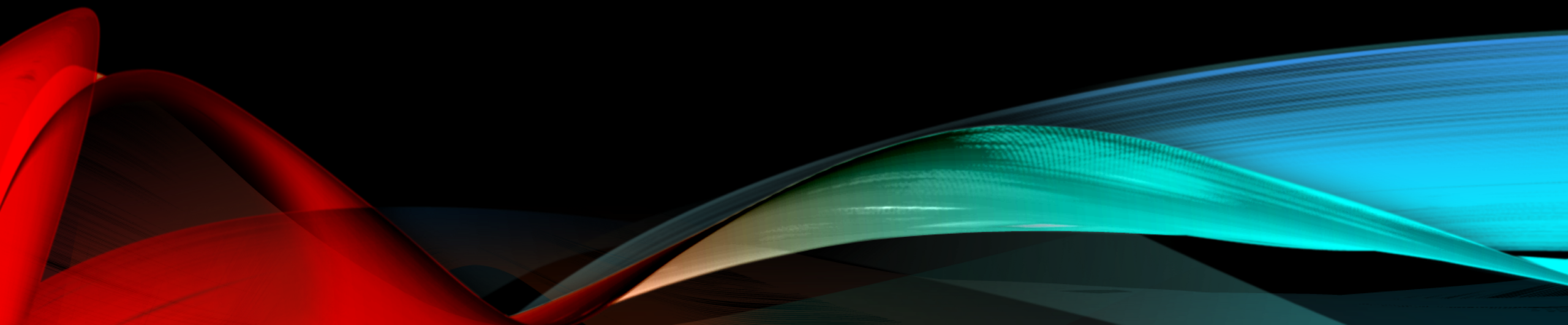
CASE BASED LEARNING FROM AN DISTINCTIVE OSTEOPATHIC PERSPECTIVE

Darrin D'Agostino, D.O., MPH, MBA
Executive Dean, KCU-COM
Laura Rosch, D.O.
Campus Dean , KCU- COM Joplin
Kevin D. Treffer, D.O., FACOFP
Chair, Dept. of OMM KCU-COM

DISCLOSURE OF FINANCIAL RELATIONSHIPS

Drs. Treffer, D'Agostino and Rosch have no conflicts of interest with the information presented herein



WORKSHOP OBJECTIVES

- The attendee will be able to:
  - Describe the 5 Models of Osteopathic Care and apply them to a case with OA and Asthma.
  - Describe the neurophysiological basis of the Facilitated Positional Release Techniques
  - Integrate FPR techniques into the management of an Osteoarthritis case
  - Demonstrate and explain the FPR techniques for the lumbar spine and pelvis
  - Describe exercises useful for OA patients
  - Demonstrate and describe Still's Techniques, Muscle Energy, and Direct inhibition as applied to the patient with asthma.
  - Describe nutritional ways to advise patients on how to decrease inflammation by choosing appropriate foods and diets.

WORKSHOP AGENDA

- Welcome
- Osteoarthritis Case Presentation
- Facilitated Positional Release Techniques
- Exercise Recommendations
- Asthma Case Presentation
- Nutritional awareness for inflammatory foods and diets
- Still's techniques, Muscle Energy, Soft tissue/Direct Inhibition Techniques

CASE #1: OSTEOARTHRITIS

CASE PRESENTATION

- 57 year old male, self-employed contractor heating and air conditioning long history of knee pain with DJD in both knees. Competed in college as Big 10 Gymnastic champion for rings and pommel horse. Presents for knee pain causing chronic interference with ADL at times for many years, does not want knee replacement surgery and will occasionally use NSAID for pain. Would like to continue to work at his business until 62. Married. 3 Children-all grown and out of the home. Lives with wife and 2 dogs. Works 10-12 hours a day, takes call for emergencies. Orthopedic evaluation indicated that it would be OK to wait for knee replacement. X-rays note B/L OA; right knee with tri-compartmental OA more significant than the left

CASE PRESENTATION

- PMH HTN on ARB controlled no end organ damage
- PSH College R knee meniscal tear – removal 1980
- FHx Renal Cancer –father Mother- HTN
- Med ARB, MVI, Fish oil
- NKDA

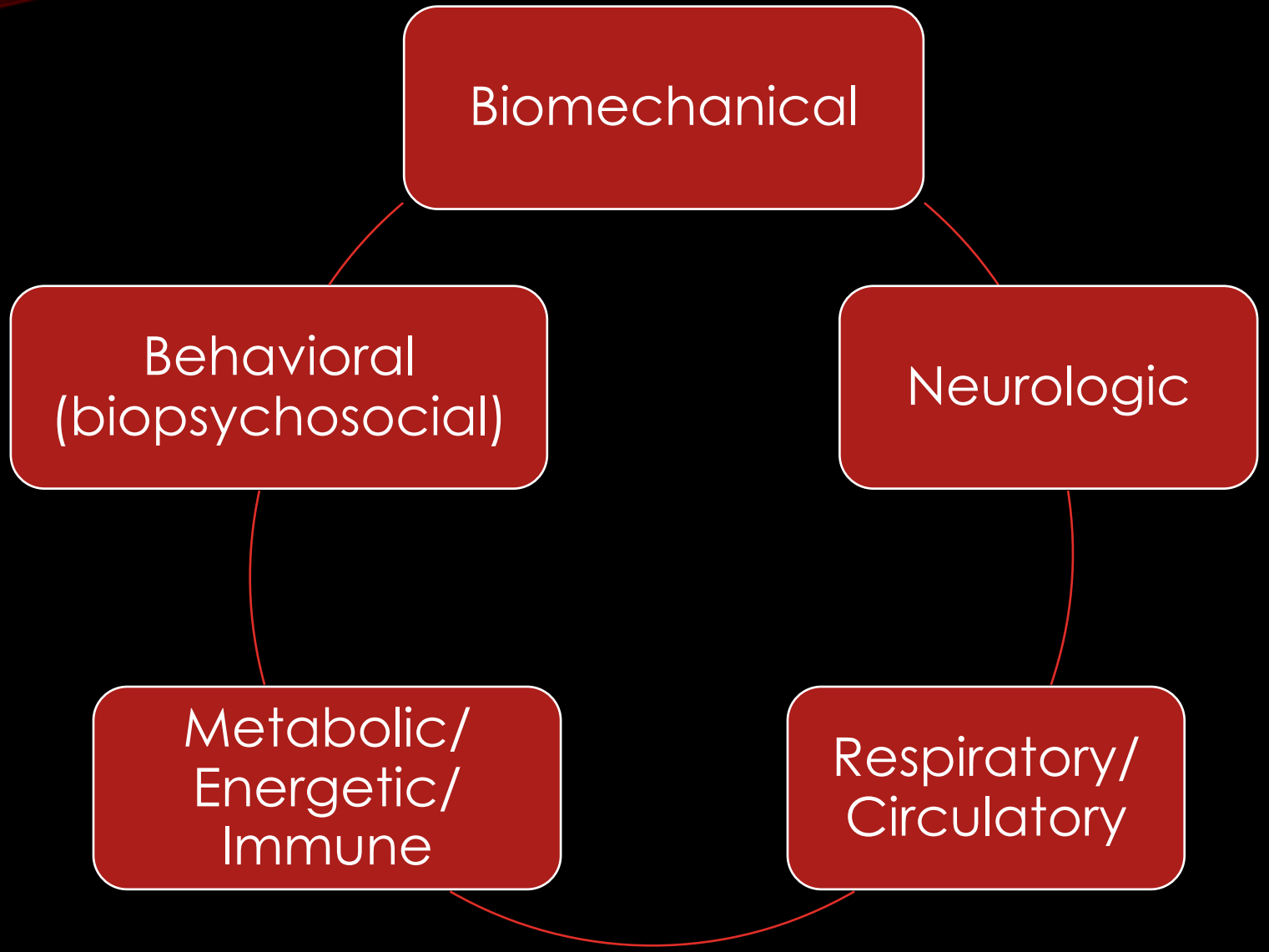
CASE PRESENTATION

- Social as noted above. Sleeps 6-7 hours a night, Diet oatmeal or cereal for breakfast (wife makes), on the road for calls will eat fast food lunch, his wife will prepare dinner at home most days chicken with rice, vegetables and salad, occasional beer 3-4 days per week.
- Exercise is intermittent but less so due to pain and he less active. Plays golf (walks 18 holes) 3-4 times a week in good weather. Walks on a treadmill less as it causes flare of knee pain.

