Introduction to Assess & Treat

Common Dysfunctions While Strengthening The Brain & Body

Presented by Paul Kelly | Templehp.com | PhysioKinetix.com

PHYSIOKINETIX

MOVE FOR LIFE

How to Create Resilience using Manual Therapy and Movement Science

Assessments and PKT integrative Techniques to Release and Re-educate your Brain & Body

THE TEMPLE HUMAN PERFORMANCE

Established 1996

Our Mission:

“To educate and create healing in a fun environment using Manual Therapy, Movement Science, Neuromuscular Re-education, and Nutrition.”

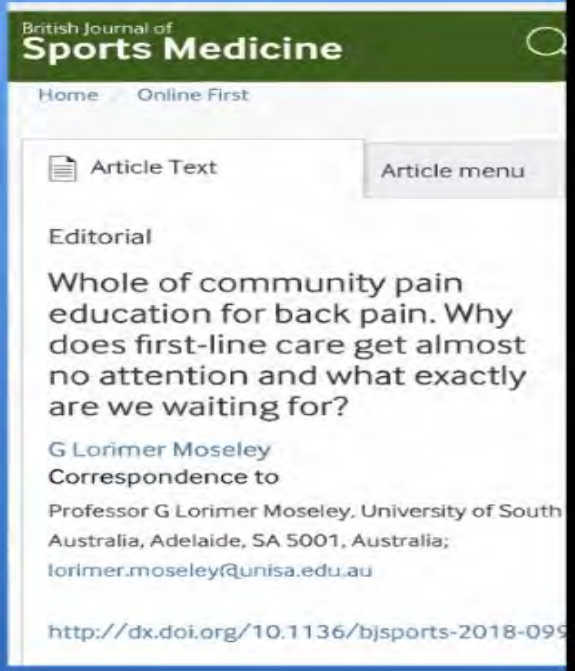
1999 Began Teaching Manual Therapy and Exercise

2003 started the Clinical Mentoring Program using a “The Treatment and Training Approach”

2005 Began teaching Manual therapy and Corrective Exercise Internationally

What does current research Say About Treating Pain?

The "recent series of back pain articles in The Lancet attracted a great deal of attention across the media, with the usual outrage at PTs & MDs providing <u>useless</u> treatments"



British Journal of
Sports Medicine

Home Online First

Article Text | Article menu

Editorial

Whole of community pain education for back pain. Why does first-line care get almost no attention and what exactly are we waiting for?

G Lorimer Moseley
Correspondence to
Professor G Lorimer Moseley, University of South Australia, Adelaide, SA 5001, Australia;
lorimer.moseley@unisa.edu.au

http://dx.doi.org/10.1136/bjsports-2018-099

Think in Wrong terms = Acting in Wrong Terms

"A definitive diagnosis was perceived by many to justify, reassure and legitimise their LBP symptoms"

"However, this is contradictory to current evidence-based LBP management that strongly advises against routine back imaging in the absence of red flags, with imaging considered to be low-value healthcare and a potential driver for unhelpful beliefs"

"This finding highlights the clear mismatch between patients' perceived health information needs and clinicians' knowledge in LBP management."

Where is the truth?

"The Art"

Dr Alf Nachemson (*International Leader in Lumbar Spine, Founder of International Society for the Study of the Lumbar Spine & Coeditor of SPINE journal for 20 years, Research->500*) : ***"I've been studying LOW BACK PAIN for last 50 yrs of my life, & if anyone says they know where PAIN comes from, they are full of sh#t".***

Prof Stuart McGill (*Professor Emeritus in Spine Biomechanics over 30 years, Research- >240*) : ***"All BACK PAIN has a cause and a thorough assessment will reveal a cause with only very rare exceptions."*** 8:38 PM ✓

So Now What Do We Do?

THE CHALLENGE

- Imaging & Specific Diagnosis
- Passive Care Expectations
- Feeling Ignored if no Patho-Anatomical Diagnosis

"The diagnosis of chronic primary pain should also shift the focus from finding or excluding a physical cause to identifying many possible contributors; physical, psychological and social, thereby expanding the range of possible treatment opportunities for patients with chronic pain."

Pain psychology in the 21st century: lessons learned and moving forward. IK Flink. Scandinavian Journal of Pain 2020.

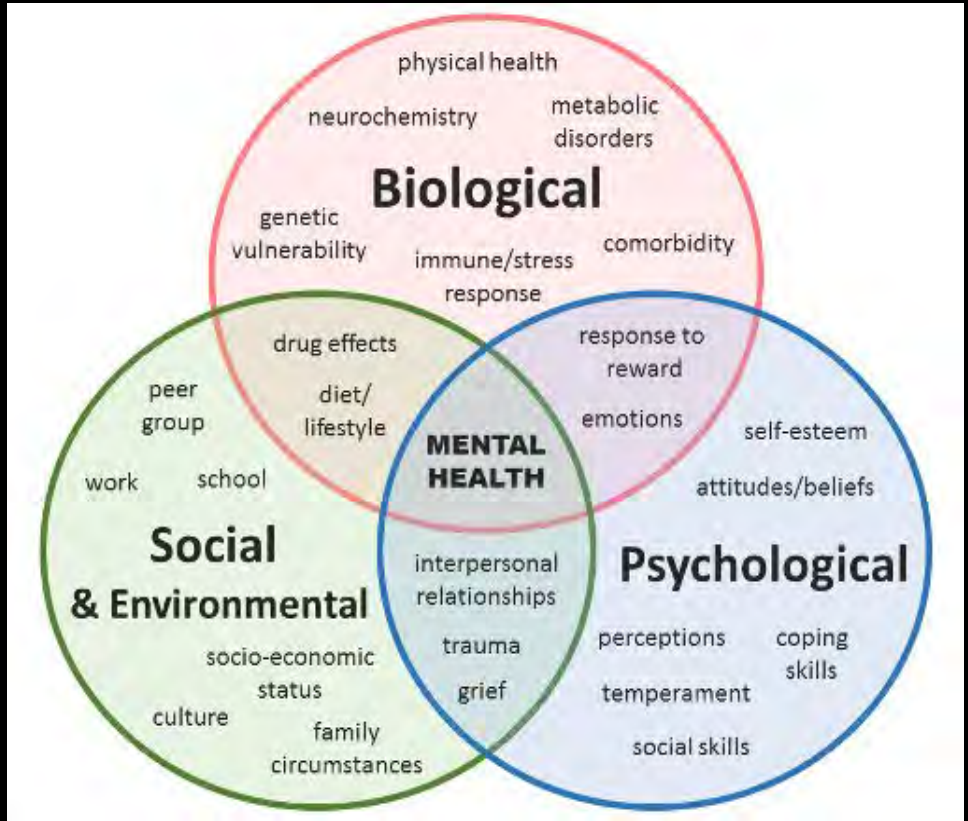
What do recent guidelines agree on????

1. Consistently rules out using imaging and models for pain; instead offering Education and a Plan on getting back to work and Active Daily Lifestyle.
2. Guidelines consistently recommend exercise for Low Back Pain
3. All guidelines consistently recommend considering Psychological, and Social influences in Assessment and Management of their pain
4. All guidelines consistently recommend a cautious approach to using opiates

