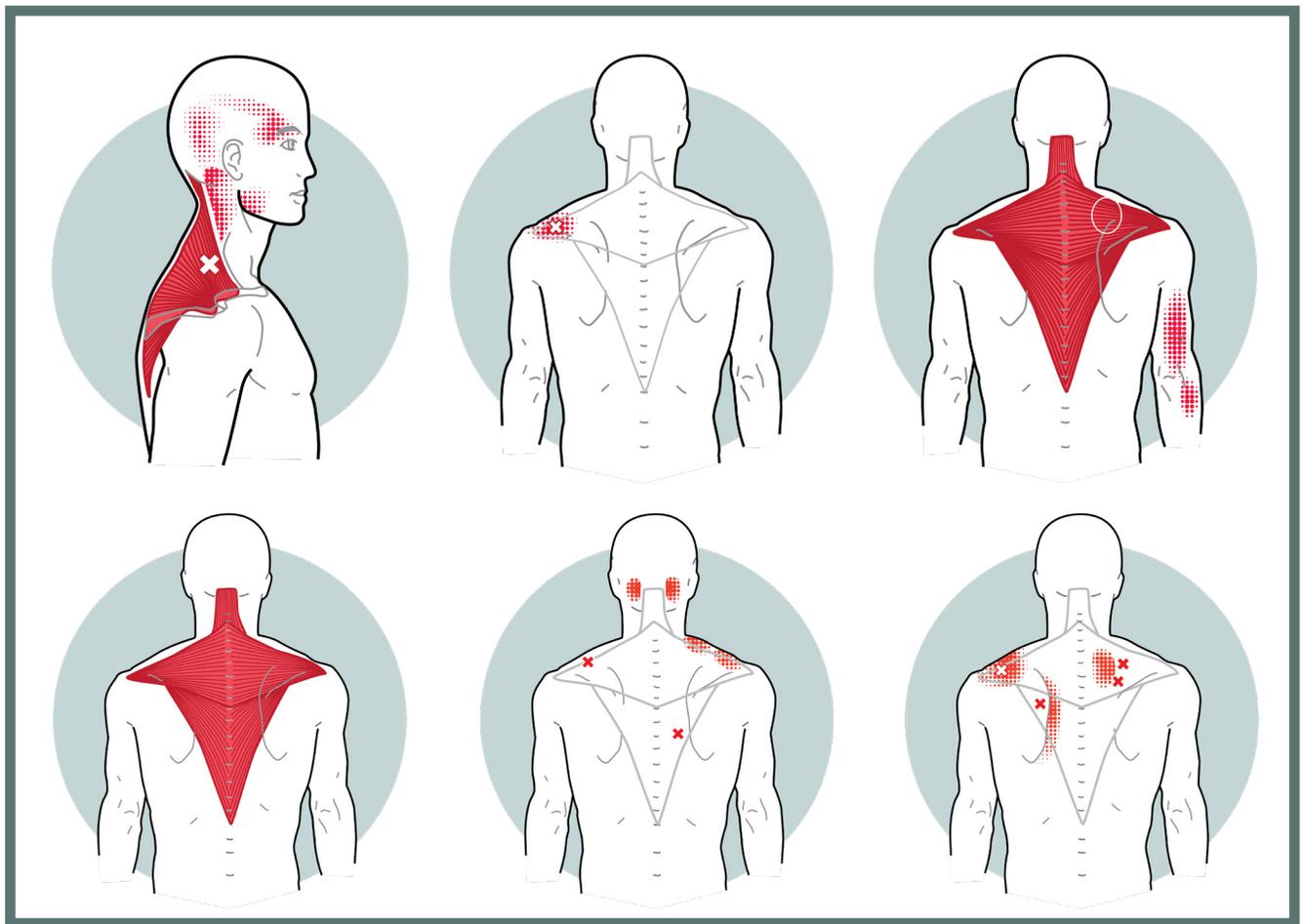


Myofascial Release

500/1000 Hour Teacher Training | Tiffany Cruikshank, L.Ac., MAOM



Certification and Exam

You must pass your online exam within 30 days to receive your certificate and hours.

Instructions on how to access the exam will be sent via email shortly after the conclusion of the training.

If this is your first Yoga Medicine 500/1000hr Module or Immersion, you will also gain access to our teacher's only forum after you complete your exam.

For further assistance, please contact info@yogamedicine.com

Yoga Medicine Vision & Mission

Vision:

Educate and empower teachers to use yoga therapeutically based on a deeper understanding of anatomy, physiology and the integration of modern science and research with traditional practices and experience.

Mission:

Create an international community of experienced yoga teachers who support the individuals and healthcare systems.

Contents

FASCIA	4
<hr/>	
FASCIA CHANGES	12
<hr/>	
MYOFASCIAL RELEASE	17
<hr/>	
TRIGGER POINTS	20
<hr/>	
MYOFASCIAL CHAINS	67

Fascia

FASCIA

- Connective tissue
 - » Supports, connects or separates different types of tissues and organs in the body
- Flexible & strong
- One continuous interconnected system that exists from head to toe without interruption

FASCIA FUNCTIONS

1. CONNECTION

Attach, separate, enclose, support organs, scaffolding/framework for body structure, fill space, store fat, insulate

2. ADAPTATION

Communication, body sense, transmit & accommodate force, strain distributing, store elastic energy, immune function, repair tissues, lubrication/hydration, adapting to demands

FASCIA COMPOSED OF

- 1. CELLS:** mainly fibroblasts, myofibroblasts, & immune cells
- 2. FIBERS:** mainly collagen & elastin
- 3. GROUND SUBSTANCE:** viscous fluid or gel that surrounds the fibers & cells

FASCIA COMPOSED OF

Cells

mainly fibroblasts, myofibroblasts, & immune cells

- **Fibroblasts** create the extracellular matrix (fibers & ground substance) in response to load/pressure & stretch
- **Myofibroblasts** are fibroblasts with contractile capacity. They create supportive matrix and are involved in fibrosis & wound healing. Chronic inflammation can trigger myofibroblasts to create excess collagen deposition and can impair electrical signaling in tissues.
- **Fasciocytes** produce hyaluronic acid (HA)
- **Telocytes** similar to fibroblasts, responsible for fast communication within the fascia
- **Adipocytes** (fat cells) provide cushioning protection and endocrine function
- **Immune cells** help regulate inflammation & immune function

Fibers

mainly collagen & elastin

- **Collagen fibers** create the structure of the fascial web
- **Elastin** allows for elasticity of the tissues
- **Reticular fibers** create mesh-like framework with collagen & elastin (especially abundant around the organs)

Ground substance

viscous fluid or gel that surrounds the fibers & cells

- Fluids or gel that fill spaces between fibers & cells
- Difficult to compress due to water=provides resistance & structure
- Made up of proteins, water & glycosaminoglycans (GAGs)
- Water can make up 60-70% of ground substance
- Glycosaminoglycans (GAGs) like Hyaluronic Acid (HA) attract water, like a sponge
- The weight of HA, as well as how it binds molecules, can also influence this layer
- Provide the aqueous environment for tissue motion (glide/slide)
- Allows cells to migrate and move within
- With age: fewer fibroblasts that produce less HA, more myofibroblasts, less turnover due to less apoptosis
- Immobilization can cause loss of up to 40 percent of HA, reducing ability of tissues to glide= now mobility as soon as possible post surgical
- HA thixotropic= movement restores mobility here

FASCIA

Superficial Fascia

- Under the skin, blends with the dermis
- Passageway for nerves & blood vessels
- Houses cellulite and in some places superficial muscle
- Main function is protective & supportive
- Anchors the skin to the underlying myofascia while providing a cushion

Deep fascia

- Dense fibrous connective tissue
- Interpenetrates & surrounds muscles, bones, nerves & blood vessels
- **Surrounds** individual muscles, divide groups of muscles into compartments or connect muscles into chains
- **Transmits force** applied to muscle
- Keep bones & tissues **connected** and upright

Visceral fascia

- Suspends the organs within their cavities and wraps them in layers of connective tissue
- Less elastin, must hold organs



FASCIA - ENCASING LAYERS

Epimysium

- Encases muscles, continuous with the tendons attaching the muscle to the bone

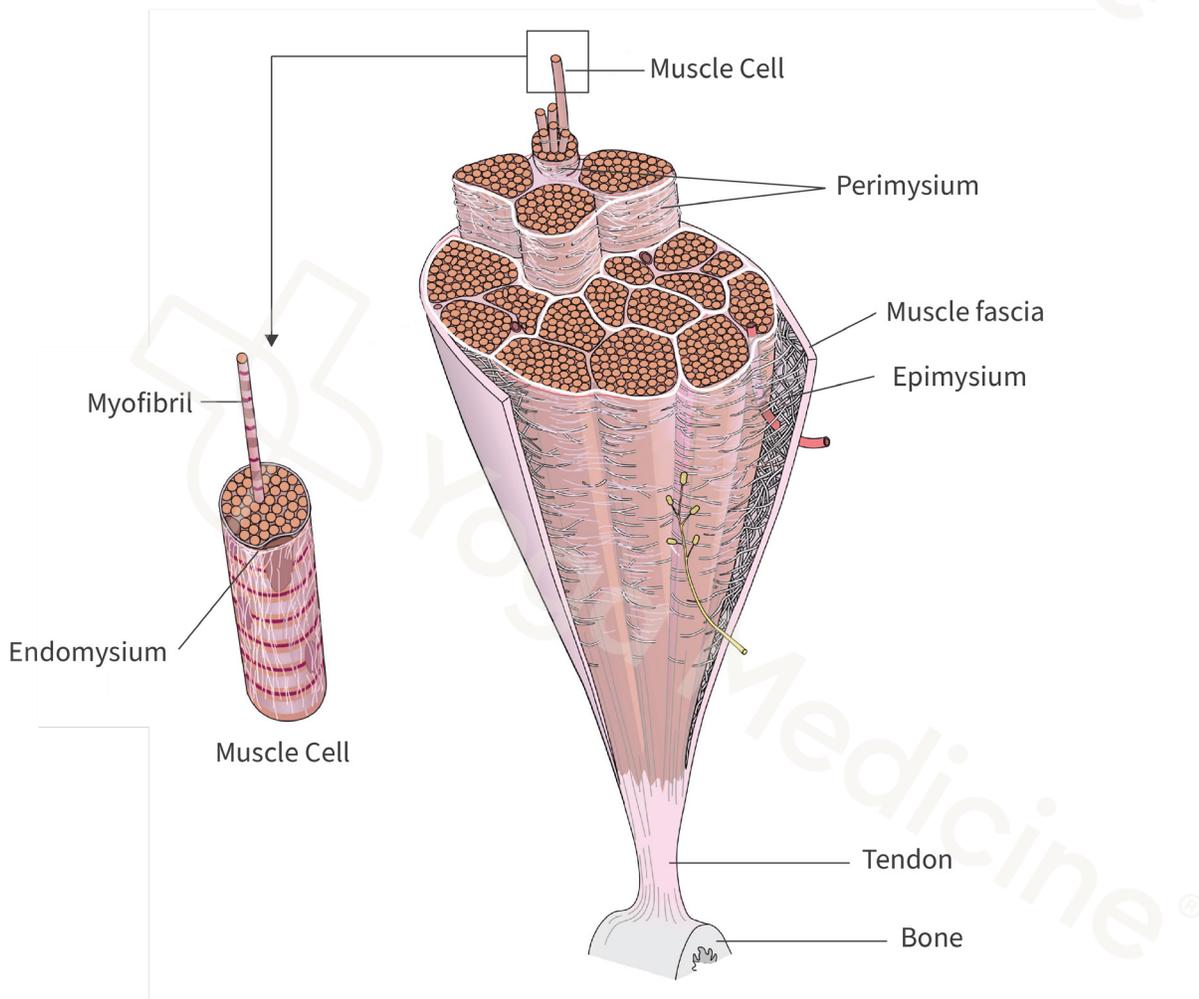
Perimysium

- Encases a bundle of muscle cells (fascicle), where the muscle spindle sensory neuron (proprioceptor) is located

Endomysium

- Encases individual muscle cells

- All twine together to give myofascia its integrity and shape
- These connect to surrounding structures (whether its myofascia, tendon, ligament, or periosteum/bone)
- These interlinking threads are why your shoulder pain may vanish as you roll out tension in your hip or other seemingly separate areas.

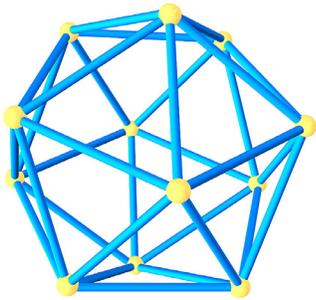


Schuenke, Atlas of Anatomy Vol. 1, 2nd Ed., Fig. 5.58 A, Illustrator: Karl Wesker, ©2017 Thieme Medical Publishers, Inc. All Rights Reserved.

TENSEGRITY

NET OF CONTINUOUS TENSION THAT CREATES STABILITY WITHOUT DIRECT CONTACT

- » Bones do not directly contact, rather connect via soft tissues
- » Altering the tension network influences the efficiency of the system and can lead to tension elsewhere or pressure on joint structures, etc



- We often confuse muscular strength with structural integrity (tensegrity= tension & integrity)
- Our structure is stable to a large extent because of the 3D architectural layout of our connective tissue
- Connective tissue provides supportive scaffolding to protect the muscles, bones, nerves and organs so that our bodies can move efficiently & without damage
- This support allows us to absorb mechanical stress without distorting our shape or the structures themselves, using minimal energy to maintain their shape

FASCIA & COMMUNICATION

- Fascia houses sensory nerves
- Nerves both terminate in (communicate with) and penetrate through the fascia
- Acts as an **information highway** through mechanotransduction

MECHANOTRANSDUCTION: the conversion of a mechanical stimulus into electrochemical activity that influences our senses- how we feel, our proprioception, balance, etc

- Mechanical stimulation of fascia can effect neuroregulation, DNA replication and stimulate the formation of more connective tissue to heal and repair tissues
- We have about 250 million sensory receptors in the human fascial system
- Fascia is our richest sensory organ
 - » Responsive to mechanical tension, pressure, shear deformation or light touch
 - » Collecting proprioceptive, nociceptive & interoceptive information

FASCIA & COMMUNICATION

- **Interoception** is our awareness & sense of the internal physiologic state of the body (hunger, respiration, heart rate, etc)
- **Proprioception** is our sense of the position of the body in space with regards to position, movement & equilibrium
- **Nociception** is our threat detection system, sensing extreme changes in temperature, pressure or chemicals in the body. This information may be interpreted as pain in the brain

STIMULUS FROM OUTSIDE THE BODY: Nociception (pain), proprioception, thermoception (temperature), mechanoception (pressure)

STIMULUS FROM INSIDE THE BODY: interoception

FASCIA SENSORY INNERVATION

- Nociceptors
- Mechanoreceptors, chemoreceptors, thermoreceptors
- Proprioceptors
- Interoceptors

MECHANORECEPTORS IN FASCIA

1. **MUSCLE SPINDLES** (in muscle belly, sense stretch & speed of stretch)
2. **GOLGI RECEPTORS** (throughout deep fascia, monitor tension level) slow stretching= decrease muscle tone with active muscle engagement, PNF, lift heavy= drop to protect muscle, long held yin= feel muscle let go from fatigue
3. **PACINI RECEPTORS** (in tendon, spine, joint capsules, monitor sudden rapid changes in pressure/vibration) jumping, vibrations, rocking, hopping, plyometrics
4. **RUFFINI RECEPTORS** (in ligaments, dura, joint capsules, skin, superficial fascia, monitor vibration, pressure & shear) slowly responding to slow constant pressure, decrease SNS
5. **INTERSTITIAL RECEPTORS** (abundant in sliding zones, multimodal= sense pain, temperature, hunger, thirst, itch, light touch, heavy pressure, interoception)

FASCIA, ANS & CNS

Fascia & ANS

- Ruffini receptors can impact ANS balance
- Sympathetic innervation in CT can impact blood flow & have potential implications of fascia & stress

Fascia & CNS

- CNS involved in ROM changes related to MFR
- Global effects of MFR from CNS

FASCIA & COMMUNICATION

Properties of Fascia

1. **SEMICONDUCTION** - can conduct and process vibrational information (energy conduction)
2. **PIEZOELECTRICITY** - ability to generate an electrical charge in response to applied mechanical stress
3. **CRYSTALLINITY** - regularly organized molecules
4. **COHERENCE** - syncing frequency of vibration waves
5. **HYDRATION** - can restrict or enhance #1 & 2
6. **CONTINUITY** - continuous unbroken whole (6 properties of fascia theory- Oschman, 1994)

FASCIA & CONTRACTILE CAPACITY

- A multitude of studies indicate that the presence of myofibroblasts enables the fascial tissues to alter their stiffness
- This contractile behavior takes place both in healthy tissues as a response to postures taken over time and pathological fibrotic contractures
- This is a slower response than skeletal muscle contractions that happens over several minutes and produces long term effects over a period of days or months
- Can impact our movement, electrical signaling & stability
- Questions our understanding of the distinction between active & passive tissues in the musculoskeletal system

FASCIAL HEALTH

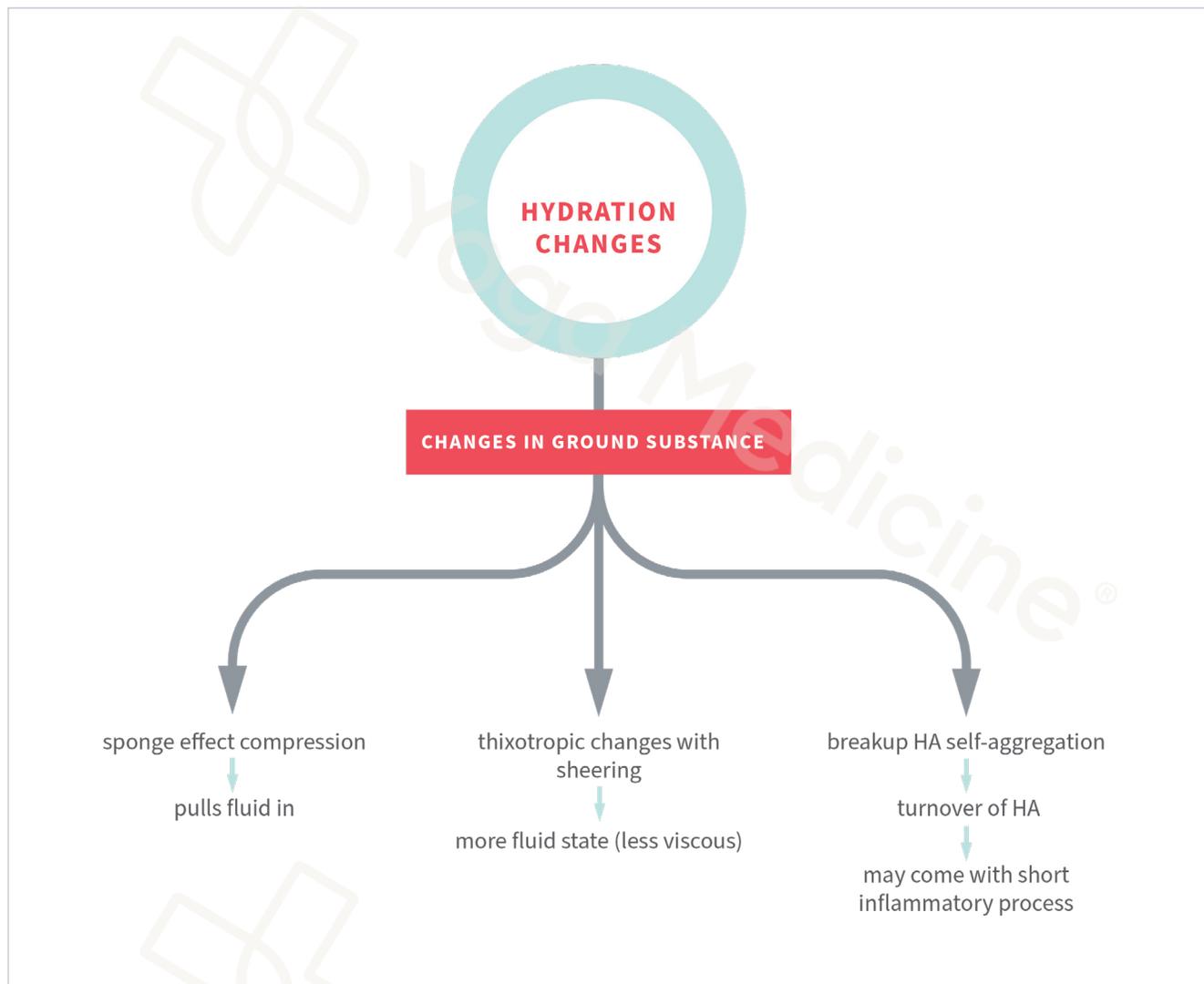
Fascial Wave

- Closely packed collagen fibers in a wavy pattern
- Normal, healthy state= relaxed, wavy configuration, can stretch & move without restriction
- Wave formation allows the collagen fibers to stretch during movement or compression
- Fiber bundles in adjacent layers may not have the same direction
- Healthy collagen lines up with orderly crimping along direction of predominant stress
- Waves affected by aging, physical trauma, overuse, infectious agents, scarring or inflammation= loses its pliability= tension, restriction, decreased blood flow, hypoxia, pain
- Healthy state of fascia is a relaxed, wavy configuration that can stretch & move without restriction

Tissue Hydration

- Elasticity & adaptability of tissues requires hydration
- Fascial components dependent on water for structural integrity, protection from physical trauma and for mechanical functioning
- Hydration also pressurizes the tissues, contributing to stability and making them more resistant to pressure
- Densification is the self-aggregation of HA (binding to self instead of water) → can lead to impaired gliding & increased tissue stiffness

FASCIAL HEALTH



TISSUE HYDRATION

- Pliability & adaptability of tissues requires hydration
- Following tissue injury due to dehydration= essential to undergo **rehydration & movement** to help prevent scar tissue and adhesions
- Study: stretched porcine (pig) fascia for 15mins
 - » Decreased water during and immediately after
 - » Within a few minutes collagen fibers & water content return to their original state
 - » Water continued flooding into the tissue to an even higher percentage than baseline 1-3hrs after (Pischinger and Oschman, 2004)
- Dynamic changes in water content allow fascia to respond to loading in smooth muscle like manner

Fascia Changes

CROSS LINKS

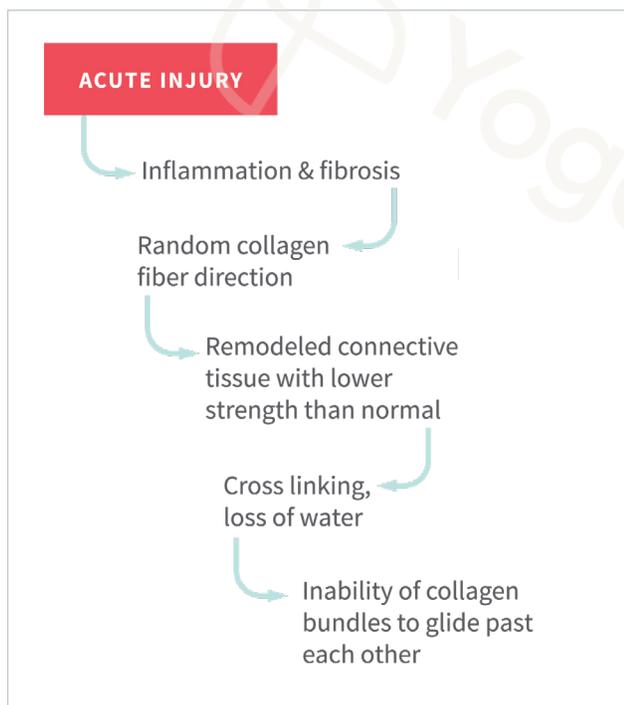
Cross Links:

- Where adjacent connective tissues become adhered or attached to one another
- Collagen deposition
- Can have positive or negative effects
 - » Scar tissue (visible or not, scar tissue is fibrosis or fibrous tissue composed of a collagen matrix with less orderly configuration)
 - » Healing torn tissues

AGE crosslinks

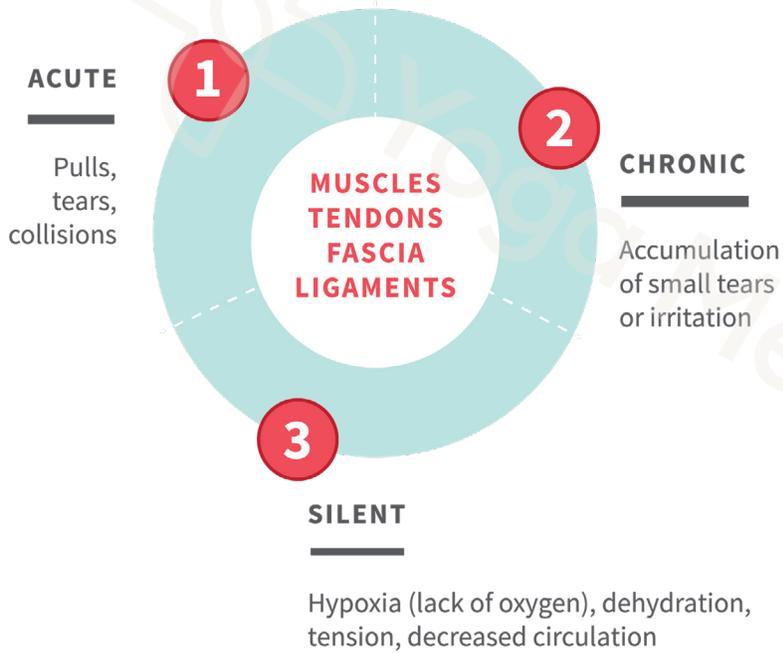
(advanced glycation end-products)

- Increase with age
- Impacted by nutrition
- Lead to sense of stiffness (felt sense)
- Impact CT function



FASCIA CHANGES

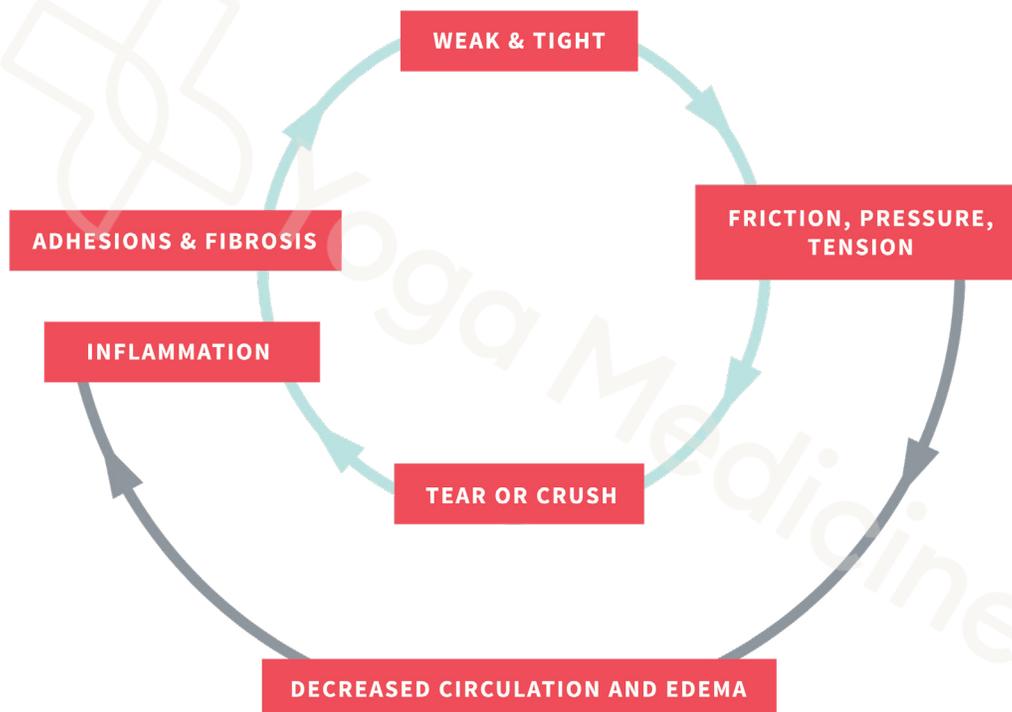
3 Ways that Soft Tissue Changes



Tissue damage or irritation leads to

- Body lays down **scar tissue** (fibrous connective tissue)
- **Binds** the tissues
- Scar tissue builds up= tissues can become **shorter** and **weaker/inhibited**
- Can put tension on tendons = **tendonitis**
- **Nerves** can become trapped= pain, tingling, numbness, and weakness
- Reduced **range of motion**, loss of **strength**, and **pain**
- Fibrosis or scar tissue= creates a decreased capacity to deform & adapt

The Cumulative Injury Cycle



FASCIA CHANGES

Obstruction vs Free Passageway

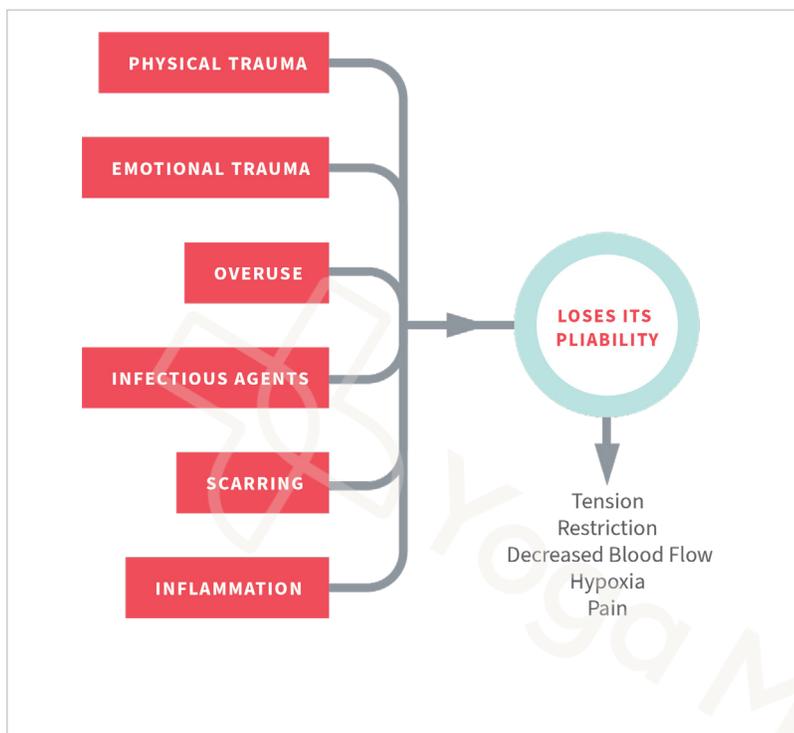
- When information passage is obstructed or hindered due to trauma, infection or stress= disease or pain result
- Manipulation of tissues attempts to bring fluidity back to tissues
- Pressure & temperature increases can bring back a tissue's physical properties:
 - » Decrease stiffness
 - » Restore tissue integrity & strength