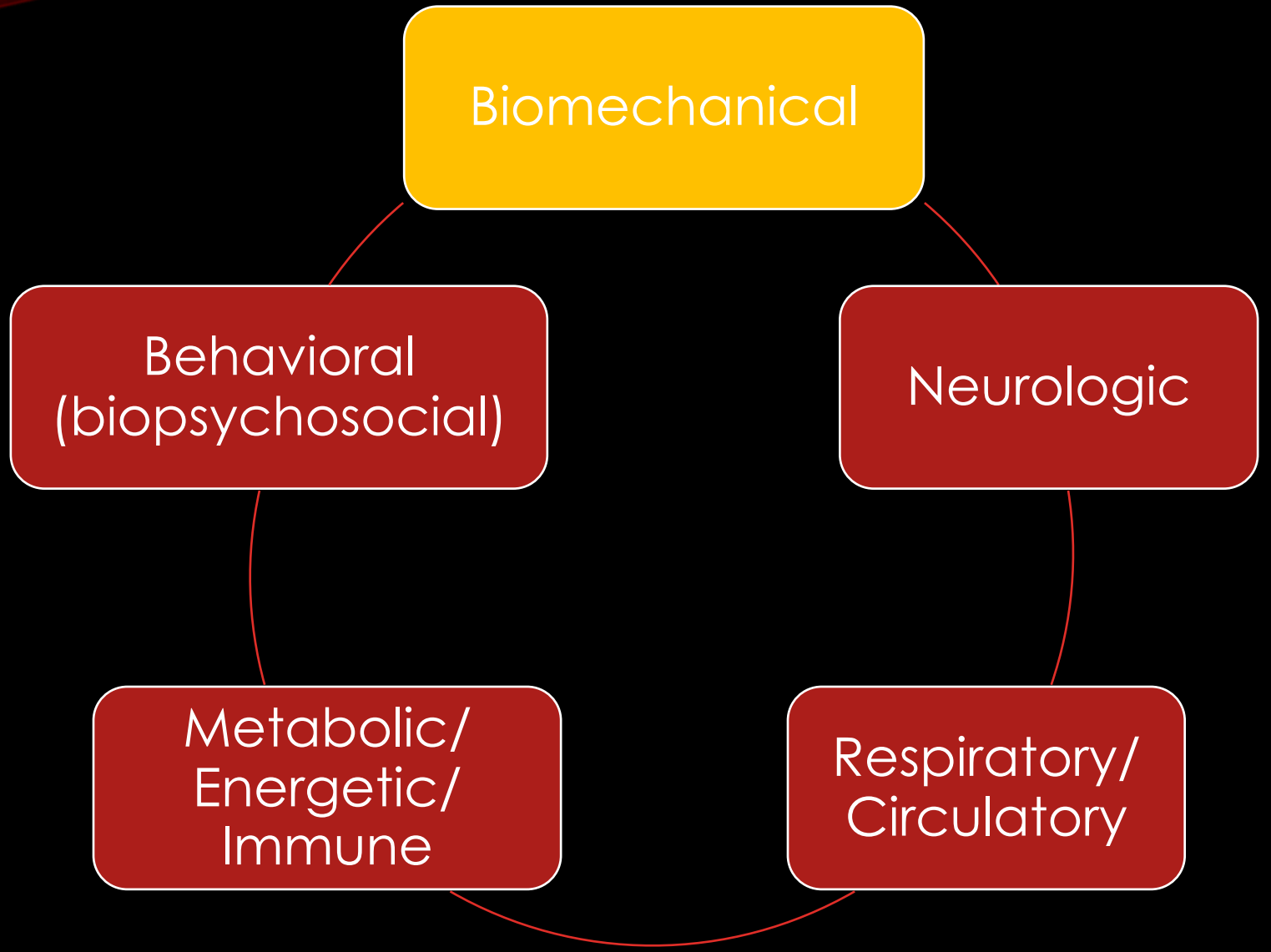
CASE PRESENTATION

- PE
  - Alert conversant comfortable
  - BMI 28
  - 120/80, 70, 12
  - Skin ENT, CV, Pulm all with normal findings
  - Gait is Antalgic
  - MS
    - diffuse increase tone thoracic, lumbar and in hips. Scar right knee right knee decreased ROM other joints normal, no deformity, synovitis.
    - Integrated structural exam reveals:
      - + Thomas Test on the right, T 1-3 RLSR, T 4-12 RRSL, L 1 F RRSR L2-5 RLSR, R anterior innominate rotation, L on R sacral torsion, L hip ER, R post fibular head
  - Neuro Negative SLR Strength 5/5 upper and Lower Extremities, reflexes +2/4 upper and lower extremities

FIVE OSTEOPATHIC MODELS



FIVE OSTEOPATHIC MODELS



FACILITATED POSITIONAL RELEASE

- Technique developed by Stanley Schiowitz, D.O., FAAO.
- Born from a need for fast, effective treatment to relieve patients' somatic symptoms based upon sound osteopathic principles of joint mechanics
- Probably a blend of techniques, including the previously elusive techniques of Andrew Taylor Still, M.D., D.O.

FACILITATED POSITIONAL RELEASE: BASIC COMPONENTS

- Flatten the anteroposterior spinal curve of the area to be treated.
- Add a facilitating compressive or torqueing force.
- Place the area to be treated in all three planes of ease (Flexion/Extension, Sidebending and Rotation) “Put it where it wants to live.”
- Maintain the position for 3 – 5 seconds.
- Re-evaluate for resolution of somatic dysfunction.

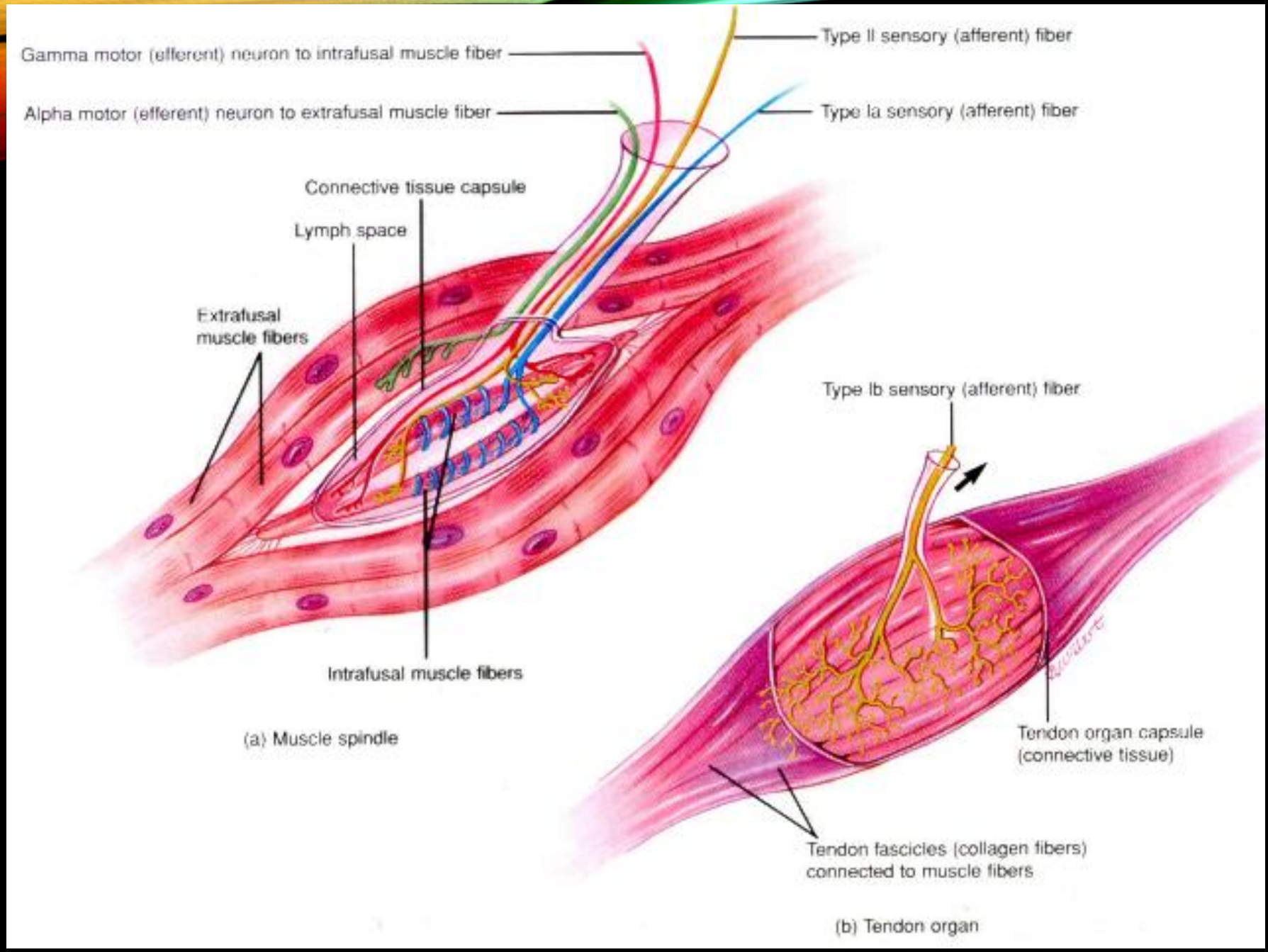
FACILITATED POSITIONAL RELEASE: HOW DOES IT WORK?