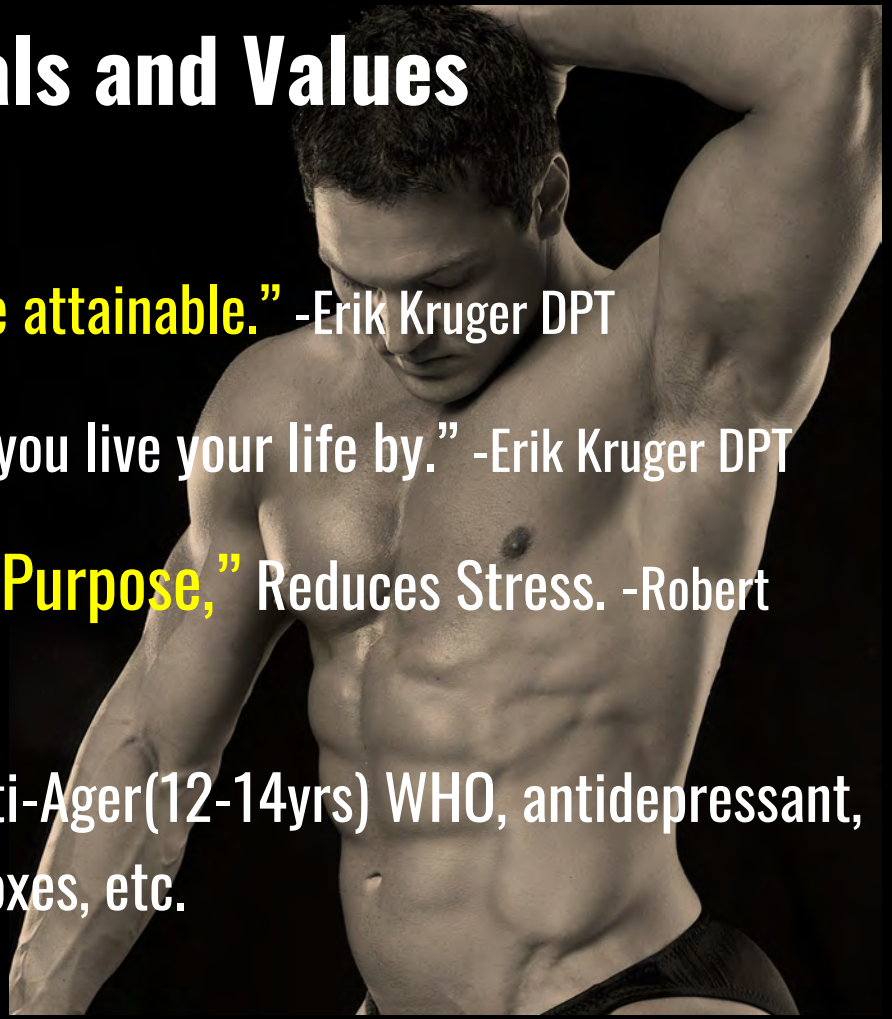
BIO-PSYCHO-SOCIAL

A New Model for Patient Centered Treatment of Pain and Performance

- **Biologic**: Structural (Joints), Biomechanical (Movement, sensory) Biochemical (Histamines, etc) Neurology
- **Psychology**: Our Past/Present influences Create: Descending Modulation with Neurophysiologic protective (Output) Responses
- **Social**: Upstream,what we grew up in. Our environment and culture that alter lifestyle in positive or negative ways.



Setting Goals and Values
Personal & Business



- **Be Realistic,** "Your Goal should be attainable." -Erik Kruger DPT
- **What do you Value?** "A process you live your life by." -Erik Kruger DPT
- **Having a Belief System**, "Finding Purpose," Reduces Stress. -Robert Sapolsky
- **Why Exercise Matters**: Proven Anti-Ager(12-14yrs) WHO, antidepressant, Inhibits pain , creates neogenesis, detoxes, etc.

IT STARTS WITH A VISION

“The first rule of success is to have a vision. You have to know where you're going.”
- Arnold Schwarzenegger

Define: WHAT KIND OF MOVEMENT DO YOU DESIRE?

WHAT PREVENTS YOU FROM MOVING?

• **Fear to Move** (“We are driven by our beliefs” - Peter O’ Sullivan) (What do you believe about your body? Do Believe you can get better? Negative? Positive?)

Dr. Melanie Neo: 4-6 are the **Golden Years** of Influence and Memories. Stored in Hippocampus and shape us for a lifetime... Parent are biggest influence.

• **Fitness Dysmorphia**: Boot Camps, Cross-Fit, Barre, Yoga??? (What program is right for you if you are dealing with arthritis, movement restrictions, hip replacements, Parkinson’s, etc.)

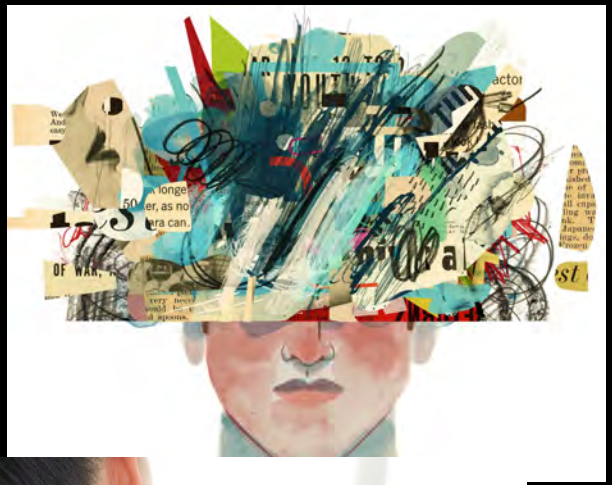
WHAT PREVENTS YOU FROM MOVING?

Dietary issues: All Disease starts in the Gut, Robert Sapolsky - “Our stomach is our critter brain telling our brain how to think”) histamines, mast cells, inflammatory agents.

• **Bad Diagnosis:** Being told you are sick (Negative thoughts and projections create belief systems that create roadblocks and prevent us from moving forward. The “Nocebo” -Fabrizio Benedetti, MD 2017 International Pain Summit)

EFFECTS OF STRESS ON OUR BODIES

- **Stress** (Stressors cause Systemic inflammation,(Cortisol), over-development of amygdala (emotion centers), depletes our dopamine, beta endorphins, increases fear, & causes atrophy of prefrontal cortex) -Robert Salposki 2016.



Thinking your to TOO OLD TO MOVE

CHARLES EUGSTER
WORLD'S FITTEST 97 YR OLD
World Champion Sprinter

"We must do everything in our power to see that older people are healthy and productive... we should have retraining facilities for older people. You are throwing away the skills and expertise of people at 65, and that is absolutely ridiculous."

You need the Right Inputs:
The NOCEBO

"For Each Ailment that doctors cure, they produce 10 others in Healthy individuals by inoculating them with the pathogenic agent that is 1,000 x more virulent than all microbes,The IDEA they are ill." Proust

Manual Therapy and Movement Give us Beta Endorphins that help Mediate Pain

YESOCEPTION = DOSE

Who or What Motivates You

THE BRAIN CHRONIC PAIN

- **“Both Mental imagery and actions are ... products of the same motor program: Decety, has also shown that when people imagine walking with a heavy load, their autonomic nervous system — breathing and heart rate — is activated.”** - M. Jeannerod & J. Decety, 1995. Mental Motor imagery: A window into representational stages of action.

- **“Pain signals in one map can “spill” into adjacent pain maps, and we may develop “referred pain”** -R. Melzack, t. J. Coderre, A. L. Vaccarino, & J. Katz

- “What better way ... to prevent movement than when the motor command itself triggers pain: ... **chronic pain and pathological guarding occurred because the motor command for a movement was wired directly into the pain center, so even the thought of moving caused preemptive guarding and pain.”** -V. S. Ramachandran. 2003. The emerging mind: The Reith lectures

Maybe this is you?

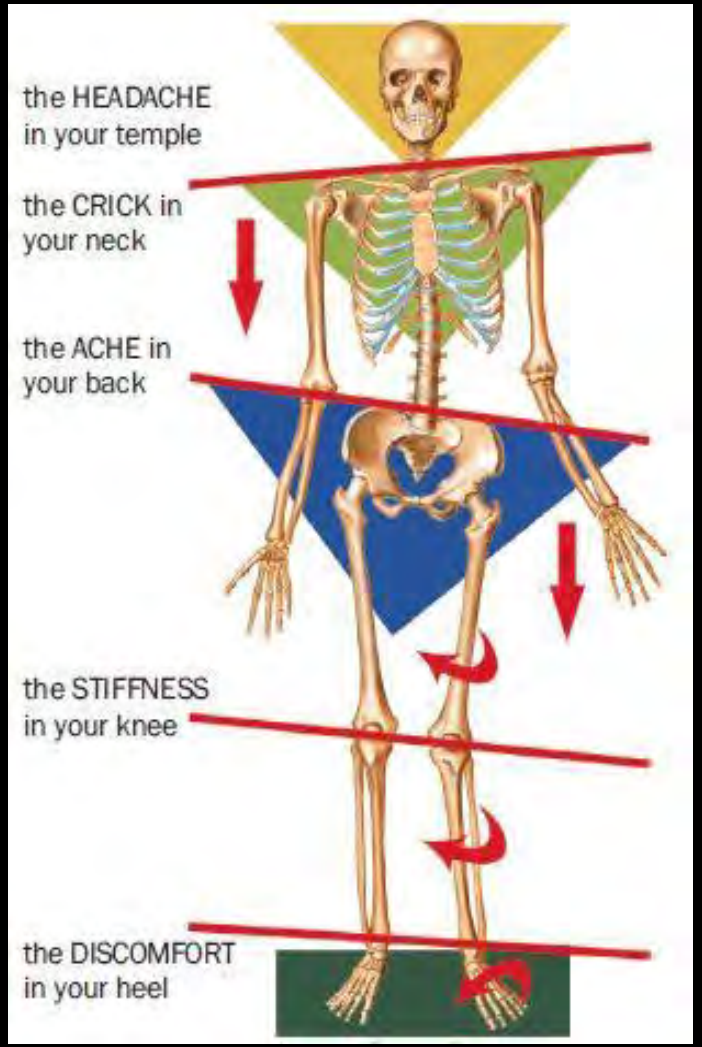
THERE IS HOPE

Neurologic DEATH AT 0 MPH

So Where can a Movement Dysfunction Begin

Ascending Syndrome: Problems can arise from the ground up due to lack of upstream information to the brain on one or both sides.

