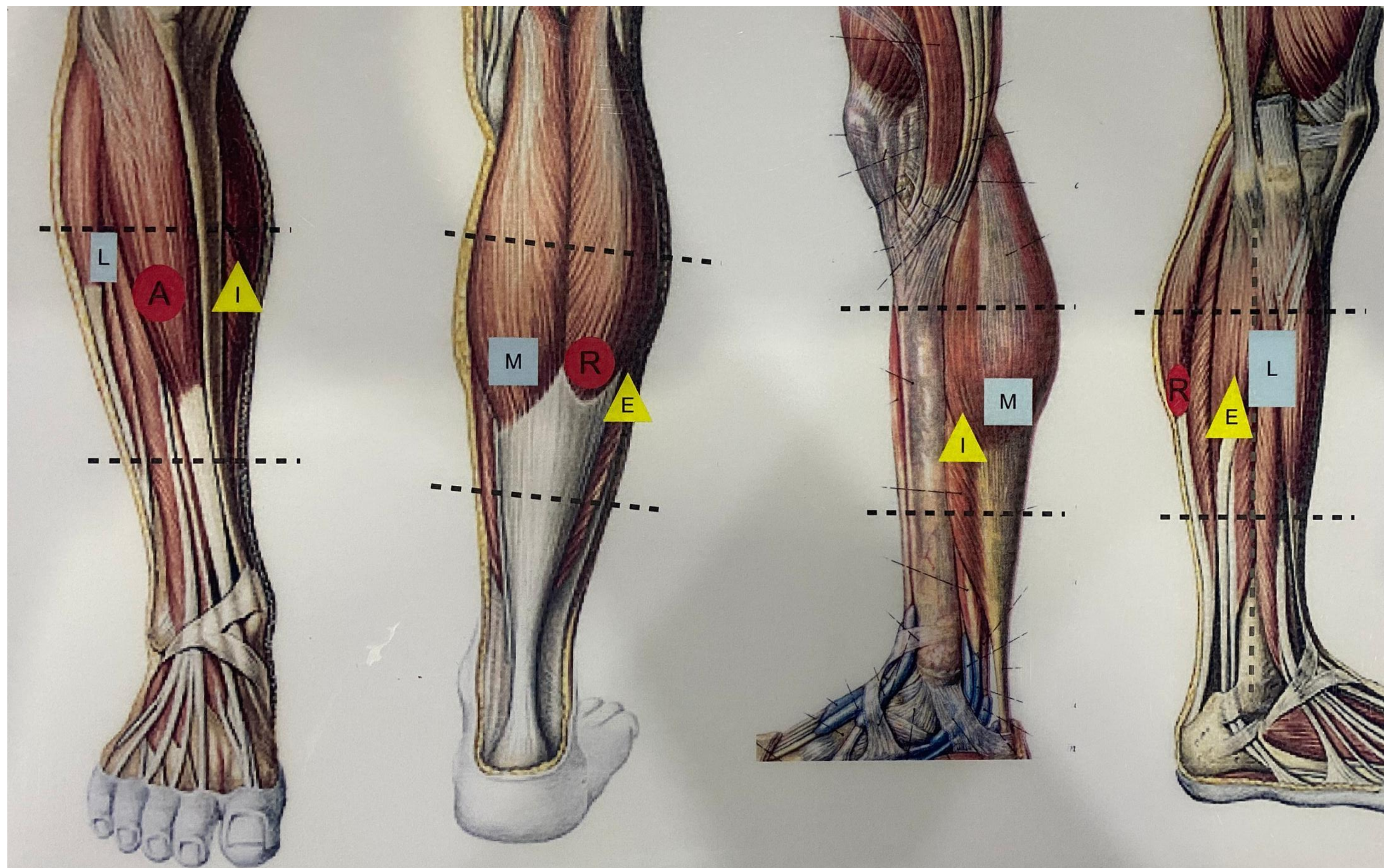
Sequencing Lower Extremities:
foot, ankle, knee, lower back

Fascial Manipulation Steps:

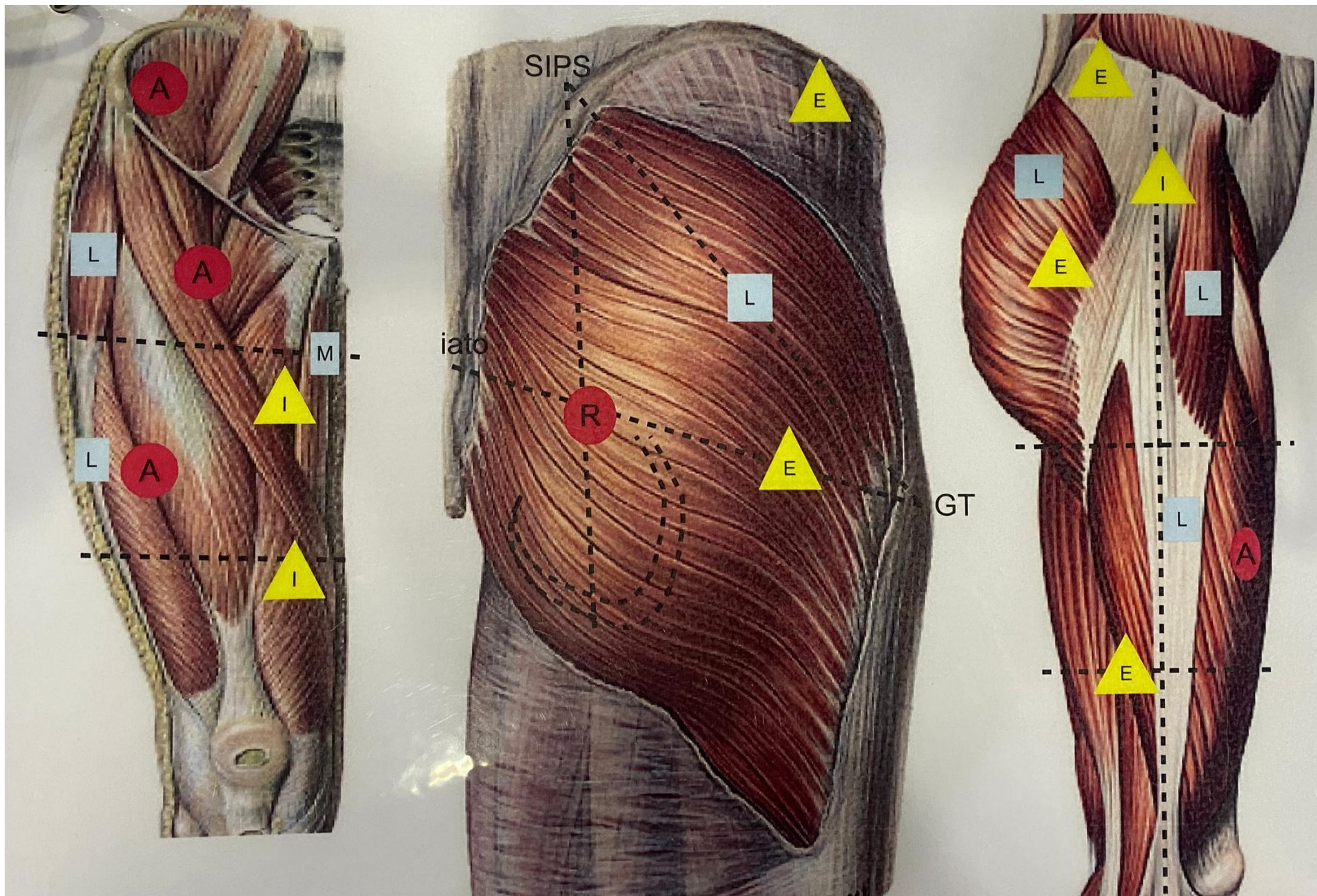
- Palpate 3 fascial points in the area of pain or injury
- Pick one point which is most painful or densified. This will determine your therapeutic line