Toxins

- Manipulation of soft tissues has the ability to release **toxins** trapped in the tissues
- Once released toxins are **absorbed by the lymphatic & vascular** systems and excreted= why water is so important with myofascial work

FASCIA

Unhealthy state



- Can be a source of tension to the rest of the body
- Trauma such as a fall, car accident, surgery or habitual poor posture or repetitive movements have cumulative effects
- Sports: Repetitive use increases collagen synth (peaks 3 days after exercise) & causes a failure of normal collagen turnover which results in overproduction of collagen & fascial restriction (magnified with less rest)
 - » Short term= increased resistance for force transmission
 - » Medium/long term= fascial tension/stiff, decreased elasticity, decreased capacity for deformation & force absorption

FASCIAL REMODELING

- Each year half the collagen fibers are replaced in a healthy body (Neuberger and Slack, 1953)
- Fascial tissue slowly responds to load, rearranging the collagen network with a similar response whether the tendon was stimulated by concentric, isometric or eccentric muscle contraction, suggesting that strain rather than stress/torque determines the collagen-synthesis stimulating response seen with exercise (Kjaer et al., 2009)

APPLICATION - EFFECTS

1. **HYDRATION**- sponge effect, stretch &/or compression*
2. **GLIDING** (adhesions)- myofascial release
3. **THIXOTROPIC**- movement, especially whole body, Must be: smooth, quiet (enhanced proprioception)
4. **ELASTIC RECOIL**- ballistic, bounce, jump, Must be: gentle, without tension, bouncing near end range of motion
5. **ANTI-INFLAMMATORY, ANTI-FIBROTIC**- static stretch (yin)
6. **REMODEL** based on stress- repeated postures/ movements
7. **BODY CONSCIOUS** movements
8. **NERVOUS SYSTEM REGULATION**- myofascial release

*Schleip et al., 2012, Chaitow, 2009, Pollack, 2001, Sommer and Zhu 2008, Schleip 2012, Berrueta et al, 2015

OTHER IMPORTANT NOTES

- Exercise enhances collagen turnover (intermuscular collagen turnover is much more rapid than tendons)
- Age= decreased collagen deposition & increased tendency toward fibrosis
- Estrogen exposure increases collagen III deposition (more elastic)
 - » Higher estrogen= more compliant
 - » Lower estrogen= less compliant
- Eccentric loading stimulates remodeling at endo/epimysium level
 - » Peaked 5 days after, stayed for 4wks after

APPLICATION- YOGA

- **Compression & held stretch** - pain, hydration, inflammation & circulation
- **Sheering**- gliding & HA production
- **Whole body Movement**- thixotropic
- **Ballistic/jump/bounce**- energy storage & tendons. (gentle, without tension, bouncing near end range of motion)
- **Body conscious** movements for proprioception & nociception*

*Moseley, 2008

FASCIAL RESPONSE

Slow & Steady wins the race

- Muscle tissue typically responds much more quickly
- Fascia changes more slowly and has more lasting cumulative effects that result in improvements in fascial strength & elasticity *
- Fascial training for tissue strength, gliding/mobility, injury resistant, resilient tissues after 6-24 months
- Fascia is also influenced by nutrition, sleep, lifestyle

*Kjaer et al., 2009

YOGA APPLICATION

1. You don't have to rewrite the rules

- Sponge effects with stretch & compress tissues

2. Choreographed movement is still good for you

- Proprioception, thixotropic, body awareness, especially if slow, quiet, mindful movements in new directions

3. Tissue health & resilience is affected by many things you can't see or feel

- Hydration, fascial wave, enhance communication

4. Your fascia needs to be moved in many directions

- Even yoga can be a repetitive movement, importance of stressing different points of the tension system

5. More isn't always better

- Balance of strength/mobility, superficial/deep, tension system
- Key for both efficiency and resiliency (minimize wear & tear)

Myofascial Release

- “Recent reviews of current research into the use of Myofascial Release (MFR) strongly suggest that this gentle soft tissue manipulation approach is clinically effective – whether self-applied, or provided as part of a therapeutic interventions”
- “SMFR appears to have a range of potentially valuable effects for both athletes and the general population, including increasing flexibility and enhancing recovery. Specifically, SMFR seems to lead to increased joint ROM acutely and does not impede athletic performance acutely. SMFR therefore seems suitable for use by athletes or the general population prior to exercise, training sessions or competition. SMFR seems to alleviate

DOMS [delayed onset muscle soreness] acutely, and may therefore be suitable for use by athletes or the general population for enhancing recovery from exercise, training sessions or competition. There is also limited evidence that SMFR may lead to improved arterial function, improved vascular endothelial function, and increased para- sympathetic nervous system activity acutely, which may also be useful in recovery. Finally, there is some evidence that long-term SMFR may lead to improved flexibility, although not all chronic studies confirm these results“ (Chaitow, 2017)

MYOFASCIAL RELEASE

- Any techniques used to manipulate the muscles and fascia
- Triggers cycle of inflammation, repair & remodeling

GOALS

- Enhance ROM without impacting performance
- Re-establish neural & myofascial glide
- Increase blood & lymphatic circulation
- Increase hydration of tissues
- Regulate pain & pressure sensitivity
- Regulate nervous system activity

TYPES

- Trigger point therapy/injection
- Bodywork: Rolfing, massage, structural integration
- Self myofascial release (balls, rollers, etc)
- Acupuncture
- Grastin, ASTIM, gua sha (myofascial scraping techniques)
- Cupping
- Active Release Technique (ART, www.ActiveRelease.com)
- Yoga

TRIGGER POINTS

SYMPTOMS

- Pain or altered sensation with pressure (local or referred)
- Palpable taut band (ropey)
- Hypersensitive spot
- Pain with stretch
- Sometimes a twitch response in the muscle with palpation

DUE TO

- Abnormal sudden or chronic stress placed on the muscles
- Poor posture
- Structural abnormalities
- Vitamin & mineral deficiencies (C, thiamine, B6, B12, iron, calcium, magnesium, potassium)
- Hypothyroid
- Hypoglycemia
- Depression
- Hyperuricemia (high uric acid, purines)

MYOFASCIAL RELEASE

Types of Myofascial Release

Compression

Sustained for 30-90 seconds (but could be 10 seconds to several minutes depending on the tissue & individual tissue tolerance)

Good place to begin, easier to moderate intensity here, good for more sensitive tissues, good to release trigger points or tension

PNS response magnified as able to support & relax

Rolling

With the direction of muscle fibers

Slow with consistent pressure

Used to explore and find areas to work with (with compression, sheering, cross fiber or contract/relax).

Good for circulation and tissue hydration

Cross Fiber

Rocking across the muscle, perpendicular to the direction of the muscle fibers

Stimulates CT from the outside in

Good for more tethered areas to break up adhesions and for more stimulation of fibroblasts (to lay down orderly wave like collagen)

Also good for tissue hydration

Sheering

Maintain tolerable compression on the tissues as you move the deeper layers underneath by moving a nearby joint and thereby moving the tissue underneath the point of compression (includes pin & stretch techniques)

Stimulates CT from the inside out

Good for reducing densification and restoring gliding movement between the superficial & deep fascial layers

Recent research shows that sheering & vibration give the greatest hydration response to the CT

Contract & Relax

Maintaining tolerable compression as you contract & relax the muscle being compressed

Helpful tool for anything the student is having difficulty relaxing but what's to stay in that spot, good for relaxing resistant areas

Winding

With or without body weight; press the ball onto the skin enough so that as you twist the ball the skin winds up around it.

Creates a sheering force to the underlying superficial fascia

When used with sheering: creates more tissue drag on the superficial fascia to help restore gliding between the superficial & deep fascial layers

Good for areas with looser skin, less sensation or to work on superficial fascia

MYOFASCIAL RELEASE

Key Principles

- Practice of Self Study
- Duration/Frequency: needs to meet the individual and tissue changes
 - » **SHOULD NOT BE SIGNIFICANTLY SORE AFTER**, if so decrease intensity and/or duration of each session as well as the time in between to allow for recovery.
 - » **LOOK FOR AN AREA THE STUDENT CAN “WORK WITH”** not too intense that they grip and create more tension, but should be looking for areas that feel tense, tender, tight, etc.
 - » **SHOULD NEVER BE PAINFUL, SHARP OR SHOOTING**
 - » **YOU ARE NOT ATTEMPTING TO STRETCH THE TISSUES** during these techniques. This can create more damage as you apply pressure. With the sheering techniques you are simply taking the tissues through their range of motion without inducing any major stretching.
 - » **INTENSITY AND DURATION NEED TO BE ADJUSTED** to the student. Always begin on the gentler side and slowly increase from there. Watch their sensitivity as you begin working with them. To modify add layers of a towel or blanket on top of the balls or roller or add props around it (block to support body weight or a 2nd ball right beside it to disperse body weight).
- Tools
 - » Myofascial balls or tennis balls, rollers, sticks and many other tools
- Props to relax
 - » Props as needed: blocks, bolsters or blankets or household items to improvise like towels and pillows
- Avoid
 - » **TOP 3: NERVES, BONES, VISIBLE SWELLING**
 - » Hypersensitivity of the skin, rolling an area that is still sore
 - » Bruises, broken skin/open wounds, sutures, varicose veins, fractures, trachea, carpal tunnel
 - » Osteoporosis- avoid anything near or on bones or awkward positions
 - » Joint replacements- do not roll on or position weight over the artificial joint, careful with awkward positions
 - » Pregnancy- abdominal points, late second & third trimester avoid prone and supine positions (prop upright if possible, roll on side or lean against a wall)
 - » Deep vein thrombosis avoid areas of known blood clots or skip
 - » Go gentle with bleeding disorders or blood thinners to avoid bleeding/bruising
 - » Fibromyalgia - be very gentle and be cautious of soreness after as well, use a rolled sock or other gentle tool

ALWAYS CONSULT HEALTHCARE PROVIDER FIRST.

THIS IS NOT MEANT TO REPLACE MEDICAL CARE.

CONTRAINDICATIONS

Any serious medical condition should be cleared by a doctor, including but not limited to:

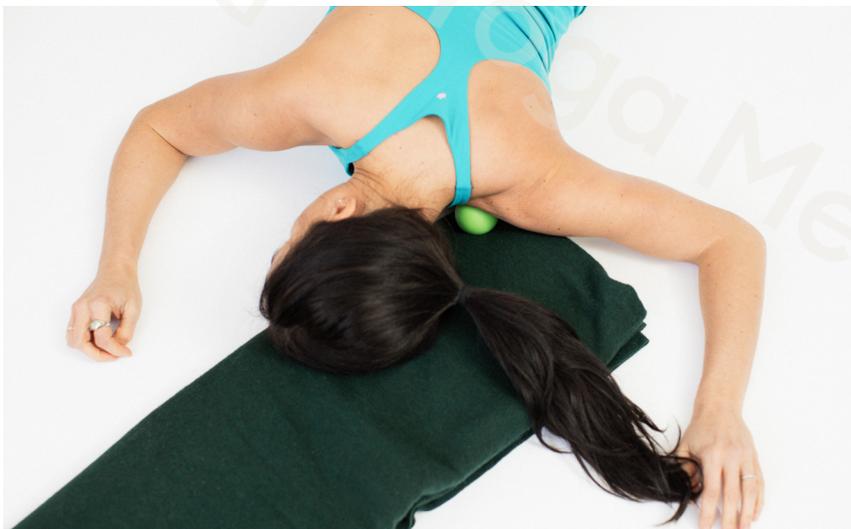
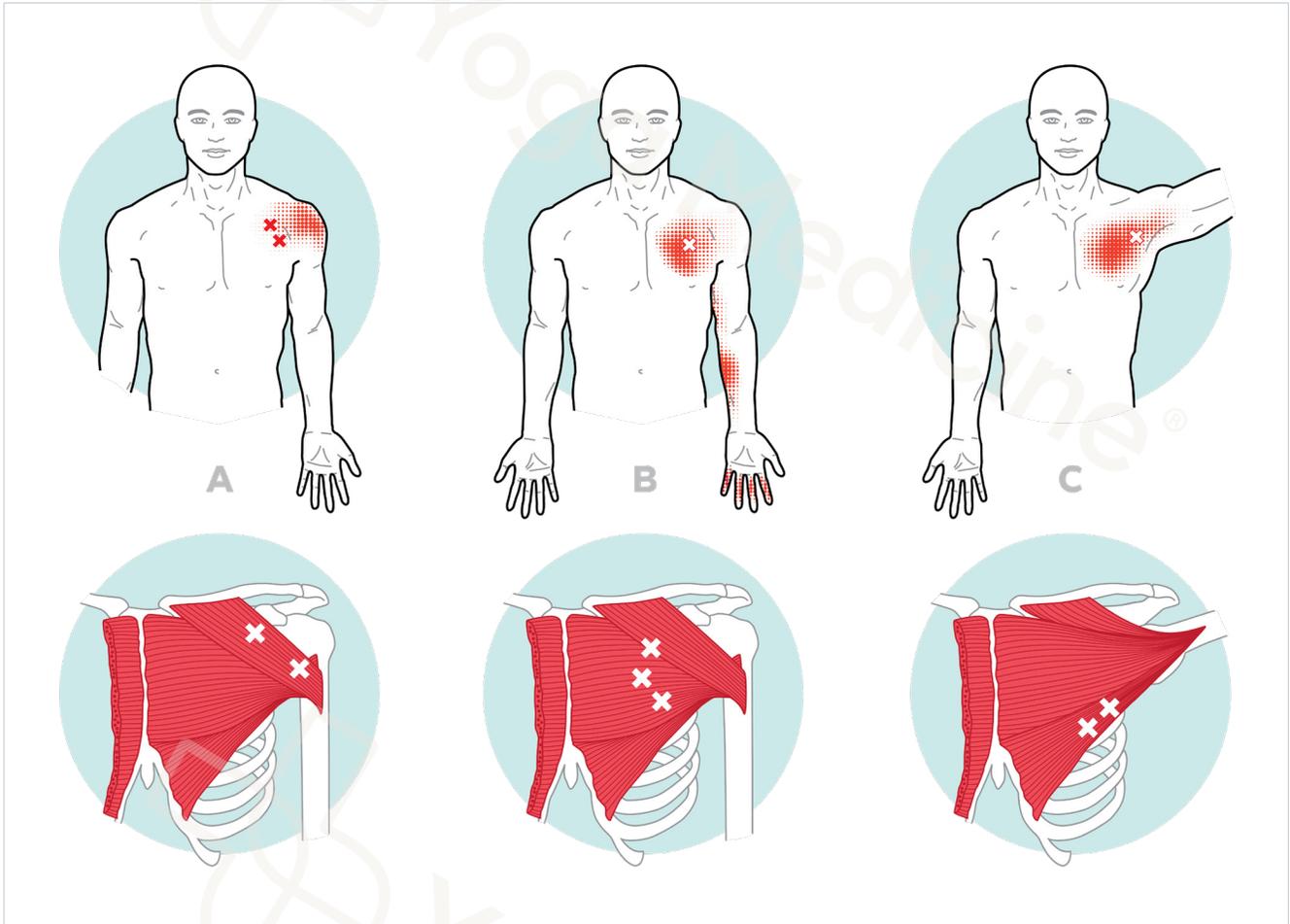
- Circulatory issues
- Fever
- Systemic or localized infections- including osteomyelitis (bone) & cellulitis (skin & superficial fascia)
- Advanced diabetes
- Unmanaged hypertension
- Lymphedema or cancer (do not roll directly on or near)
- Heart disease
- Aneurysm
- Any other serious illness or condition, if unsure talk to their doctor

KEY POINTS

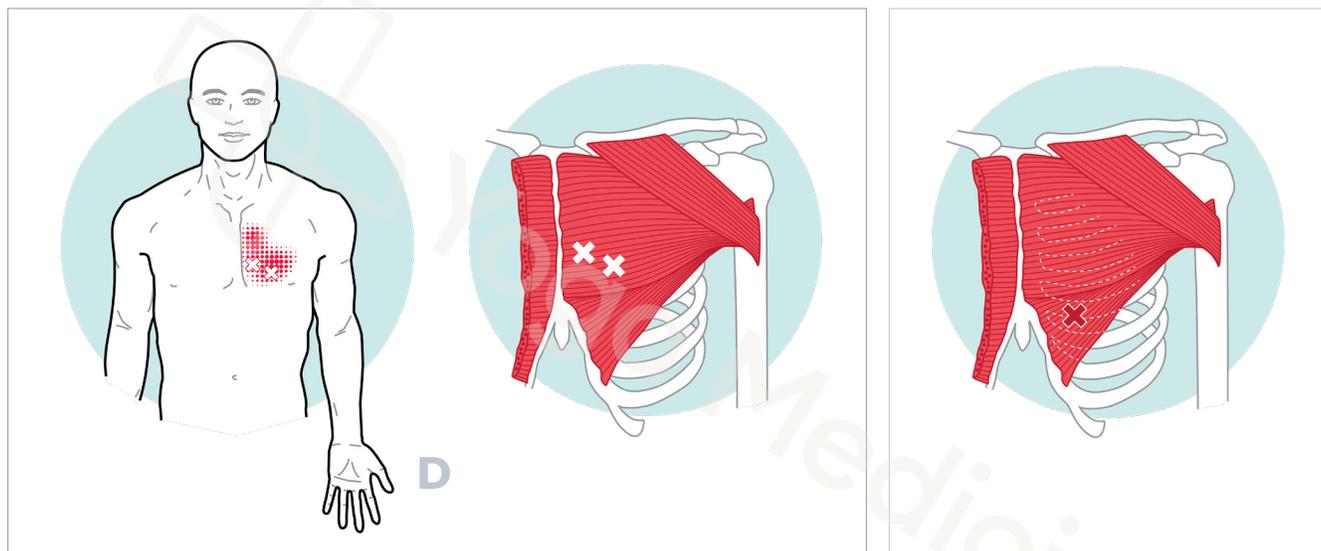
- Indirect before direct
- Less is more
- No pain
- Be resourceful- props/modify
- Educate them (not diagnose), create healing maps
- Let them identify it & figure it out
- Everything you notice is just one piece of information (connect the dots)
- Don't do anything they aren't comfortable with
- Make it meaningful & purposeful
- Don't overthink it, go with what you feel
- Always err on the safe side (gentler, refer out)
- Don't take it all on, you're a guide, have a team of people you respect to help

Trigger Points

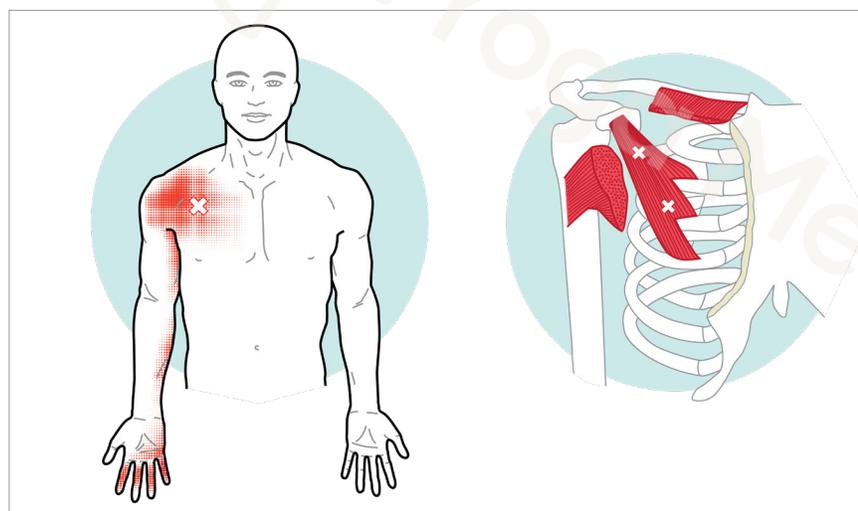
PECTORALIS MAJOR



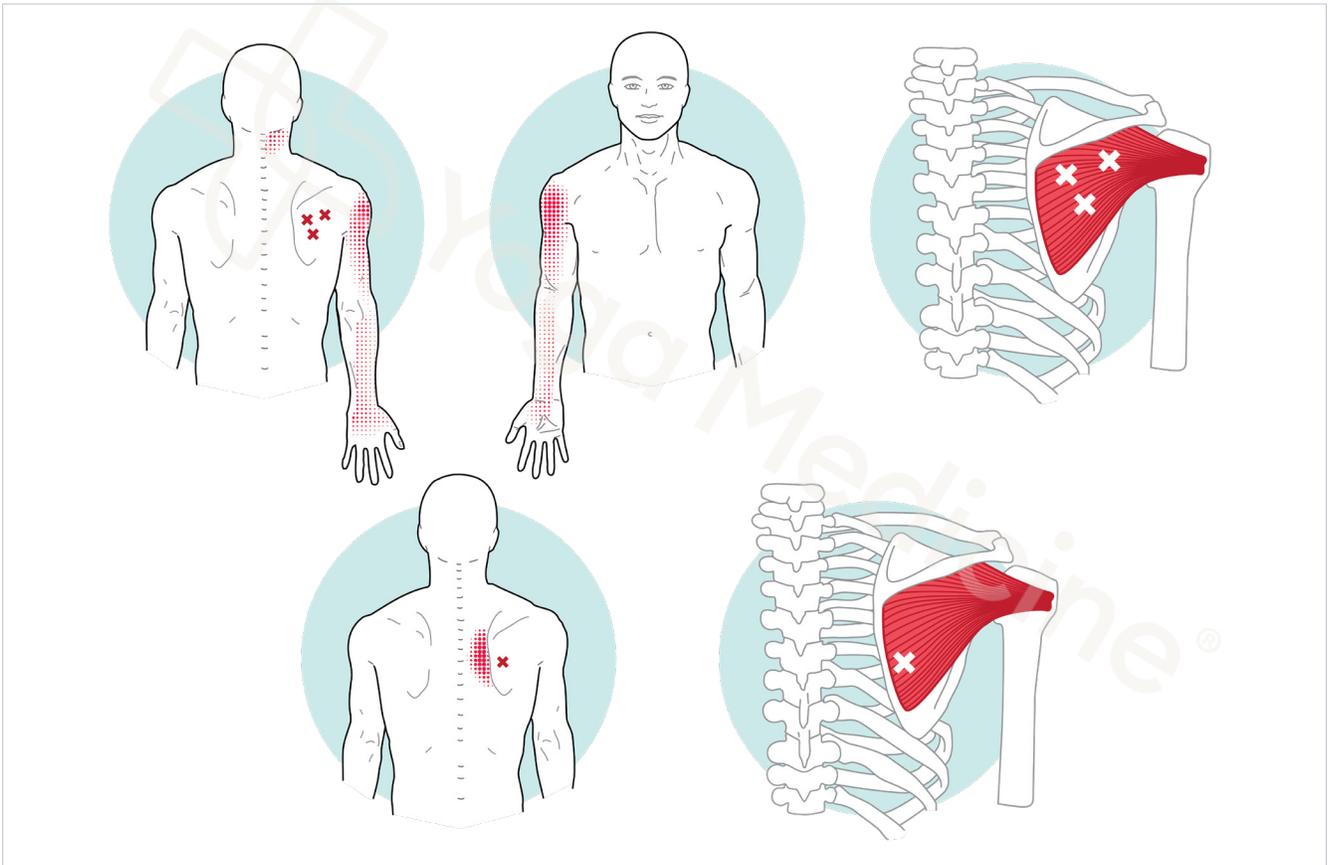
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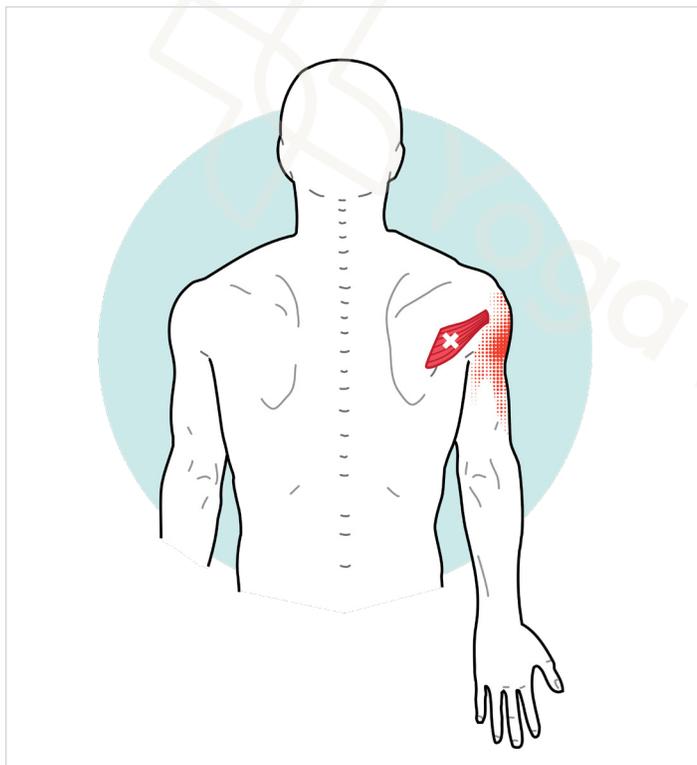
PECTORALIS MINOR



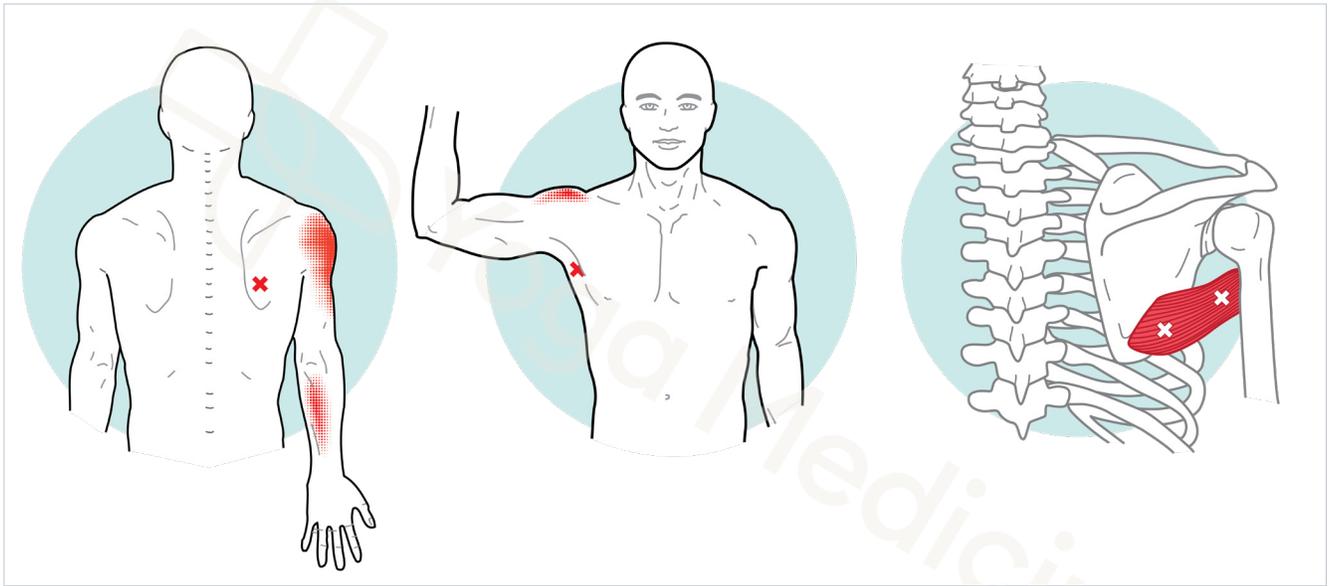
INFRASPINATUS



TERES MINOR



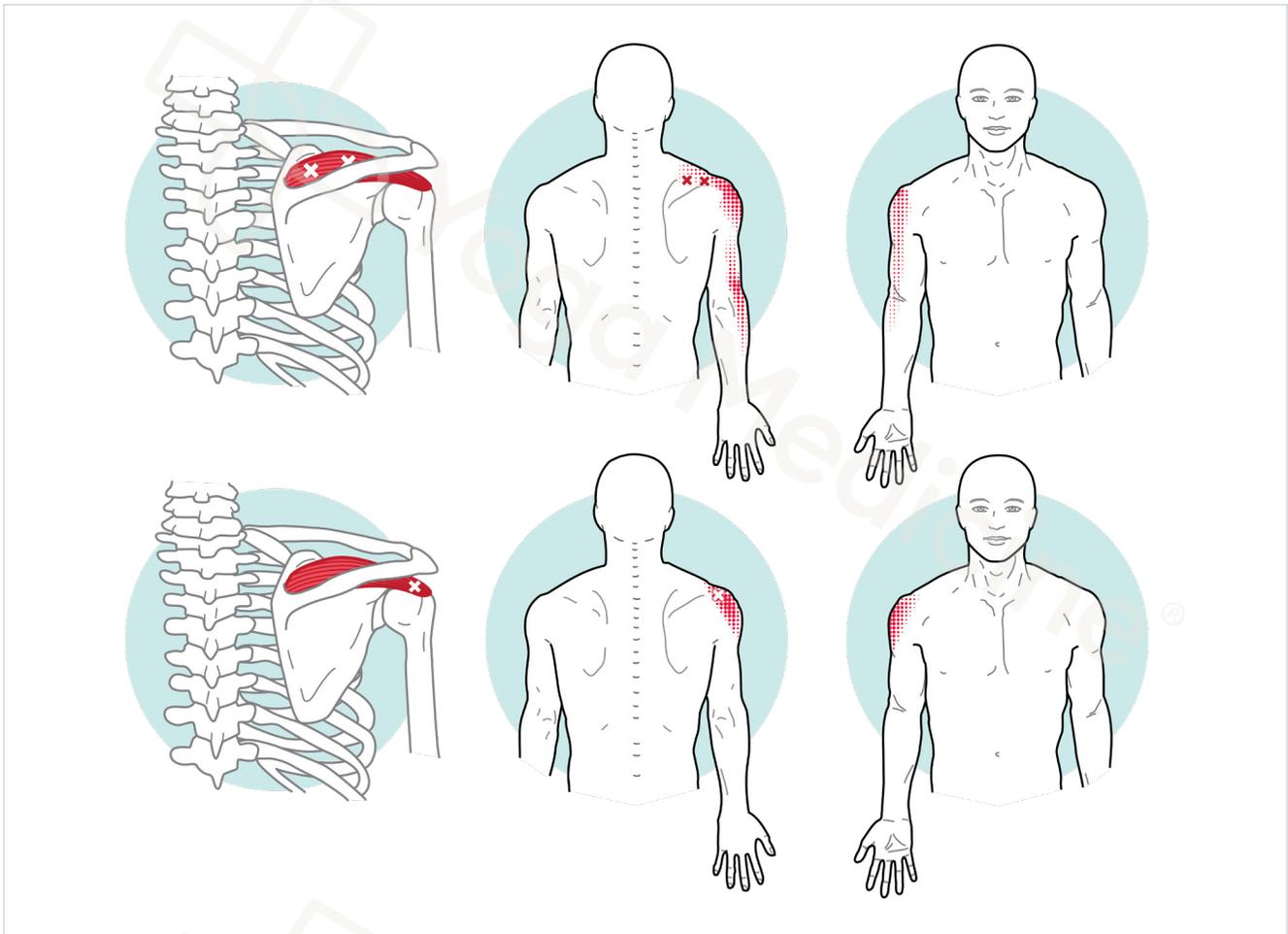
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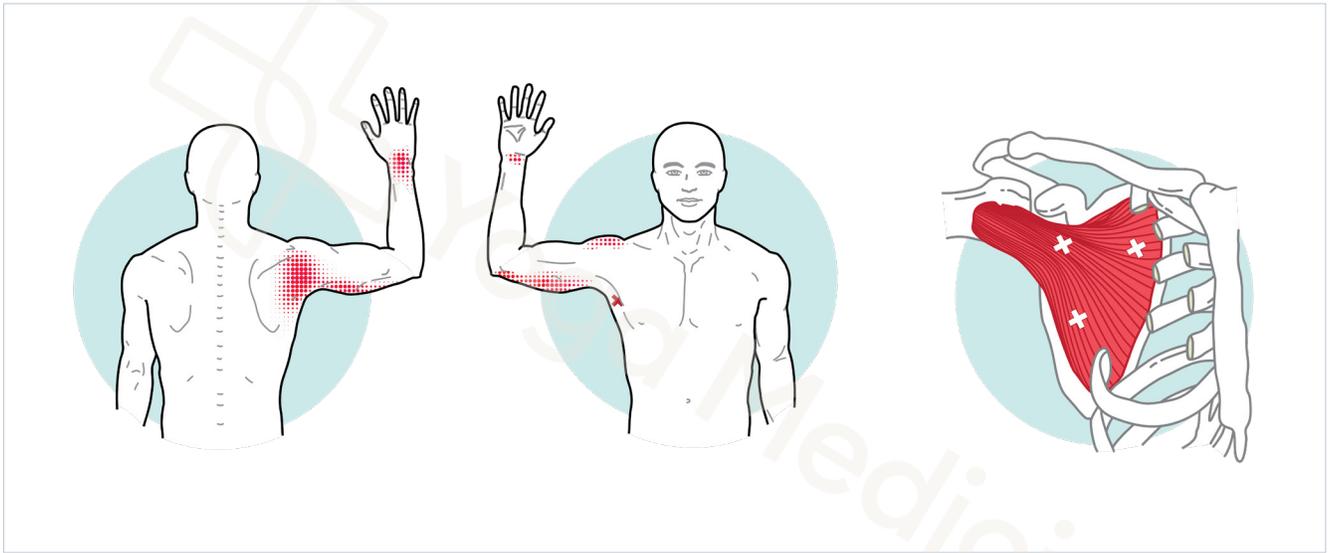
INFRASPINATUS, TERES MINOR, TERES MAJOR