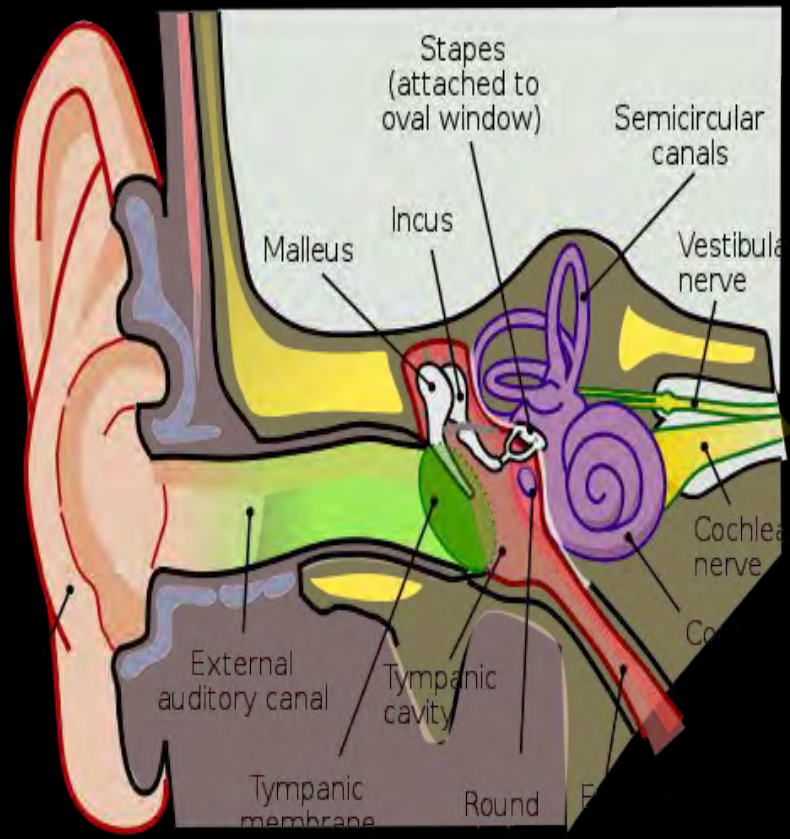
Descending Syndrome: Eye, Ear, and Cerebellar weaknesses. Learned motor patterns, job related compensations.



WHAT'S YOUR PAIN EXPERIENCE?

VESTIBULAR SYSTEM

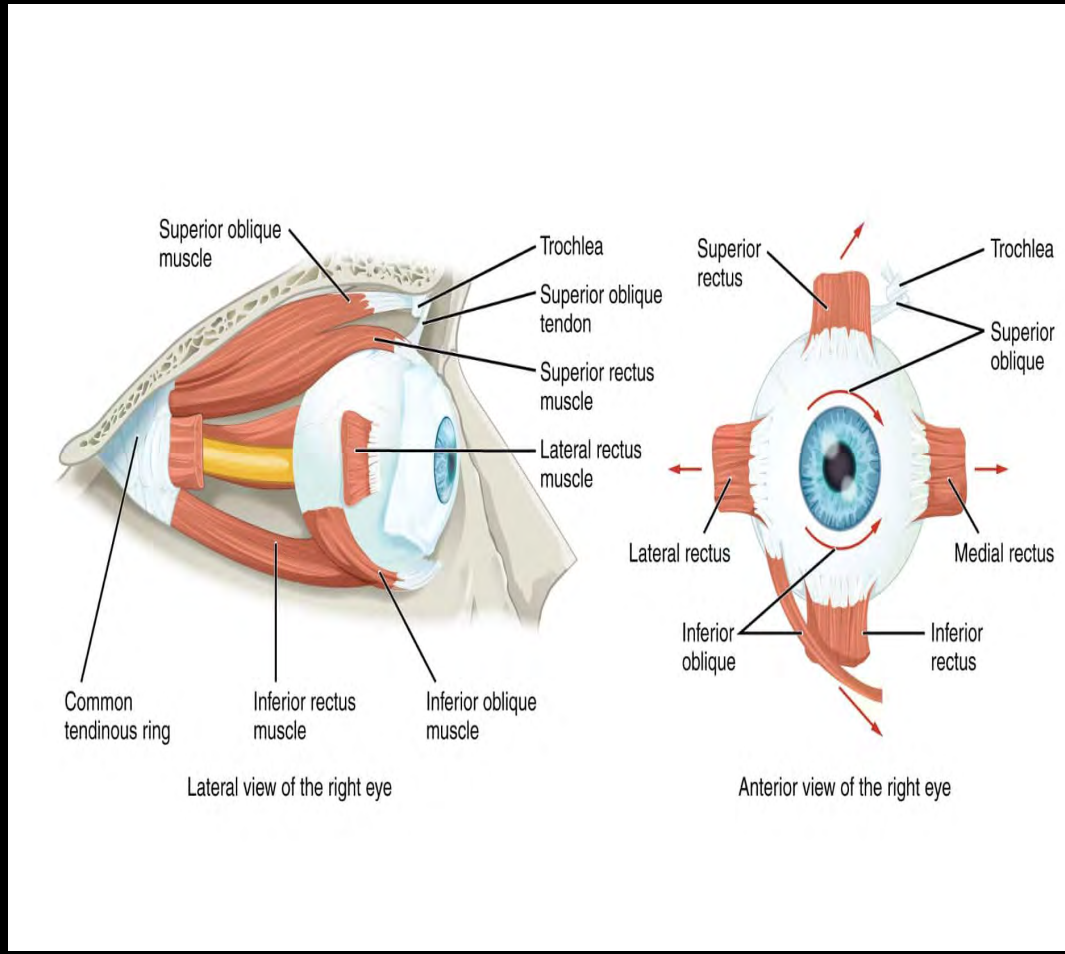
- Controls Posture, Balance, and Simulates body Extension.
- Allows the Motor Cortex to make Dynamic movements.
- Semicircular Canals: Sense rotational movements.
- Utricle: Senses in gravity movements for motor control.
- Otoliths: Saccule, linear movements and postural adjustment with the sensory cortex to adjust movements.



