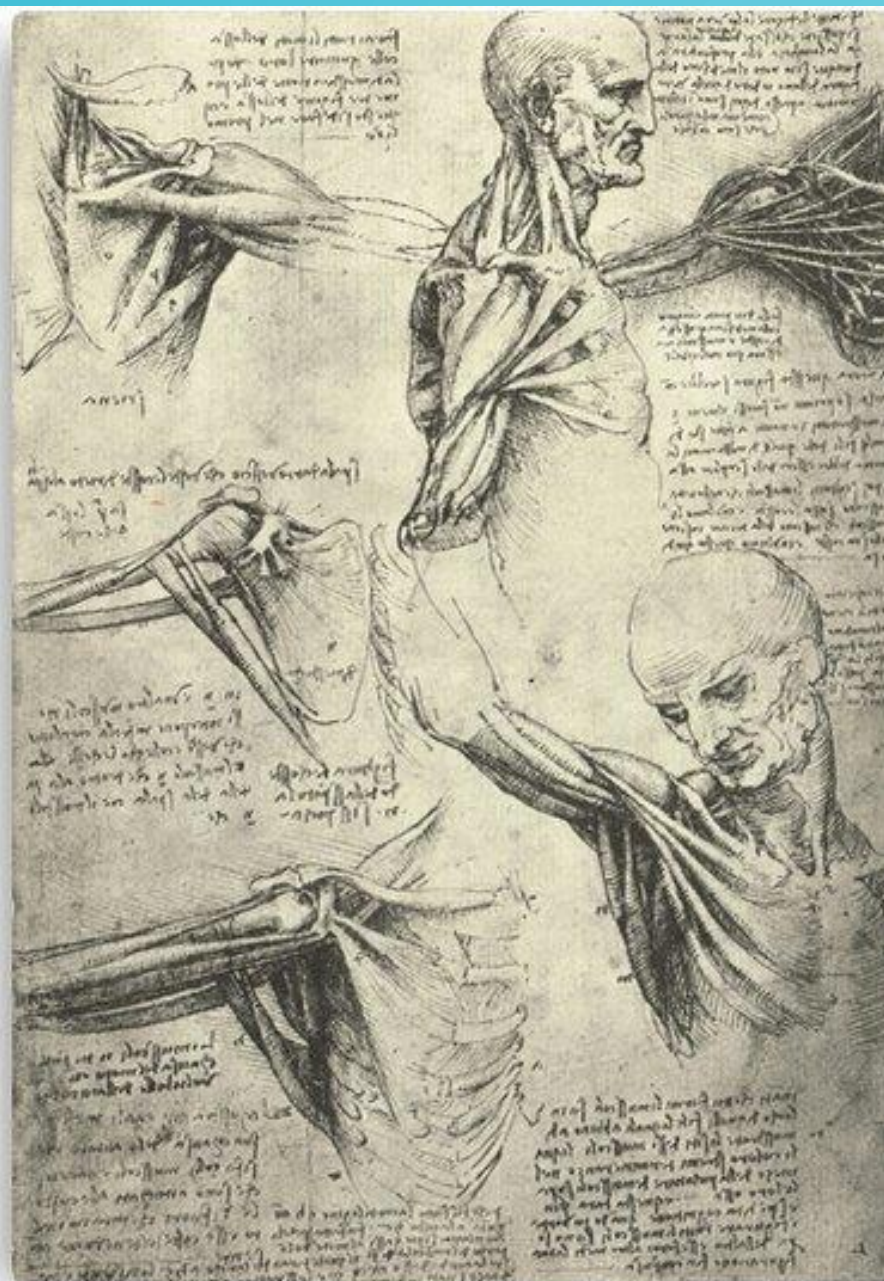




# FASCIA FIT – FASCIA: WHAT IT IS, WHAT IT DOES AND WHY WE NEED TO THINK ABOUT IT WHEN TRAINING

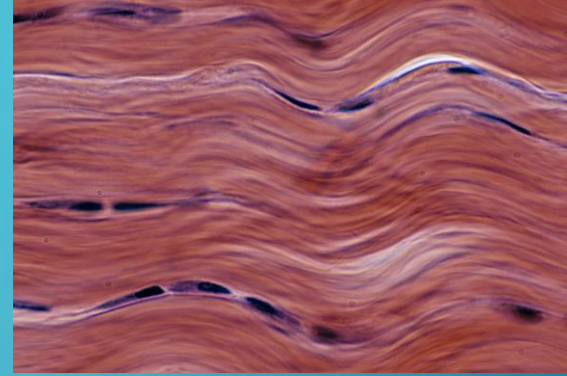
WITH RENE' BRACKNEY, NSCA CPT, NASM, AFAA AND PMA CERTIFIED,  
NEUROLYMPHATIC AND NEUROKINETIC THERAPY, FASCIAL STRETCH THERAPY  
SPECIALIST





Among the many drawings of the human anatomy, 500 years ago, [Leonardo DaVinci](#) astutely depicted fascia in one of his [pieces](#). This remarkable depiction comes ages before its actual discovery by modern medicine.

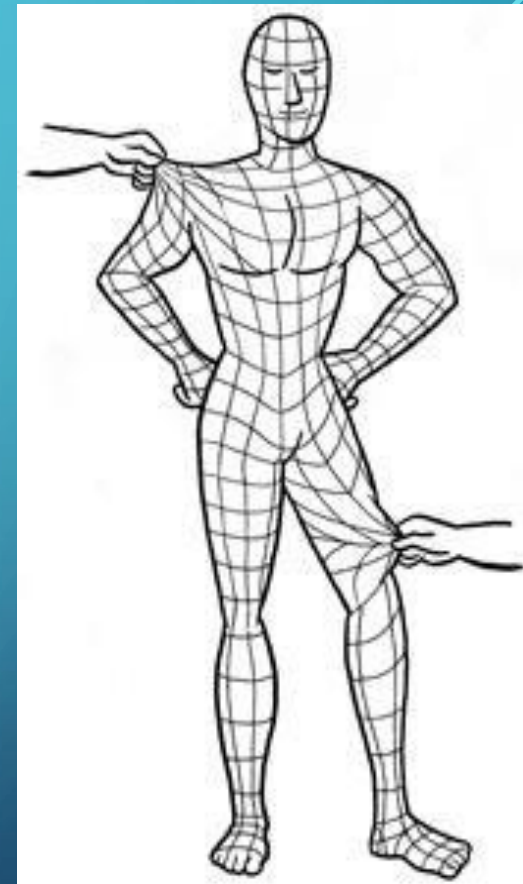
# FASCIA/CONNECTIVE TISSUE



- Most prevalent tissue in your body. It connects to and influences all systems of the body. Biologically, it is what holds us together!
- Fascia is three-dimensional – it runs not just around muscle groups but through them as well.
- Healthy Fascia Slips and Glides and allows all systems to function freely
- There are 10 times more sensory nerve endings in your fascia than in your muscles
- Emotions are effected by the health of your fascia.

# YOUR FASCIAL SYSTEM (CONTINUED)

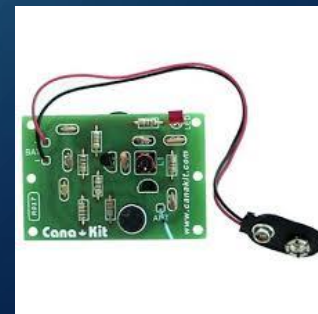
- Distress in one area can affect movement and create symptoms elsewhere.
- Fascia is incredibly strong. Myofascial restrictions that can produce tensile pressures of approximately 2,000 pounds per square inch on pain sensitive structures that do not show up in many of the standard tests (x-rays, myelograms, CAT scans, electromyography, etc.) A high percentage of people suffering with pain and/or lack of motion may be having fascial problems, but are not diagnosed.
- This explains why our shoulder begins to hurt after a sore ankle has been bothering us, or any one of a number of scenarios where stress from one area causes tension in another part of the body.