- Mark mirror points of the same line in adjacent body parts
- Apply deep pressure and friction in different directions until pain and densification dissipate on marked points



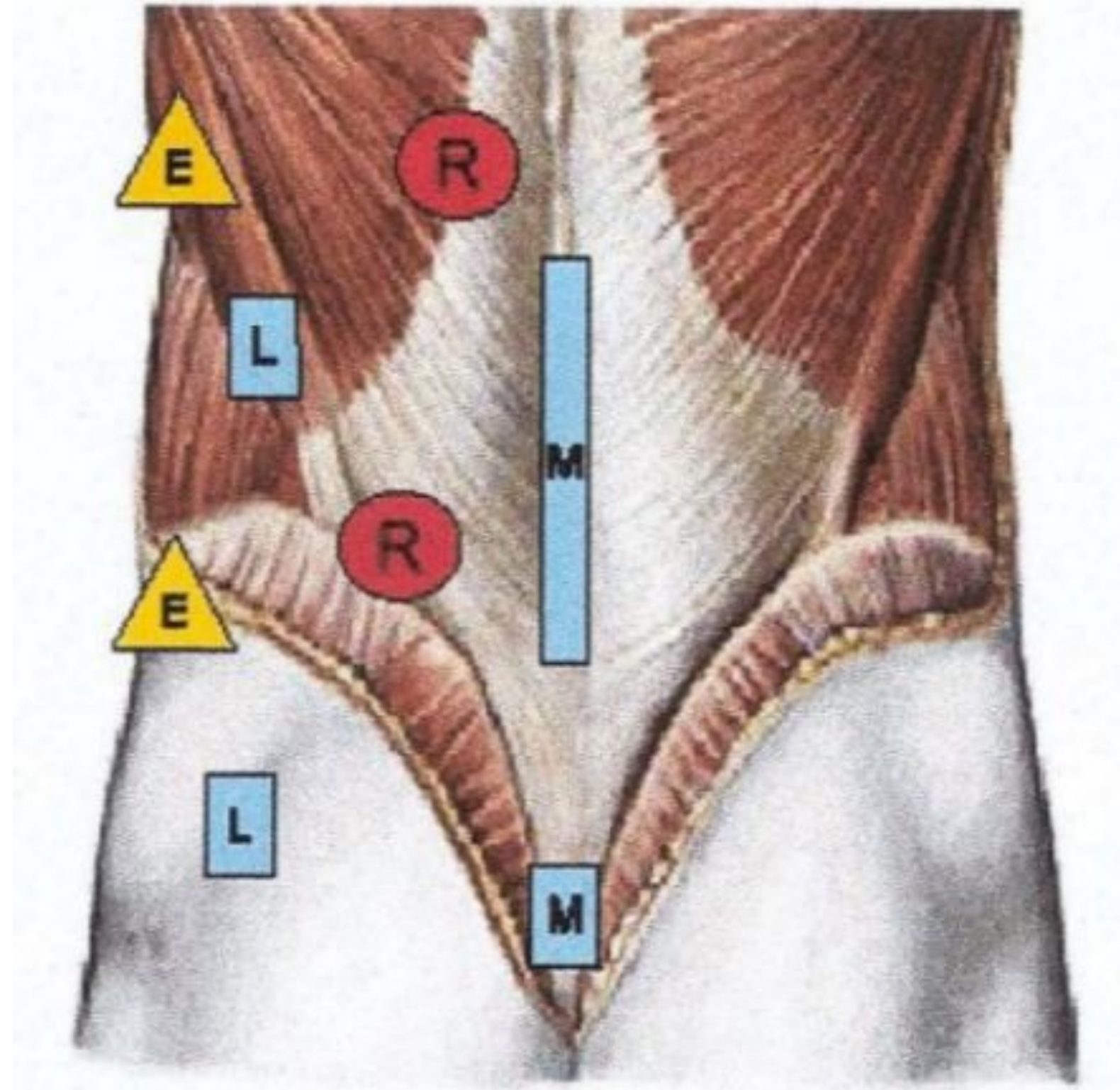
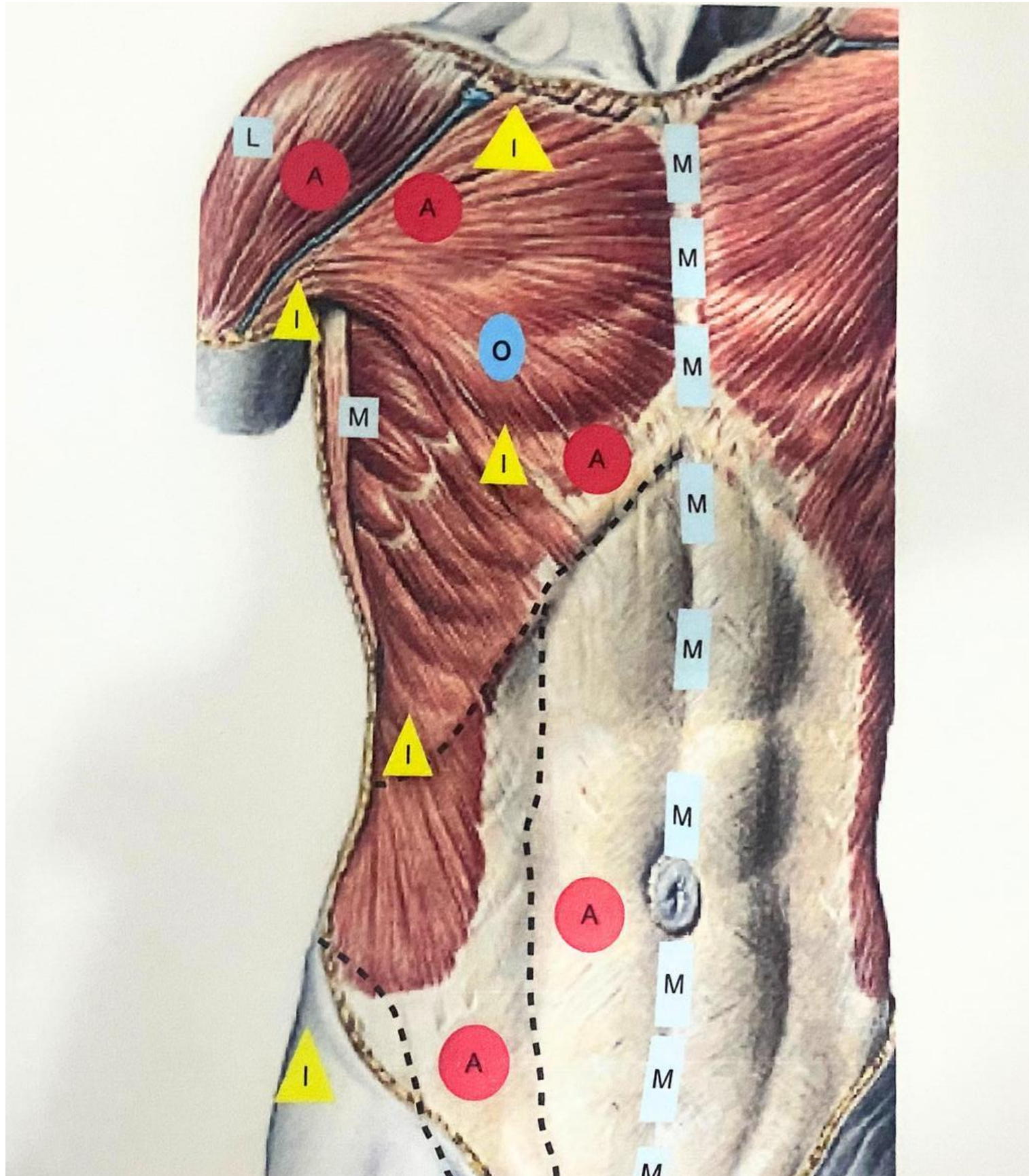