OCULAR SYSTEM

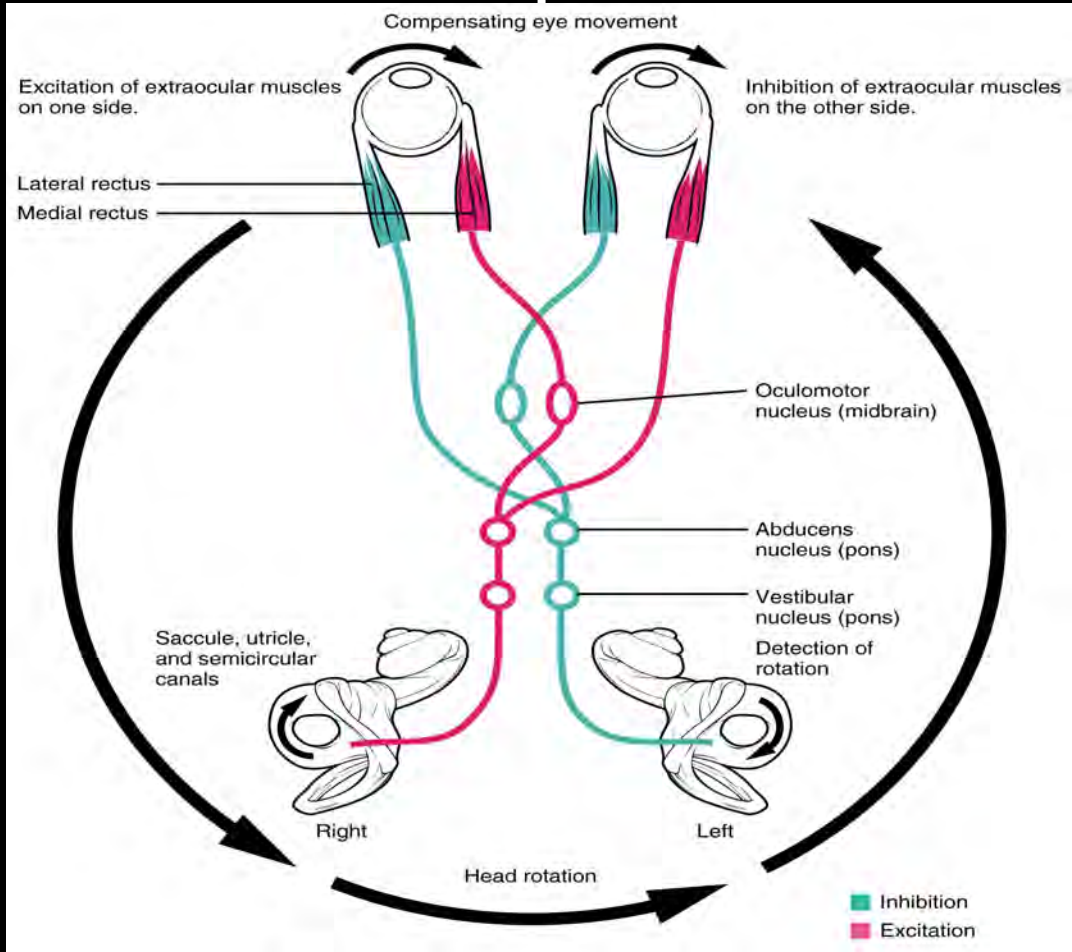
4 Cranial Nerves for the Eyes

- II Optic Nerve - Sight
- III Oculomotor - eyelid, superior, medial,inferior recti, inferior oblique
- IV Trochlear - Superior oblique
- VI Abducens - Lateral Rectus



The Vestibulo Ocular Relationship

- CARDINAL FIELDS GAZE TEST
  - TESTING COORDINATION OF THE EYE IN FULL CIRCLE MOTION.
- SACCADES TEST
  - ASSESSING CRANIAL NERVES AND ABILITY TO FOLLOW WITHOUT MOVING THE HEAD.
- EYE CONVERGION TEST
  - BOTH EYES MOVING TOGETHER.
- EYE TRAINING
  - JUGGLING, BOUNCING BALL ON A WALL



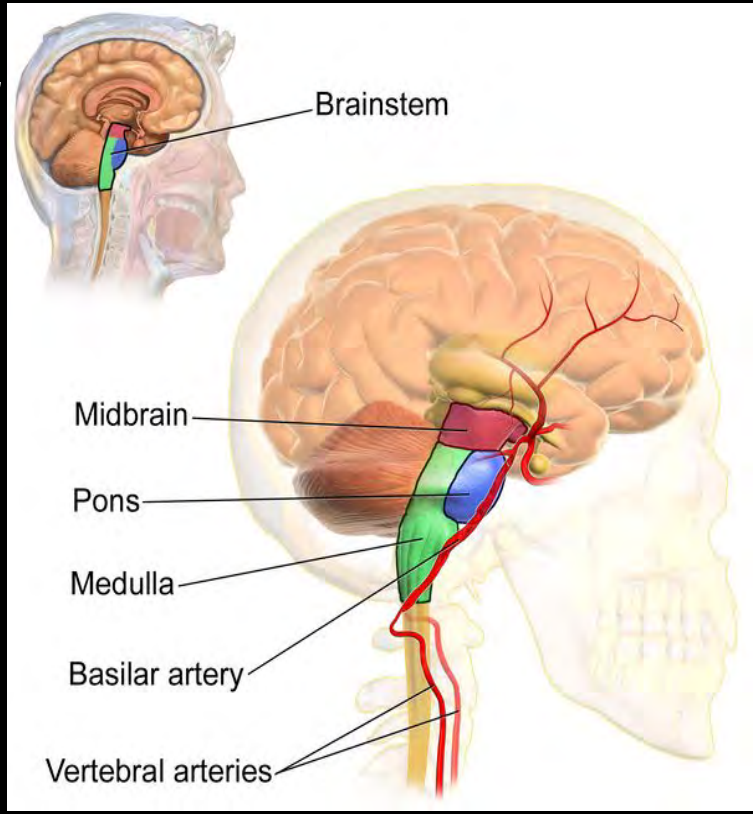
Why Movement Matters for the PONTO MEDULLARY RETICULAR FORMATIONS

Posture: Inhibits flexion of anterior muscles above T6 ipsilaterally and inhibits Flexion of posterior muscles below T6. “UCS”

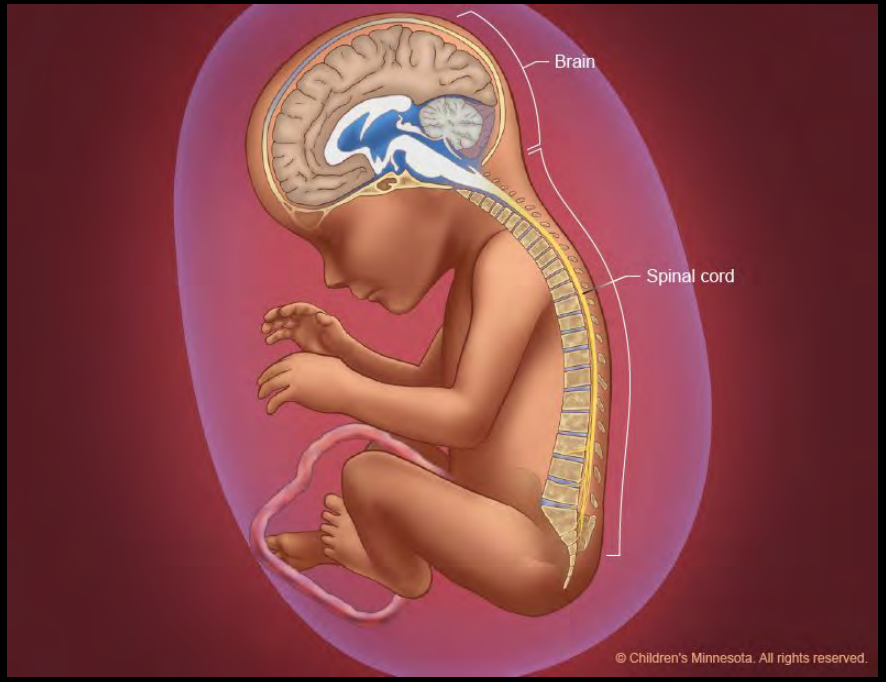
Pain: Inhibits pain ipsilaterally through the serotonergic pathways(Right pons medulla inhibits pain on Right side).

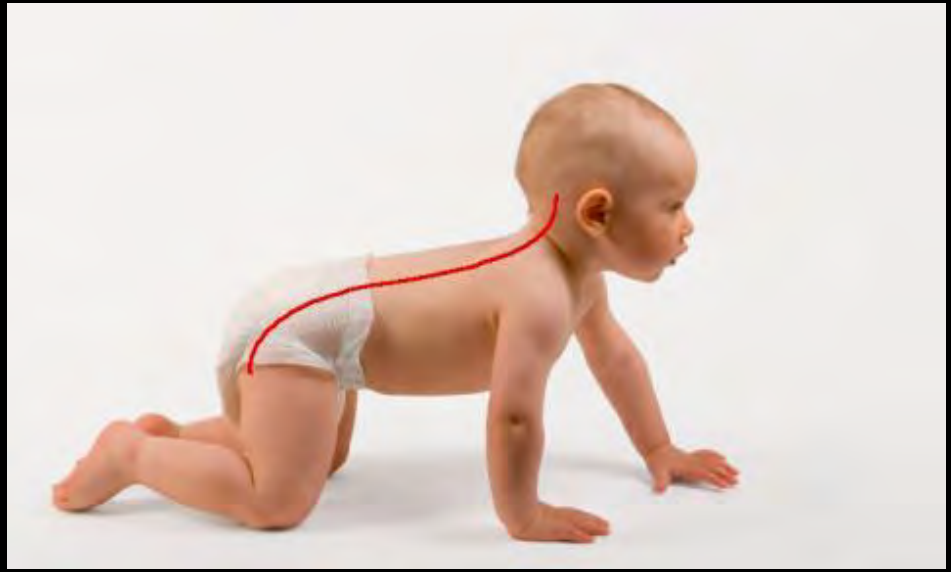
Autonomics: Controls Sympathetic Activity ipsilaterally