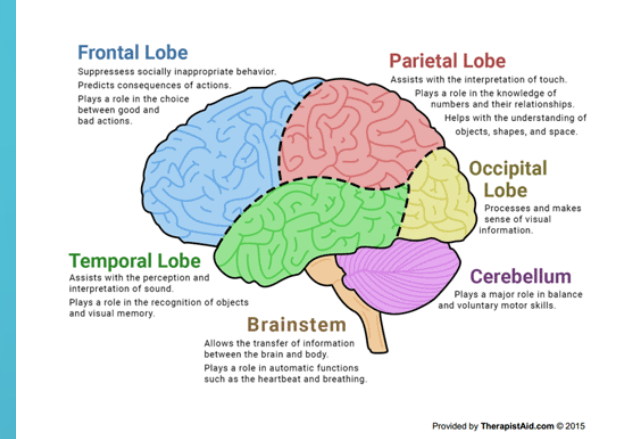
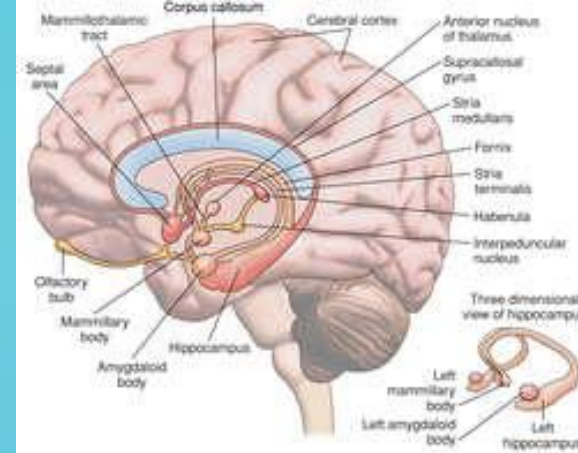
# TENSIGRITY AND MYOFASCIAL FORCE TRANSMISSION



- Body is always under normal amount of tension. Body balances and counterbalances in framework of skeleton which transfers compressive forces throughout your body into the ground and other items you touch. (Fascia is stretched over skeleton – body moves/stabilizes this gives us structural integrity and functionality)
- Fascia transmits forces from muscle to tendon to bone and from muscle to muscle.
- Inability to transmit force can negatively affect strength, stability, power, speed, agility.
- Proprioception, Interoception
- Timing and sequencing of motor patterning and control in daily functional activities.

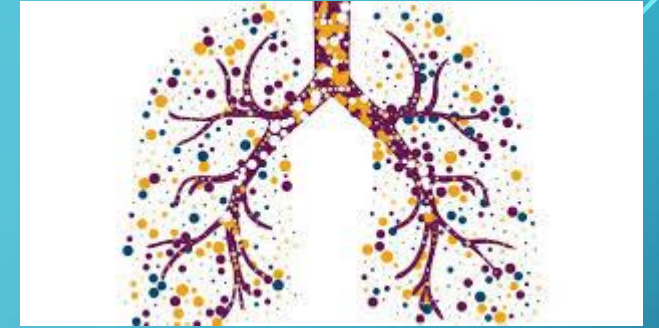


# LIMBIC SYSTEM

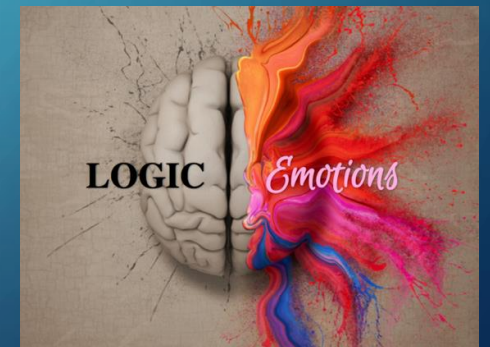


- Is a complex system of nerves and networks in the brain, involving several areas near the edge of the cerebral cortex (ANS) concerned with instinct and mood. It controls the basic emotions (fear, pleasure, anger) and drives (hunger, sex, dominance, care of offspring).
- The Limbic system can affect proper breathing and affect organ function. (*Words/Sounds/Visual Stimulation can affect emotions!*)
- These emotions cause blockages in our fascial network.
  - These blockages limit tissue glide which causes limited ROM and can cause pain
- New Research suggests a relationship between the health of the fascial network and gut and brain health.

# GROUP LIMBIC BREATHING TEST



- Normal breath. Exhale the breath. (note type of breath – no judgement)
- Repeat, but Count your inhale, Count your Exhale. (note the number – no judgement)
- Now the 3:1 Breath.
- Repeat your natural breath (Did you notice a difference?)