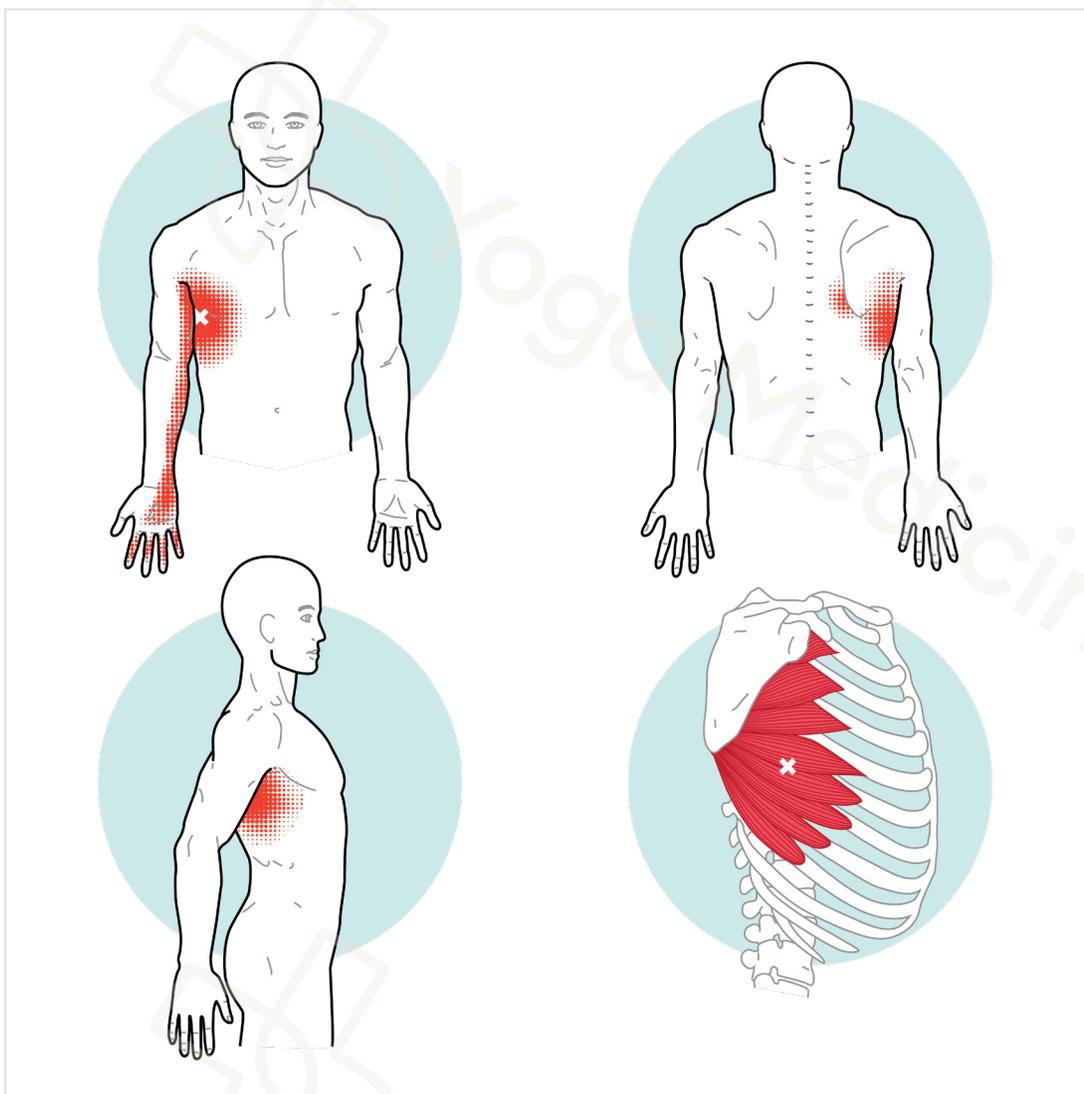
SUPRASPINATUS



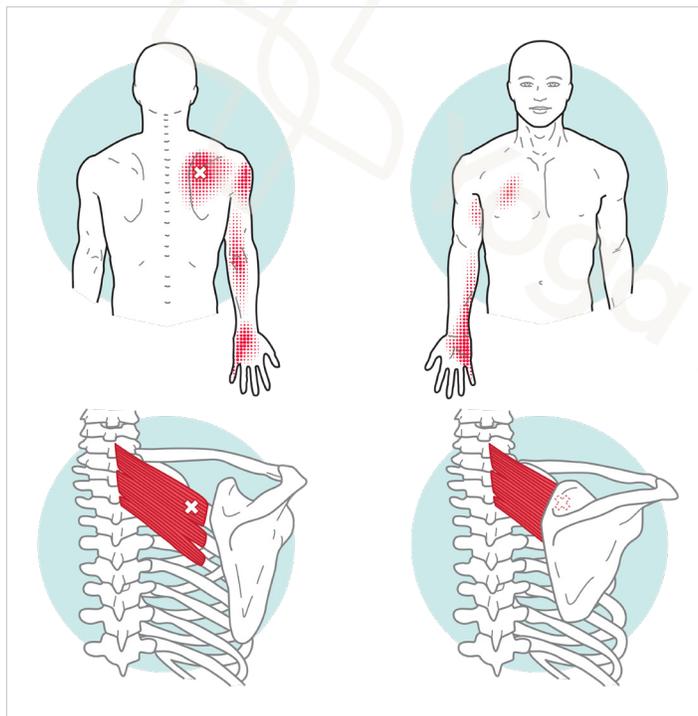
SUBSCAPULARIS



SERRATUS ANTERIOR



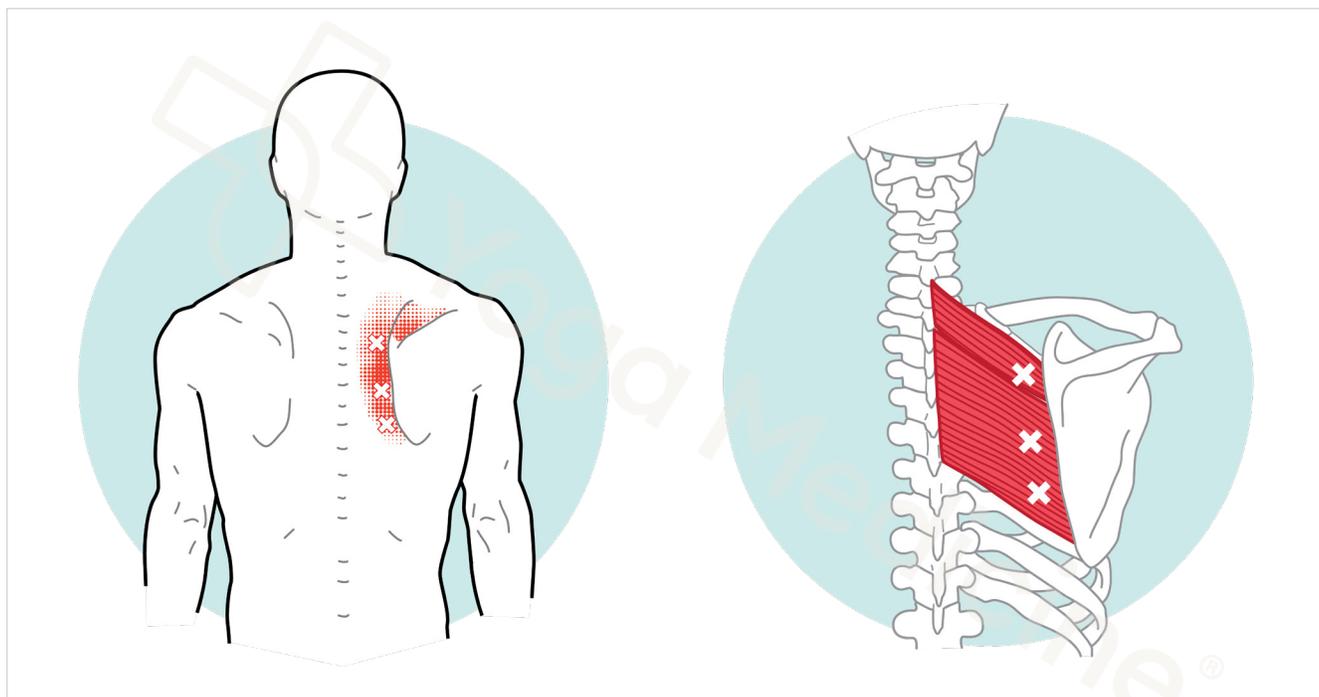
SERRATUS POSTERIOR SUPERIOR



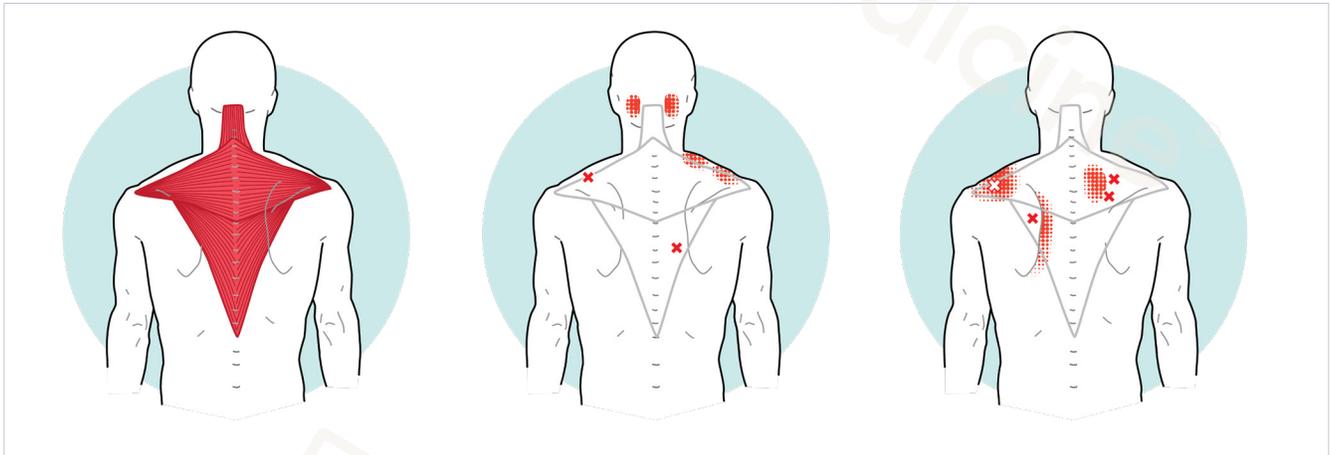
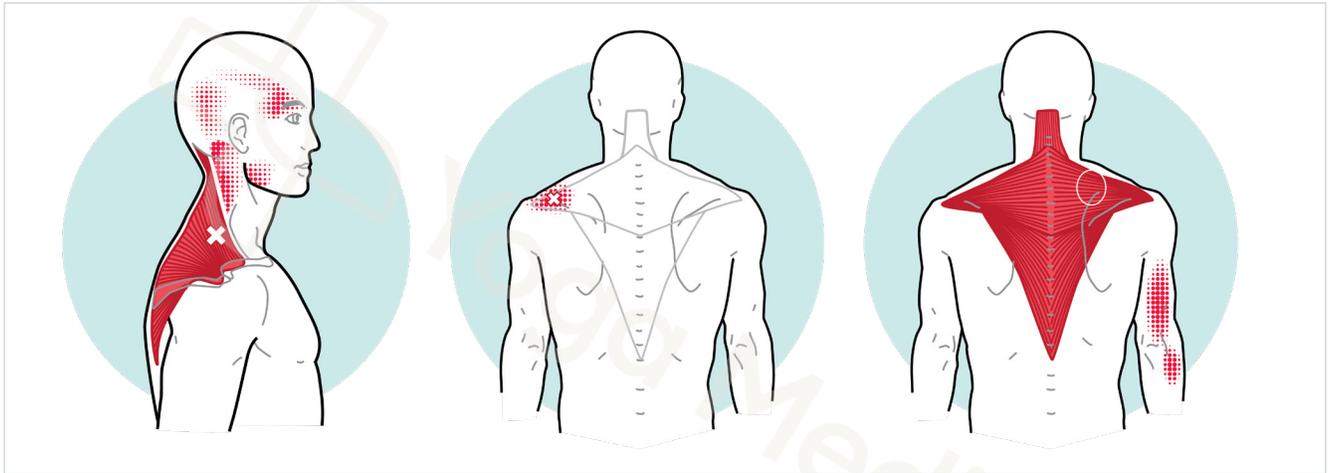
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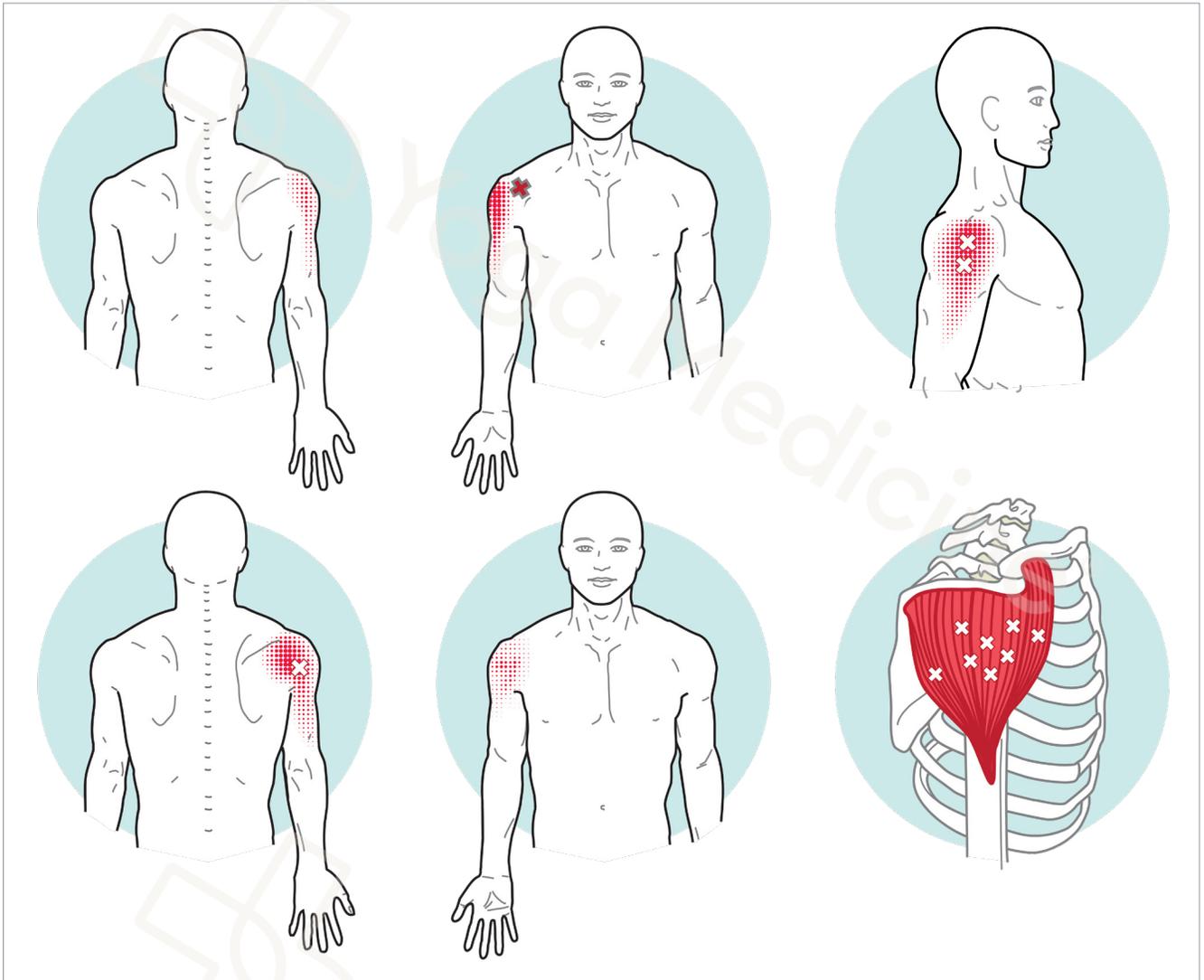
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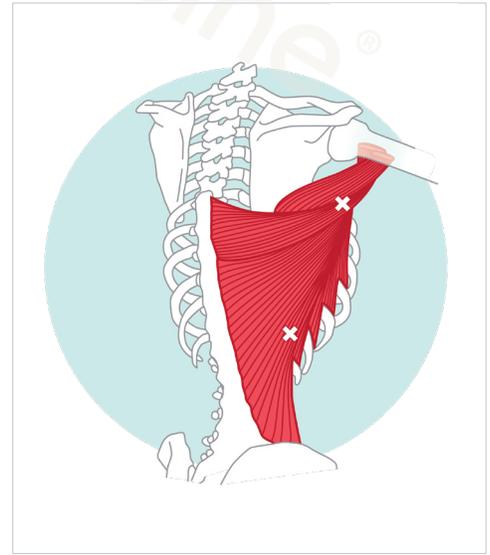
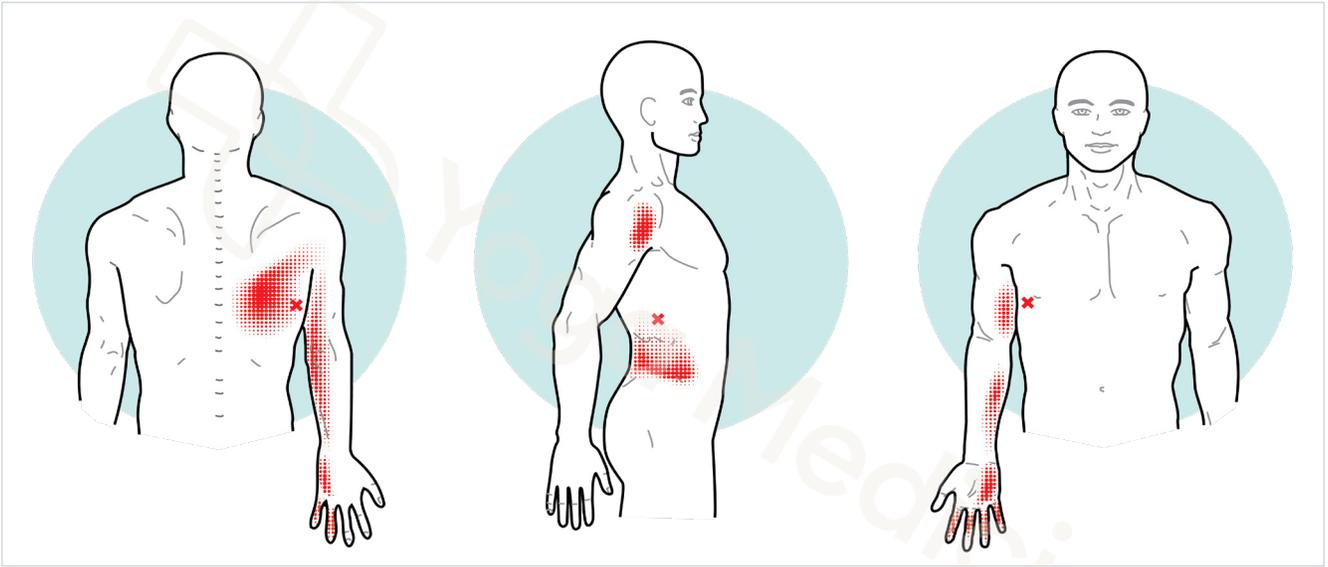
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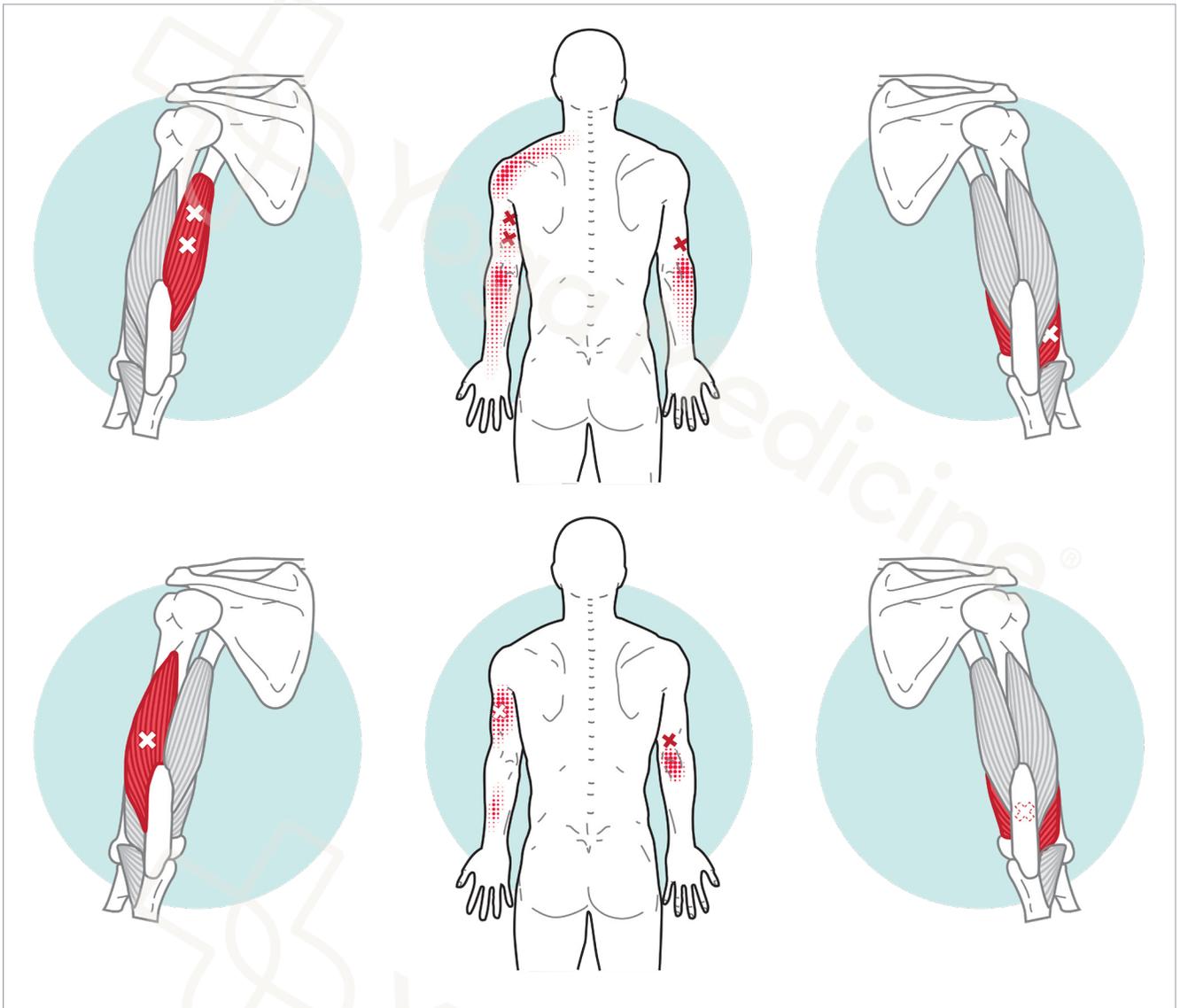
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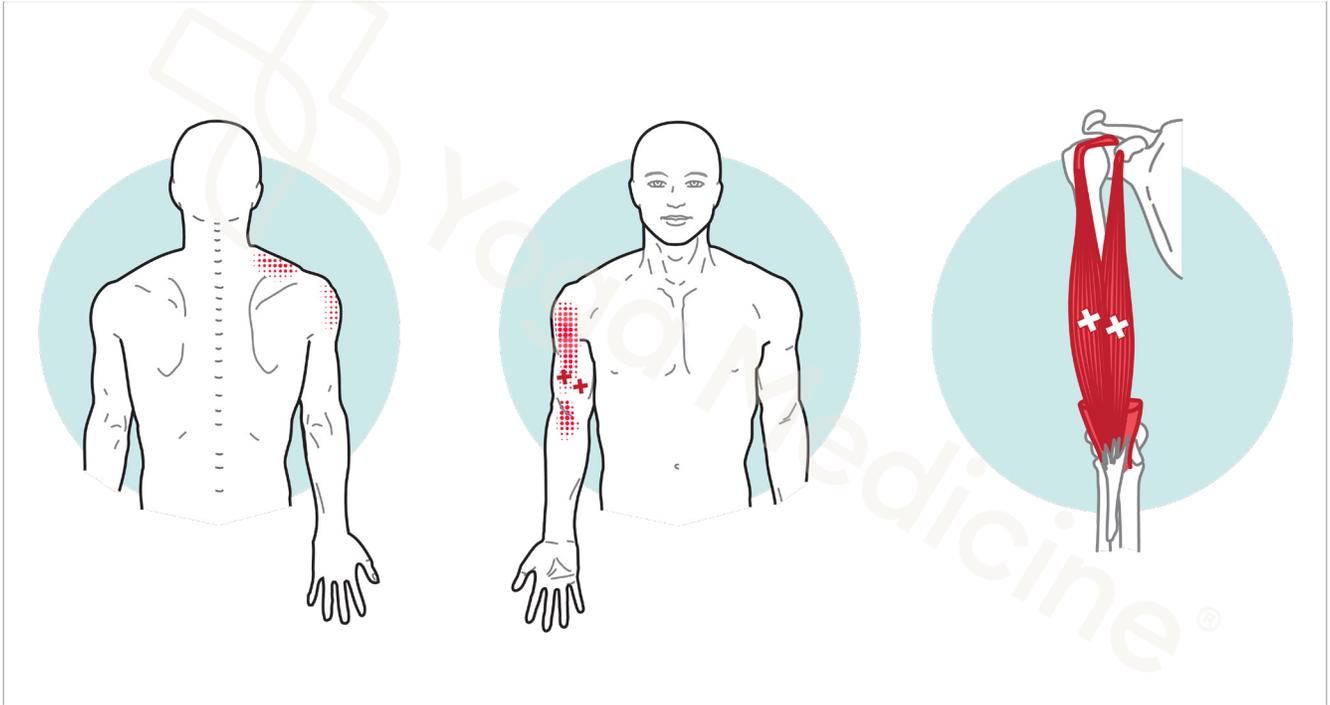
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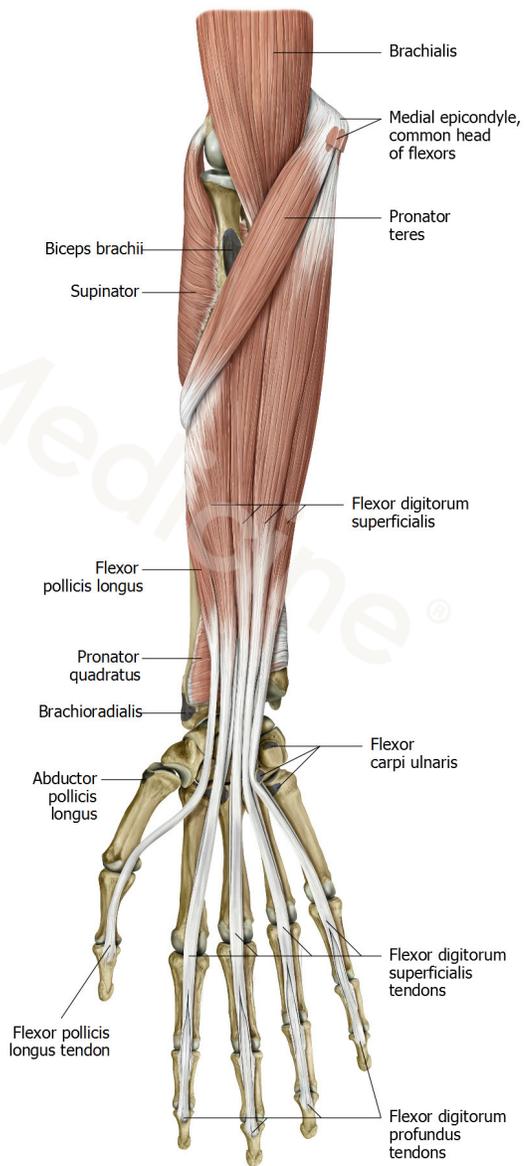
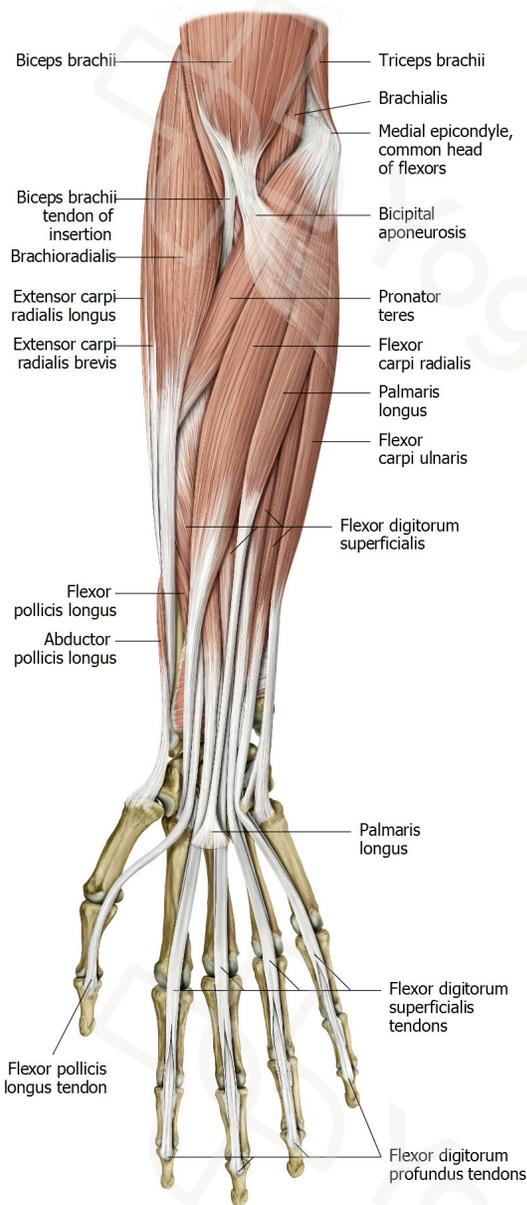
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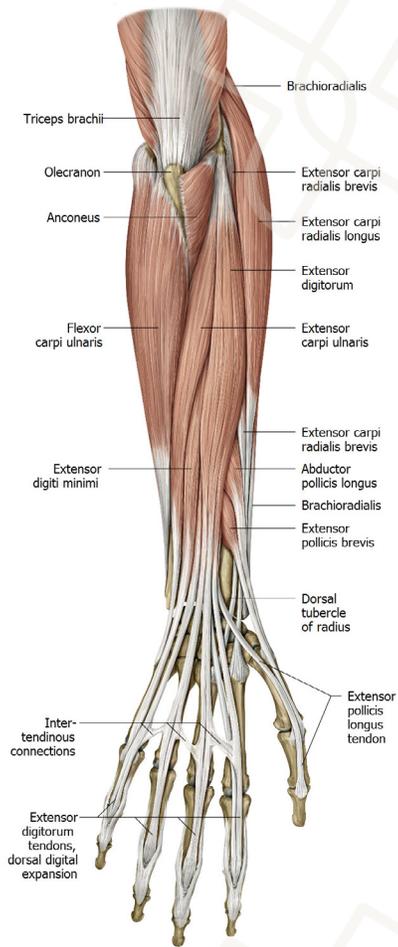
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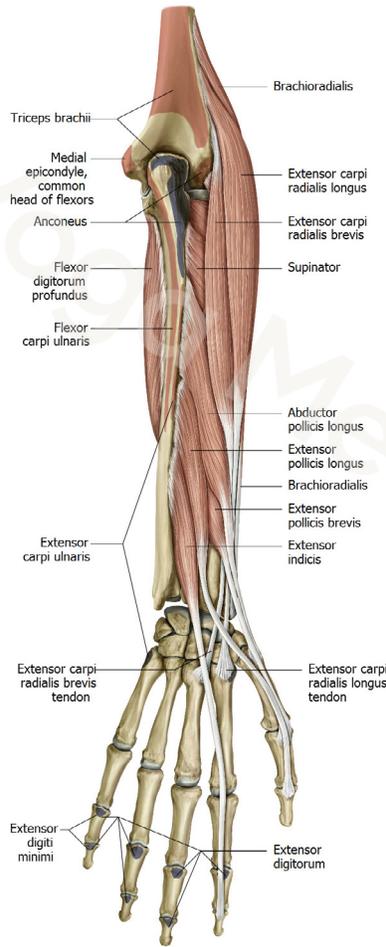
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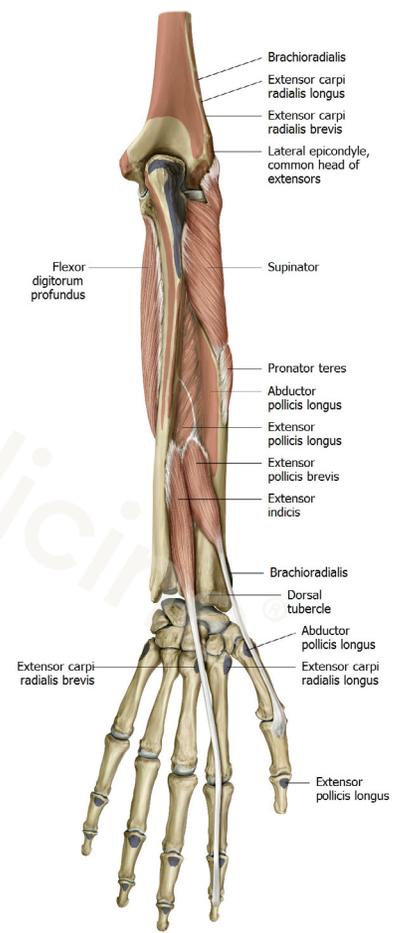
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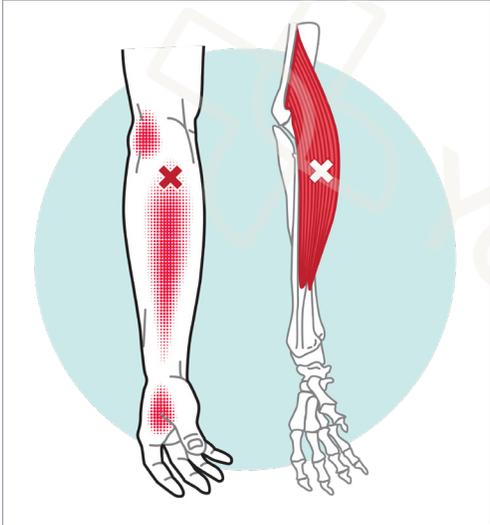