Muscle Tone: Works with ipsilateral cerebellum to set global Muscle Tone. Right Motor Dominant Patterns (pecs stay tight on one side)



DEVELOPING THE SPINAL CURVES





Movement Is Learned

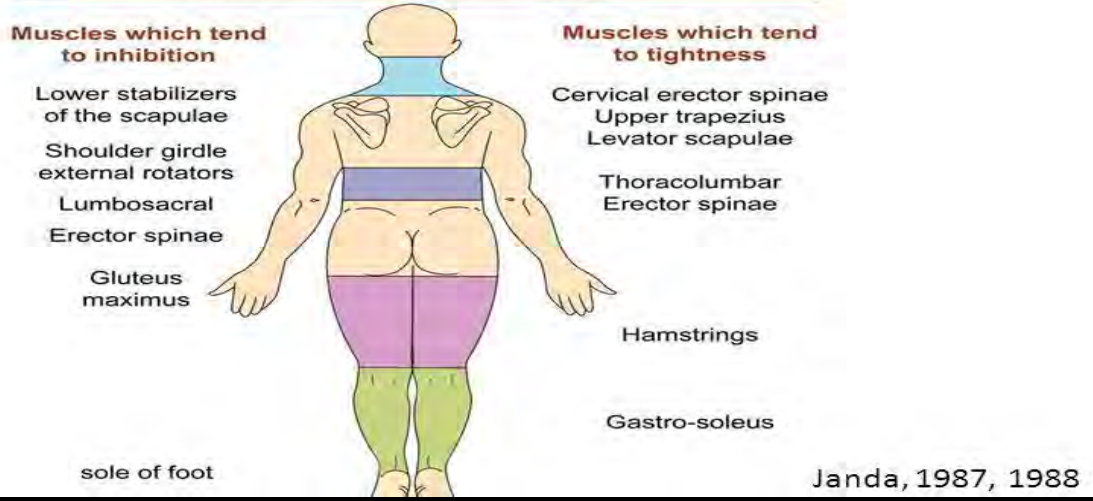
Learned Locomotor Patterns RIGHT MOTOR DOMINANCE

Effects of VOR: Vestibular Ocular Reflexes/ Righting Reflex

Layer Syndrome (LS)
stratification syndrome

- combination of UCS and LCS
- characterized by alternating patterns of tightness and weakness, indicating long-standing muscle imbalance pathology.

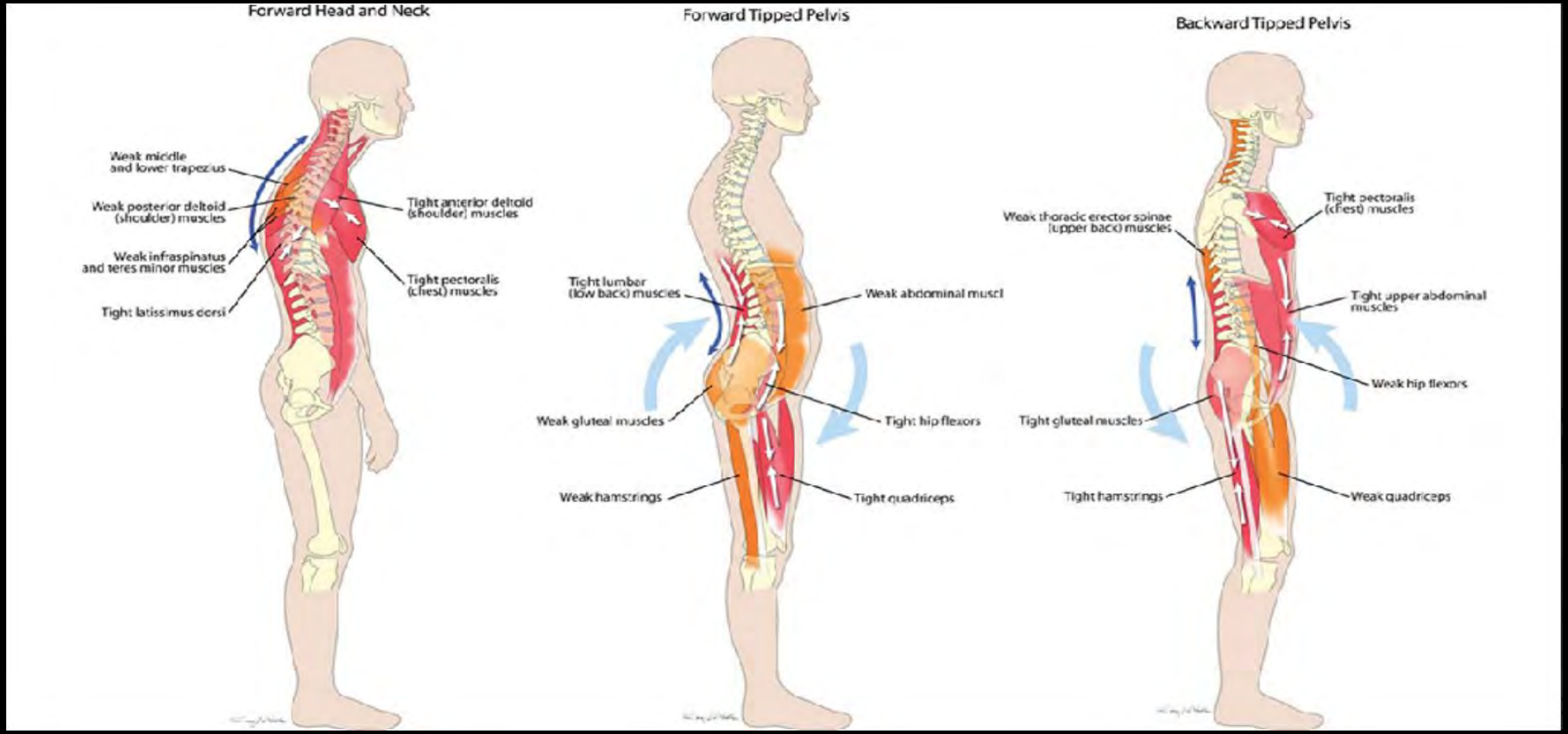
Muscle Hypertrophy



Janda, 1987, 1988

"Muscles Cannot be Restored to Normal if the Joints which they Move are Not Free to Move"

-Mennell JM, "Joint Pain"



Neurologic & Postural Plasticity or (SAID Principle)

EXERCISE WITH SCOLIOSIS?

WHAT WE NEED IS A M-I-P..YEAH YOU KNOW ME

Lorimer Moseley

- Motivation: Reason to act without Motivation. Is it important to them to change? A natural reward system, “DOSE”, Dopamine, Oxytocin, Serotonin, Beta Endorphins.

- Input: We are the Sum of all Inputs from our Environment We need to Create a new Experience they can feel safe and have fun in.