Full Attribution and Reference: Luigi Stecco, Fascial Manipulation Association.



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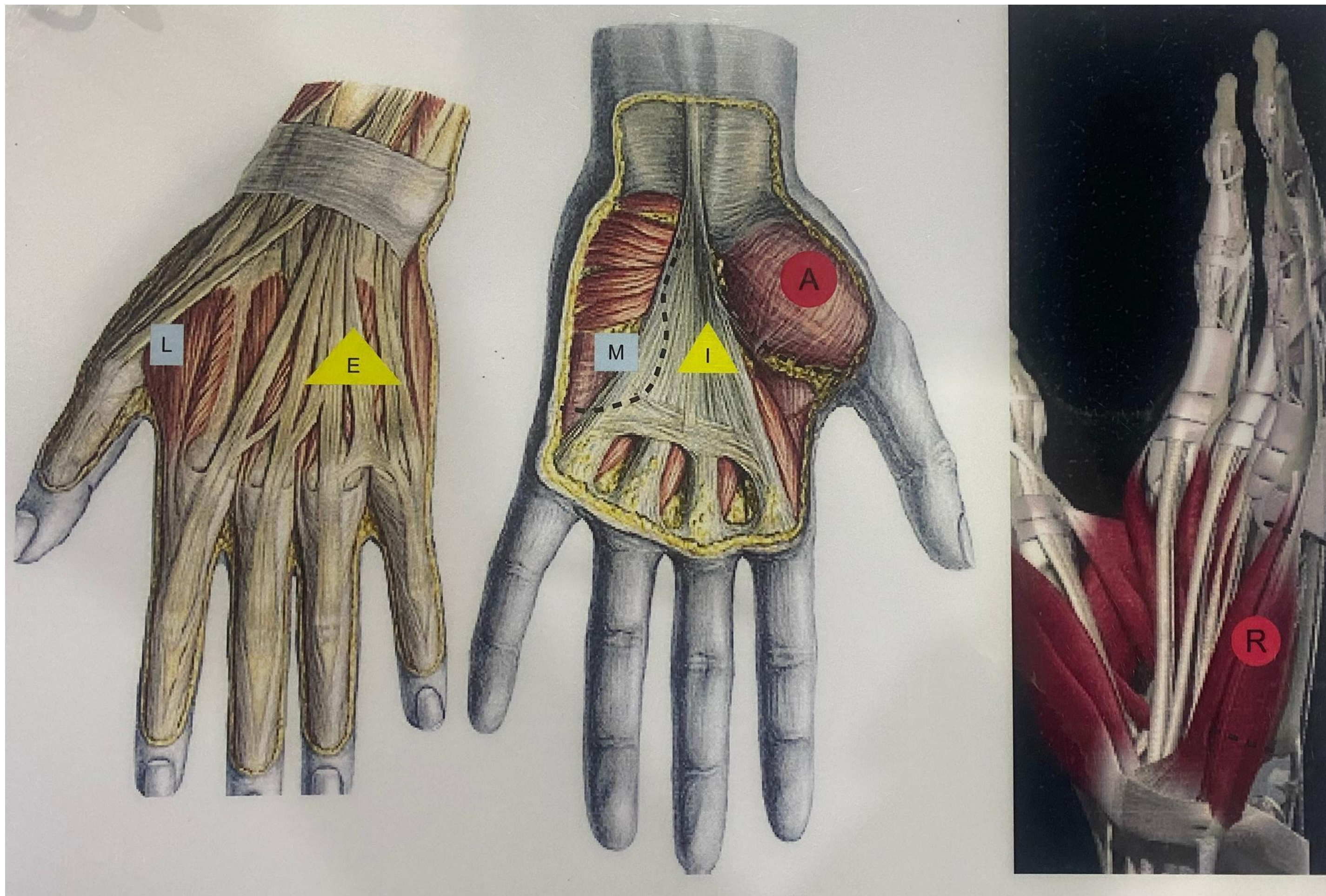