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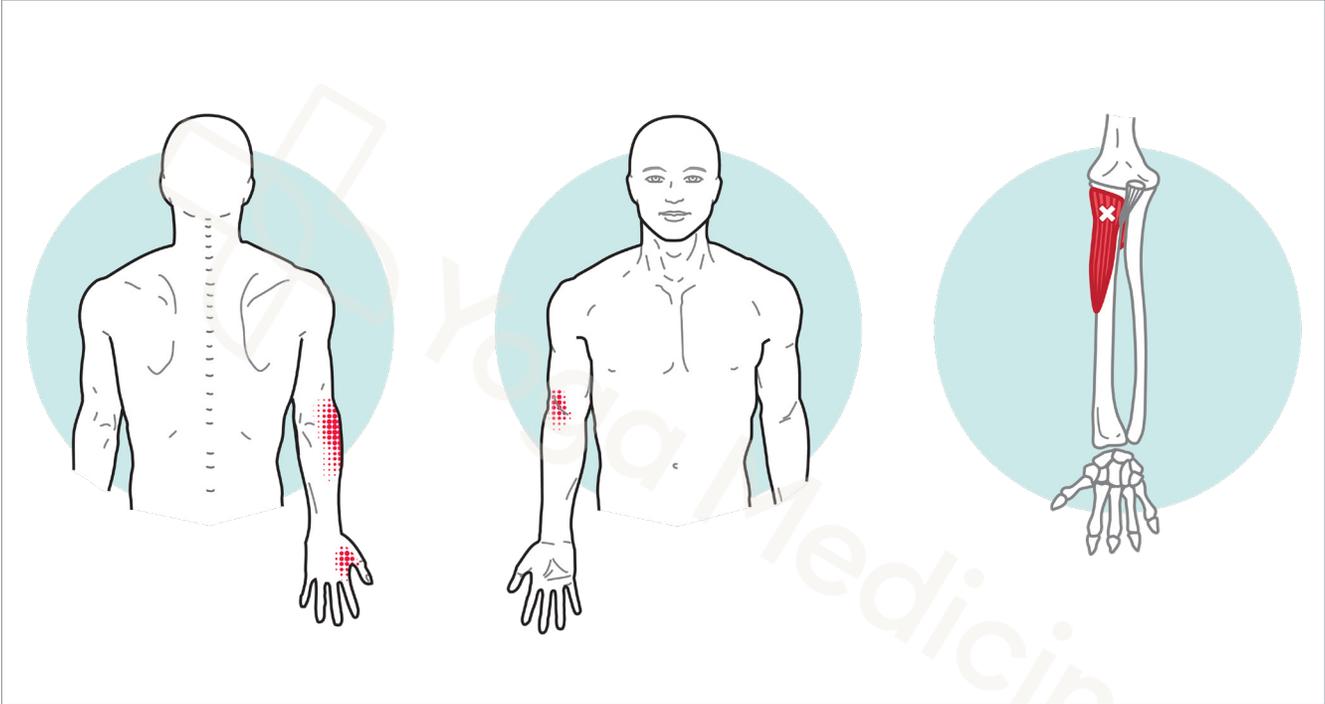


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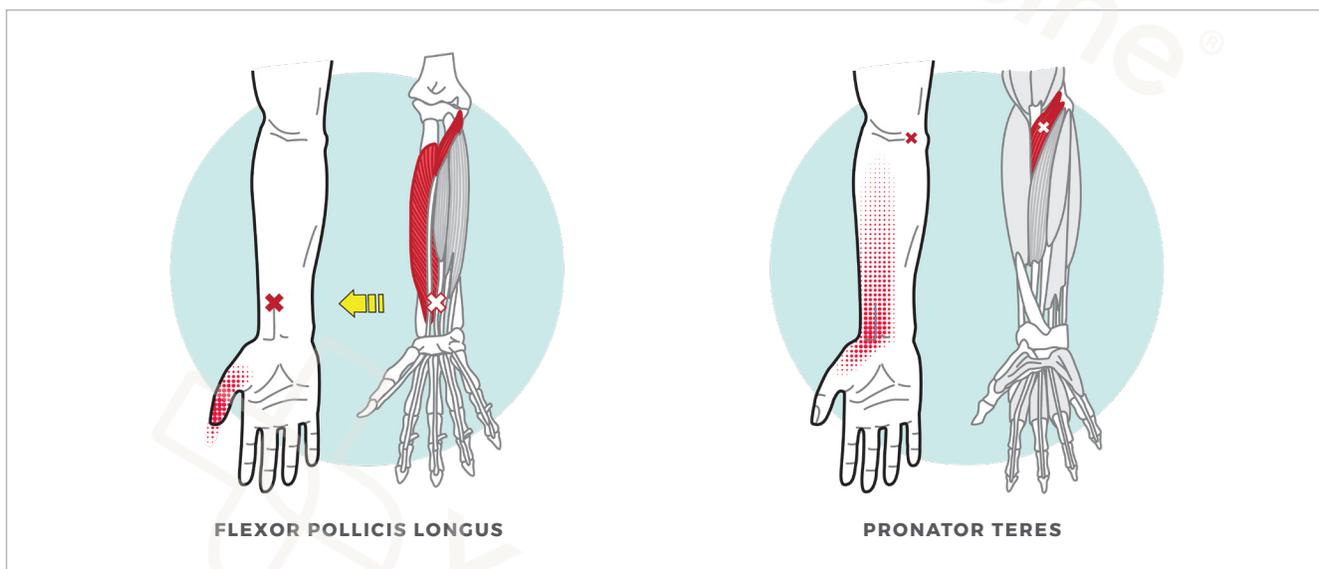
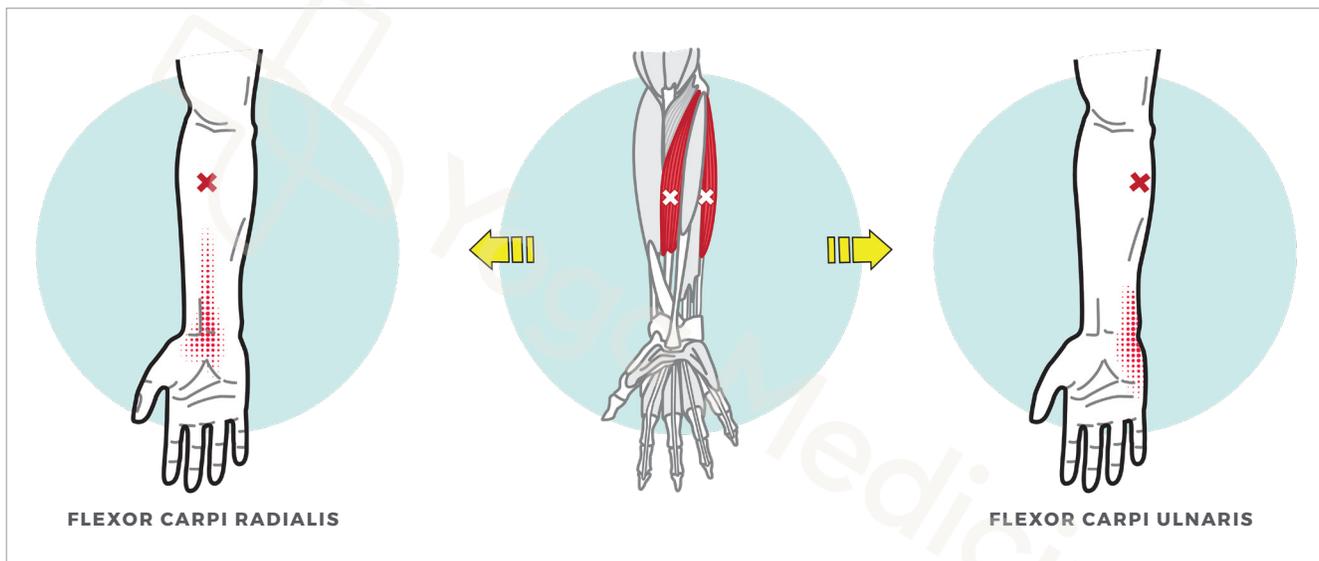
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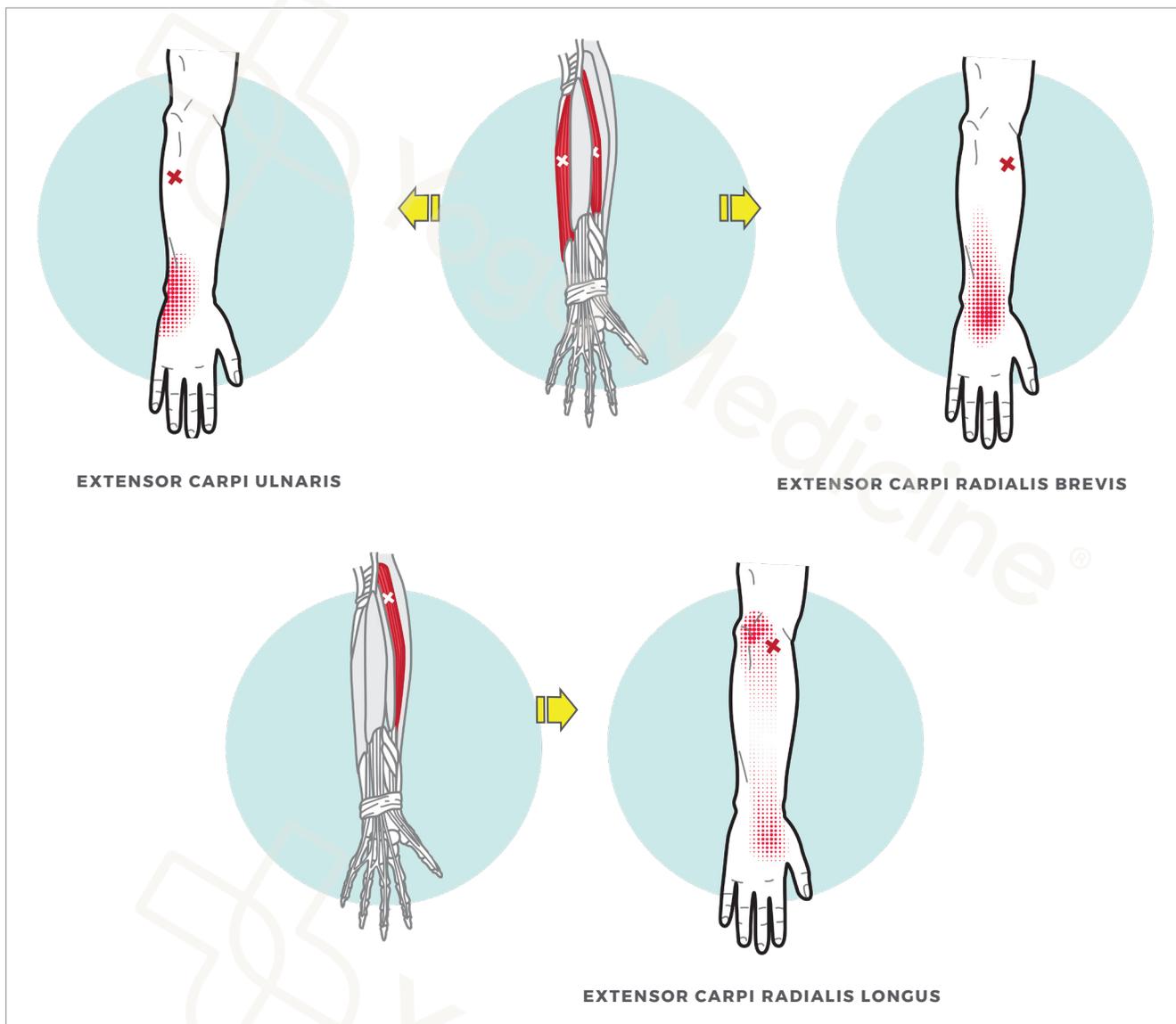
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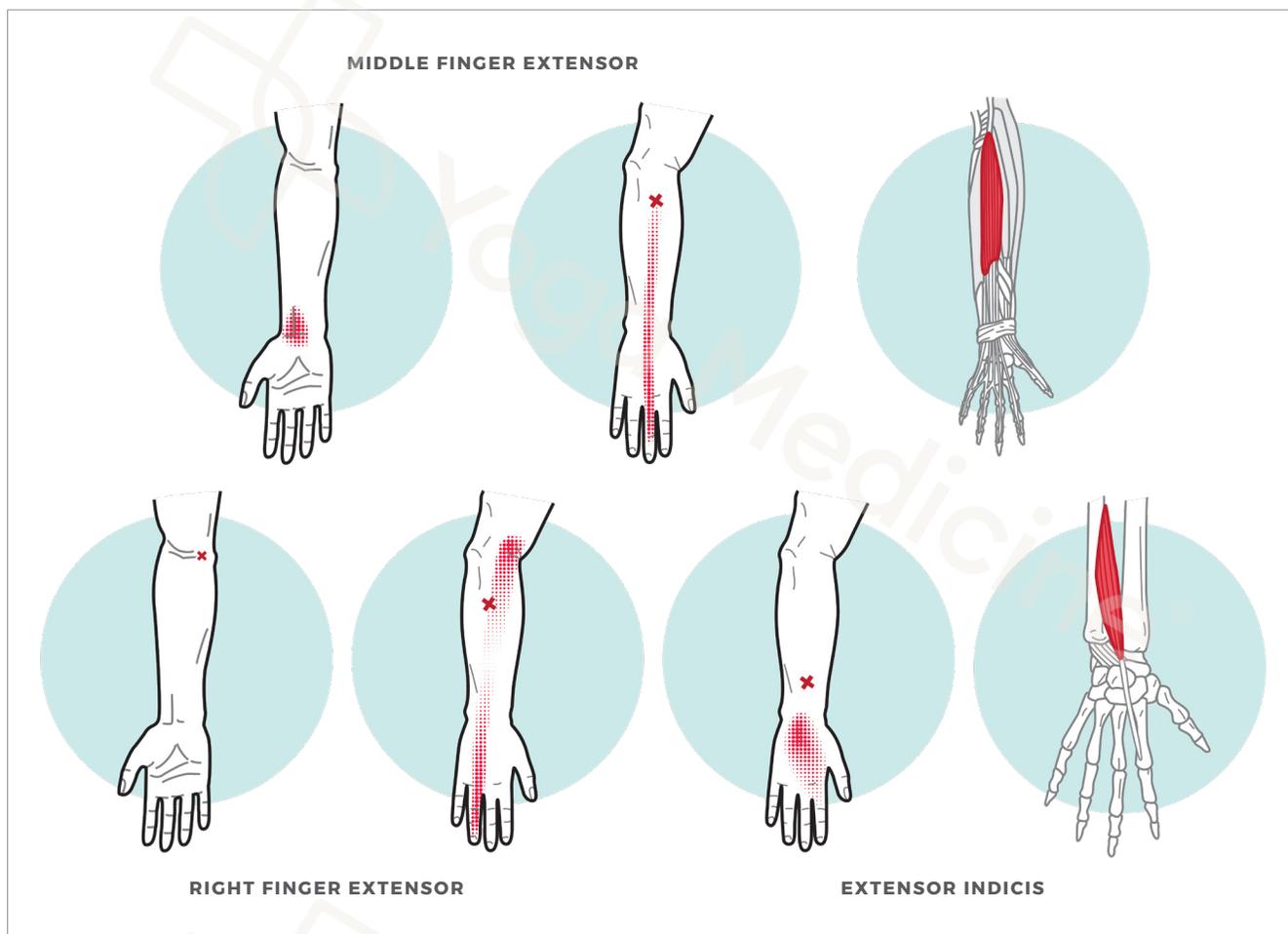
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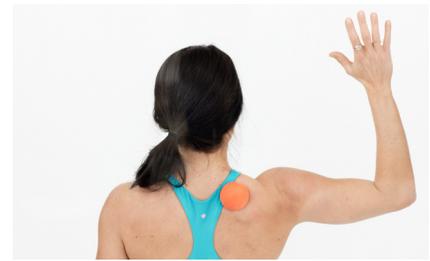
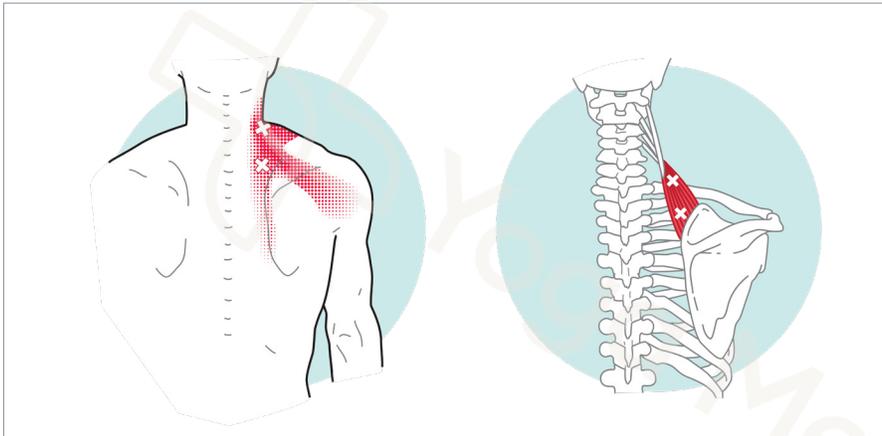
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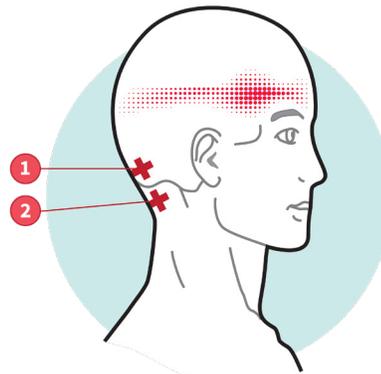
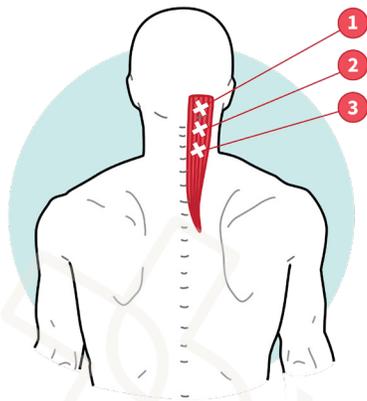
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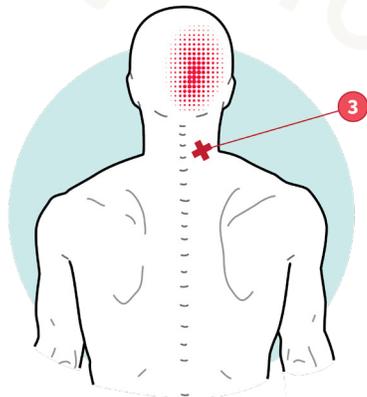
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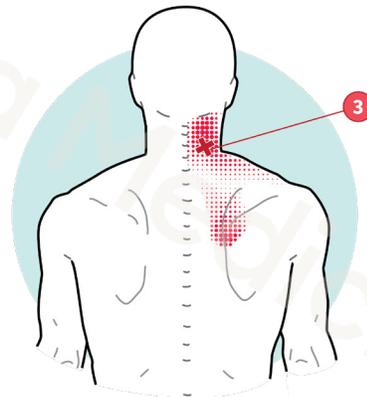
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UPPER SEMISPINALIS CAPITIS

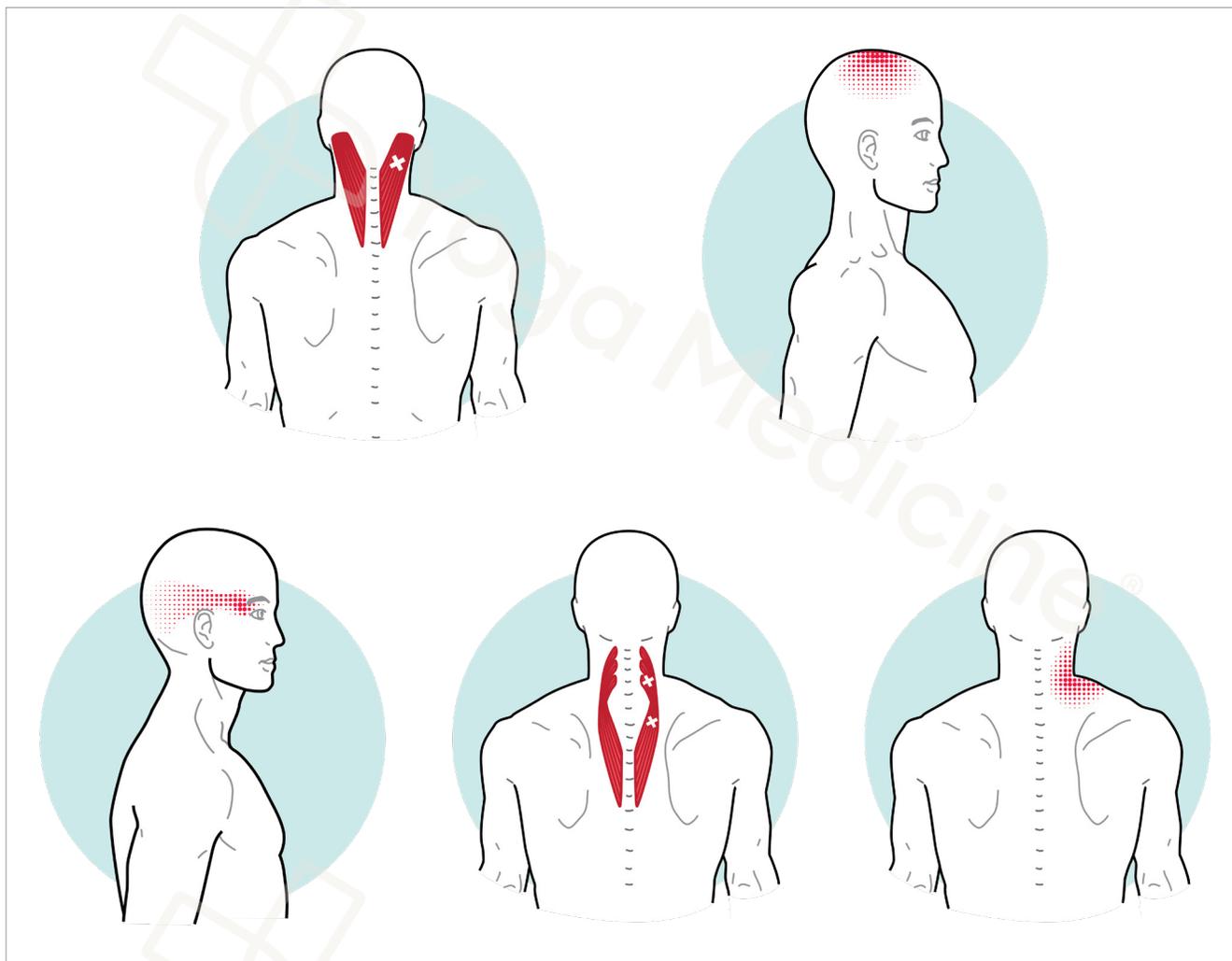


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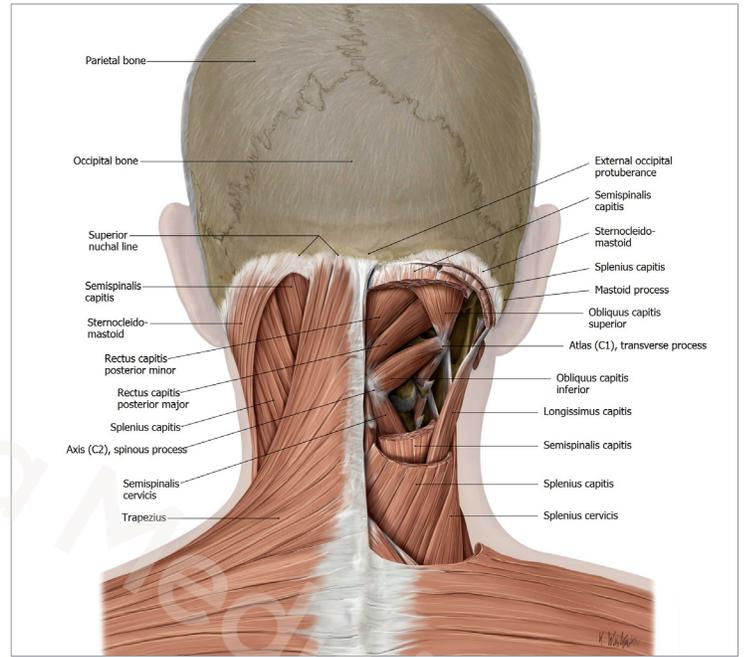
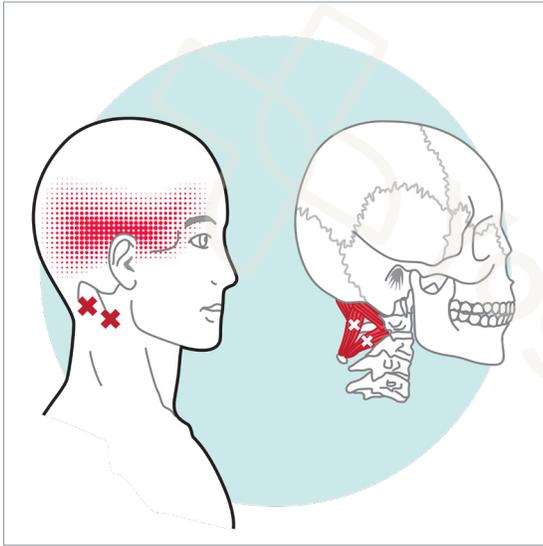