# FASCIAL/LIMBIC TESTS

## A) Fascial Emotion Test

1. Establish ROM/Walk
2. Think of 3 negative words/person or experiences
3. Retest ROM/Walk
4. Think of 3 Positive words/person or experiences
5. Retest ROM/Walk



B) This rotation test helps establish ROM. It also helps determine clients state, is it really in the muscle, or in the limbic system?

1. Stand with feet hip distance apart
2. Raise right arm to shoulder height, pointing right index finger
3. Slowly rotate arm, head, trunk and hips (not feet) keeping nose in line with index finger. Test spot.
4. Repeat 2 more times, once with eyes closed. Retest with eyes open.

# FASCIA AND FLEXIBILITY

Chris Fredrick- *“Flexibility is the ability to adapt to any stress and then completely recover in sufficient time to adapt to the same or any new stress as needed to complete an activity or deal with a threat to survival.”*

- More than ROM.
- Not 2-D
- Strength, Mobility, Coordination, Balance, Agility, Speed,
- Mental/Emotional (Focus, Concentration, desire, confidence – in zone)



# KINETIC CHAINS, SPIRALS, SLINGS, LINES AND NETS



These lay groundwork

**Intrinsic Breath:** Diaphragm, Pelvic Floor. \* Vegas Nerve. Lymphatic System. “You can’t own your movement until you own your breath.” –*Joseph Schwartz Movement Mantra*

**Longitudinal** - Shock absorption/reaction to ground force. The ability for kinetic energy to wave through the body joint by joint. If the wave is unable to move freely through the fascial system, energy has to be absorbed some other way. This results in compensation.

**Lateral** – Axial Stability by which to generate energy. W/out the stability of axis, the arms and legs will have to generate power or work production. (Not effective!)

(\*Article in Psychology Today

The polyvagal theory: phylogenetic substrates of a social nervous system

<https://www.sciencedirect.com/science/article/abs/pii/S0167876001001623>)

# FASCIAL SPIRALS

Strength/power/speed/endurance and agility.

**Posterior Spiral** – Generation of Stored Elastic Energy. As energy coils in the tissues, the potential release of the energy assists work production in the complementary movement.

**Anterior Spiral** – Translation of stored elastic energy. Elastic energy can be released in different ways across the structure. When you are watching graceful athletes moving in profound ways, you are seeing elastic energy being stored and released in an efficient way. (Makes movement seem effortless!)



# SELF MYOFASCIAL RELEASE

Fascia is incredible strong. It Can NOT be changed through rolling or smashing from the outside.

You CAN reduce pain, and have a **temporary** increase in ROM!

You CAN stimulate the NS.

Fascia needs to glide. SMR can help the tissue free up adhesions.

It CAN reduce the appearance of cellulite!

It is best to combine SMR with movement and integration for lasting results.

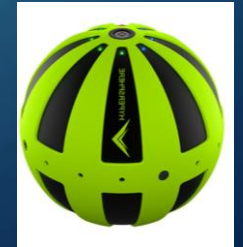
Science has seen that self myofascial release can have the following benefits.

## Proven Benefits

- Relaxation (Emotional and Physical)
- Improved joint range of motion
- Improved flexibility in the short term