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WORKSHOP

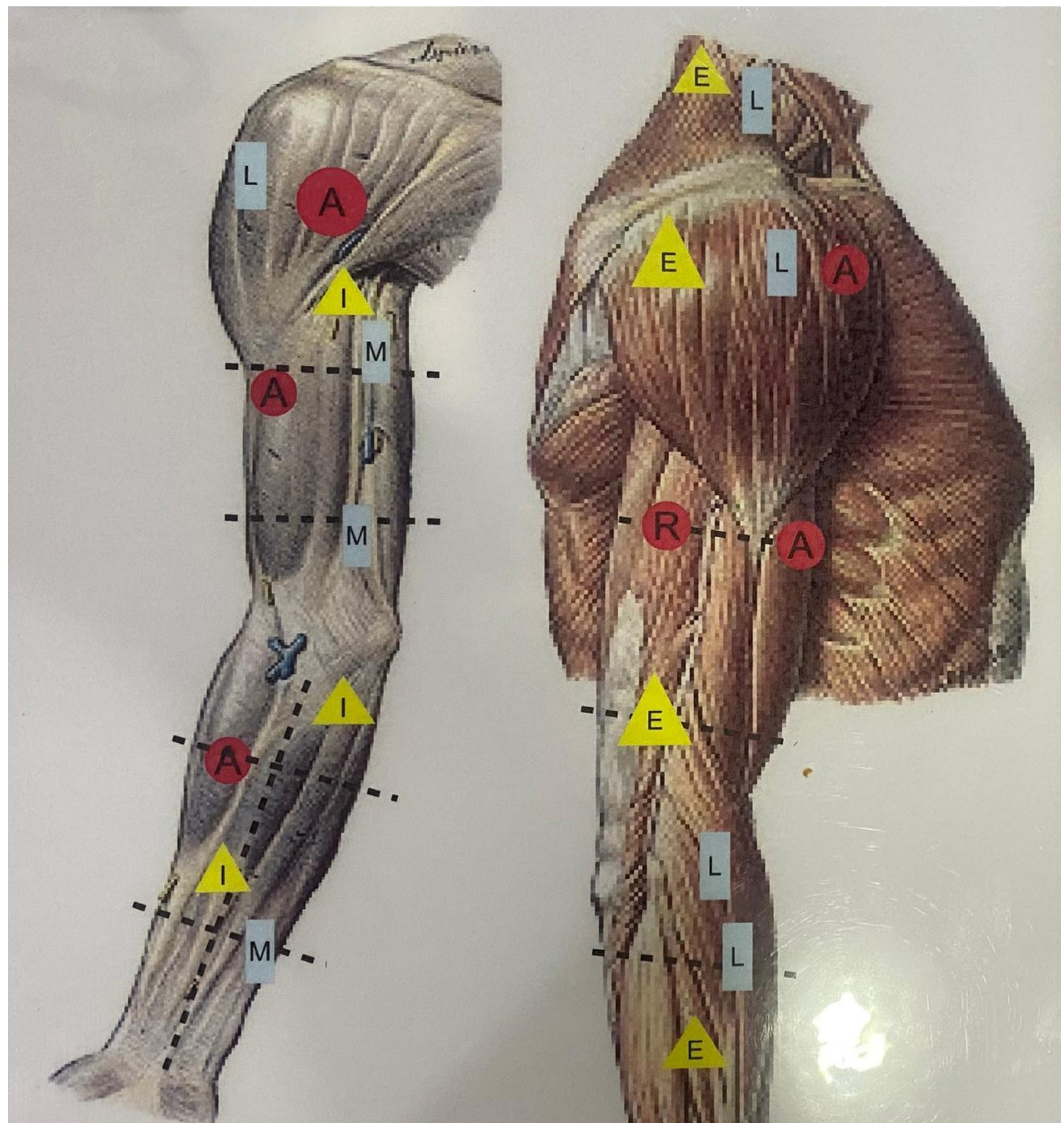
Sequencing Upper Extremities:
hand, wrist, arm, elbow, shoulder,
neck

Fascial Manipulation Steps:

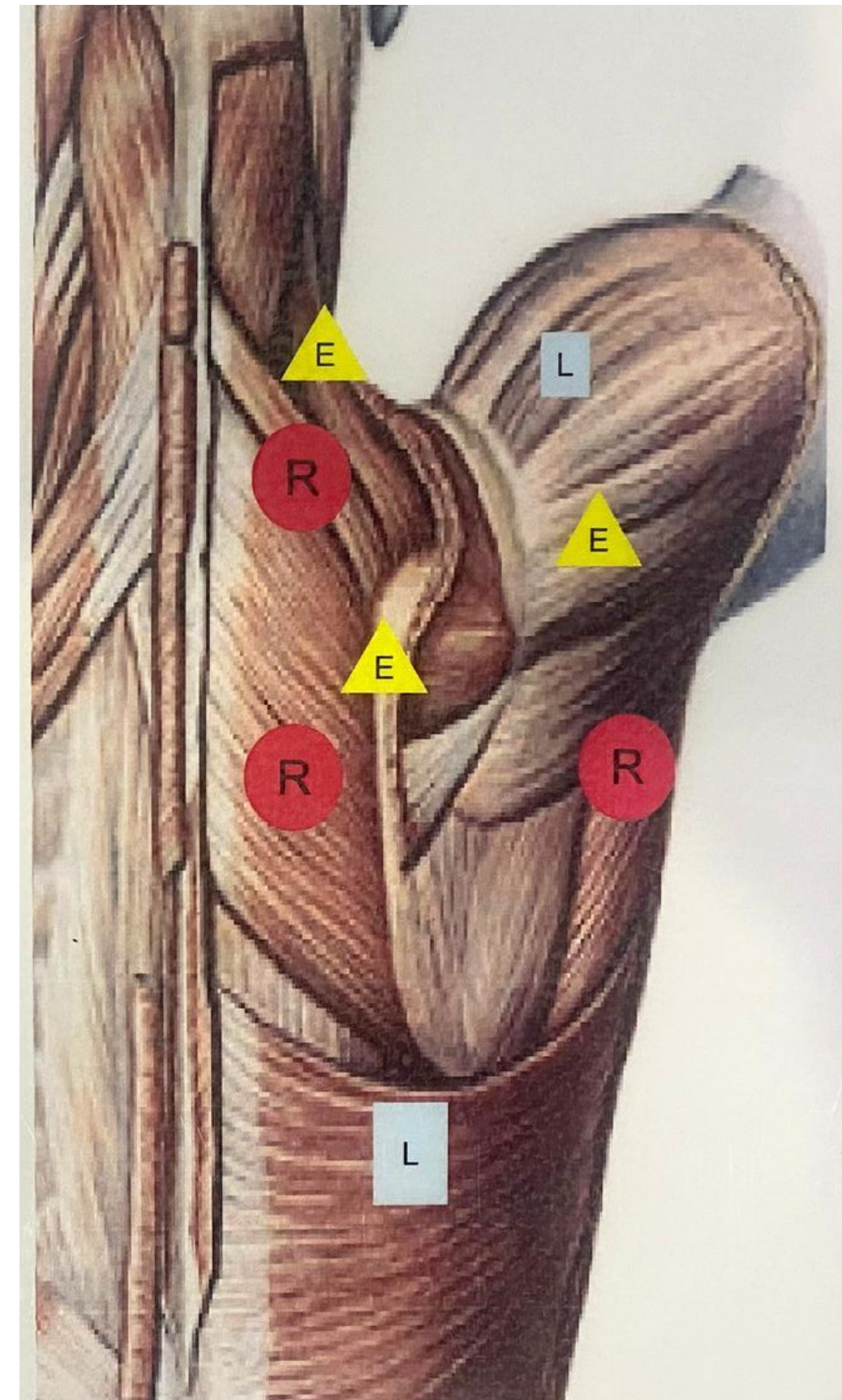
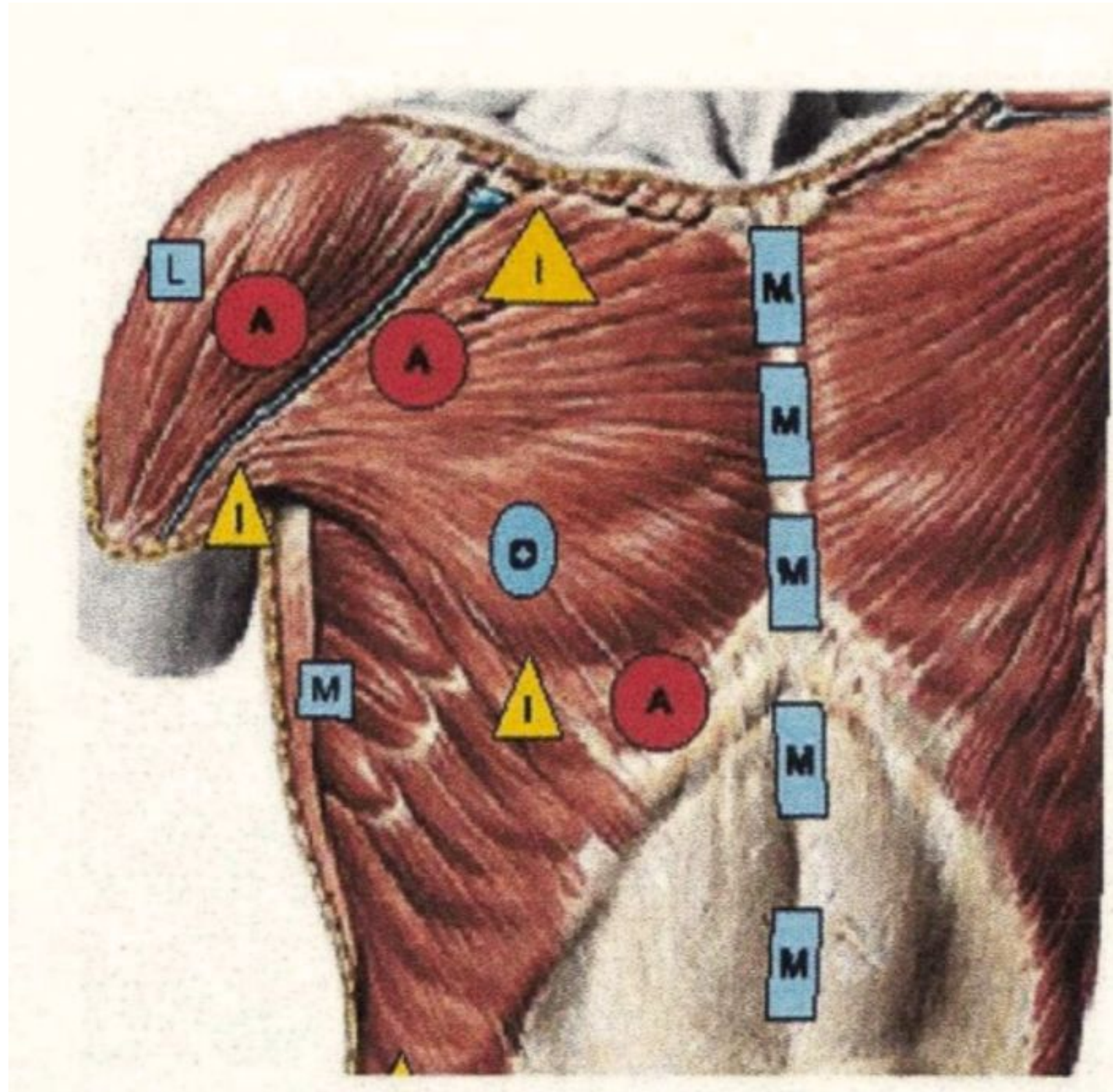