FACILITATED POSITIONAL RELEASE: HOW DOES IT WORK?

- By flattening the A-P spinal curvatures, joints are placed in a neutral position.
- Allows less force to effect the treatment.
- This allows the inherent forces of the body to be maximized.

FACILITATED POSITIONAL RELEASE: HOW DOES IT WORK?

- By placing the tissue into the position of the somatic dysfunction ("where it wants to live) the contracted muscle(s) are shortened.
- This decreases the output from the intrafusal fibers (muscle spindle complex).
- This is postulated to decrease the gain of the muscle spindle-gamma loop to the extrafusal fibers, thus allowing the muscle fibers to lengthen and relax.


Gamma motor (efferent) neuron to intrafusal muscle fiber
Alpha motor (efferent) neuron to extrafusal muscle fiber
Type II sensory (afferent) fiber
Type Ia sensory (afferent) fiber
Connective tissue capsule
Lymph space
Extrafusal muscle fibers
Intrafusal muscle fibers
(a) Muscle spindle
Type Ib sensory (afferent) fiber
Tendon organ capsule (connective tissue)
Tendon fascicles (collagen fibers) connected to muscle fibers
(b) Tendon organ

FPR SACRAL EVALUATION

1. **Neutralize Sagittal Curve:** Place pillow under patient's lower abdomen to straighten lumbar lordosis curve
2. **Hand Positioning:** Thenar eminences on ILAs
   - *Students are recommended to keep their fingers straight*
3. **Testing Force:** Physician directs cephalad force with both hands *(either simultaneously or one-at-a-time)*
   - ***Positive Test:*** *diminished cephalad motion*

PRONE FPR SACRAL SD
DX: EASE OF LEFT SACRAL SIDE BENDING MOTION ON THE ILIUM

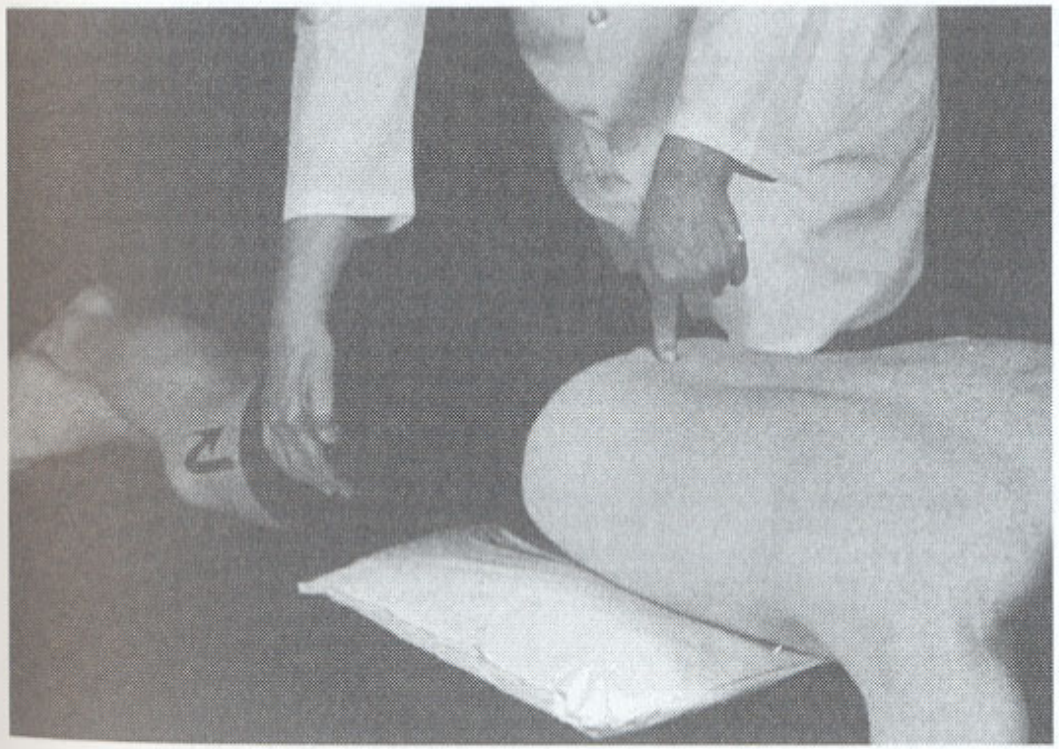
1. **Neutralize Sagittal Curve:** Place pillow under patient's lower abdomen to straighten lumbar lordosis curve & place 2nd pillow as a fulcrum beneath mid-thigh; Monitor ILA with contralateral thenar eminence
2. **Indirect Positioning:** Using ipsilateral hand placed on calf, flex right leg off table with knee extended until ILA moves posteriorly; slight abduction at the hip and IR/ER to fine-tune towards point of maximal ease. *(It looks like the leg is being pulled up in the picture. It is only being stabilized to localize motion. Principle movement is still flexion of the hip.)*
3. **Activating Force:** Add cephalad motion at the thenar eminence *(release is almost immediate)*
4. **Hold for 3-5 seconds**
5. *Return to neutral & retest TART*

PRONE FPR: PIRIFORMIS
DX: RIGHT PIRIFORMIS TP/HYPERTONICITY

1. **Neutralize Sagittal Curve:** Place pillow under patient's lower abdomen to straighten lumbar lordosis curve; Monitor TP
2. **Indirect Positioning:** Flex right leg off table and adduct at the hip
3. **Activating Force:** Add axial compression through palm at knee to further shorten muscle
4. **Hold for 3-5 seconds**
5. *Return to neutral & retest TART*

Piriformis is often involved is sacral torsion SD, creating an axis of rotation.