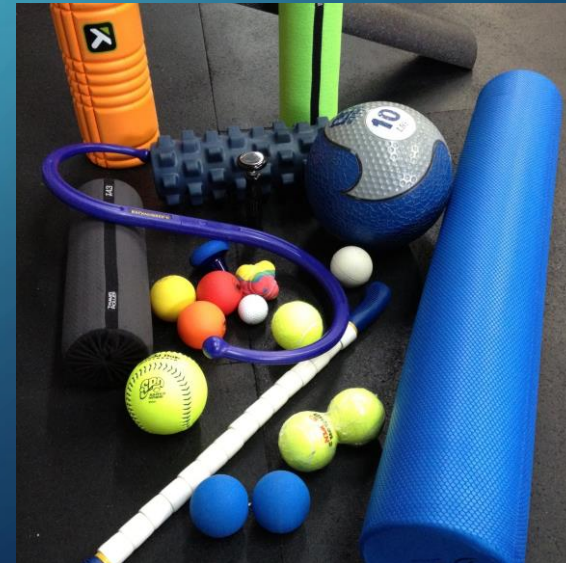
## Theoretical Benefits

- Detoxification
- Better athletic performance
- Reduced muscle soreness



# THE KEY TO LASTING RELEASE

- Make Movement Full Body. Incorporate the Fascial Nets/Lines/Chains.
- Fascia works best when tank is 1/2 empty, not all the way. So don't over do it. You shouldn't need to roll before/after every workout.
- Don't go big and hard. Begin all SMR with softer lighter touch. Ease into the pressure, being sure to listen to the tissue.
- Always test, release and retest. Follow all SMR with some form of locomotion!
  - Ideas: Keep it simple, Crawl, Single leg test, Simple rotation test
- Incorporate dynamic fascial stretches: Bear/Monkey/Frog
- Test both sides, and ONLY SMR on side that needs it. Then retest to be sure.
- Retest ROM after each SMR.
- Take into account that tight hamstrings, might actually be weak quads!



# GROUP ROLLER RELEASE

- Feet – all directions
- Glutes – start on bones
- Hamstrings – all angles
- Calves – all directions
- Psoas – prone – get ilium
- Quads – all angles
- IT Band – complete glide
- Shins/Ankles – don't forget
- Ribcage – stay off floating ribs
- Upper Back Shoulders – Roll and Rotation
- Spine/SI Joint/Psoas – supine add arm
- Neck – Dish Rag – mastoid/temporal/zygomatic



# RELEASE TISSUE WITH MOVEMENT



- Using whole body movements, release entire lines of fascia.
  - Wave like patterns, circumduction ex: kneeling psoas w/ physio ball and side stretch
  - Or kneeling hip flexor stretch with arm circles and rotation
- Begin with Closed Chain Movements to establish proprioceptive feedback while limiting deviation of movement. Self limiting and increase feedback which brings awareness to how the structure responds to environment.
  - Example: Spine Stretch Forward against a Wall, Warrior 3 with foot on wall
- Move to Open Chain Patterns
  - Once awareness/skill is established move to more of a centered lengthening
    - Pilates Spine Stretch Forward, Twist and Saw
- Combine open/closed chain patterns with use of props and sequencing

# GROUP FASCIA WARMUPS/STRETCHING

## STANDING

- Baseline Test: Proprioception – Single Leg Stance (*Eyes Open, Eyes Closed, Touching Body, Arms up*)
- Breath – Deep Belly, and 3:1 (*3 part Inhale : 1 part Exhale*)
- Eye Movement
- Drunken Sailor, Ankle/Knee/Hip/Rib Circles and Free Flow (Seaweed)
- Roller Step ups (can use hard or soft surfaces)
- Standing Footwork (Parallel, V, A and W)
- Calf Stretches with Anterior and Poster Forearm Stretches
- Hip Hinge/Squat/Split Squat
- Standing Short Box Stretches with Fascia Sprial
- Arm Swings with Hip Taps
- Arm Circles with Fascia Spiral
- Retest Baseline Single Leg Stance

# GROUP FASCIA STRETCHING/COOLDOWN FLOOR EXERCISES

- Foam Roll: Glutes, Hamstrings, Calves, Psoas, Quads, Shins, IT Band, Ribs (F/L), Upper Back. Neck Release, Front, Side and Back fascia
- Core 4 from STW
- Proper Flexion (DO NOT TUCK PELVIS! Shorten anterior fascia, to lengthen posterior) (can use eyes to release posterior fascia)
- Spine Stretch Forward/Rollover Combo w/ dura stretch
- Bridges (integrating abs and glutes)
- Mermaid (with progressions)
- Cat/Cow - Washer Woman/Swan Dive
- Shoulder/Arm Protraction and Rotation
- Hip and Low Back and Rib releases
- Side Waist Work with Pendulum Swings
- Fascia Release for Tight Hamstrings (Really Back Fascial Net and Functional Release)
- Internal/External Hip rolls
- Dynamic hip stretch