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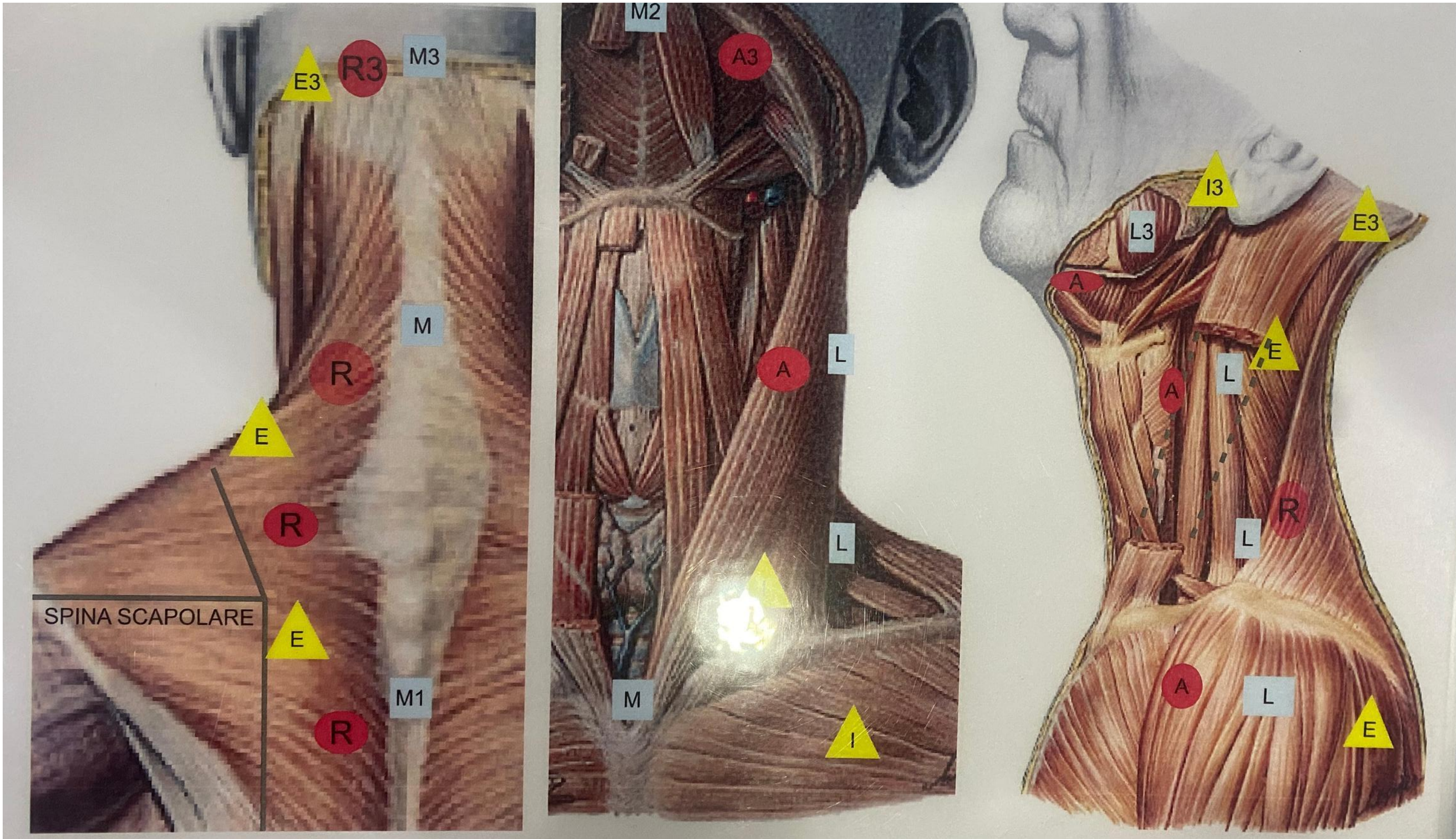
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Thank You