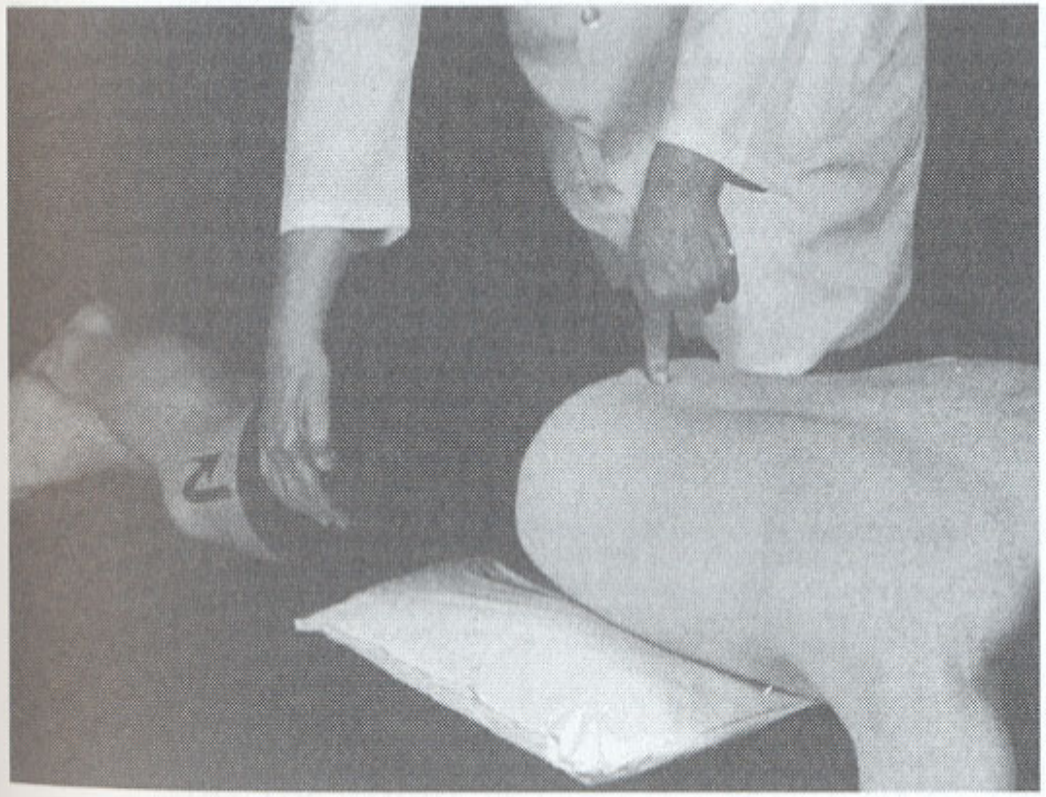
LUMBAR TISSUE TEXTURE HYPERTONICITY: PATIENT PRONE



■ **FIG. 51-1** Facilitated positional release treatment for the left low back, superficial muscle hypertonicity.

- Patient prone with pillow under abdomen (flatten A-P curve)
- Stand on the side of the somatic dysfunction.
- Monitor with light fingertip pressure.
- Caudal hand reaches the contralateral knee and pulls legs toward you. (induce sidebending)
- Place contralateral ankle over ipsilateral ankle.

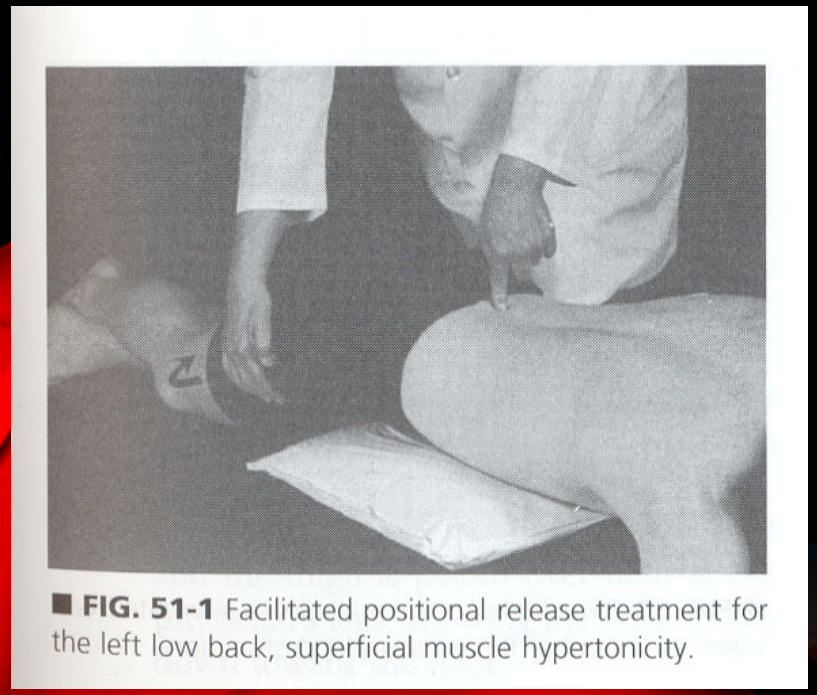
LUMBAR TISSUE TEXTURE HYPERTONICITY: PATIENT PRONE



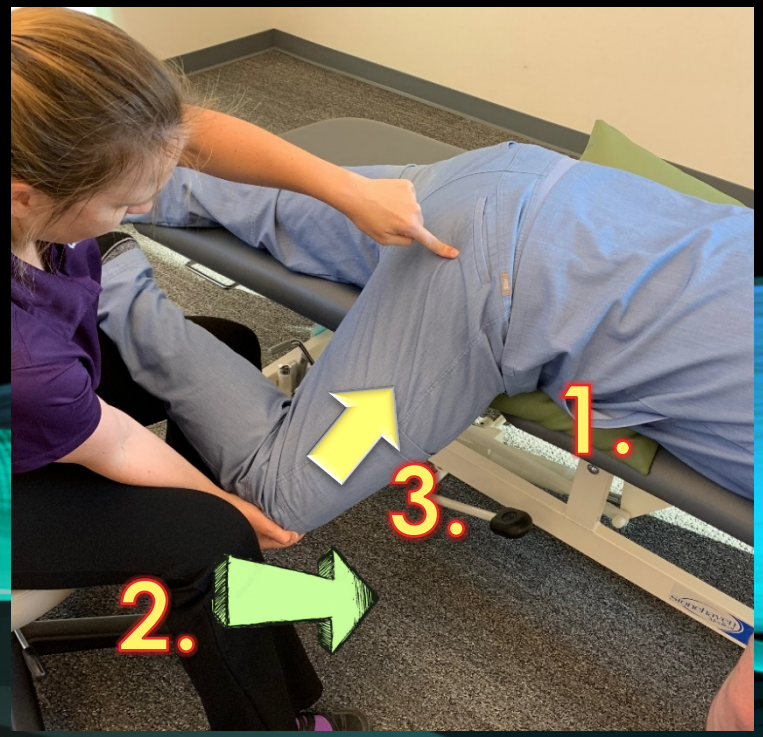
■ **FIG. 51-1** Facilitated positional release treatment for the left low back, superficial muscle hypertonicity.

- Caudal hand grasps contralateral thigh and lifts and externally rotates the thigh.
- Stand up and extend the lumbar spine.
- This rotates the area below the somatic dysfunction to the opposite side, causing relative rotation into the side of comfort.
- Hold this position for 3 – 5 seconds and re-evaluate

PRACTICE



■ **FIG. 51-1** Facilitated positional release treatment for the left low back, superficial muscle hypertonicity.