- Educate: “Evidence informed Self-Management is the Key,” (O’ Sullivan P., Br J Sports Med. 2018)

- Plan: Recreate the desire to Move. Stuart McGill, “Everyone needs a progressive plan built on **mobility, stability, strength, endurance, and prevention.**”

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2 A.R.M. APPROACH

- Assess
- Release
- Movement Plan
- Awareness
- Re-Educate
- Motivate

THE TEMPLE HUMAN PERFORMANCE

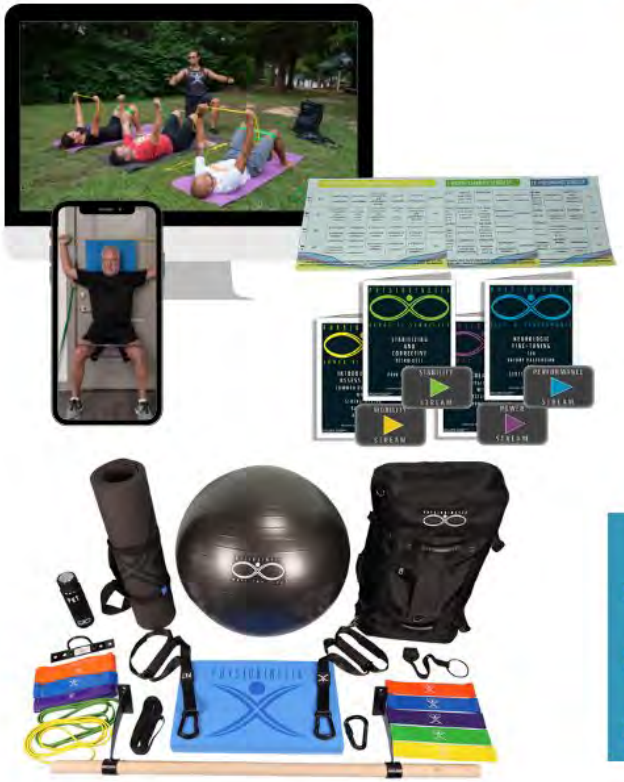
We Have a Plan for You

PHYSIOKINETIX

MOBILITY | STABILITY | POWER | PERFORMANCE

PKT RESELLER PROGRAM

Start Reselling Today! Content & Equipment



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MOVE FOR LIFE

DropShip Option

You Sell item at your own price,
Then You purchase that item from us,
We send it to your Client (Minimal Risk)

WholeSale Option

Buy Wholesale, Keep own Stock,
Sell at your own Price,
More Potential Residual Income

Reseller Tiers

Spend $250+ / 10% off Retail	Spend $2000+ / 25% off Retail
Spend $500+ / 15% off Retail	Spend $3000+ / 30% off Retail
Spend $1000+ / 20% off Retail	Spend $4000+ / 35% off Retail

Reseller Codes Provided upon signup

No Fees or terms

Thanks For Listening :)

BREAK TIME

Level 1: Mobility (Objectives)

- Understand how to SEE and Asses Movement Dysfunction

- To Create our own pain management and Self Efficacy strategy so that we can teach others how, and remove the **fear** of moving.

- Re-establish Sensory-Motor response and Learn with Neurologic Modifiers that create more neural learning.
- Learn 6 techniques out of gravity on the floor to improve locomotor control and endurance. This will prevent compressional load on our spine and allow us to feel stable as we learn to reestablish lost movement patterns.

- learn strategies that improve postural strength, Decrease Joint Inflammation, Improve Intrinsic Strength, and Light up New Neural Pathways while restoring neurologically inhibited reflexes in our bodies.

The Basic Principles for Movement Performance

1. Establish a baseline of Loco-Motor Control out of Gravity in all planes of motion.
2. The Movements trained should Create Mobility/Stability as they strengthen
3. The Movements trained will be individual and should be specific to the skill acquisition.
4. Load limits Mobility and Movement Options
5. Dynamic Core Stability allows for distal mobility

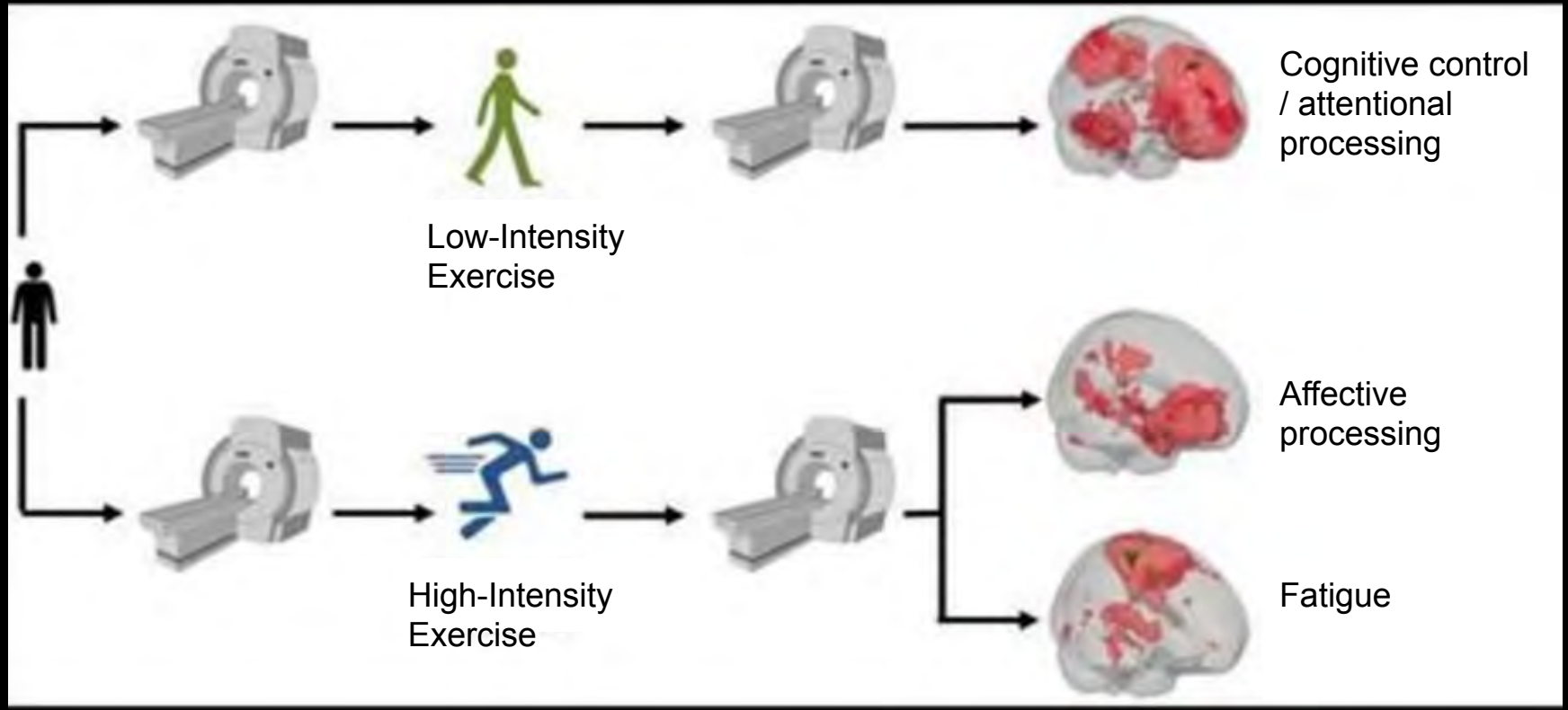
Assessment is the Key to Unraveling Uncertainty

Patient History

- Peripheralization: Do areas of Pain enlarge or become more Distal as they worsen?
- Centralization: pain becomes Smaller and more localized as they improve

Think Nervous system

The Slower you Move the More you Learn



TECHNIQUE 1 : FLOOR ANGELS

Restorative Functional Strategies

•Improve intrinsic Strength and Dynamic stability of the head, neck, shoulder, and core.

•Separate the upper body trunk and the hips.

•Restore proper Breathing function from ribcage restrictions

•Improve Core response during movement.

•Recreate neural pathways for inhibited patterns.

Technique 1 video

PKT Table Int.
Technique 1. Floor Angels with Neuro-Modifier

TECHNIQUE 1 : ASSESSMENT

Strength and Range of Motion in Head: chin tucking, Side-bending.	ROM: 0 1 2 3 Hyper
Neck	ROM Rotation: 0 1 2 3
Shoulder	ROM internal/external: 0 1 2 3 Hyper
Upper Cross Syndrome present, standing, sitting.	Yes No
Proper Breathing (Length/time of forceful exhalation) Does chest and belly rise, shoulders?	Yes No
Ability to reach overhead with arms while ribcage remains in neutral	Yes No
Pain / Discomfort During Technique	Yes No

TECHNIQUE 2 : DEAD BUGS

Restorative Functional Strategies

- Create Stability in Hips, Spine and Shoulder Stabilizers.
- Remove Cross Pattern Neuromuscular Bias.
- Improve muscular endurance for shoulders, hips, psoas, 4th layer spinal.
- Recreate Motor Cortex balance right to left.