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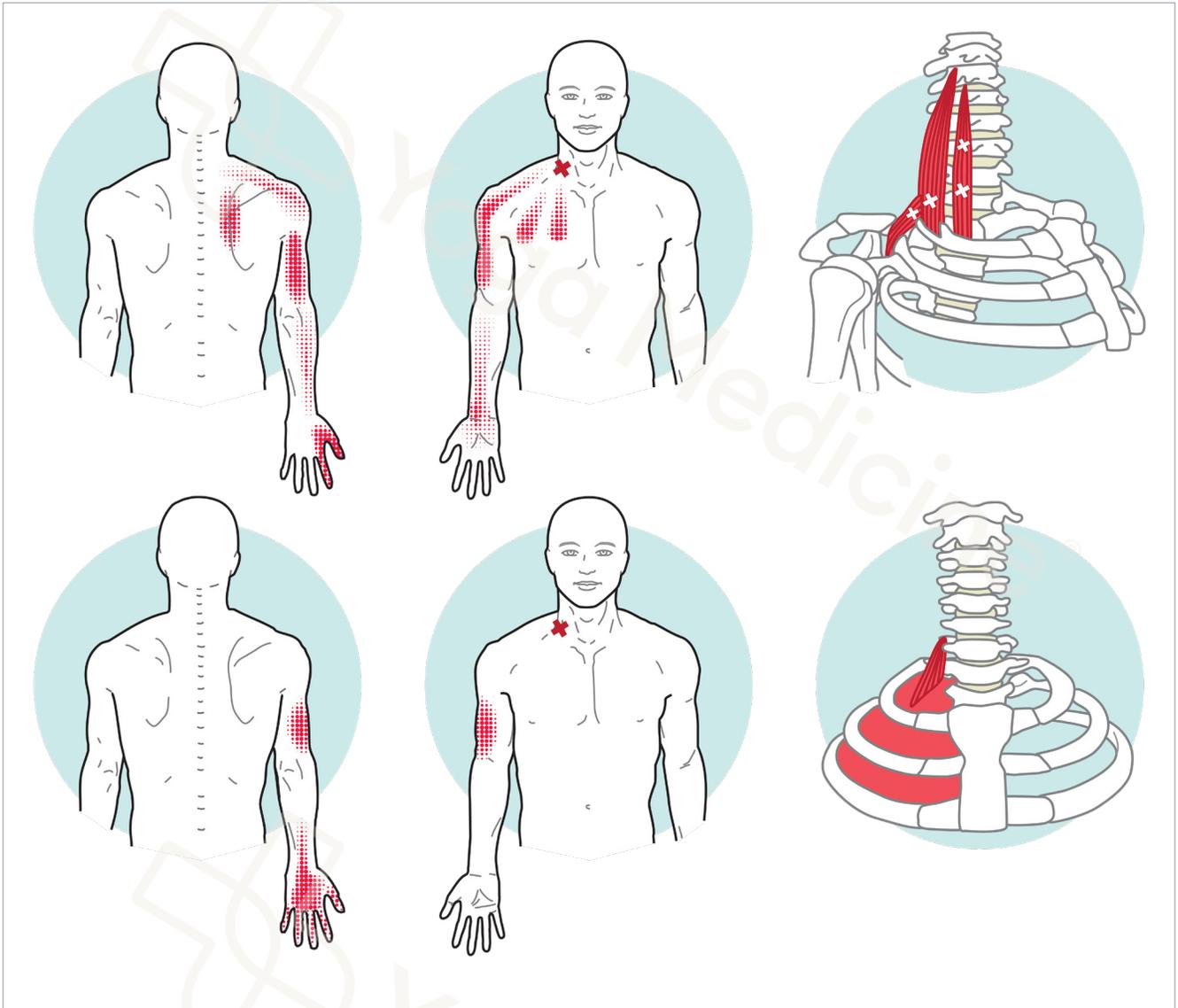
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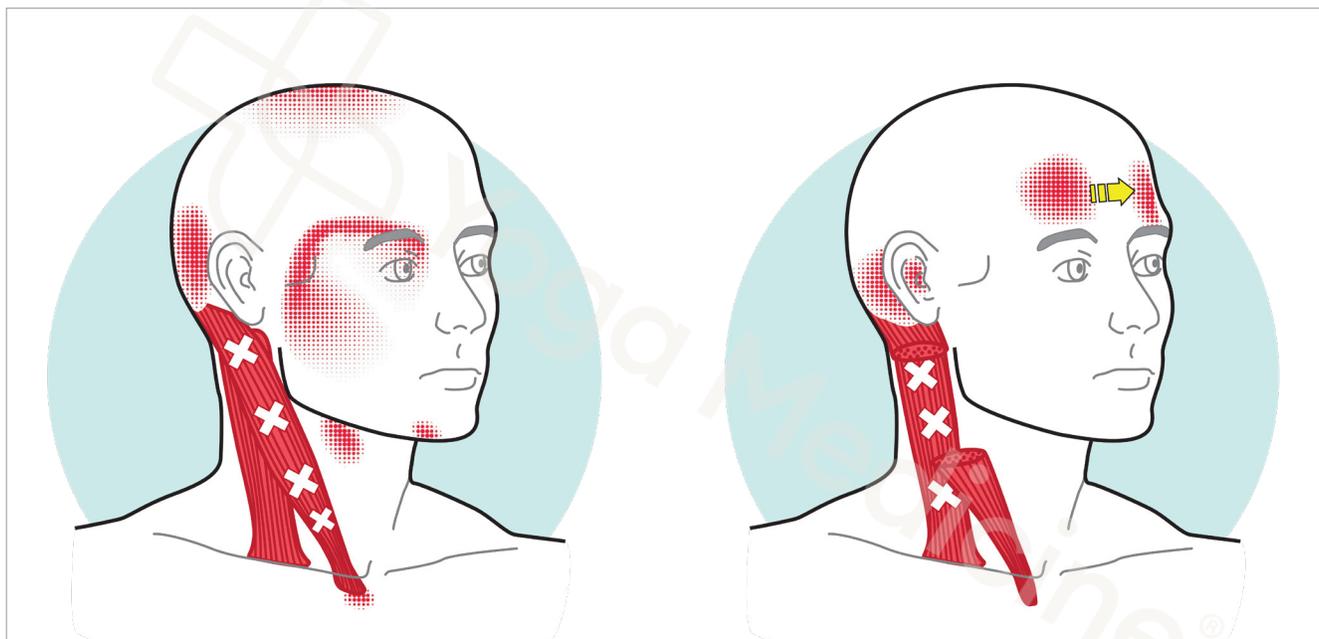
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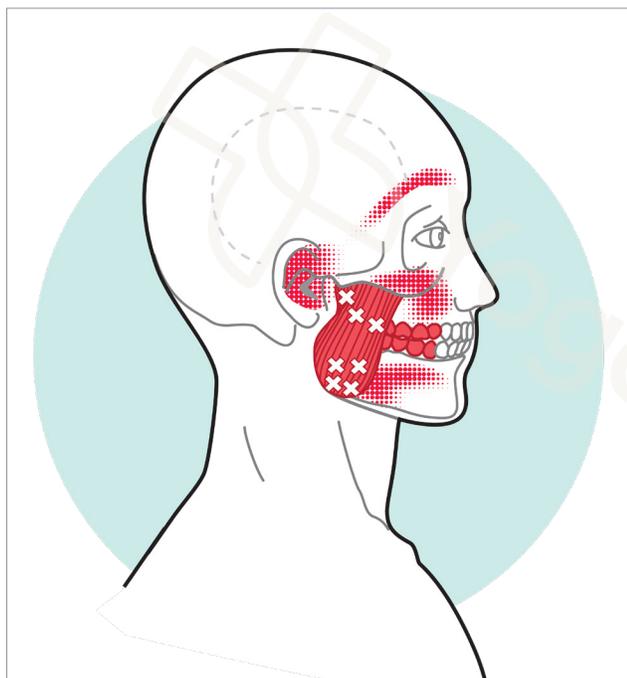
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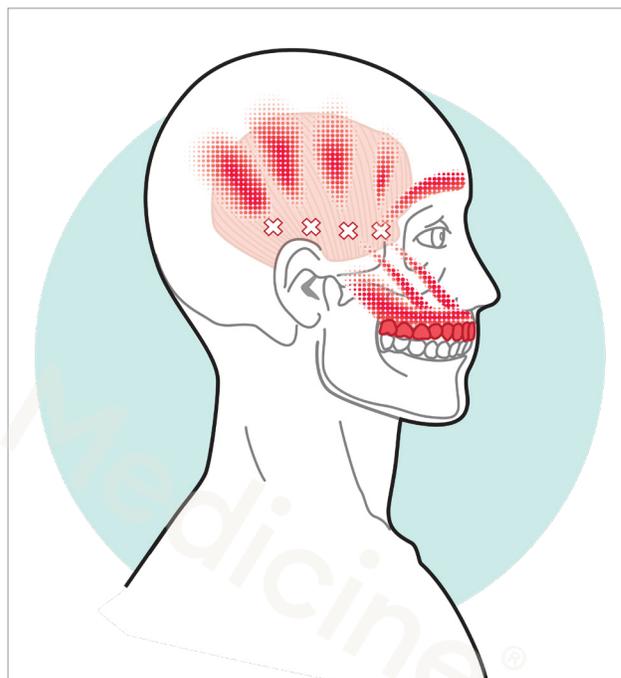
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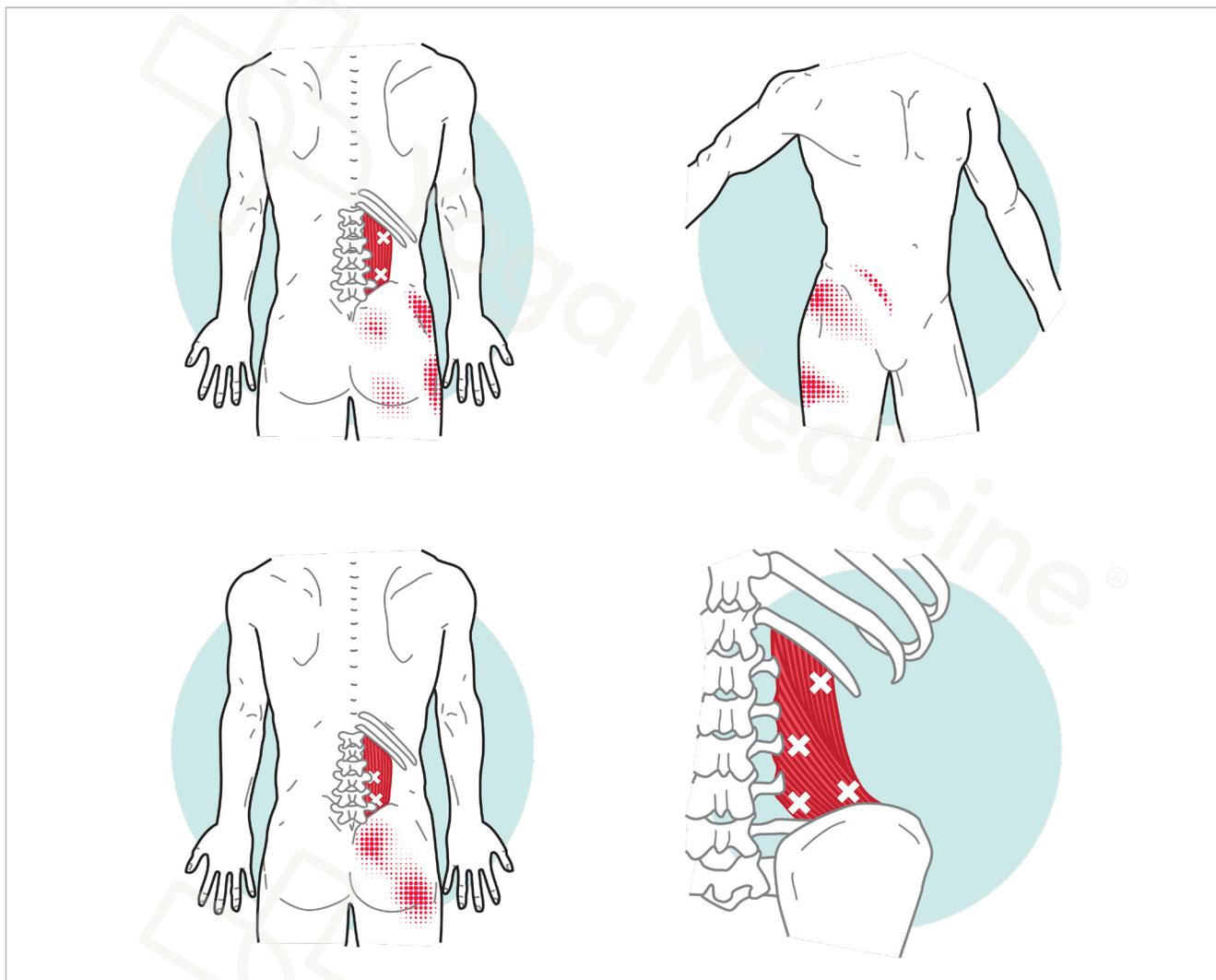
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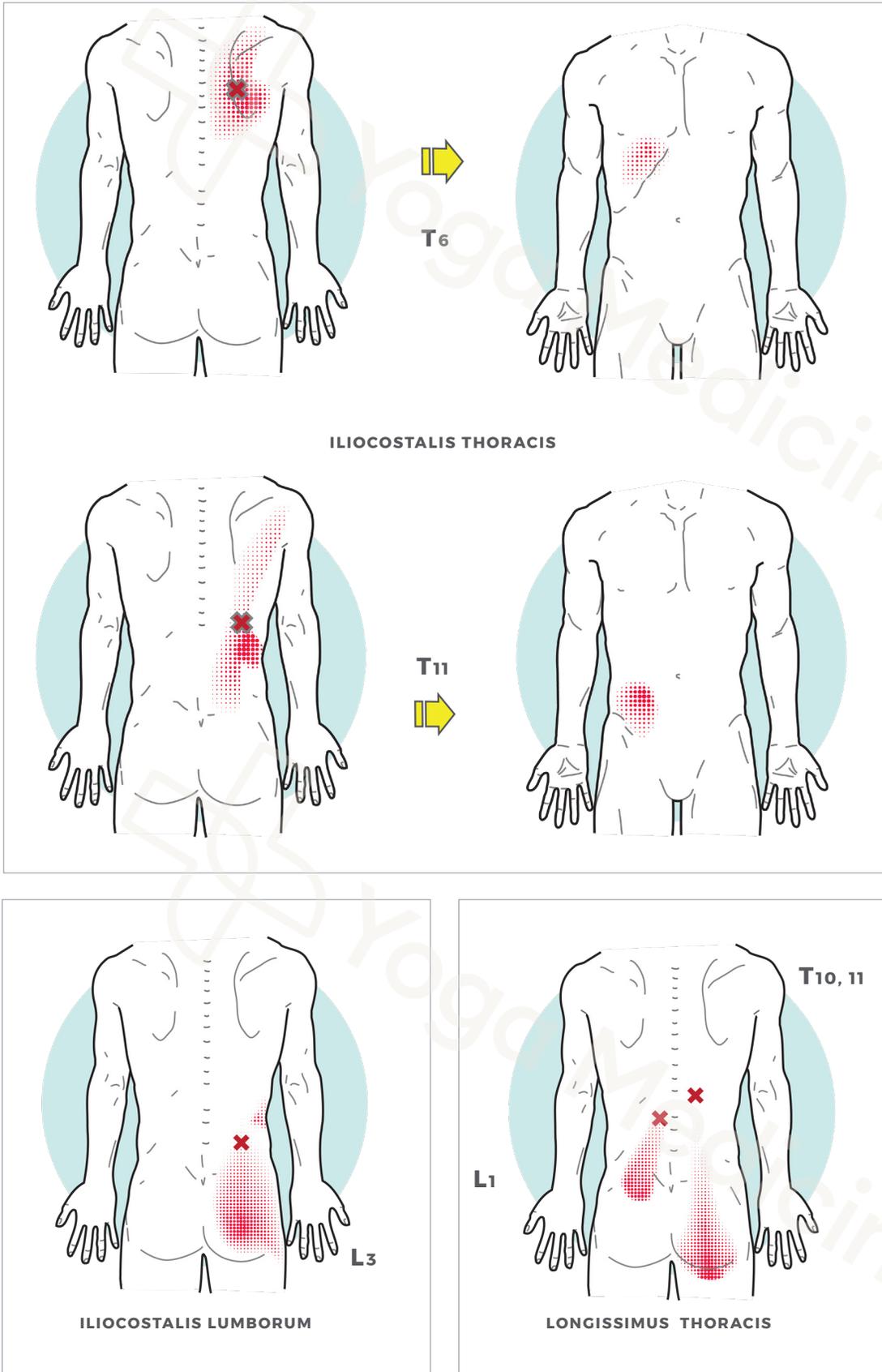
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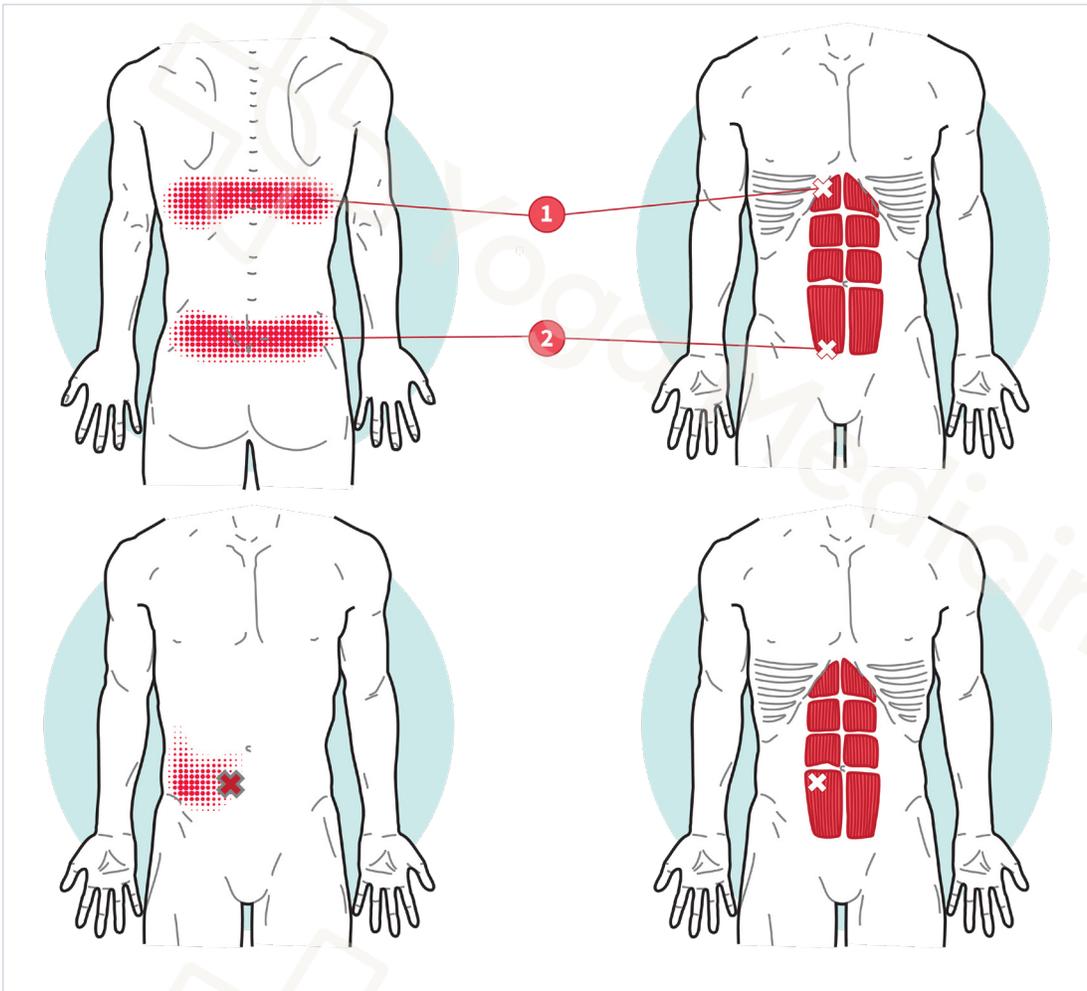
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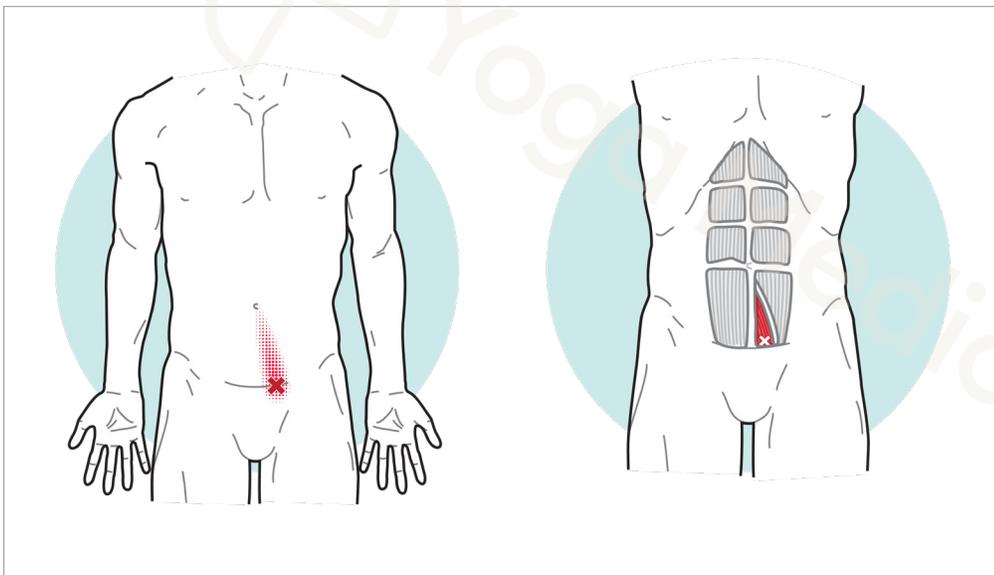
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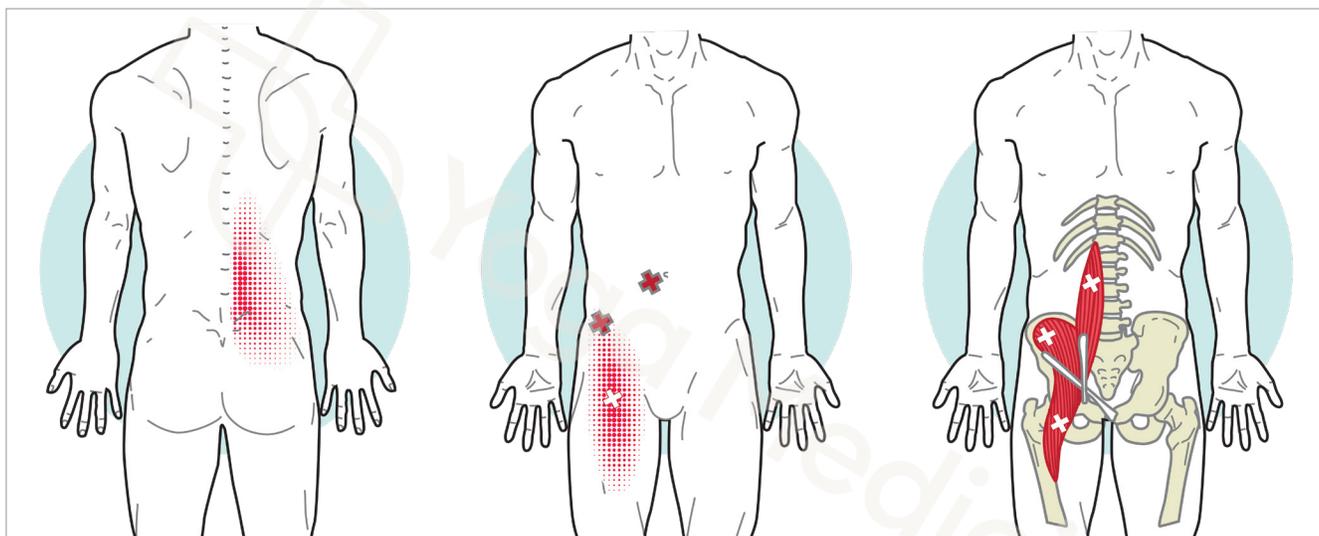
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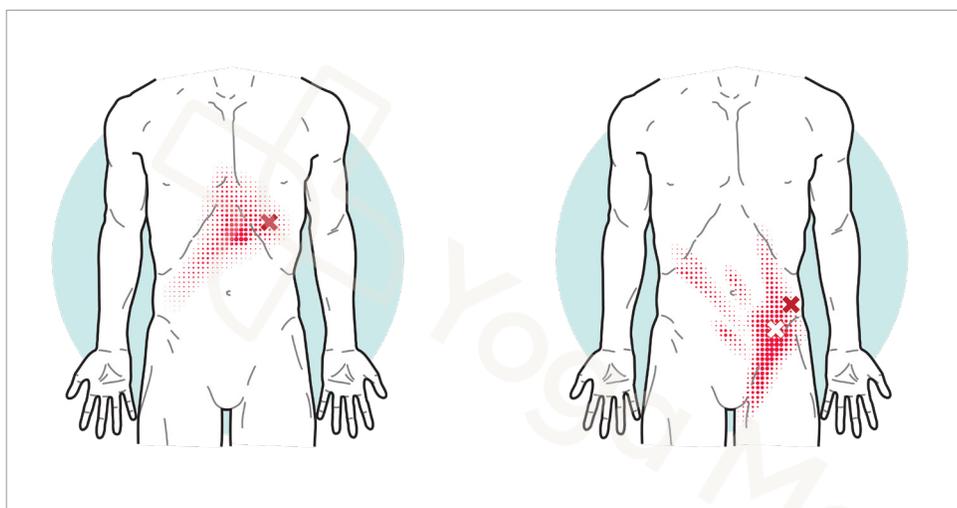
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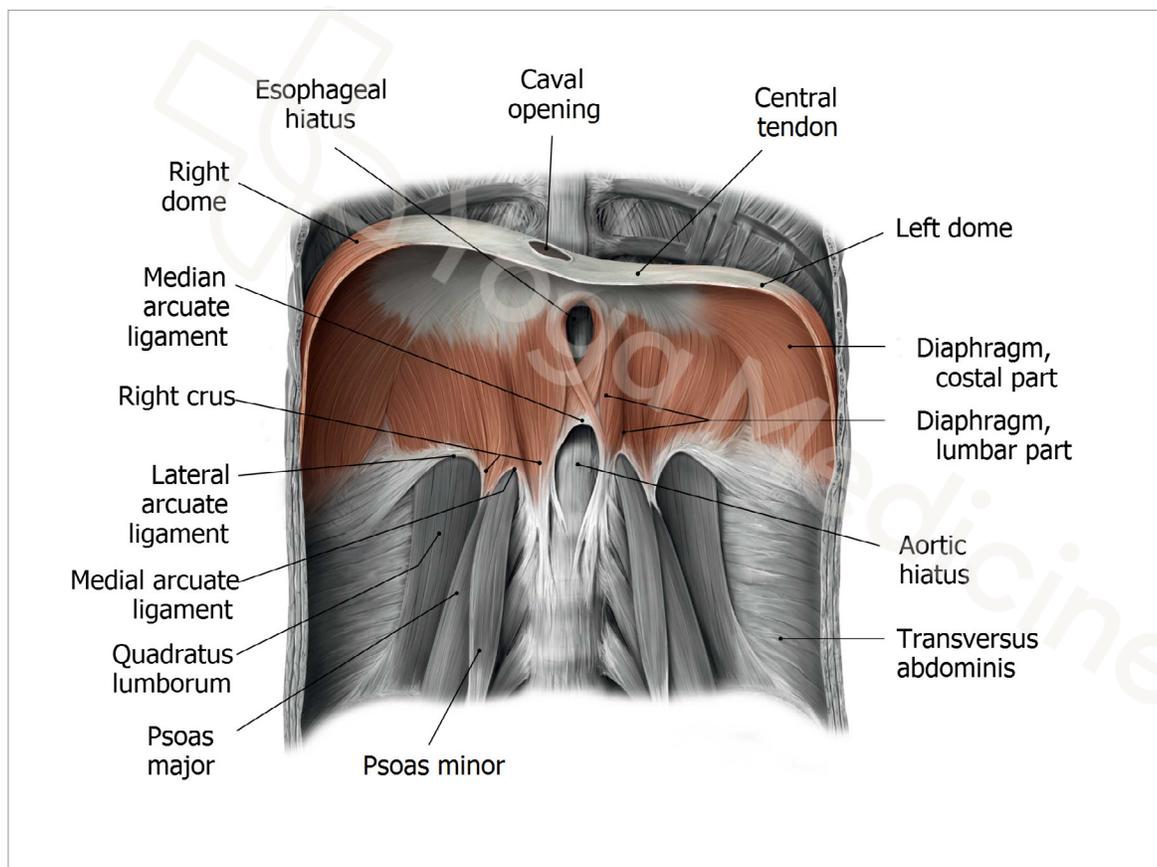
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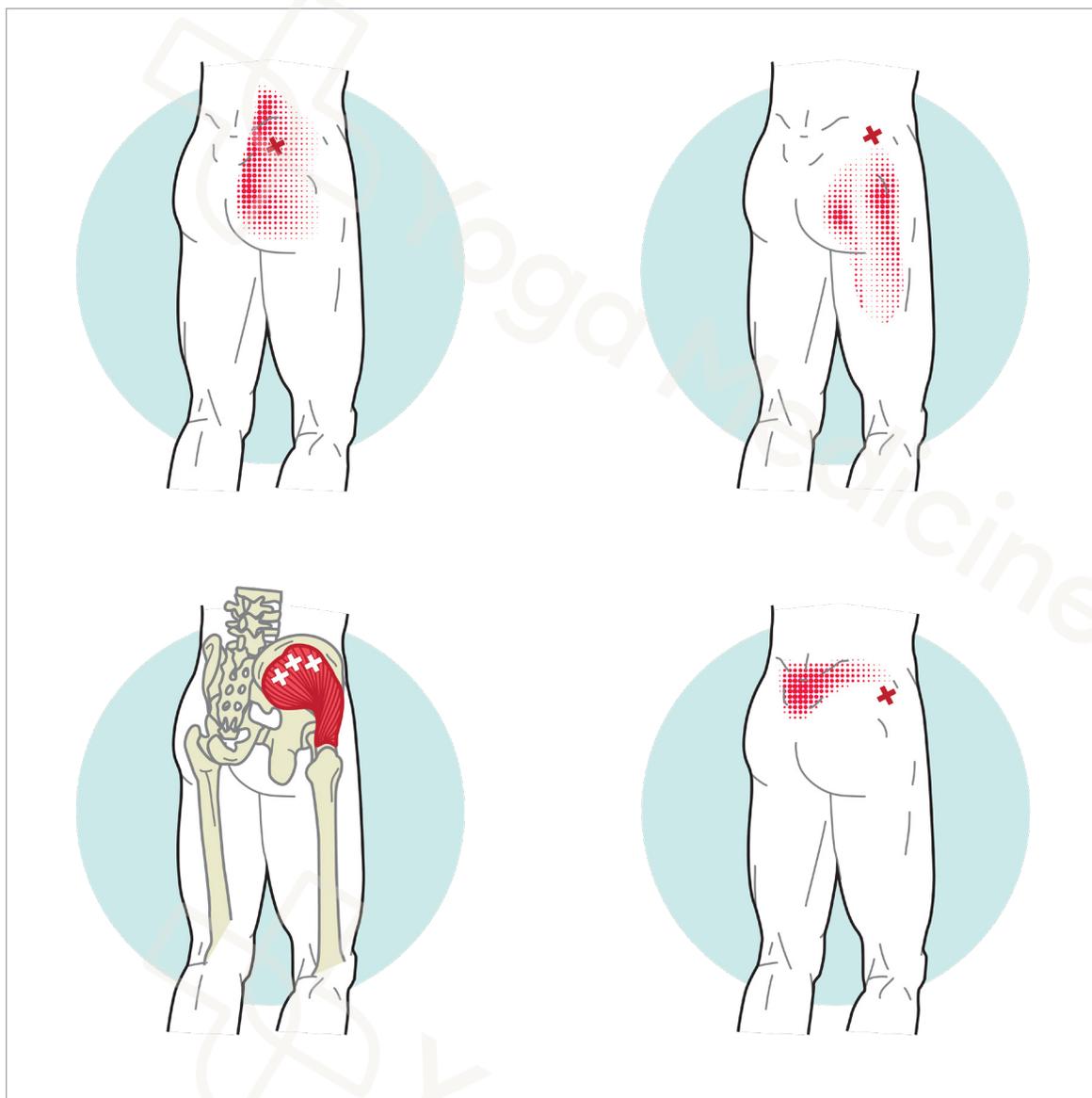
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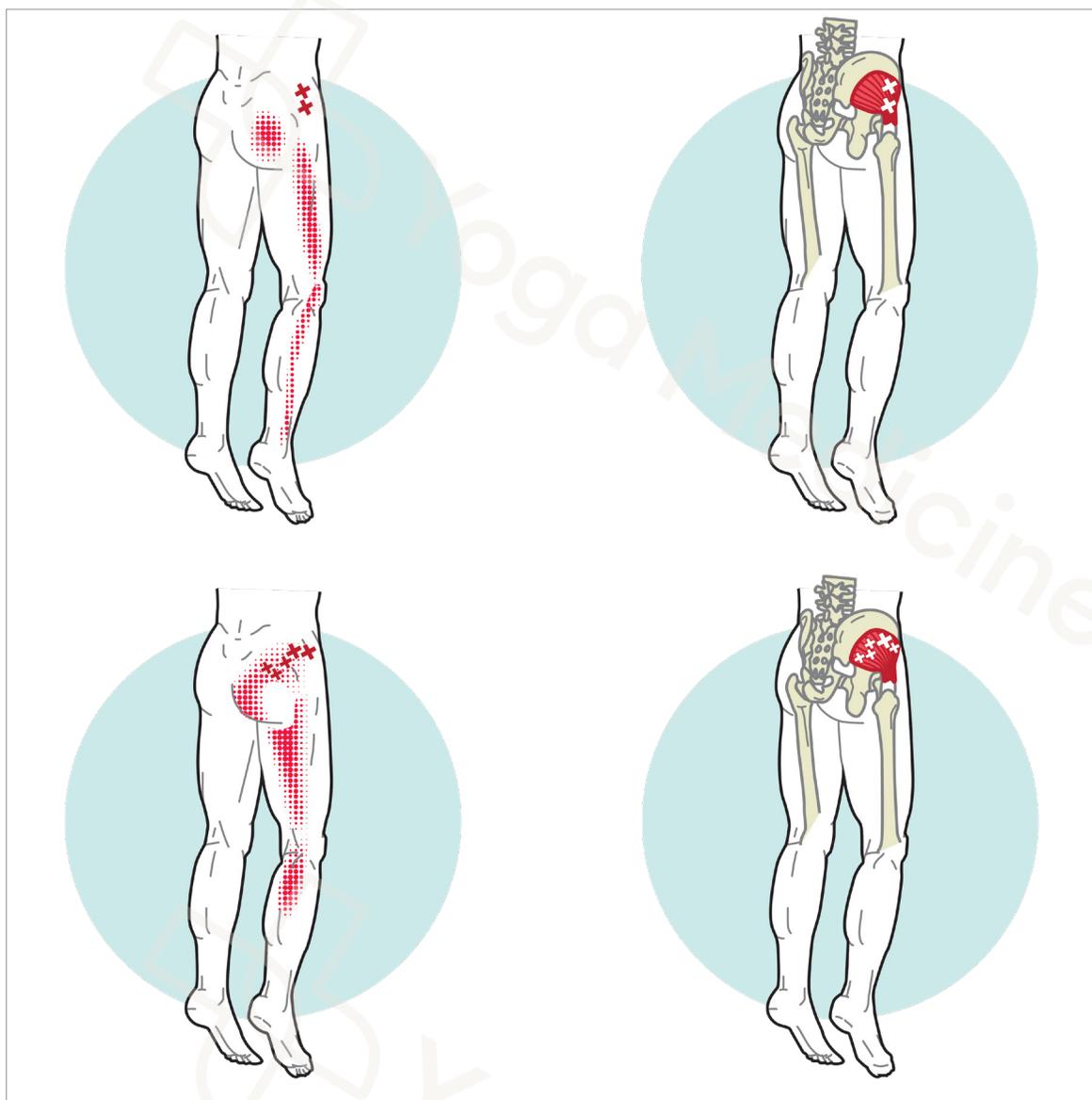
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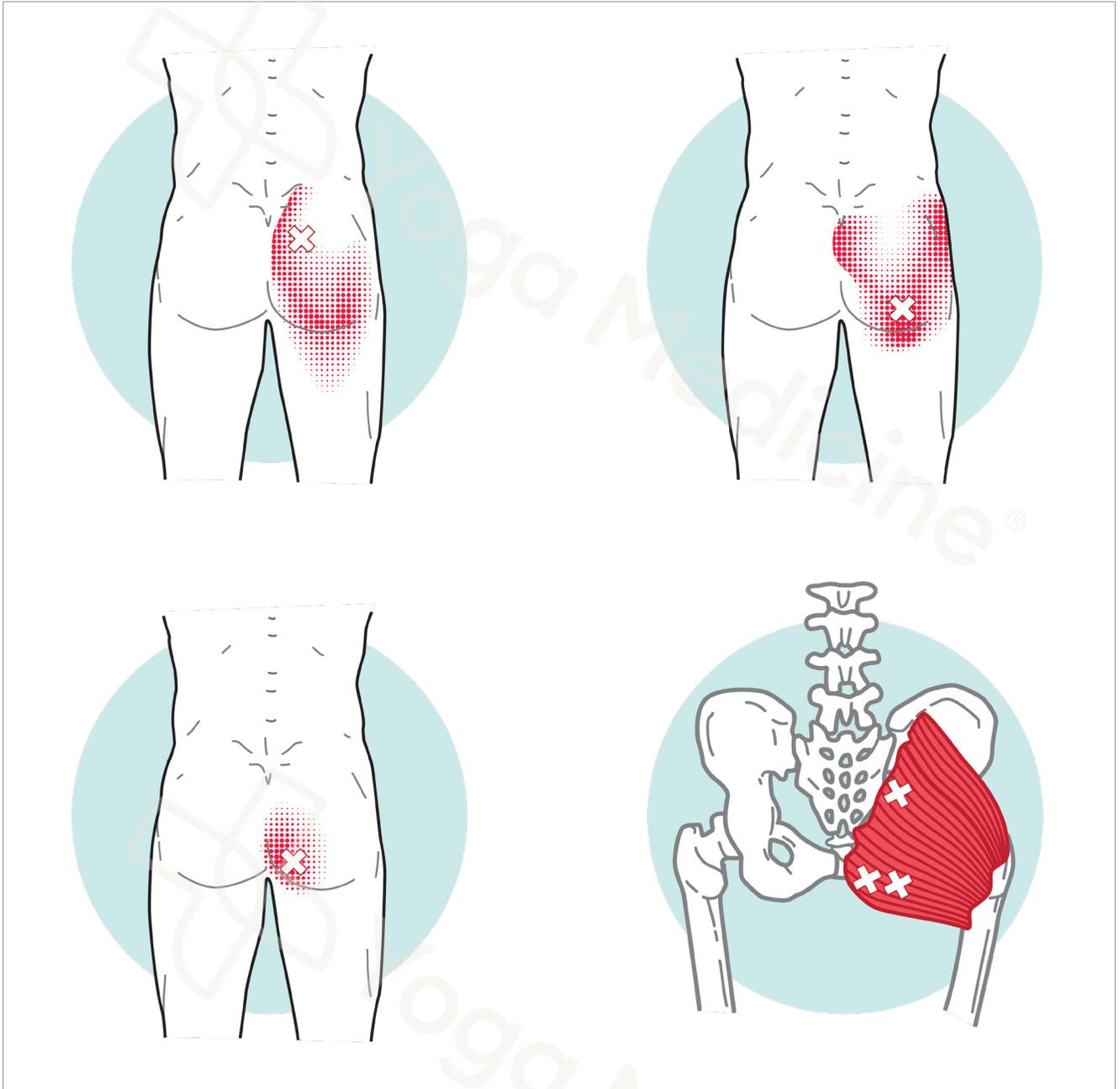
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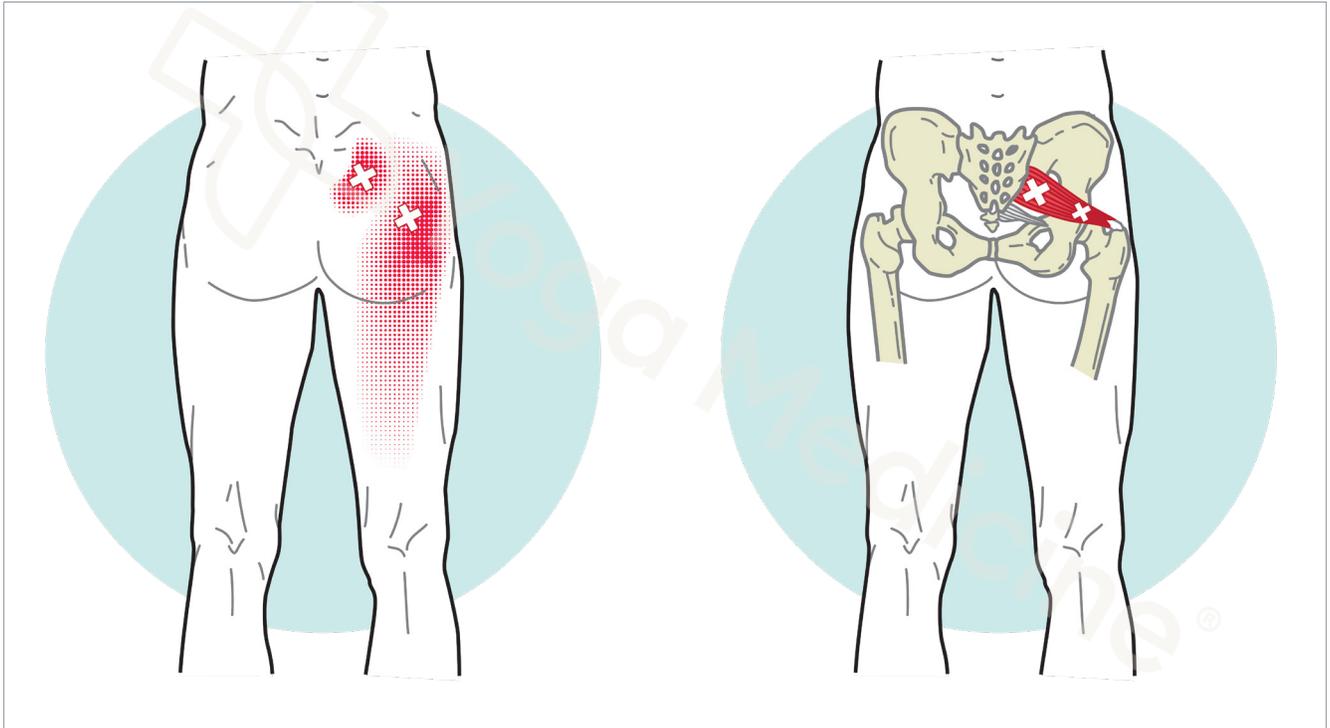
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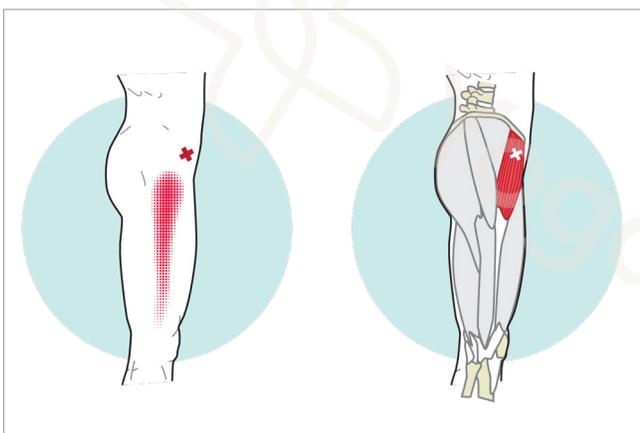
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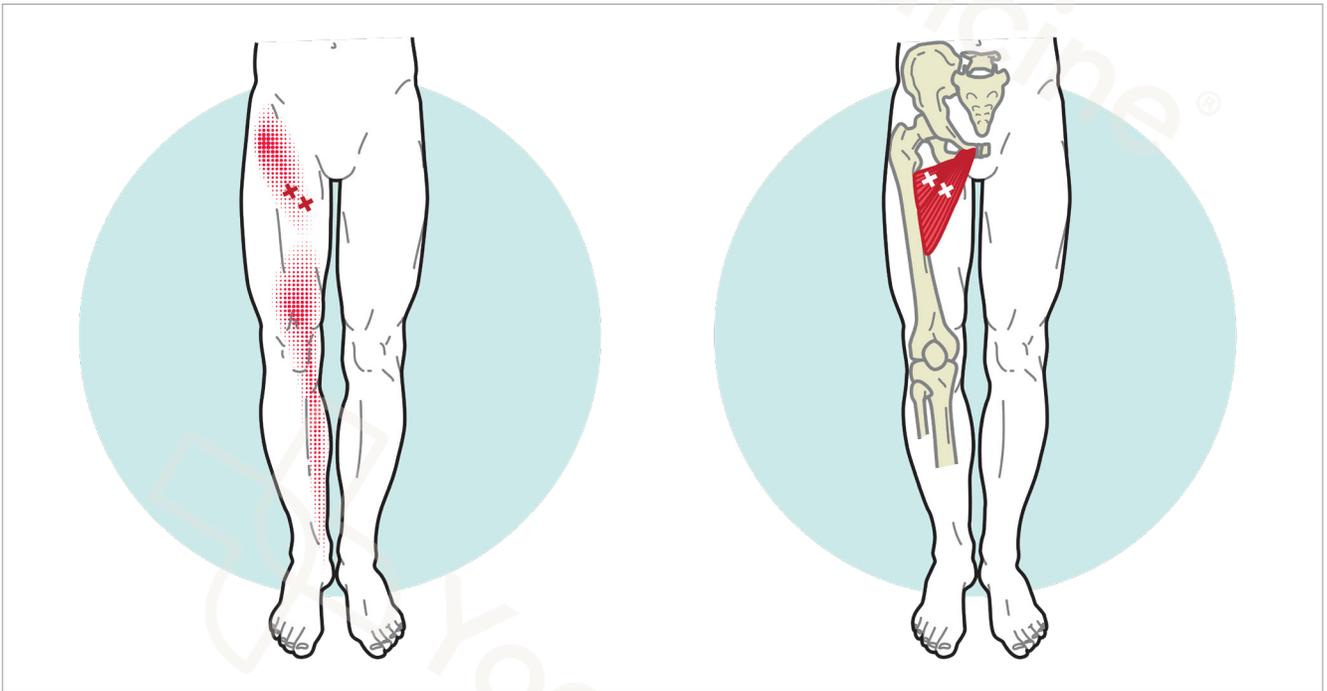
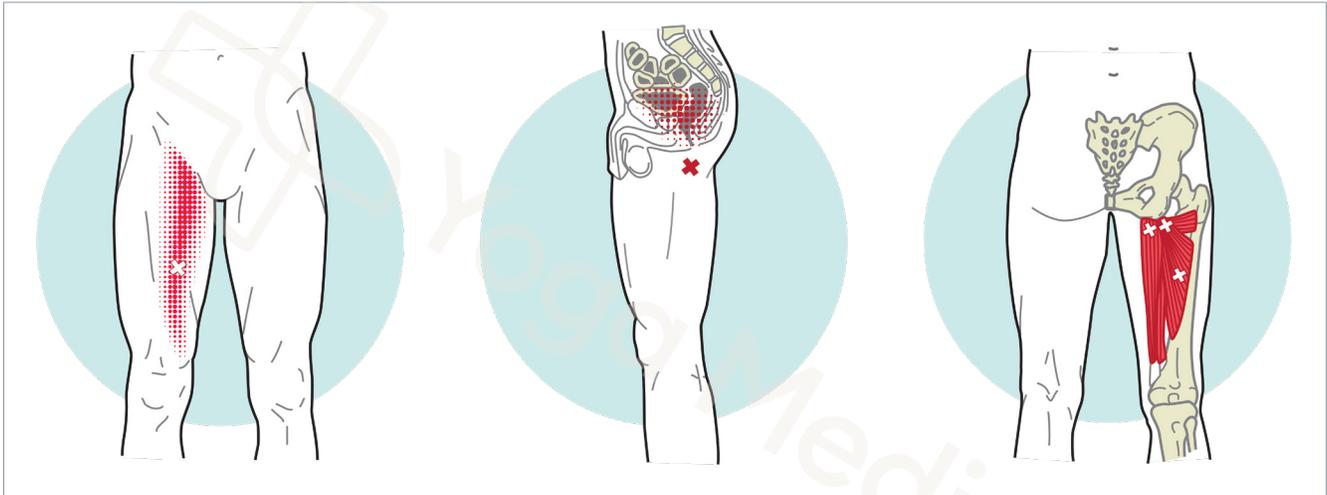
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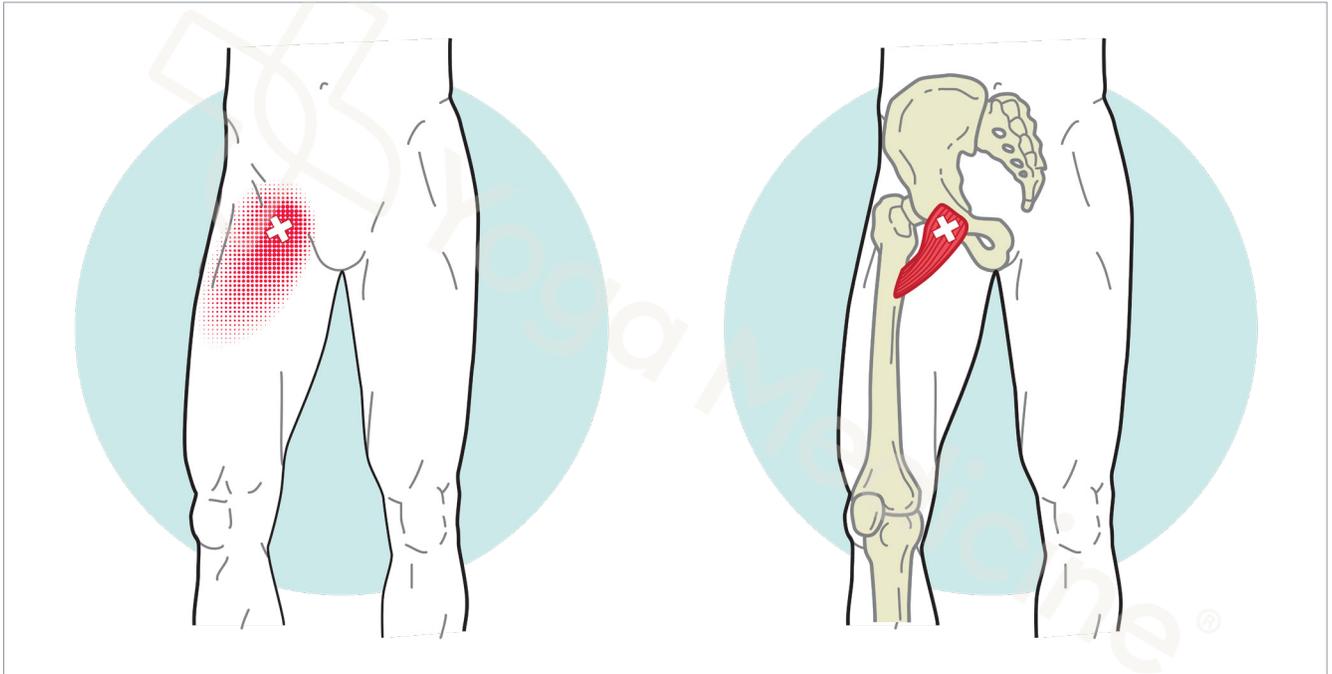
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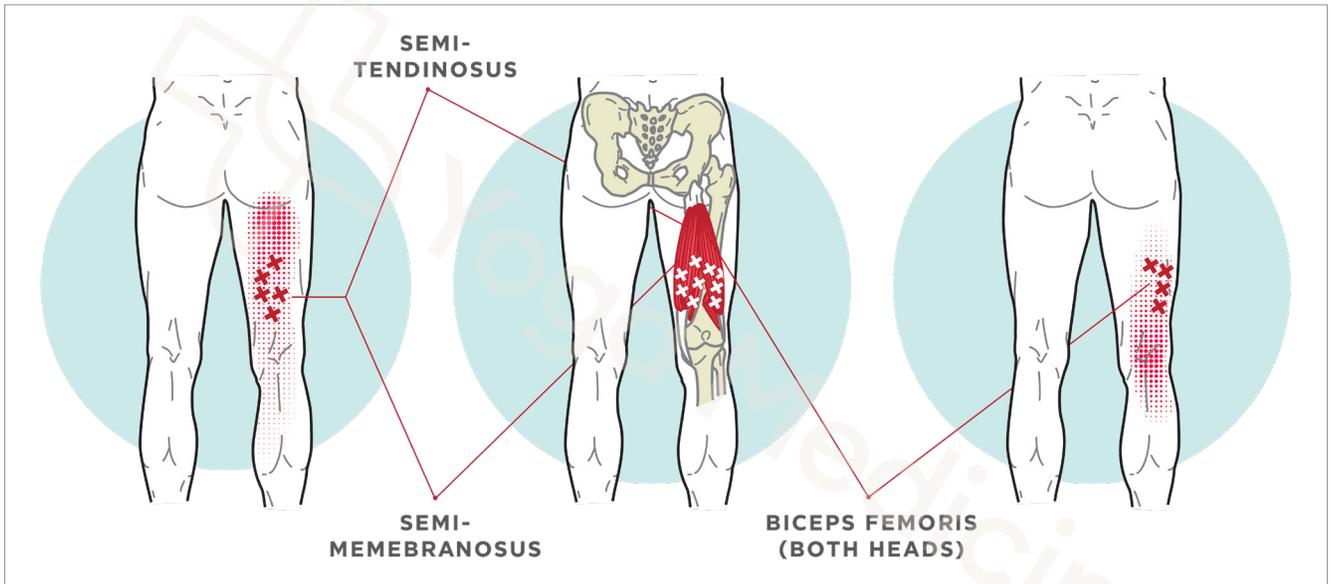
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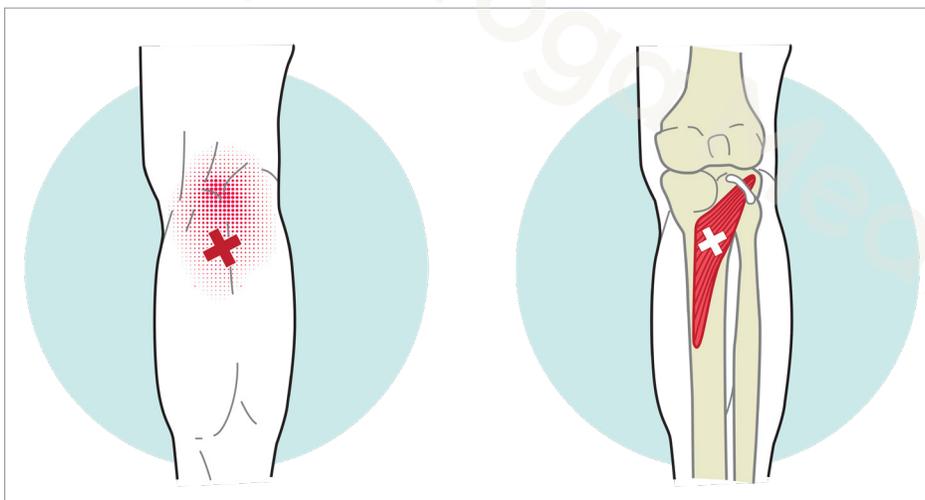
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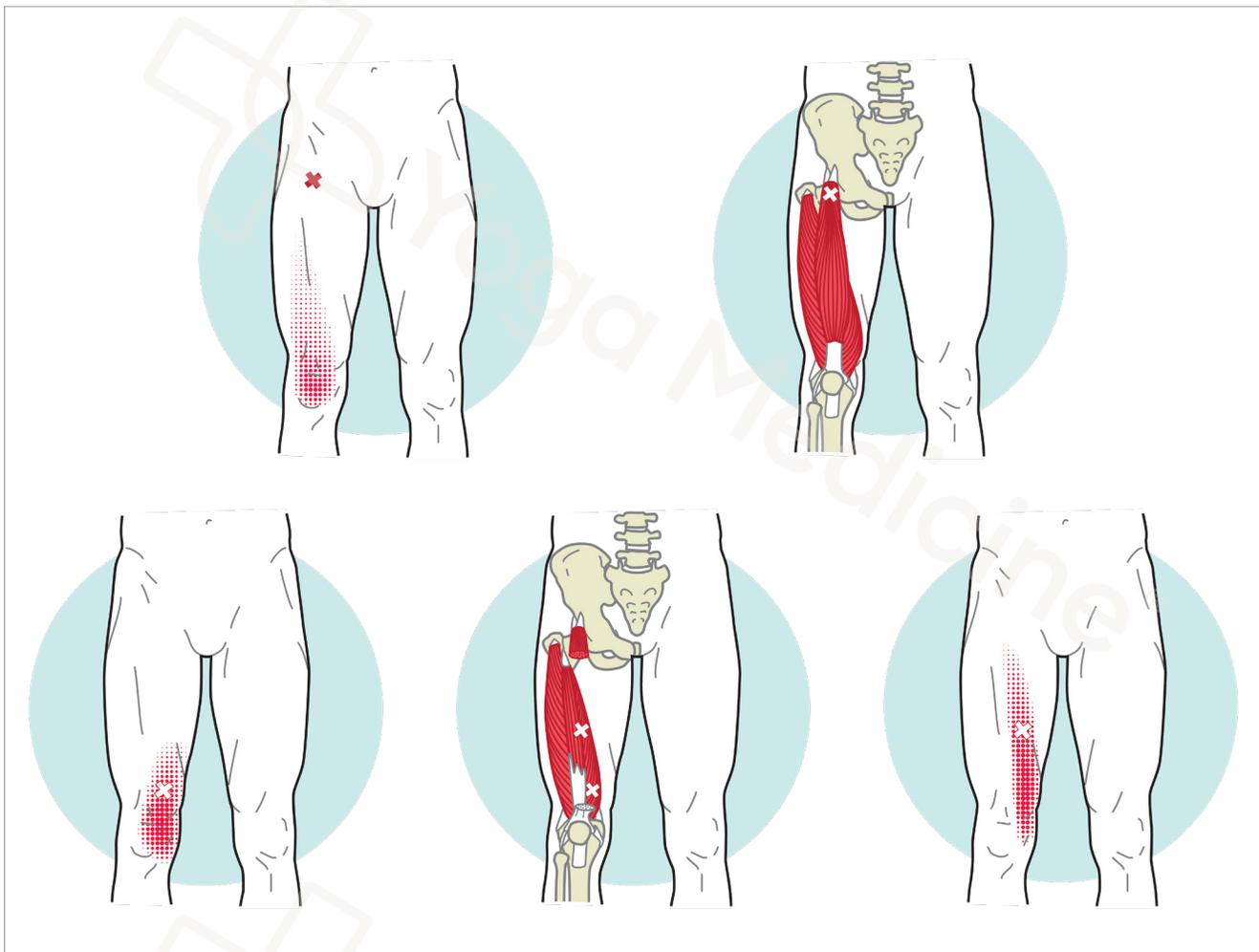
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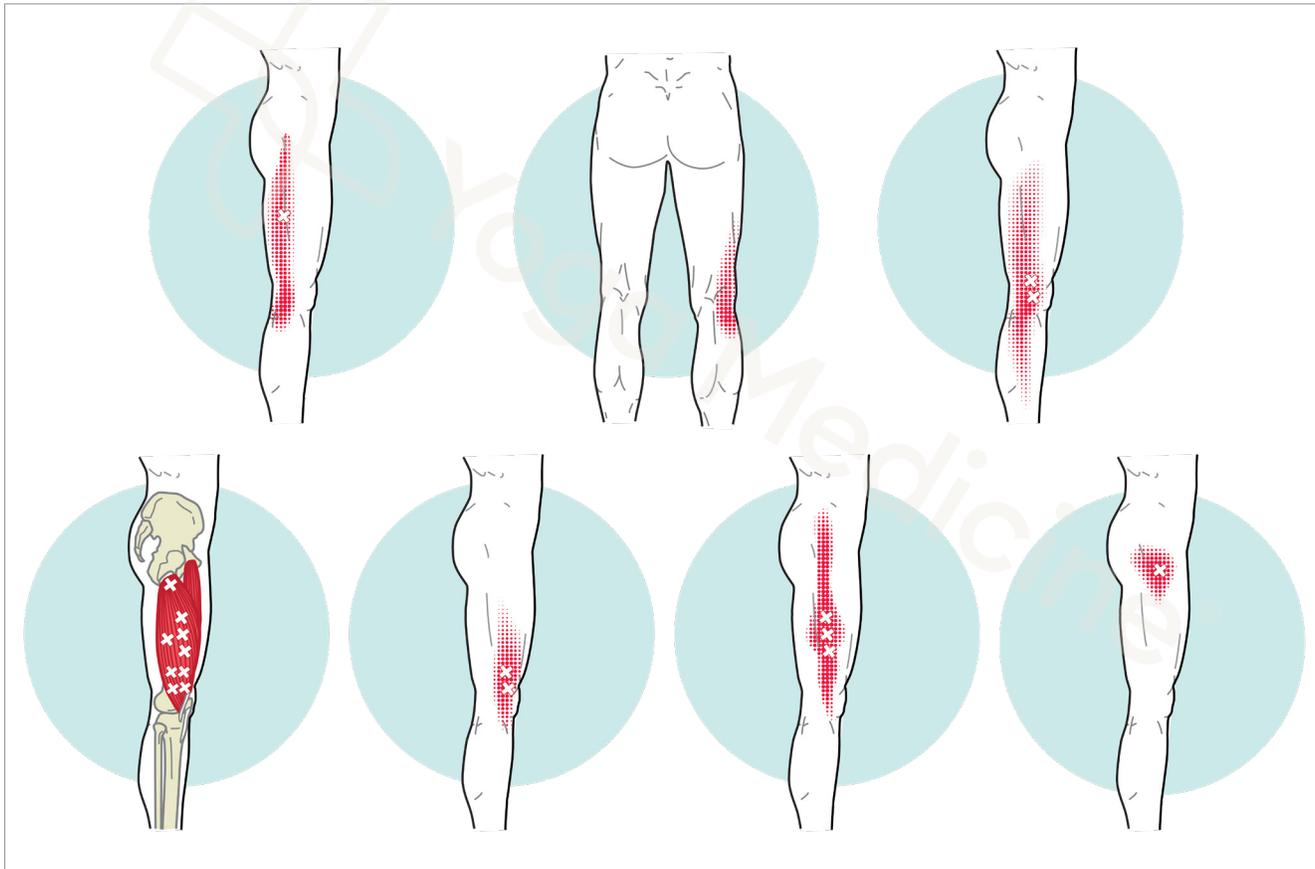
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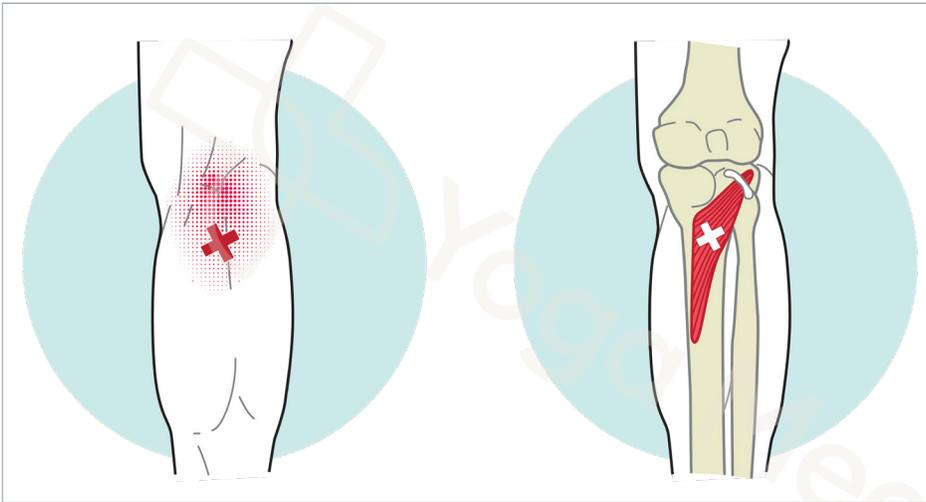
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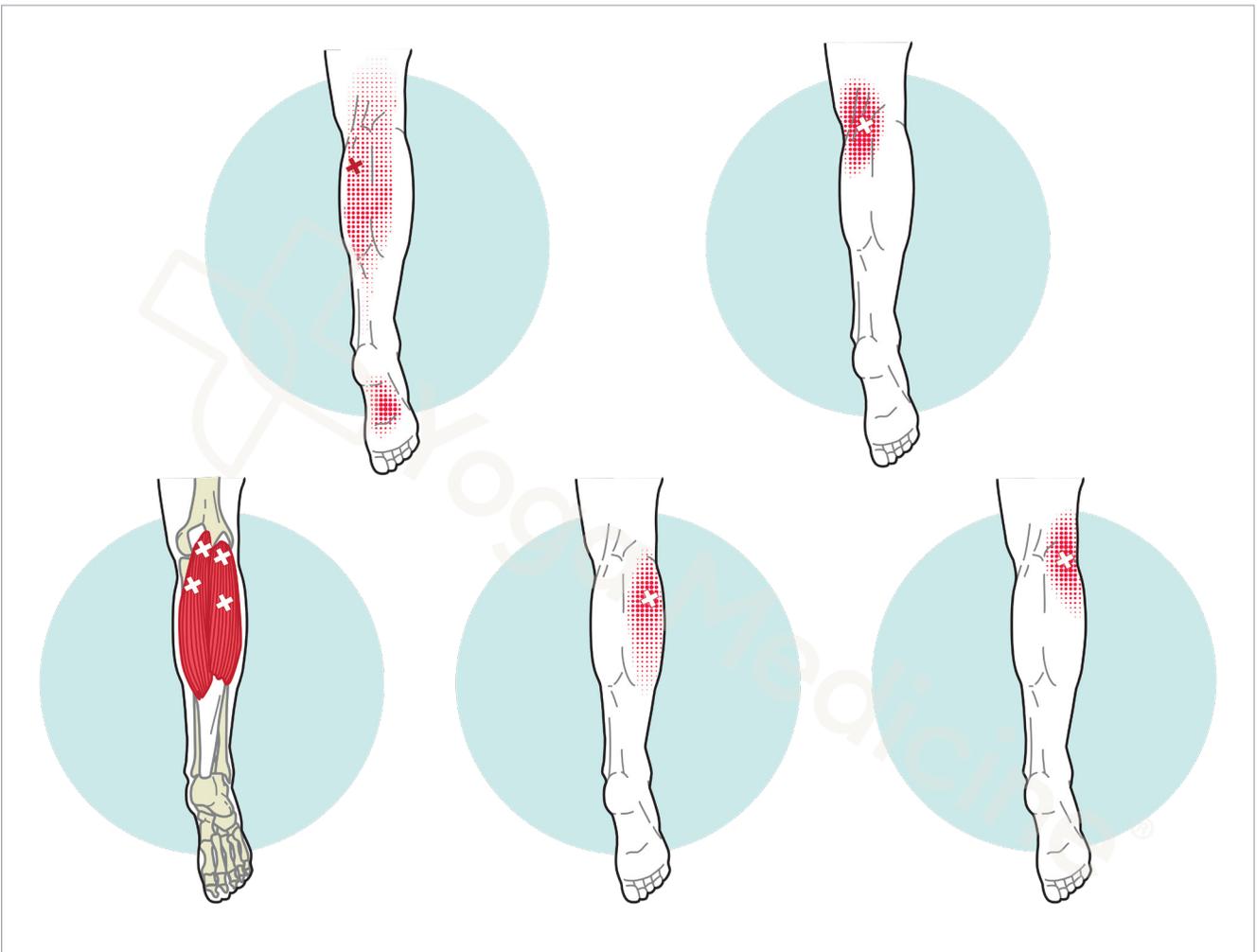
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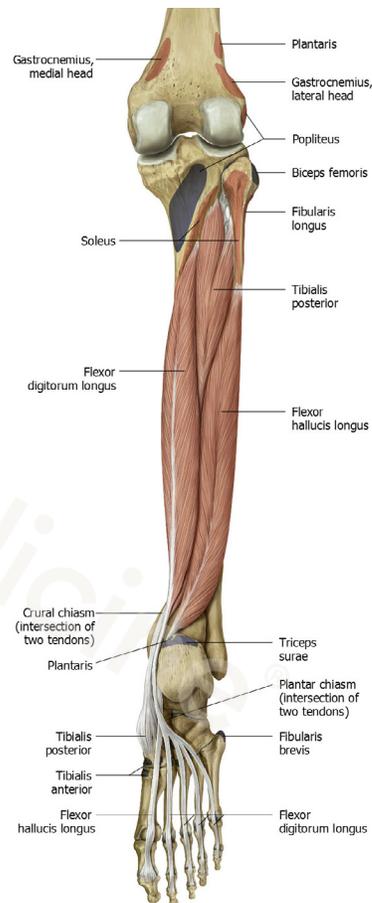
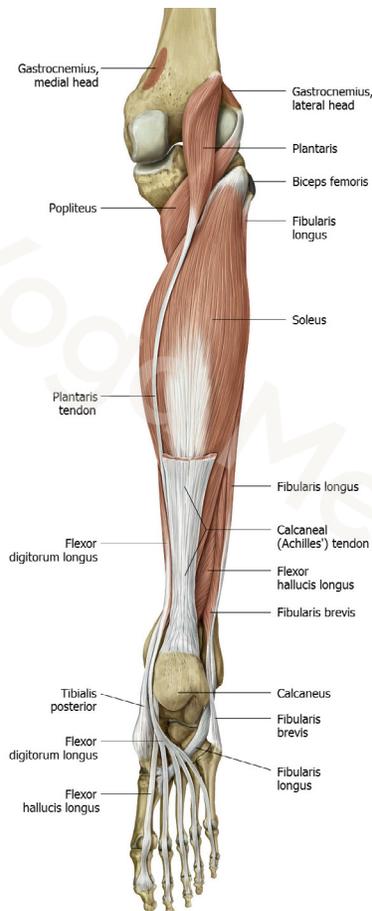
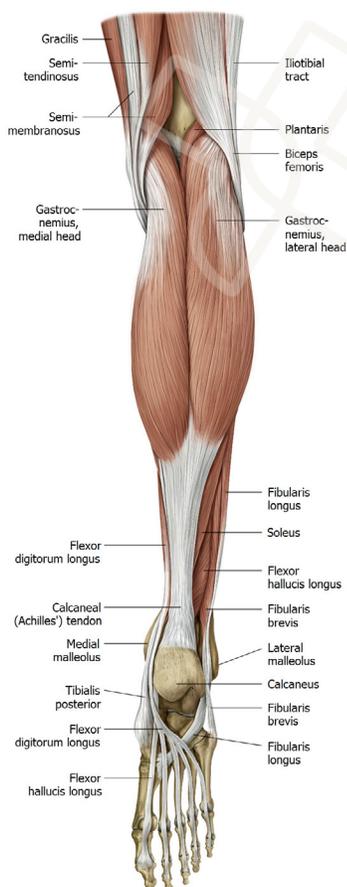
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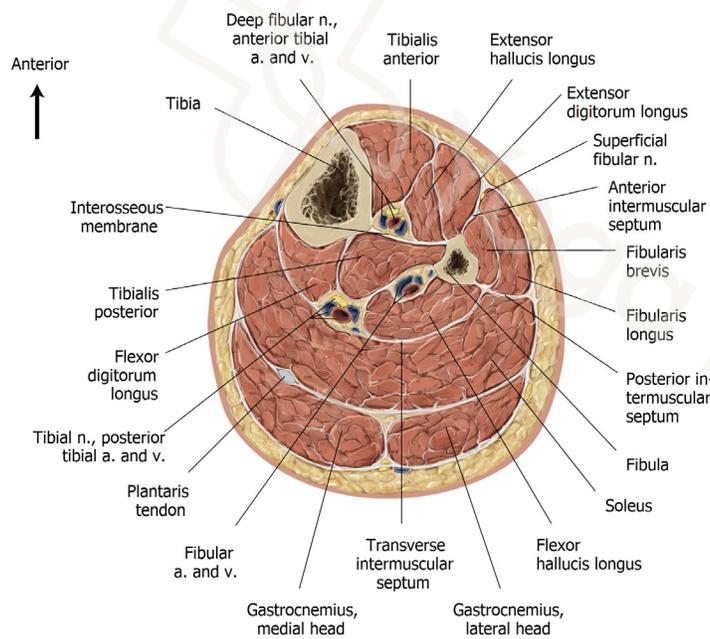
LOWER LEG ANATOMY