# HOW TO TRAIN FASCIA - ELASTIC RECOIL



- **Bouncing.** When you land on the ball of your foot, you decelerate and accelerate in such a way that you not only make use of but actually build elasticity into the tendons and entire fascial system. The best training effect seems to follow the pleasure principle: feel for that sense of elegance, an ideal resonance with minimum effort and maximum ease.
- **Preparatory Countermovement.** Preparing for a movement by making a countermovement—for example, flexing down before extending up to standing, winding up before a pitch, or moving the kettlebell toward the body before moving it away—makes maximum use of the power of fascial elasticity to help make and smooth out the movement.
- **Jerky Movements and Abrupt Changes of Direction are counter productive.** Imagine jumping rope but landing only on your heels. The stress on all your systems would be enormous, and you would not build elasticity into the fascial system.
- **Big Muscle Demand for Push-Off.** Using the fascial elastic recoil lessens the demand for huge muscle effort during push-off, making movement more controllable, less arduous and less fuel-consumptive.

# HOW TO TRAIN FASCIA FOR STRENGTH



- **Whole-Body Movements.** Engaging long myofascial chains and whole-body movements is the better way to train the fascial system. Start closed chain to open chain
- **Proximal Initiation.** It's best to start movements with a dynamic pre-stretch (distal extension) but accompany this with a proximal initiation in the desired direction, letting the more distal parts of the body follow in sequence, like an elastic pendulum.
- **Adaptive Movement.** Complex movement requiring adaptation (like parkour, primal movement).
- **Less Reps.** Machines (or minds) that require clients to work in the same line again and again do not build fascial resilience very well.
- **Variable Loads.** Variable loads build different aspects of the fascia. Sticking with near-limit loads will strengthen some ligaments but weaken others. Varying the load is the better way.
- **Variable Tempo.** Likewise, varying the tempo of your training allows different fascial structures to build strength and elasticity.
- Remember 1/2 Full or 1/2 Empty when training a client w/ neuro issues

# GROUP: INTRINSIC BREATH



***“You can’t own your movement until you own your breath”***

- Breath is the foundation for movement and locomotion. It is the barometer for parasympathetic/sympathetic nervous system regulation. Cerebrospinal fluid is circulated through the brain and the central and peripheral nervous systems.
- Limbic System: a complex system of nerves and networks in the brain, involving several areas near the edge of the cortex concerned with instinct and mood. It controls the basic emotions (fear, pleasure, anger) and drives (hunger, sex, dominance, care of offspring).  
To release this: 3:1 Inhale for 3 parts, lower belly, thorax and head. Exhale slow and completely. 3-5x throughout day. And 4 reps before bedtime.

## Other Exercises:

- Cat/Cow (Inhale Extension and external limbs, Exhale and internal limbs) (*Great Neuro Reset!*)
- 3:D Breath (top/bottom, front/back and side/side) (*seated, standing on back, on ball*)
- Meditation, other breath techniques (box breathing, Yoga Nidra, sensory deprivation (float) etc.)

# DEEP LONGITUDINAL



Shock absorption. The ability for kinetic energy to wave through body joint by joint. Without proper use of this system compensation patterns develop.

Dominant in control of ground reaction forces during gait.

Mechanism of propulsion during lower intensity walking and proprioceptive mechanism giving feedback about ground reaction forces during gait. Help to stabilize SIJ to transmit energy through pelvis to rest of body.

Exercises for DL System:

- Single Leg Dead Lift with dumbbells, Squat with Lateral Reach
- Warrior III, Tree
- Compass Lunges
- Pilates Wunda Chair Single Leg Work, Leaning into the wind with arm springs
- Rock Wall Climbing
- Start with closed chain, move to open chain movements (only if healthy NS)



# LATERAL SYSTEM:



Axial Stability – without, appendicular will do all the work Often used to create stability in the pelvis during walking, stepping, etc.