Technique 2 video

PKT Table Integration
Technique 2. Dead Bugs with Neuro- Modifier

More PKT Integration Variations CORE Stability

TECHNIQUE 2 : ASSESSMENT

Stability in Hips, Spine (Standing Tests) Yes No

Ability to cross pattern (gait and cross crawl) Yes No

Endurance in Technique, Motor Cortex balance Right to Left. Side of Movement Inhibition:_____

Weak 0 1 2 3 Strong

Breathing is Controlled Yes No

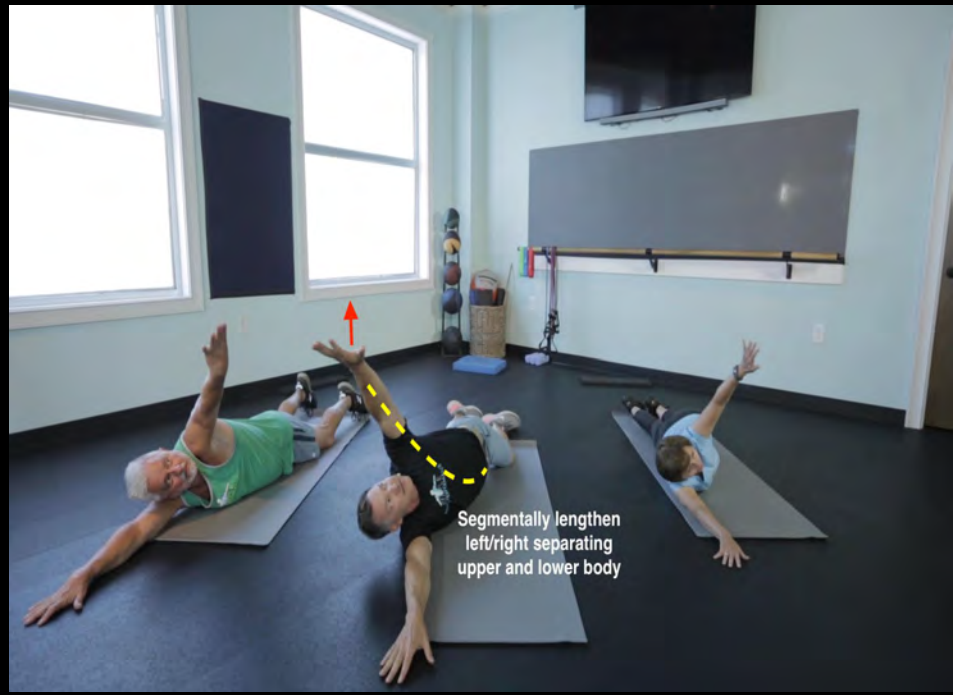
Pain / Discomfort During Technique Yes No

BREAK TIME

TECHNIQUE 3 : SEGMENTAL ROLLING

Restorative Functional Strategies:

- Separation of upper body and lower body in cross patterns
- Increase Mobility of the head, neck, shoulder, rib cage, hip, and low back.
- Train bi-lateral motor cortex for neuromuscular control
- Reduce Arthritis of the spine by improving function
- Create out of Gravity cross pattern strength and in all cardinal planes



Technique 3 Segmental Roll video

TECHNIQUE 3 : ASSESSMENT

Ability to separate movement patterns in roll:	
Right Arm and T Spine	Yes No
Left Arm and T Spine	Yes No
Right Hip/leg and Low Back	Yes No
Left Hip/leg and Low back	Yes No
Mobility of Head & Neck	Weak 0 1 2 3 Strong
Breathing is Controlled	Yes No
Pain / Discomfort During Technique	Yes No

TECHNIQUE 4 : BELLY ANGELS (WITH REACHES)

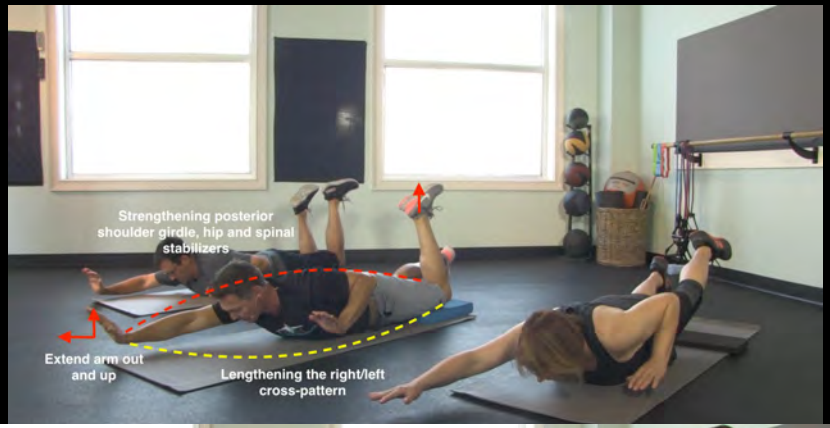
Restorative Functional Strategies:

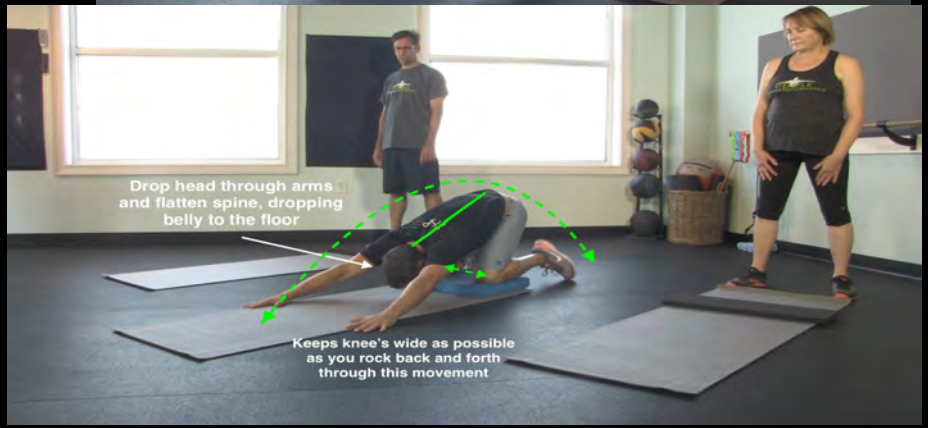
•Create endurance and strengthen posterior postural stabilizers.

• Create mobility in head, neck, shoulders, thoracic spine.

• Recreate neurologic center to prevent reflexive changes.

• Prevent injuries due to improper head, neck, body relationship.





Technique 4 video

PKT Table Integration
Technique 4: Belly Angels

PKT Table Integration
Neuroband Belly Angel X Patterning

PKT Table Integrations
Technique 4: Belly Angels Neuro-modification

TECHNIQUE 4 : ASSESSMENT

Ability to lift head in extension.	Yes No
Ability to lift arms and hands ROM shoulder and cross pattern with full reaches.	Yes No
	Weak 0 1 2 3 Strong
Ability to Extend in hip complex and Spine.	Reps/sets_____
Endurance/ Reps	Yes No
Breathing is Controlled	Yes No
Pain / Discomfort During Technique	

BREAK TIME

PKT Integrations Create Mobility/Stability and Neogenesis

TECHNIQUE 5 : RIBCAGE PLANK (WITH KNEE CLAMS)

Restorative Functional Strategies:

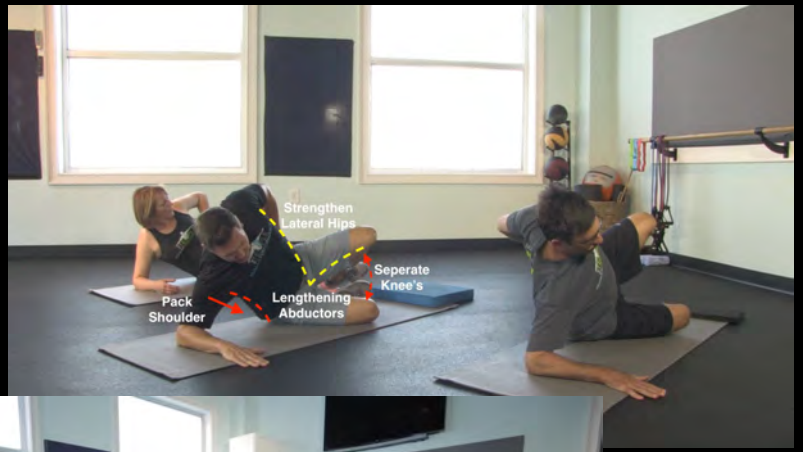
• Strengthen lateral torso, diaphragm, and rib cage and hip stabilizers.