LUMBAR EXTENSION SD

Facilitated Positional Release treatment procedure

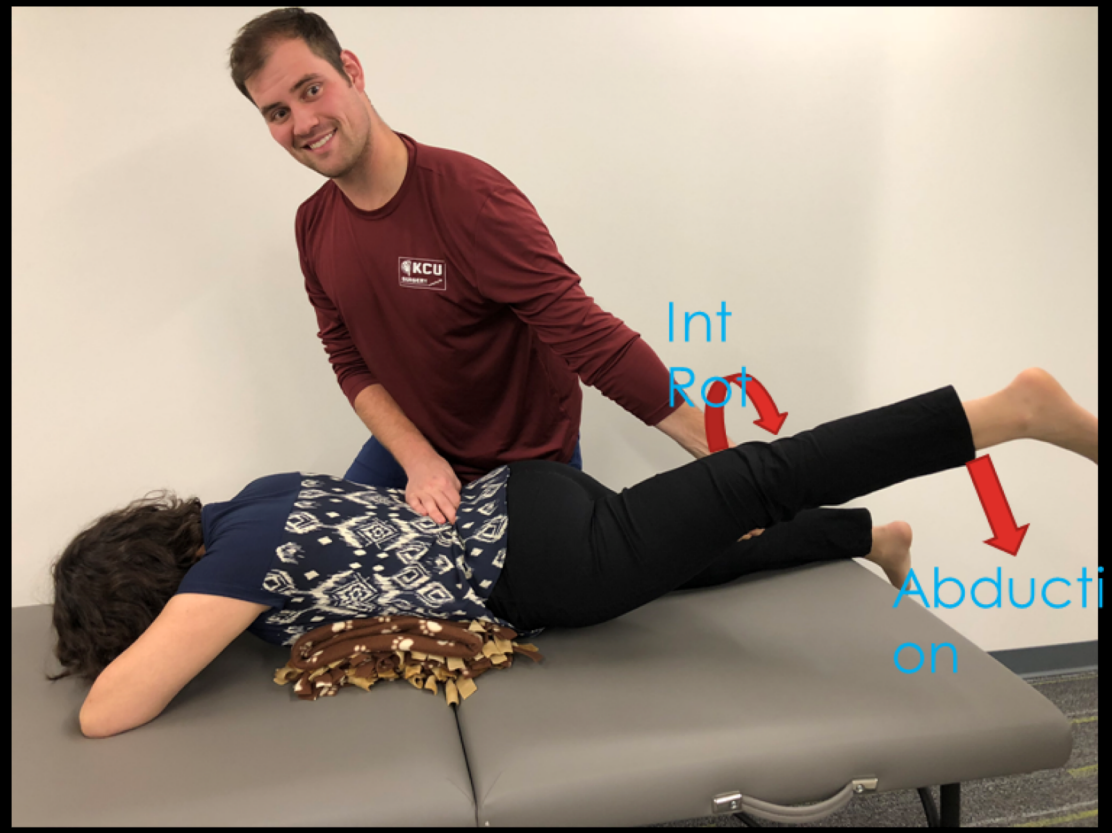
FPR: LUMBAR EXTENDED TYPE II S.D., PRONE
DX: L4 ESLRL

1. **Neutralize Sagittal Curve:** Monitor TP of segment and place pillow under patient's lower abdomen to straighten lumbar lordosis curve
2. **Activating Force:** induce internal rotation
3. **Indirect Positioning:** Abduct left leg then extend patients LE at hip
4. **Hold for 3-5 seconds**
5. Return to Neutral
6. Reassess 2-4 TART findings

Physician stands on opposite side of PTP)

DiGiovanna. "Chapter 51: Facilitated Positional Release." An Osteopathic Approach to Diagnosis and Treatment, Copyright © Wolters Kluwer 2016. LWW Health Library – Date of

PRACTICE



Physician stands on opposite side of PTP)

LUMBAR FLEXION SD

Facilitated Positional Release treatment procedure

Prone FPR: Lumbar Flexed Type II S.D.

DX: L4 FSLRL TX: L4 FSLRL

1. **Neutralize Sagittal Curve:** Monitor TP of segment and place pillow under patient's lower abdomen to straighten lumbar lordosis curve
2. **Indirect Positioning:** Flex left leg off table then adduct and internal rotation the LE
3. **Activating Force:** Add axial compression by pushing the knee towards the finger.
4. **Hold for 3-5 seconds**
5. Return to Neutral
6. Reassess 2-4 TART findings

DiGiovanna. "Chapter 51: Facilitated Positional Release." An Osteopathic Approach to Diagnosis and Treatment – Date of download: 11/29/2016

PRACTICE

KNEE OA EXERCISES

- Stretch
  - Quadriceps standing, mat
  - Hamstring
  - IT band
  - Medial thigh

Strengthen

Quadriceps – squat, lunge

Hamstring - supine

Medial and lateral thigh

SUMMARY

- FPR IS AN INDIRECT TECHNIQUE
- EASY TO LEARN
- QUICK AND EFFICIENT
- GOOD THERAPEUTIC OPTION FOR THE PERSON WITH OSTEOARTHRITIS.
- MINIMAL EXERTION ON THE PART OF THE PHYSICIAN.

OMT INTEGRATION FOR ASTHMA

A review of a clinical trial & clinical OMT approach

CASE PRESENTATION

- A 45 year old woman, with a history of mild persistent asthma, presents with increased non-productive cough and wheezing after cleaning out a home of a deceased relative, 1 week ago. She has some shortness of breath but she is able to speak a few sentences before stopping for a breath. She does feel she is wheezing. She denies fever, chills, chest pain, nausea, vomiting, or diarrhea. She has noticed some nasal congestion and is blowing clear to yellowish mucus. She has been using her rescue inhaler every 2-3 hours without improvement. She has some mid-thoracic pain bilaterally and low back pain as well since helping in the relatives home. She was doing a lot of lifting and the home environment was very dusty. She is in need of refills for both of her inhalers.

CASE PRESENTATION

- PMH
  - Asthma Mild persistent, Seasonal Allergies (spring months)
- PSH
  - Appendectomy age 22
- Family History
  - Father – HTN , COPD, CAD
  - Mother – Osteoporosis, HTN
- Medications
  - Albuterol 2 puff QID prn, Flovent 2 puffs BID, Singular 10 mg 1 Q Day
- NKDA, allergic to grass, tree pollen

CASE PRESENTATION

- Social
  - Accountant
  - Married with 3 children all in good health
  - Non-smoker, exposed to second hand smoke with father a heavy smoker
  - Rare ETOH , 1-2 glasses of wine a week. Prefers whites
  - Exercises by walking 2 miles 3 times a week
  - Diet mostly meat and potatoes with fair numbers of green leafy vegetables (salads)