Weakness in the sling linked to pain in the hip, poor knee tracking, possibly issues with ankle sprains and increased ACL incidences

Exercises: Glute medius, minimus and adductors on same side and with Quadratus lumborum on opposite side

- Lateral band work, box steps with one arm reach, Squat to lateral reach (medicine ball)
- Kettle bell squat with one arm overhead press
- Skaters and side splits (Reformer or Core Align), bird dog, plank one arm row



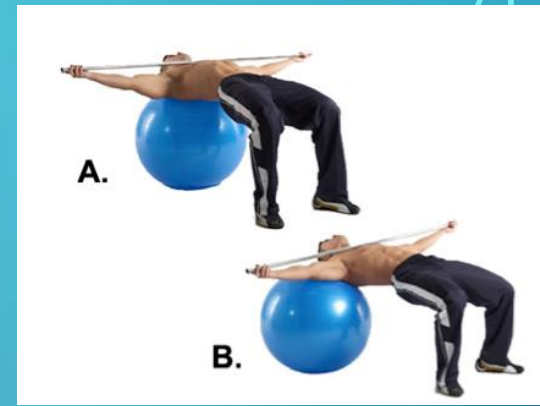
# POSTERIOR SPIRAL

Generation of Stored Elastic Energy – “Spring like effect”

Assists in anti rotation of the pelvis during gait

Exercises: Latissimus dorsi and opposite side Gluteus maximus/Biceps femoris.

- Lateral Ball roll,
- Single Arm/single leg row (open and closed chain)
- Pilates: Russian Splits, Balance Control (F/B), Sit and Twist,
- Yoga Warrior III, Reverse Lunges with lateral reach,
- 1 arm kettlebell swing with clean etc.

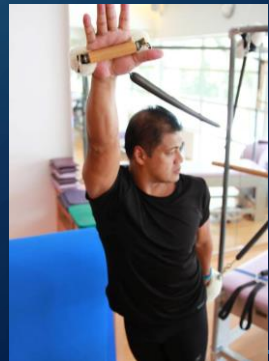


# ANTERIOR SPIRAL

Translation of stored elastic energy. This makes movement look effortless!. Provides stability during the stance phase of gait, also contributes to the pulling through of the leg during gait. Important in creating stability for acceleration, deceleration and change of direction

Exercises: External oblique with the opposing leg's adductors and internal oblique.

- Kneeling Woodchop -
- Single arm cable push (90% weight split to leading leg)
- Pilates stomach massage w twist and butterfly,
- Single Leg Lunge with springs or bands



# ELASTIC RECOIL

- These Exercises release its stored energy in the fascia. Creating a catapult effect--**elastic recoil**--that adds to the force generated by your muscles. (Look at plantar/dorsi flexion)
  - Stomps
  - Marching (Standing/Seated)
  - Pogo jumps
  - Bounces/rebounding/jumpboard
  - Skipping
  - Vibration



# EXERCISES TO WORK ALL CHAINS/SLINGS/NETS

Best exercises are ones that involve multi joint actions and multiple steps. These exercises are to be performed slower to recruit the power system. Followed by propulsion moves:

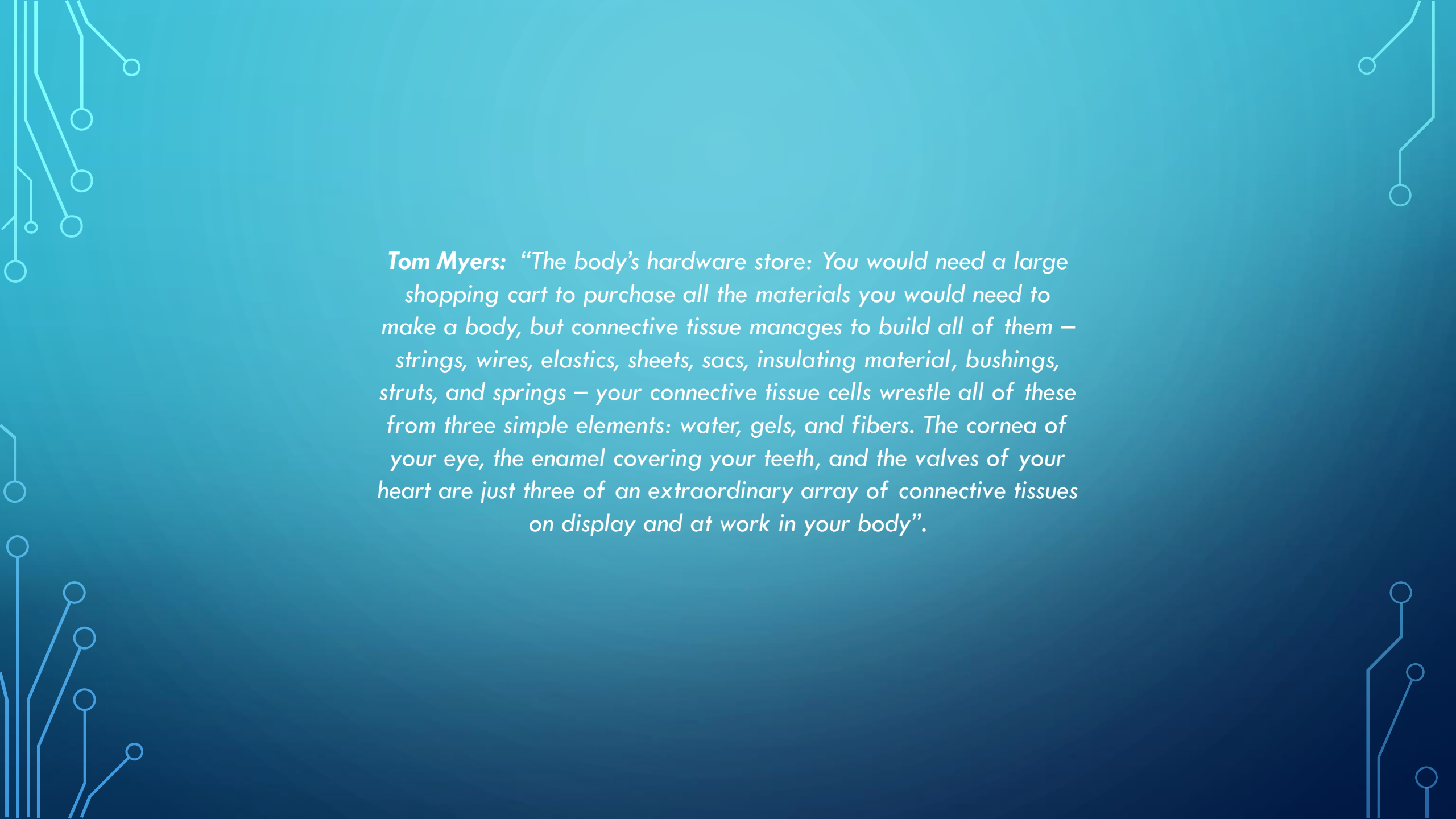
Best exercises are ones that involve multi joint actions and multiple steps. These exercises are to be performed slower to recruit the power system. Followed by propulsion moves. Here are some examples:

- 3 Turkish getup (light weight – slow) followed by Kettle 10 Bell Swings repeat other side
- Side Plank to Plank to Crescent (slow) Followed by Mountain climbers
- (TRX) Squat to Row to Fly (slow and controlled) followed by Split Squat Jumps
- (TRX) Pistol Squat to one leg row to single leg/arm dead lift followed by suicides
- Side Lunge with Reach
- Stir the pot with stability ball
- Reverse lunge and press
- Kettlebell squat with snatch
- Single Leg Dumbbell Row



# FINAL THOUGHTS

- Things you can do to improve your fascial health:
  - Drink plenty of water
  - Get plenty of sleep
  - Postitive thinking
  - Hang out with happy people
  - Smile in the mirror
  - Play
  - Walk every day
  - Be careful not to over train!

The background is a solid blue gradient. In the four corners, there are white, stylized circuit-like lines. These lines consist of straight segments connected by small circles, resembling a network or a map. The lines are more dense in the bottom-left and top-left corners and more sparse in the top-right and bottom-right corners.

**Tom Myers:** *“The body’s hardware store: You would need a large shopping cart to purchase all the materials you would need to make a body, but connective tissue manages to build all of them – strings, wires, elastics, sheets, sacs, insulating material, bushings, struts, and springs – your connective tissue cells wrestle all of these from three simple elements: water, gels, and fibers. The cornea of your eye, the enamel covering your teeth, and the valves of your heart are just three of an extraordinary array of connective tissues on display and at work in your body”.*