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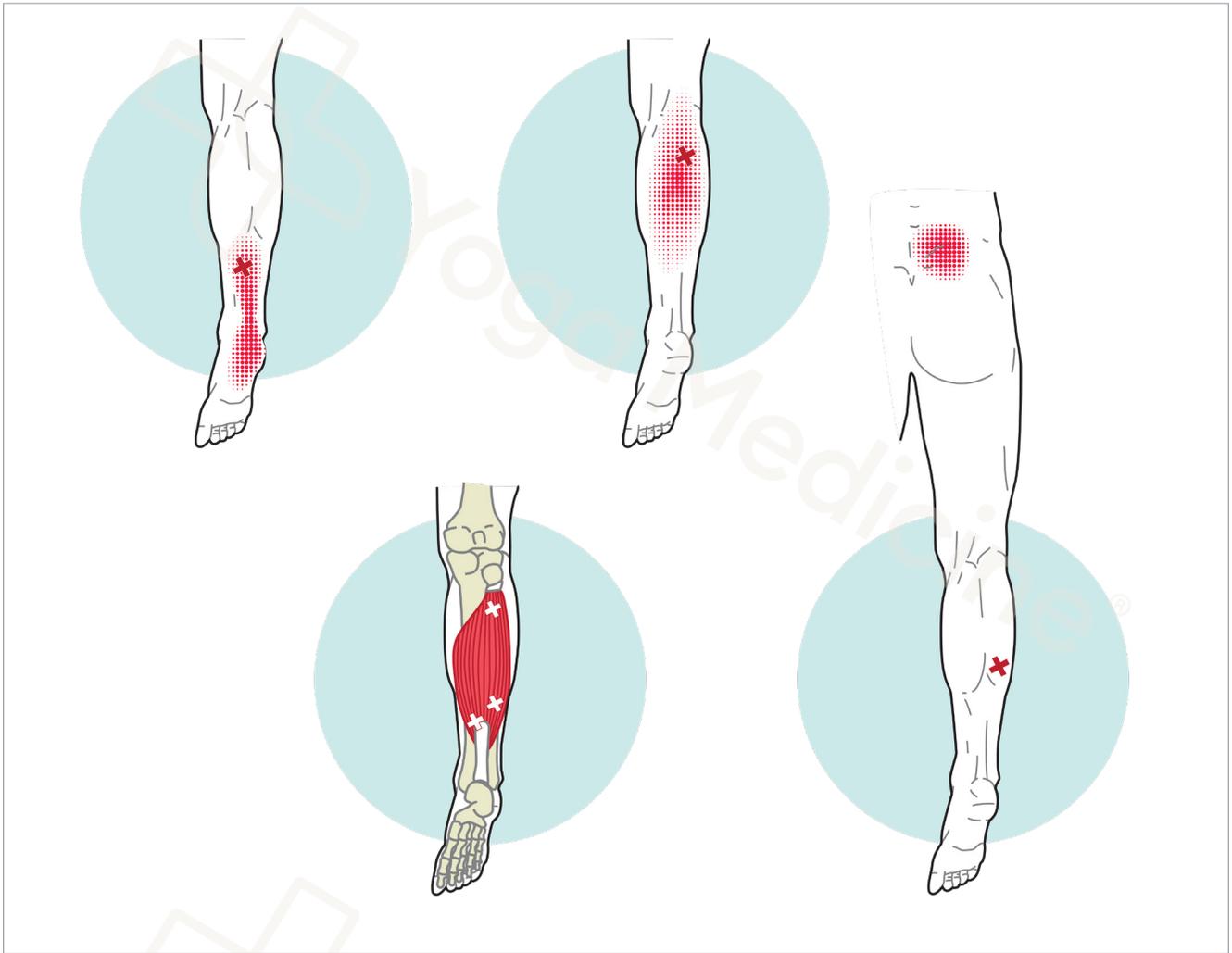
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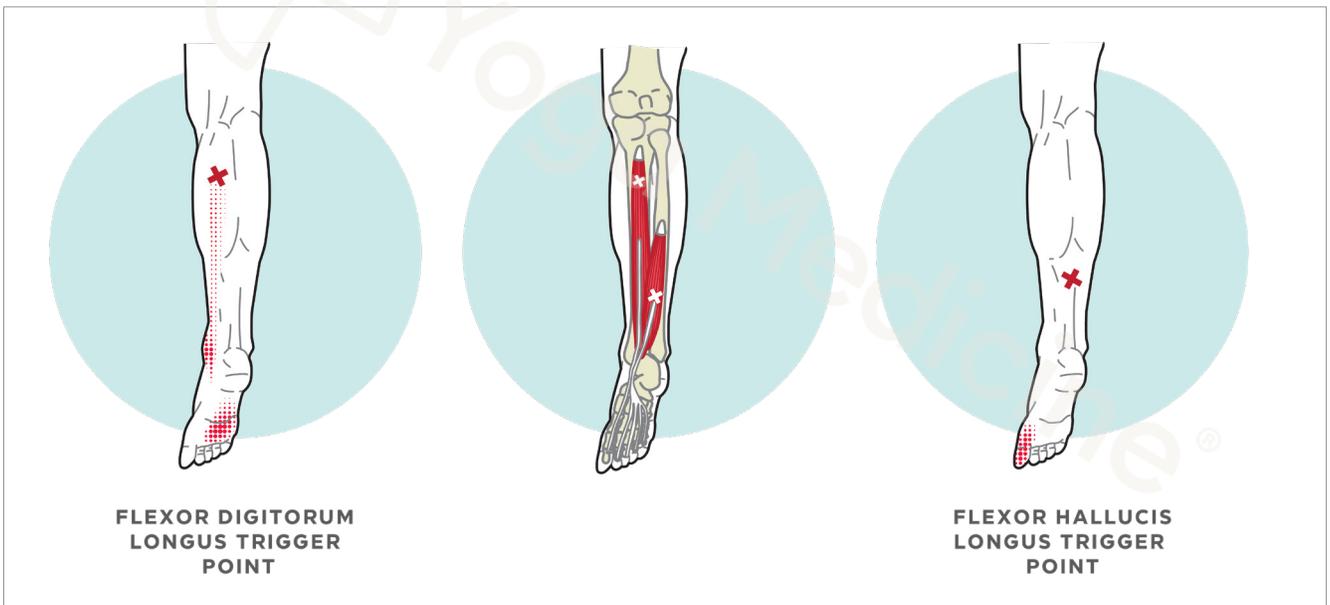