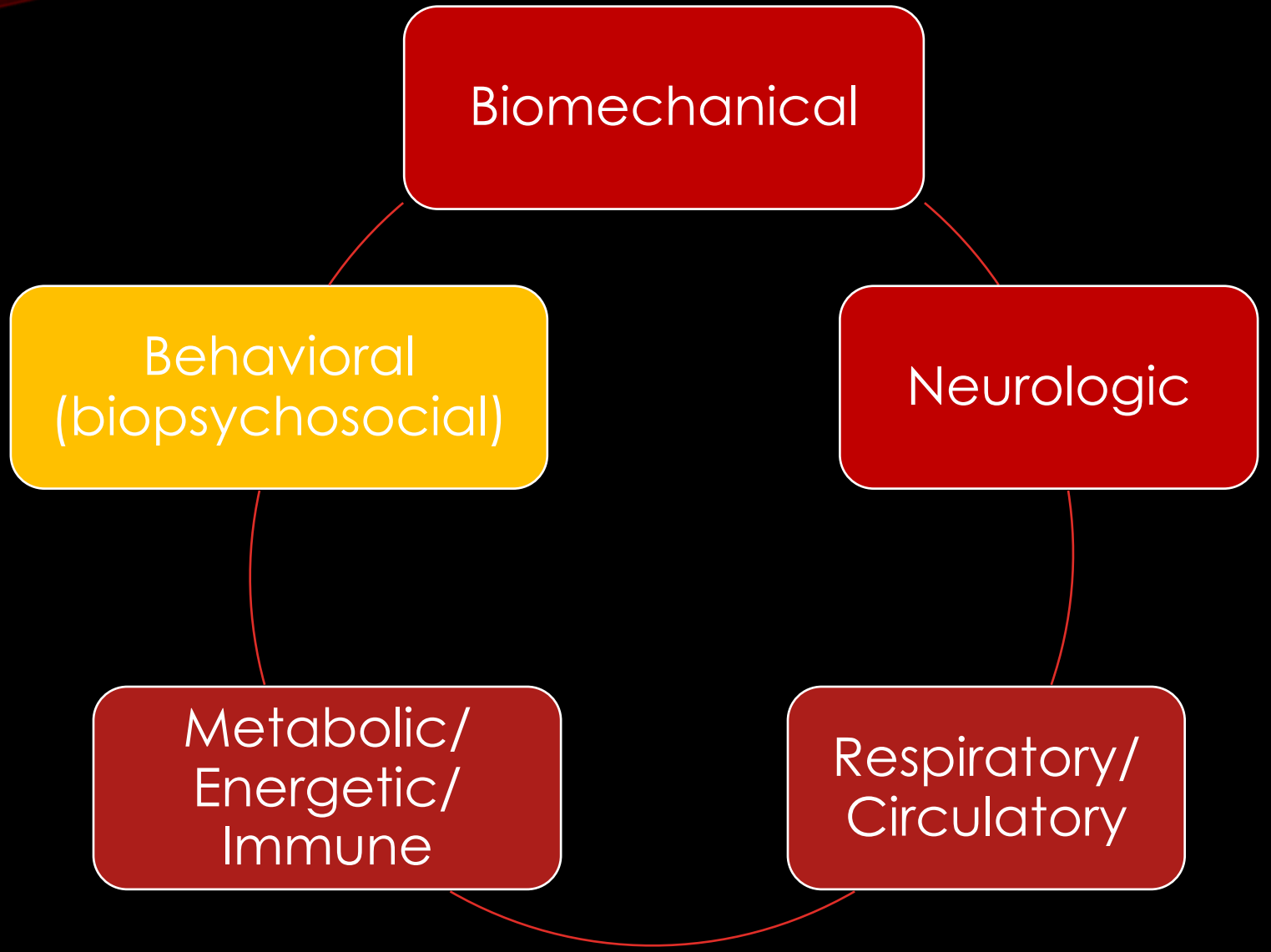
CASE PRESENTATION

- PE
  - Anxious but not panicked
  - P 100, R 20, BP 145/90, BMI 30
  - ENT
    - Nasal membranes erythematous and edematous
    - Clear PND with cobble stoning effect to posterior pharynx, TM's intact with good cone of light
    - Tender to palpation over maxillary sinuses bilaterally
    - Mild anterior cervical chain lymphadenopathy
  - CV
    - HR increased Regular no murmurs
  - Lungs
    - Expiratory wheeze (high pitched) all lung fields
    - No crackles

CASE PRESENTATION

- PE continued
  - Abdomen soft, non-distended good bowel sounds all quadrants
  - MS
    - No utilization of muscle of secondary respiration
    - Integrated structural exam
      - OA F RRSL, C3-6 F RRSR
      - Chapman's point at left Sternal border 3rd and 4th intercostal space
      - Tightness in scalene muscles bilat R>L
      - T1-6 RRSL
      - Ribs 7-10 bilat Exhalation
      - Bilat Quadratus lumborum spasm

FIVE OSTEOPATHIC MODELS

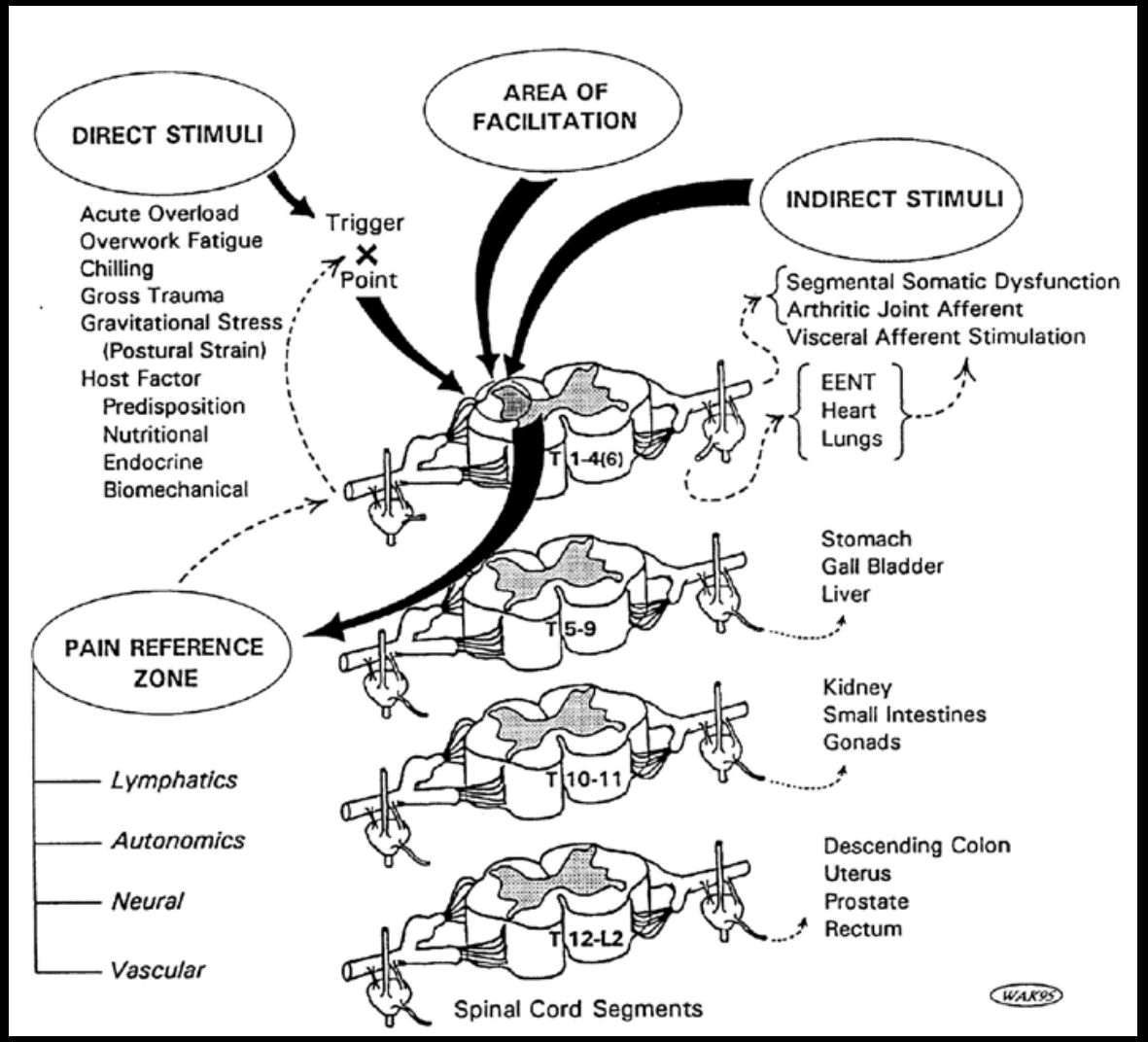


DIET AND INFLAMMATION

- Western Diet – pro-inflammatory environment
- Dietary intake has been shown to modify systemic inflammation
- Fruits and Vegetables: Beneficial
- Fish Oil: Inconclusive
- Vitamin C and D: Possible Benefit
- Western Diet: Detrimental
- Mediterranean diet and lung function: Beneficial
- Meat intake and lung function: No impact

ASTHMA

- OMT to thoracic cage structure and function
  - Increase vital capacity
  - Rib cage mobility – better pressure gradients in cage
  - Improve diaphragm function
  - Enhance clearance of mucus
  - Enhancement of immune factors (as demonstrated in prior slides)



ASTHMA

- Self sustaining cycle of viscerosomatic/somatovisceral reflexes well noted in literature
  - Two important bullets:
    - Pharmacologic treatment not covering these MS component of the disease process.
    - OMT has noted ranges of 25% -70% improvement in peak expiratory rates (PEFs) and decrease of inappropriate reflexes

ASTHMA

- Effects of Osteopathic Manipulative Treatment on Pediatric Patients With Asthma: A Randomized Controlled Trial
  - Sham group - touch
  - Treatment group
    - Rib raising, ME ribs, MFR
  - Results (clinical significance set at 95% certainty)
    - OMT group: **PEFs 7L to 19L per min**., Mean improvement 13L per min (95% CI 7.3-18.7). Control 0.3 (95% CI -9.8-10.4)
    - **Mean % increase in treatment group of 4.8%** (95% CI 2.7-6.9) and 1.4% (95%CI -1.8-4.5) in control group

J Am Osteopath Assoc. 2005 Jan;105(1):7-12.