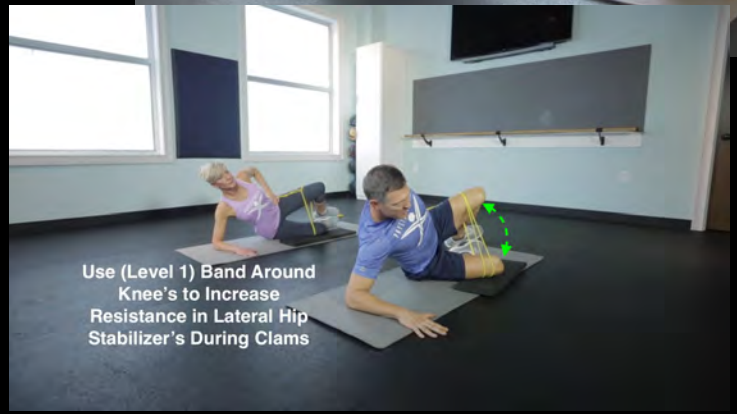
• Restore proper breathing from ribcage restrictions.

• Treat functional scoliosis and lateral tightness/weakness

• Restore glenohumeral/scapulocostal glide “winging”and

• Increase endurance in hip stabilizers while increases ROM





Technique 5 Ribcage Clams with SI Glides

PKT Table Integration
Technique 5: SI Glides and Rib Cage Mobilization

TECHNIQUE 5 : ASSESSMENT

Mobility or stability issues in shoulder girdle.	0 1 2 3 Hyper
Ribcage Mobility	0 1 2 3 Hyper
Breathing dysfunction	Yes No
Hips Mobility/endurance	Weak 0 1 2 3 Strong
Pain / Discomfort During Technique	Yes No

TECHNIQUE 6 : MODIFIED PUSH-UP

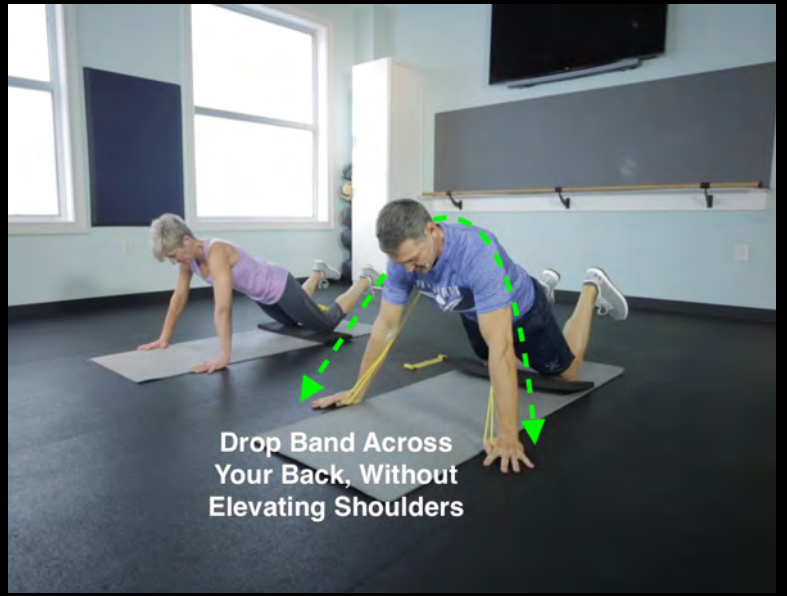
Restorative Functional Strategies:

- Improve CORE dynamic stabilization to prevent (back pain)

- Neuro-muscularly strengthen the anterior chest, shoulders, arms, and hip flexors.

- Give a less compressive way to strengthen the anterior chain.

- Strengthening shoulder stabilizers and the rotator cuff.



Technique 6 video

TECHNIQUE 6 : ASSESSMENT

Shoulder Girdle Restrictions	Yes No
Ability engage core before movement	Yes No
Anterior chain weaknesses:	
Ant. Shoulder, Chest	Yes No
CORE strength/Snake up	Weak 0 1 2 3 Strong
Hip flexors able to provide stability.	Weak 0 1 2 3 Strong
Breathing is Controlled.	
Pain / Discomfort During Technique.	Yes No

BREAK TIME

TECHNIQUE 7 : CRAWLING BURPEES

Restorative Functional Strategies:

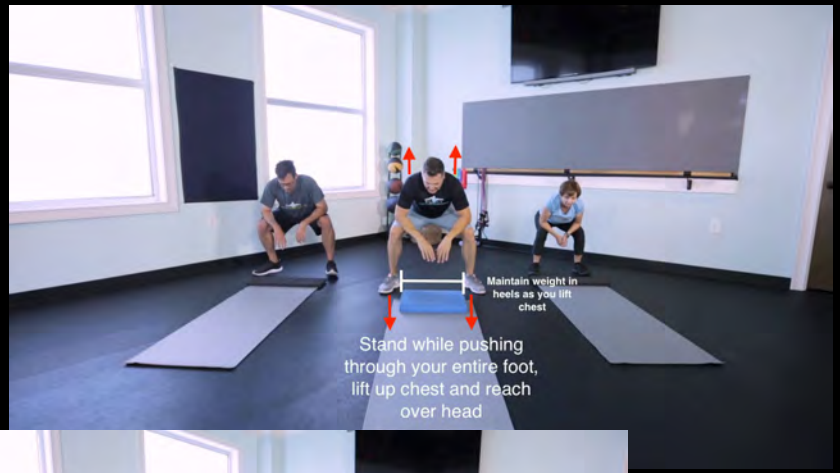
• To build global muscle strength and

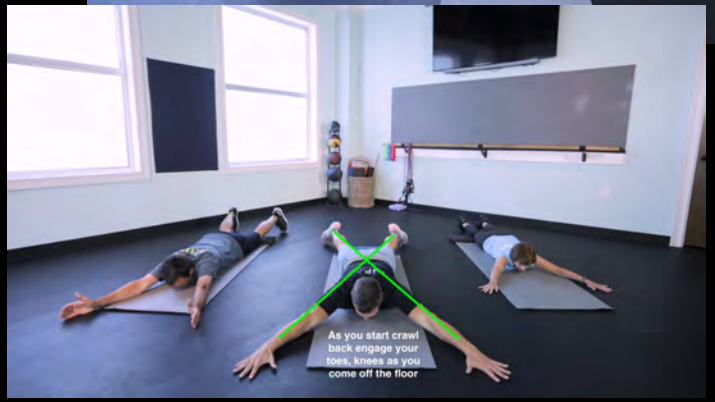
mobility.

• Improve Balance awareness and your proprioception through your ankles, hips, and Balance centers.

• Expose movement restrictions and neuromuscular weakness in the global and Central Nervous System.

• Provide a strategy for getting on and off the ground comfortably.





Technique 7 video

TECHNIQUE 7 : ASSESSMENT

Ability to smoothly transition and crawl backK toward knees.	0 1 2 3 4 Perfect
Ankle Mobility.	0 1 2 3 Hypermobile
Knee Mobility.	0 1 2 3 Hypermobile
Ability to functionally squat back into heels.	Yes No
Ability to stand up with head over hips.	Yes No
Breathing is Controlled.	Yes No
Pain / Discomfort During Technique.	

TECHNIQUE 8 : ISOMETRIC MODIFIED WALL SIT (PMRF)

Restorative Functional Strategies:

• Strengthen PMRF signaling, and restore Inhibitory reflexes that improve Posture, and awareness.

• Neuromuscularly Strengthen all Postural muscles in gravity.

• Reduce Pain and degeneration from proper head, neck, and body alignment.

• Turn on 3 dimensional control and stability to the neuromuscular system

• Remove Upper Cross and Lower Cross inhibitory patterns through improved head, neck, shoulder, and hip mobility and alignment.

• Remove fear of falling.

Technique 8 video

PKT Table Integrations
Technique 8: Wall Neuro Reset

TECHNIQUE 8 : ASSESSMENT

Ability to keep eyes and chin level with horizon	Yes No
Able to put head on wall	Yes No
Hips on wall and able to maintain lordosis or spine on wall during press.	Yes No
Back of Hands/wrists on wall with posterior pressure.	Yes No
Side-to-side asymmetries	Lateral dev. of head: L or R
Neuromuscular Endurance.	Elevation of Shoulder: L or R
Breathing is Controlled.	Seconds: ____
Pain / Discomfort During Technique.	Weak 10 20 30 40 50 60 Strong

Why does Work & Exercise Matter for our Brain

The Evolution of Movement Dysfunction