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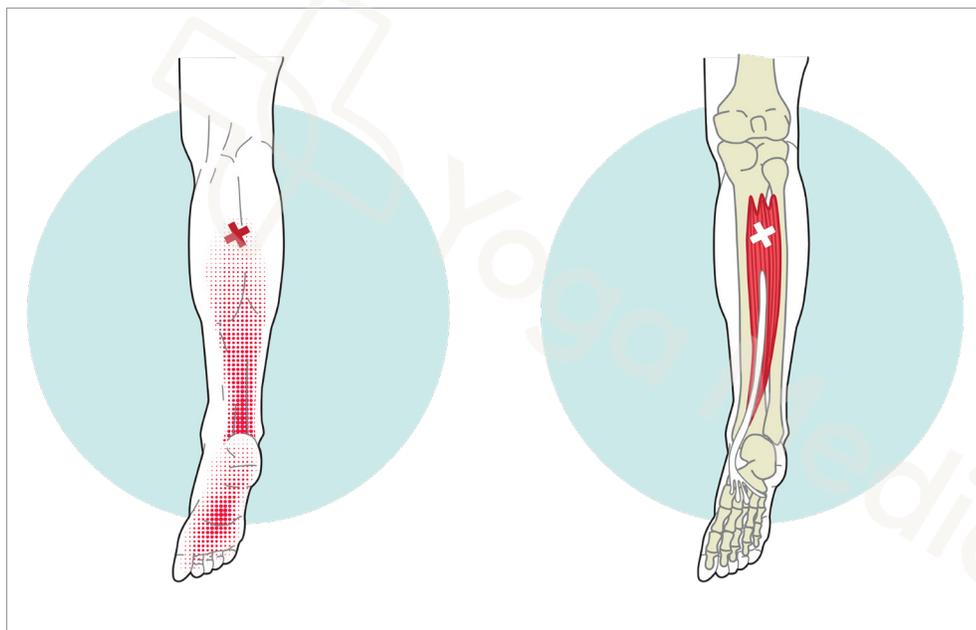
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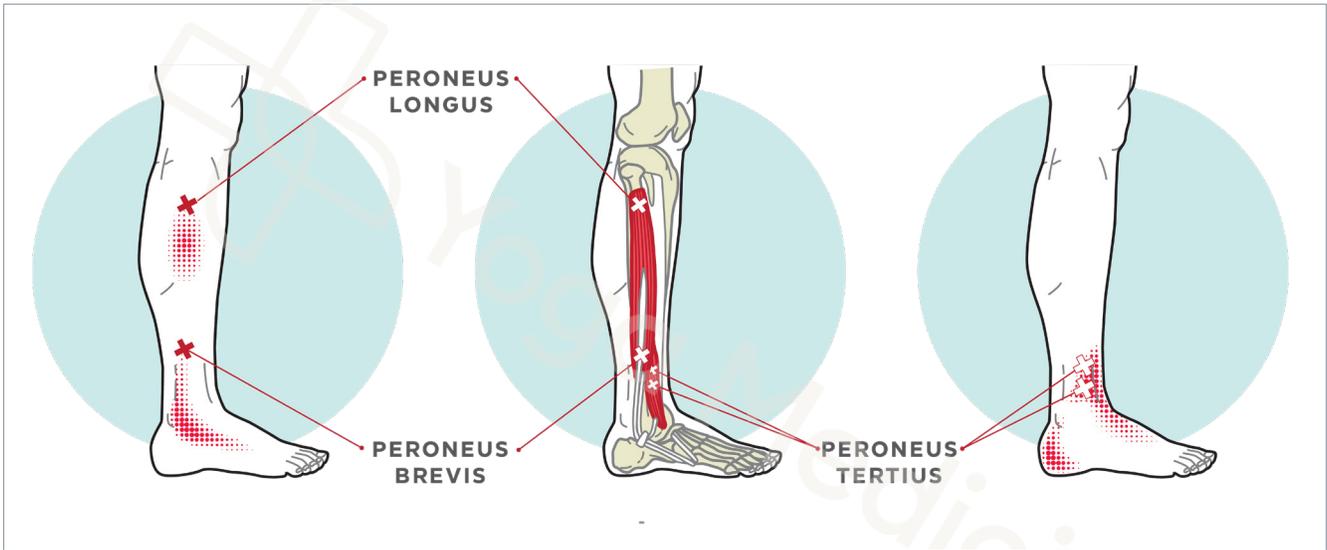
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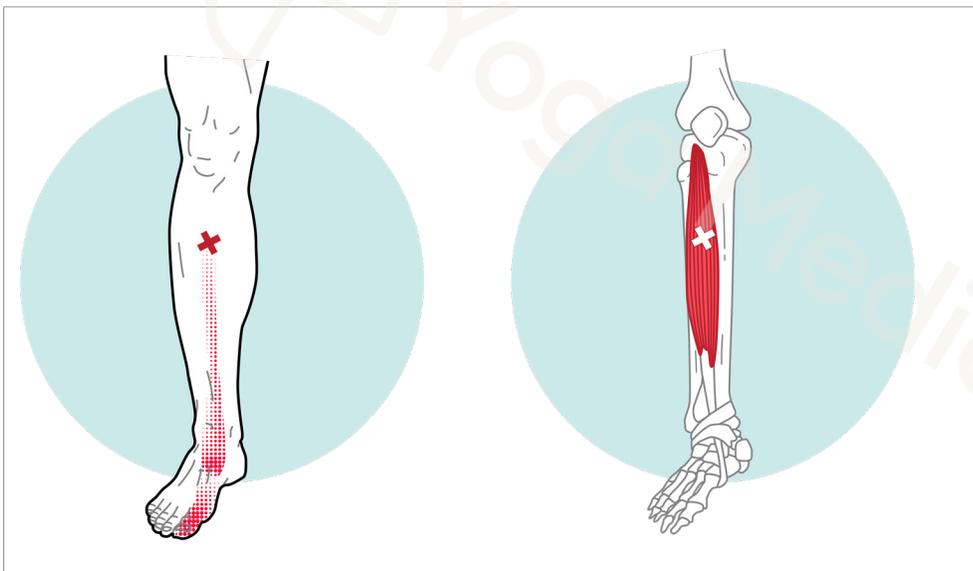
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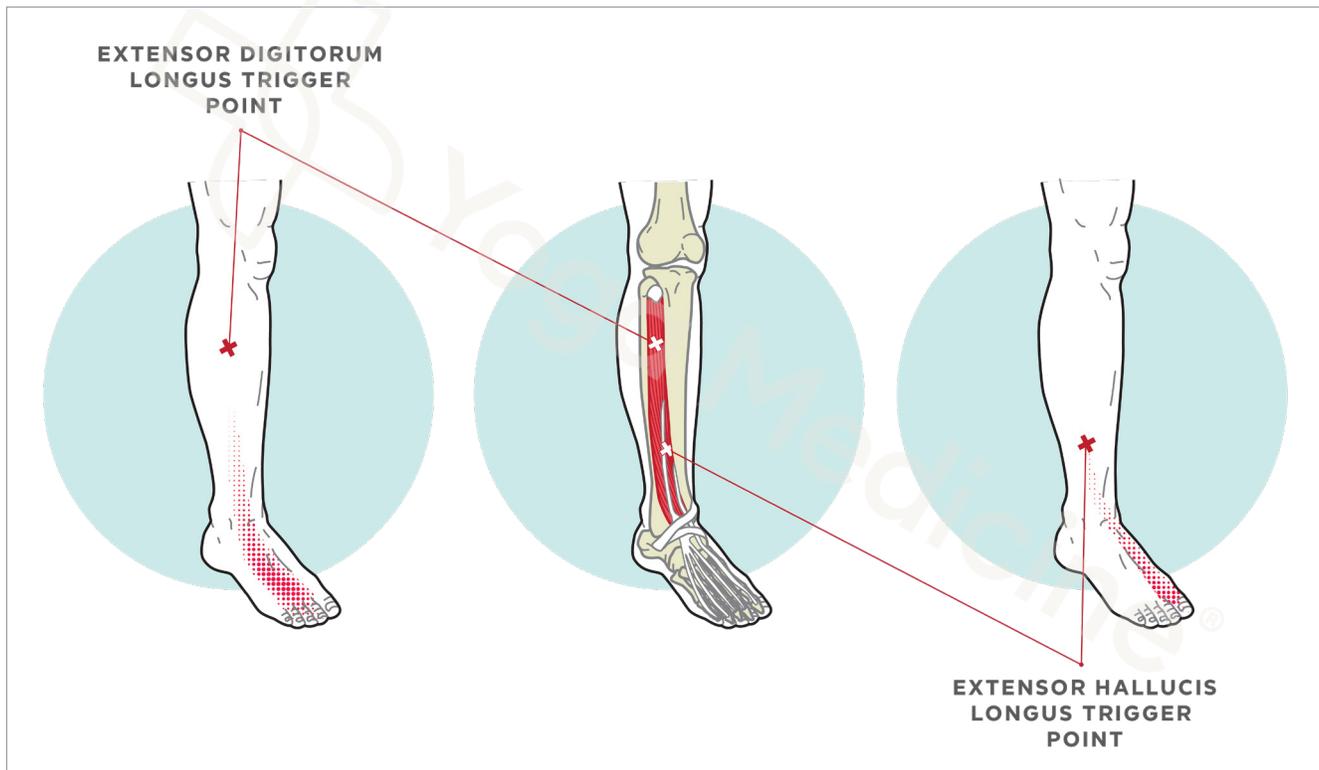
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TIBIALIS ANTERIOR