ASTHMA

- Effects of Osteopathic Manipulative Treatment on Pediatric Patients With Asthma: A Randomized Controlled Trial Conclusions:
  - Showed **significant improvement** if pulmonary function in their pediatric population
  - Goal of OMT is maximization of physiologic motion of the MS system
    - Thoracic cage, cervical, sacral at minimum

ASTHMA

- Parasympathetics
  - Increased tone – increased volume of secretions and relative **bronchiole constriction**
  - Vagus nerve
    - OA, AA, C2 (TART findings)
    - Compression of occipitomastoid suture as well as OA joint
- Sympathetics
  - Increased tone – decreased secretions and **bronchiole dilation**
  - T2-7 TART findings

ASTHMA

- Motor
  - C3-5 (phrenic nerve to diaphragm; dysfunction as a result of decreased excursion and overuse) TART findings
- Other somatic dysfunctions associated
  - Cranial extension dysfunction
  - Scalenes – tender points and hypertonicity
  - SCM – tender points and hypertonicity
  - Inhalation or exhalation rib dysfunctions
  - Flattened diaphragm
  - Thoracolumbar dysfunction (diaphragm attachment)

ASTHMA

- 2-Minute
  - Thoracic seated ME 739.2
  - Chapman's for lung (left Sternal border 3rd and 4th intercostal space) 739.9

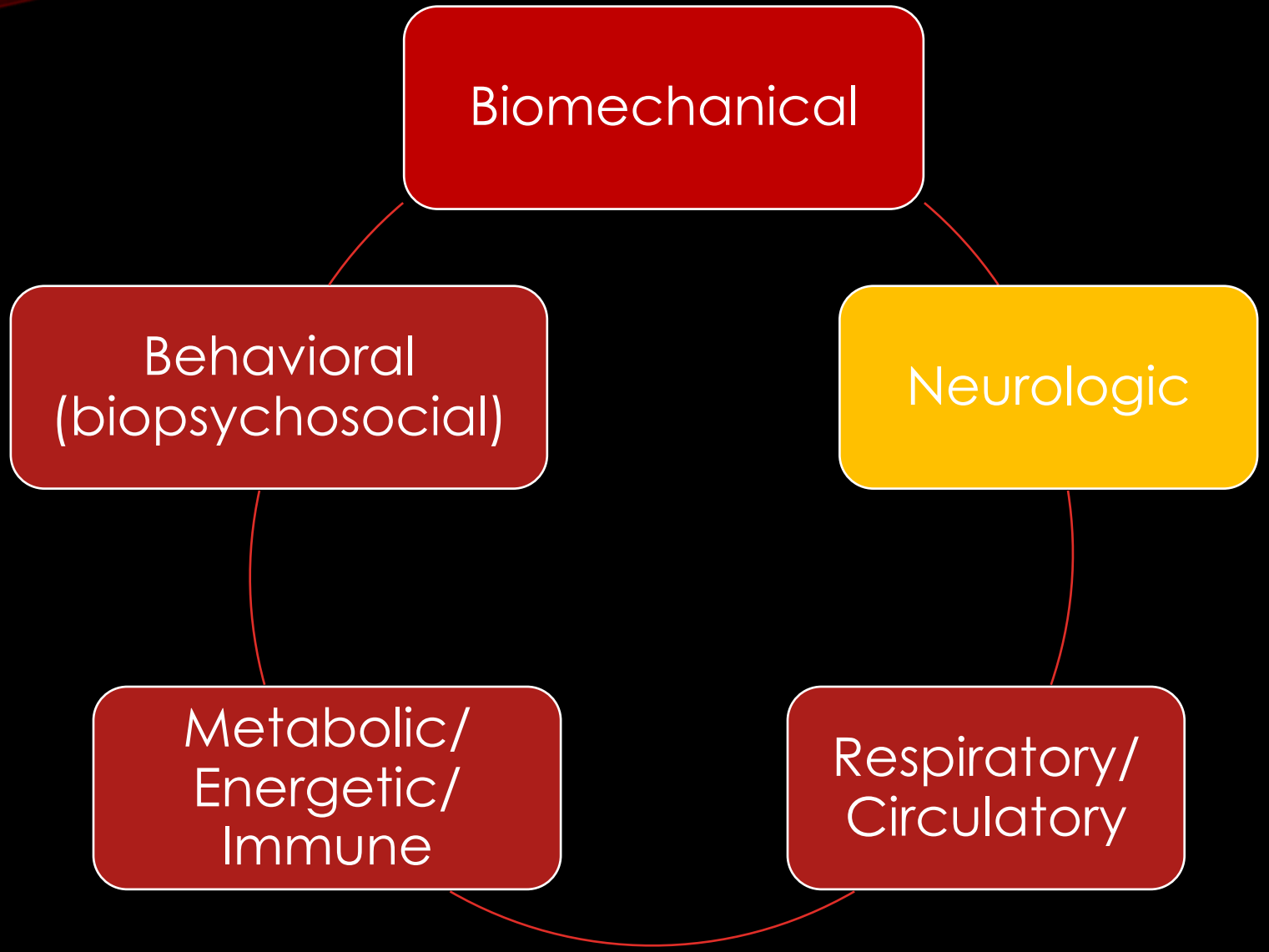
ASTHMA

- 5-Minute
  - Upper Extremity – Pectoralis minor (CS, MFR, Pectoral traction 739.7)
  - Thoracic – HVLA 739.2

ASTHMA

- Extended Time
  - Head – decreased CRI: CV4 739.0
  - Head – vagus: OA release 739.0
  - Cervical – C2, 3-5: MFR, FPR, HVLA 739.1
  - Cervical (scalenes) – CS, ME, MFR 739.1
  - Thoracic – MFR 739.2
  - Rib dysfunction – ME 739.8
  - Rib raising 739.8
  - Abdomen (diaphragm) – Doming technique, thoracolumbar junction ME, MFR, HVLA 739.9 739.3

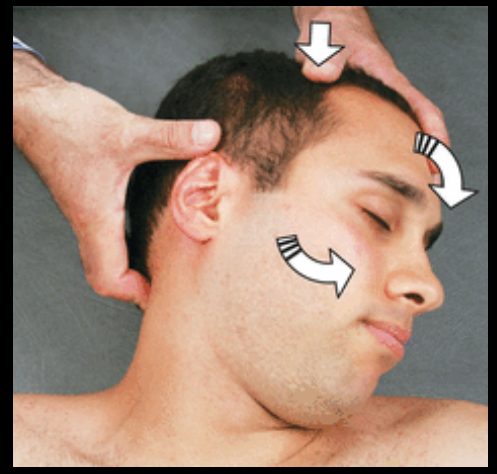
FIVE OSTEOPATHIC MODELS



OA STILLS TECHNIQUES EXAMPLE: OA F RRSL

- Patient supine with doc seated at head of table
- Doc uses one hand to contact both sides of the OA joint
- Other hand controls the head
- Place OA in position of ease (F RRSL)
- Apply gentle axial compression for 3-5 seconds or until tissues relax
- Articulate the joint through the restrictive barrier to end at OA E RLSR.