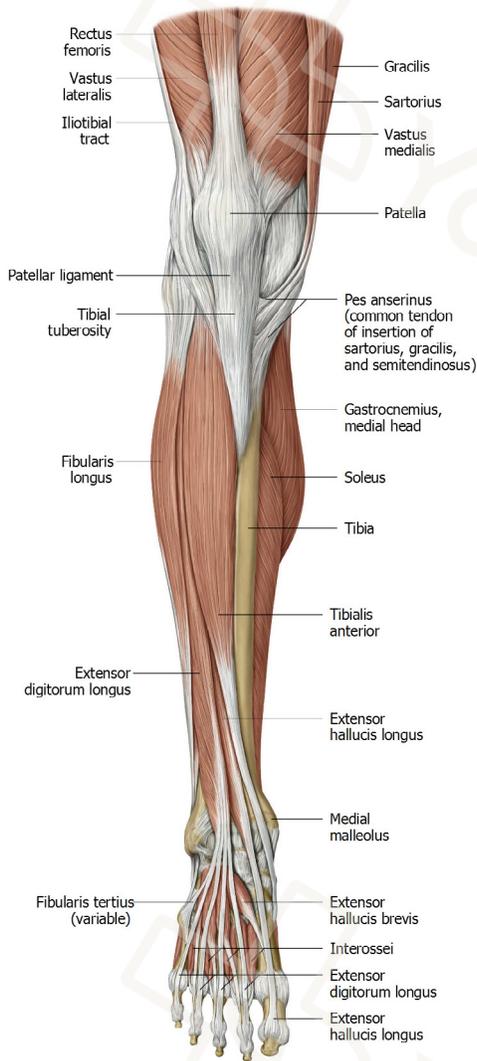


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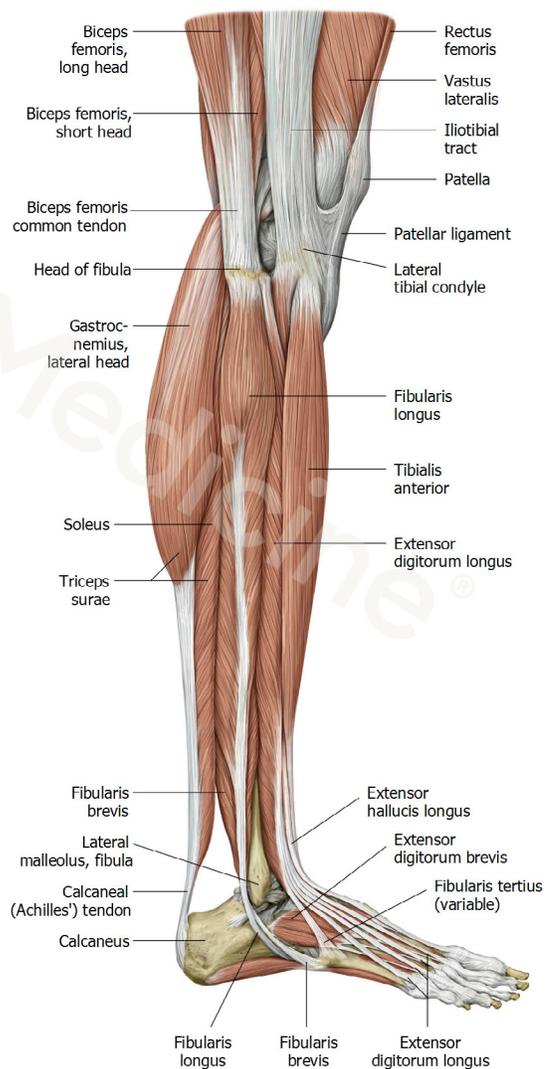


LOWER LEG ANATOMY

MUSCLES



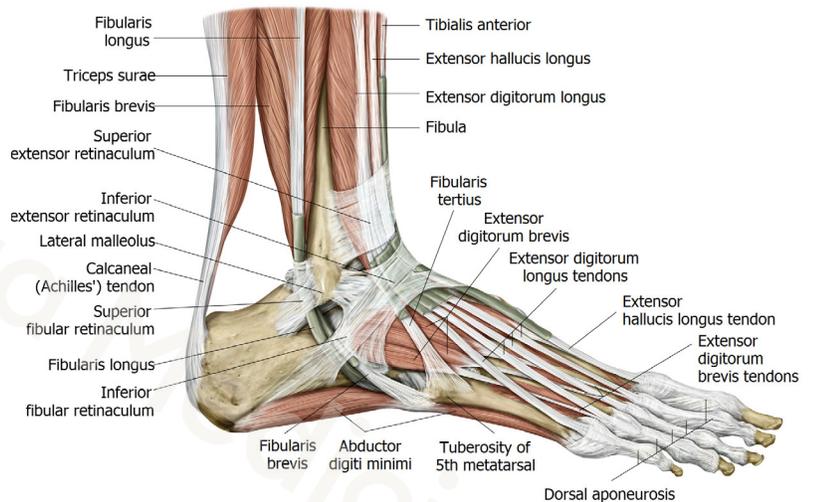
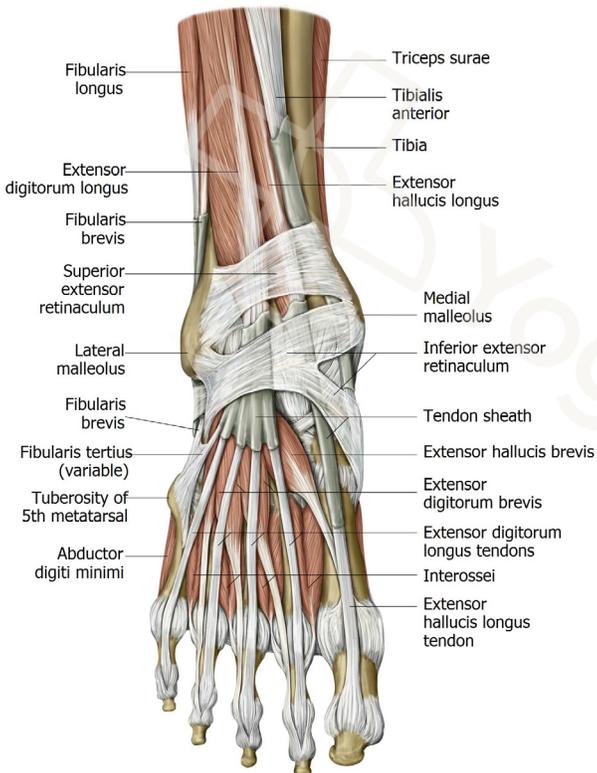
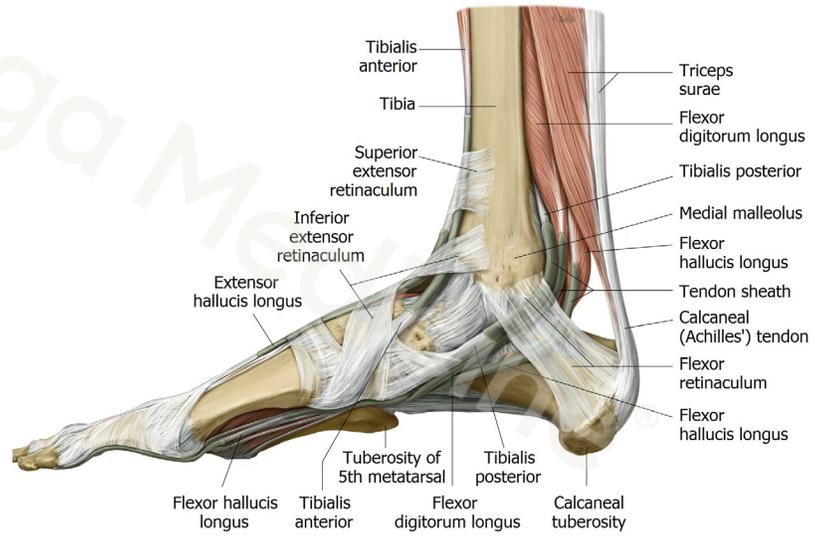
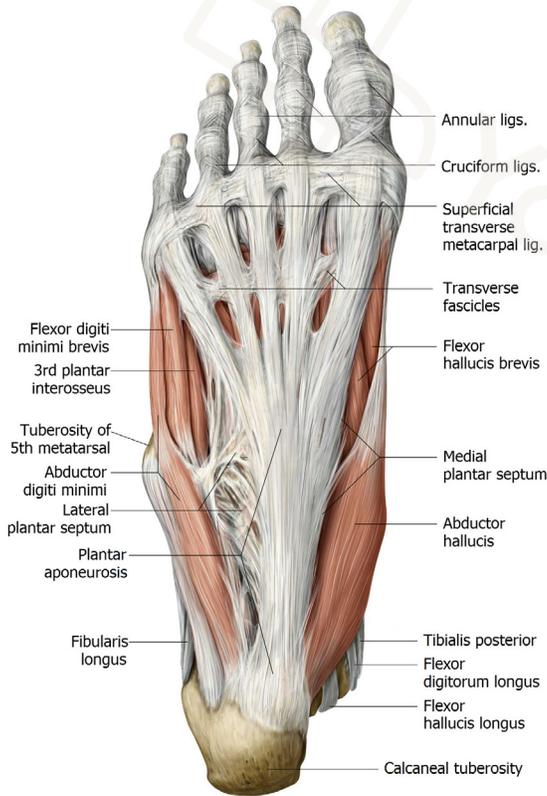
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LOWER LEG ANATOMY

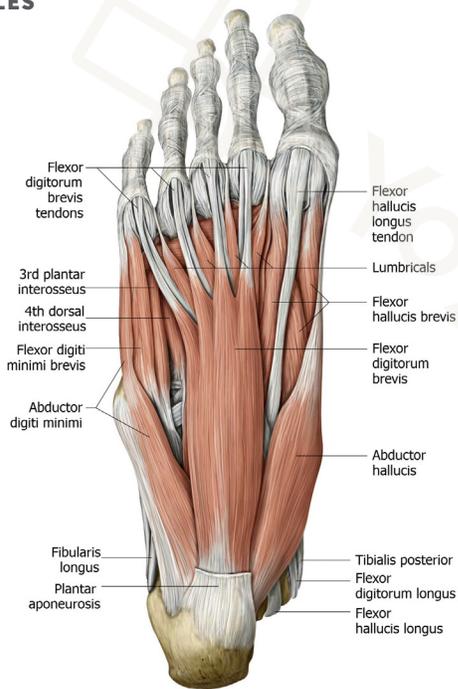
LIGAMENTS, FASCIA, MUSCLES



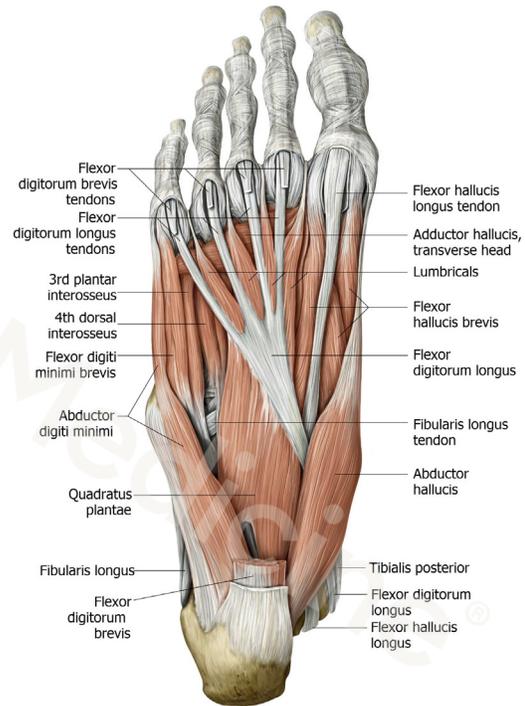
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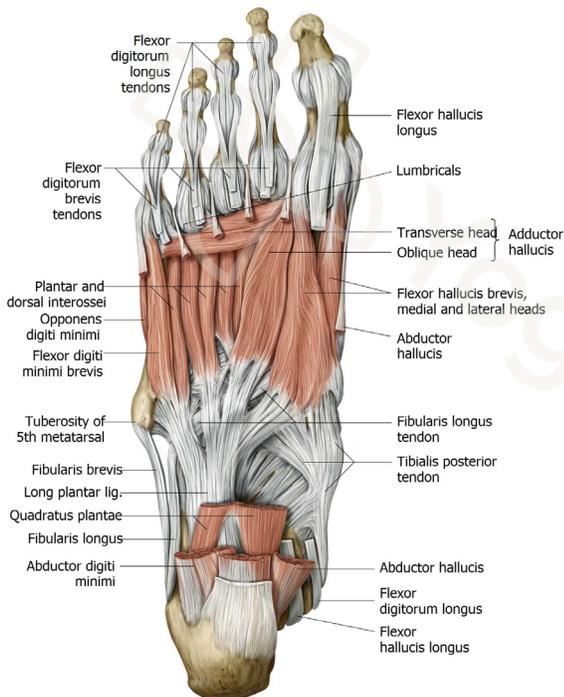
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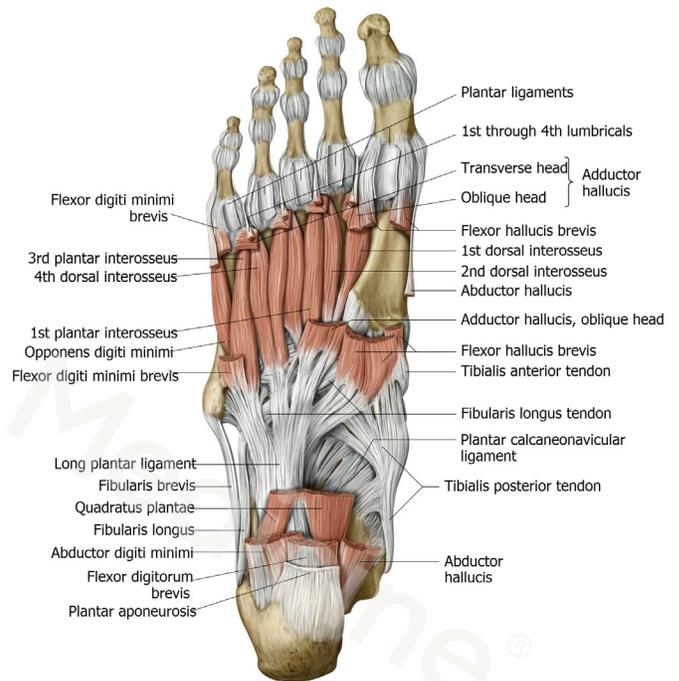
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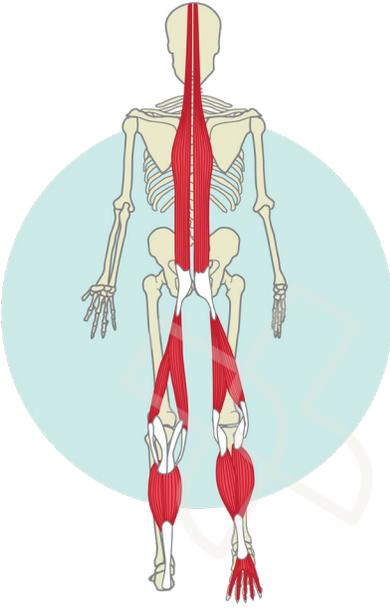
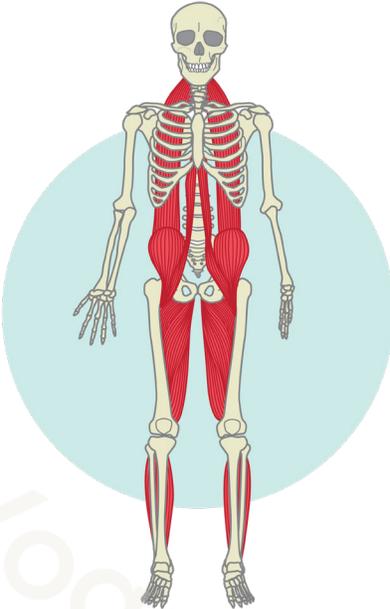
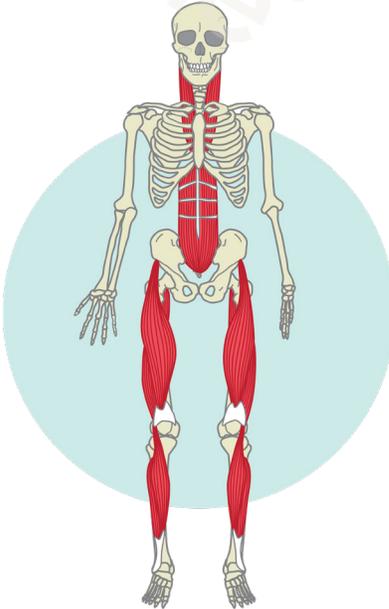
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Myofascial Chains

WORKING WITH MYOFASCIA

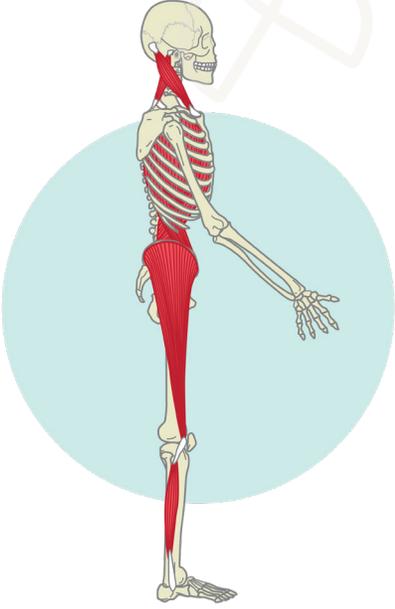
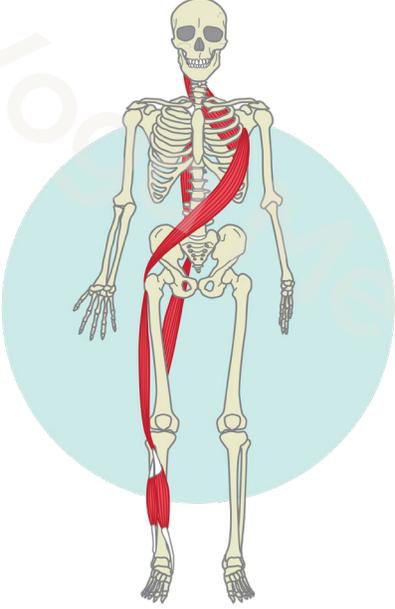
Myofascial Chains

- Front
- Back
- Lateral
- Spiral
- Extensibility of entire CT matrix creates 3D cohesiveness
- When all 4 lines are balanced joints move with ease
- Stress the whole chain rather than 1 muscle, whole body mvts

SUPERFICIAL BACK LINE	DEEP FRONT LINE	SUPERFICIAL FRONT LINE
		
<ul style="list-style-type: none"> • Erectors • Sacrotuberous ligament • Hamstrings • Gastroc • Plantar fascia 	<ul style="list-style-type: none"> • Scalenes • Diaphragm • Psoas • Iliacus • Pectineus • Pelvic floor • Adductors • Popliteus • Tibialis posterior 	<ul style="list-style-type: none"> • SCM • Rectus abdominis • Rectus femoris • Tibialis anterior

Myofascial chains charts recreated from Anatomy Trains by Tom Meyers

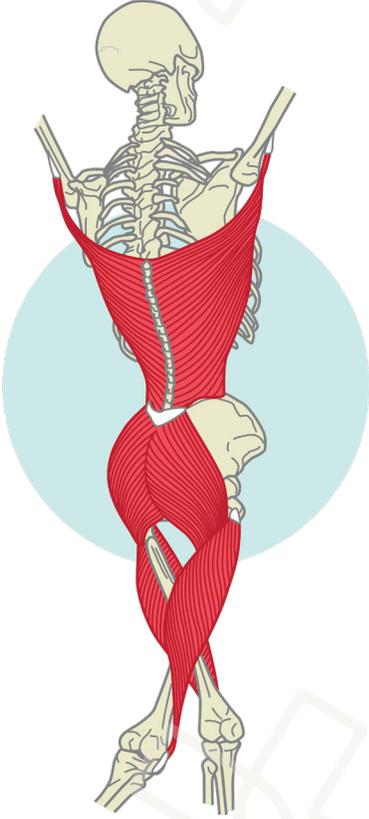
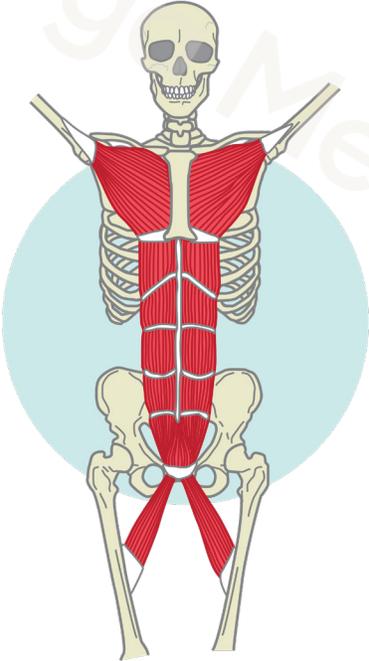
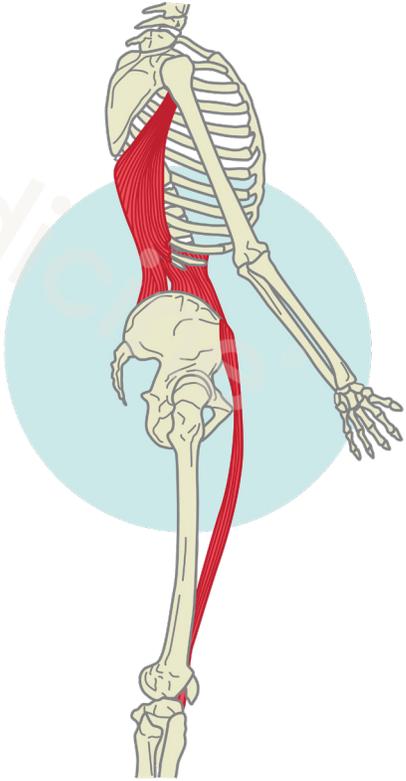
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LATERAL LINE	SPIRAL LINE
	
<ul style="list-style-type: none"> • Splenius capitis • SCM • Intercostals • Obliques • Glut max • TFL/ITB • Peroneals 	<ul style="list-style-type: none"> • Splenius capitis/cervicis • Opposite rhomboids • Serratus anterior • External oblique • Opposite internal oblique • TFL/ITB • Tibialis anterior • Peroneals • Bicep femoris • Sacrotuberous ligament • Erectors

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Functional Lines

BACK FUNCTIONAL LINE	FRONT FUNCTIONAL LINE	IPSILATERAL FUNCTIONAL LINE
		
<ul style="list-style-type: none"> • Lats • Thoracolumbar fascia • Gluteus max • Vastus lateralis 	<ul style="list-style-type: none"> • Pec major • Rectus abdominus • Adductor longus 	<ul style="list-style-type: none"> • Outer edge of lats • Side of external oblique • Sartorius

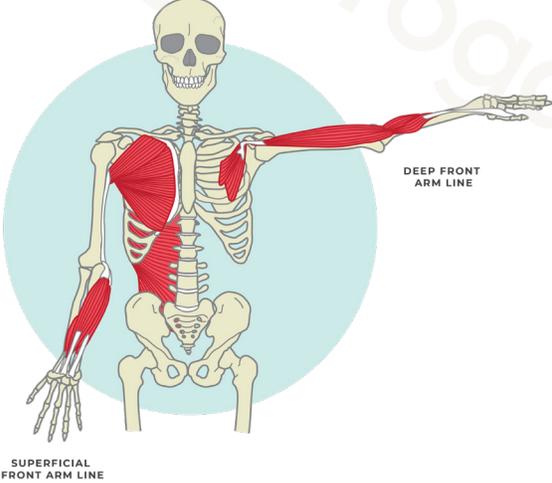
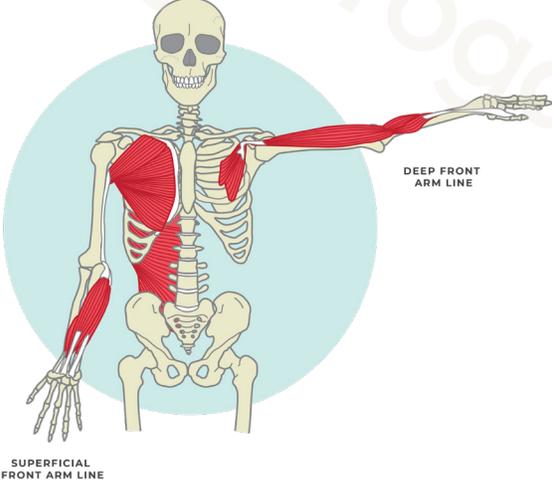
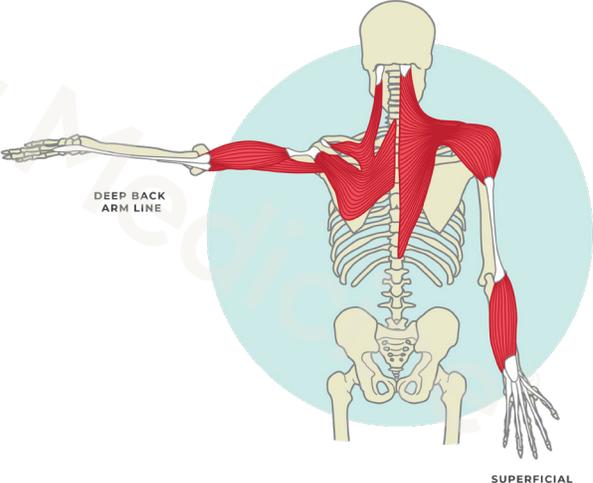
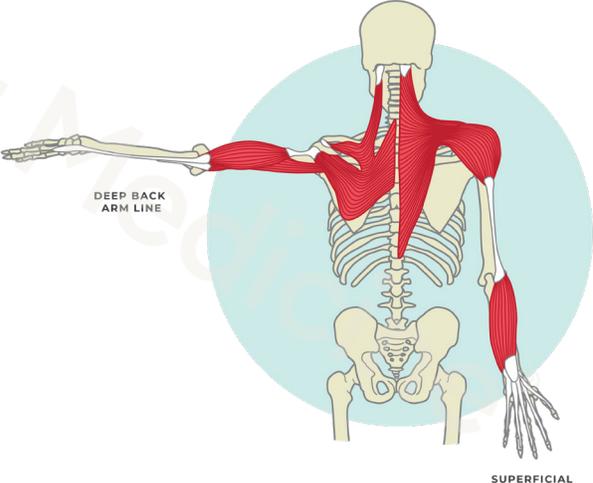
Myofascial chains charts recreated from Anatomy Trains by Tom Meyers

Fascial sack around abdominal organs/parietal peritoneum:

Diaphragm, TVA, psoas, QL, multifidus, pelvic floor

WORKING WITH MYOFASCIA

Arm Lines

SUPERFICIAL FRONT ARM LINE	DEEP FRONT ARM LINE	SUPERFICIAL BACK ARM LINE	DEEP BACK ARM LINE
 <p style="text-align: center;">SUPERFICIAL FRONT ARM LINE</p>	 <p style="text-align: center;">DEEP FRONT ARM LINE</p>	 <p style="text-align: center;">SUPERFICIAL BACK ARM LINE</p>	 <p style="text-align: center;">DEEP BACK ARM LINE</p>
<ul style="list-style-type: none"> • Pec major • Lats • Medial intermuscular septum (between biceps & triceps) • Pronator teres • Wrist flexors <p>(Tom Meyers Anatomy Trains)</p>	<ul style="list-style-type: none"> • Pec minor • Biceps, Coracobrachialis, Brachialis • Supinator • Thumb pad (thenar muscles/pollicis) <p>(Tom Meyers Anatomy Trains)</p>	<ul style="list-style-type: none"> • Traps • Deltoid (anterior, lateral & posterior) • Lateral intermuscular septum (between triceps & biceps) • Wrist extensors <p>(Tom Meyers Anatomy Trains)</p>	<ul style="list-style-type: none"> • Levator & Rhomboids • Rotator cuff (infraspinatus, teres minor, supraspinatus, subscapularis) • Triceps • Pinky pad (hypothenar muscles) <p>(Tom Meyers Anatomy Trains)</p>
<p>New research by Jan Wilke 2019, Ventral Arm Chain: pec major, brachial fascia, biceps, bicipital aponeurosis, brachioradialis, supinator, flexor carpi radialis/ulnaris</p>	<p>New research by Jan Wilke 2019: no studies yet supporting this line</p>	<p>New research by Jan Wilke 2019, Lateral Arm Chain: trapezius, middle deltoid, lateral intermuscular septum/brachialis, brachioradialis, extensor carpi radialis brevis</p>	<p>New research by Jan Wilke 2019, Dorsal Arm Chain: lats/teres minor/infraspinatus, triceps, anconeus, extensor carpi ulnaris</p>

Myofascial chains charts recreated from Anatomy Trains by Tom Meyers

WORKING WITH MYOFASCIA

- Myofascial chains: front, back, lateral, spiral
- Meridians
- Part of body
- Investigation
- Interweave with yoga
- Balls vs roller vs other tools

KEY POINTS

- Indirect before direct
- Less is more
- No pain
- Don't do anything they aren't comfortable with
- Make it meaningful & purposeful
- Be resourceful- props/modify
- Educate them (not diagnose), create healing maps
- Let them identify it & figure it out
- Everything you notice is just one piece of information (connect the dots)
- Don't overthink it, go with what you feel
- Always err on the safe side (gentler, refer out)
- Don't take it all on, you're a guide, have a team of people you respect to help

PROTOCOLS

Look

local, adjacent, antagonist, TP referral, myofascial chain, biomechanical contributors

Brainstorm

- Low back
- Hip
- Shoulder
- Neck
- Upper back
- Knee
- Elbow/wrist
- Ankle

YOGA APPLICATION

Group classes

- Beginning
- End
- During
- Yin, vinyasa, athletes, yoga nidra, etc
- Key is: to prepare for poses, to help them feel great when they leave, or for therapeutics in conjunction with yoga

Workshops

One-on-Ones