TYPICAL CERVICAL – C4 ESRRR STILL TECHNIQUE



1. The patient lies supine on the treatment table.
2. The physician's right index finger pad palpates the patient's right C4 articular process.
3. The physician places the left hand over the patient's head so that the physician can control its movement.
4. The physician extends the head until C4 is engaged.
5. The physician then rotates and side bends the head so that C4 is still engaged.
6. The physician introduces a compression force through the head directed toward C4 and then with moderate acceleration begins to rotate and side bend the head to the left (*curved arrows*), simultaneously adding graduated flexion.
7. The release should normally occur before the restrictive barrier is engaged. If not, the physician should not carry the head and dysfunctional C4 more than a few degrees through the barrier.
8. The physician reevaluates the dysfunctional (TART) components

THORACIC PARASPINAL INHIBITION

FOM, 2ND ED. PG. 758-9

Position:

- Patient is supine

Set up:

- Hands are placed under the patient's thoracolumbar spine with the fingertips over the opposite paraspinal tissues and the thenar and hypothenar eminences over the ipsilateral paraspinal tissues
- Focus on areas of maximal tissue texture abnormality

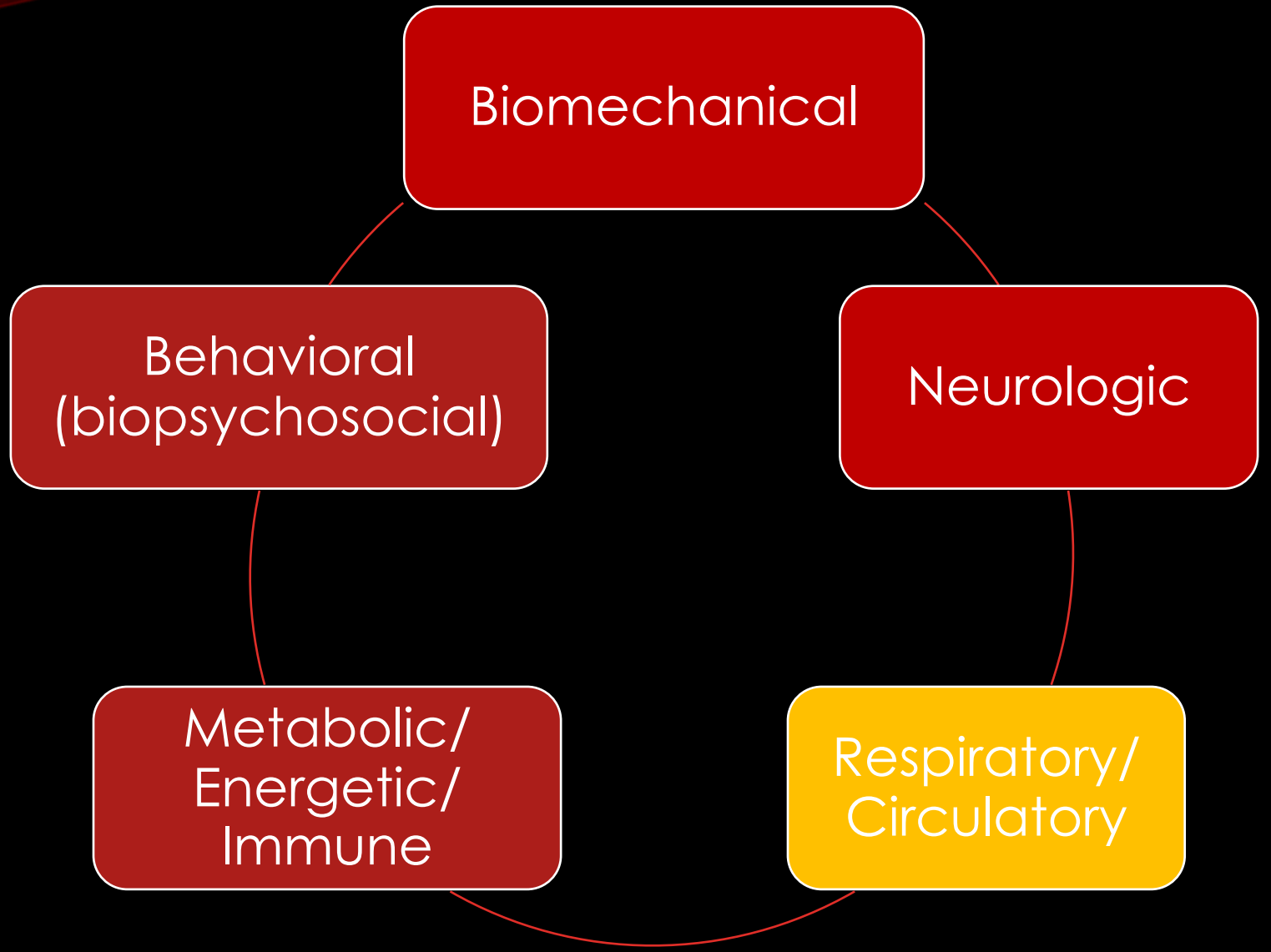
Activating force:

- Gently squeeze your fingers and palms together causing the paraspinal muscles to approximate and induce thoracolumbar spine extension
- Maintain pressure until the muscles relax (usually 60-90 sec)
- Repeat until tissue tension is greatly reduced or eliminated

PRACTICE

Cervical – OA & C4; Thoracic Direct Inhibition

FIVE OSTEOPATHIC MODELS



RIBS 9-10
EXHALATION DYSFUNCTION
MET/ART

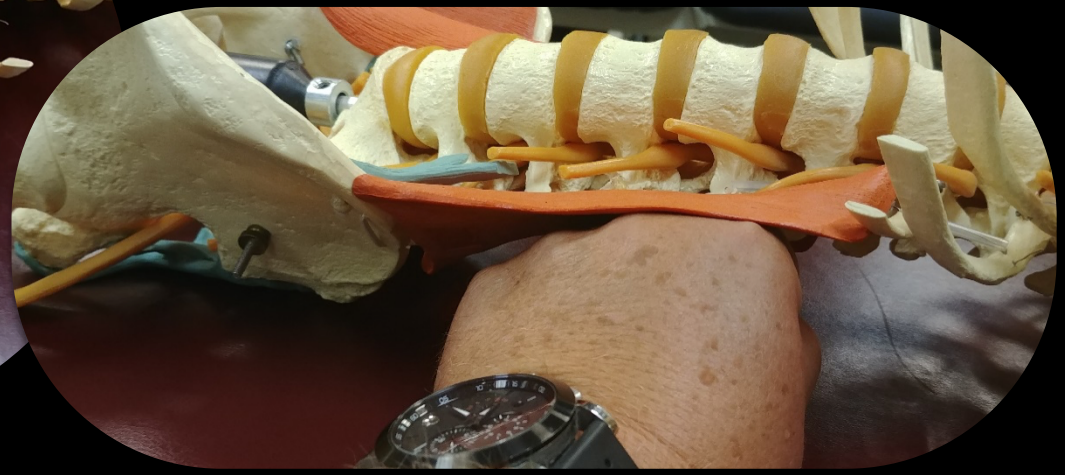
Pictured: Right Rib 10 Exhalation dysfunction

White Arrow – Physician movement

Black Arrow – Patient movement

1. The patient lies supine, and the physician stands or sits at the side of the dysfunctional rib.
2. The physician's cephalad hand abducts the patient's shoulder 90 degrees, and the caudal hand reaches under the patient and grasps the superior angle of the dysfunctional rib, exerting caudal and lateral traction.
3. The physician stabilizes the elbow appropriately based on sitting or standing position.
4. The physician instructs the patient to push the arm against the physician while the physician applies an unyielding counterforce. This isometric contraction is held for 3 to 5 seconds, and then the patient is instructed to *stop and relax*.
5. Once the patient has completely relaxed, the physician's right hand exerts increased caudal and lateral traction on the angle of the dysfunctional rib.
6. Steps 4 and 5 are repeated five to seven times or until motion is maximally improved at the dysfunctional rib.
7. Reassess

QUADRATUS LUMBORUM SOFT TISSUE/MYOFASCIAL RELEASE



- Patient supine doc is seated at side of table
- Contact the QL with a fist and roll the MCPs into the muscle spasm to perform a direct inhibition, wait for reflexive relaxation
- Alternate: using fingertips, contact the 12th rib and provide an anterior/lateral force (linear stretch) until tissue creep stops

PRACTICE

Rib Muscle Energy; QL Myofascial Release

SUMMARY

Visceral and structural causes can be approached from many of the 5 Models stand points

We have attempted to give you some basic ways to approach OA and Asthma patients with a Distinctive Osteopathic Approach

We hope you have learned a few new skills to take back to provide your patients the benefit of integrating OMM/OMT in the patient encounter

Thank you for attending and enjoy the conference !!