ELBOW PAIN FROM A DIFFERENT SOURCE

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BLUEGRASS ORTHOPAEDICS

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April 15

IT’S “MIMI”

OBJECTIVES

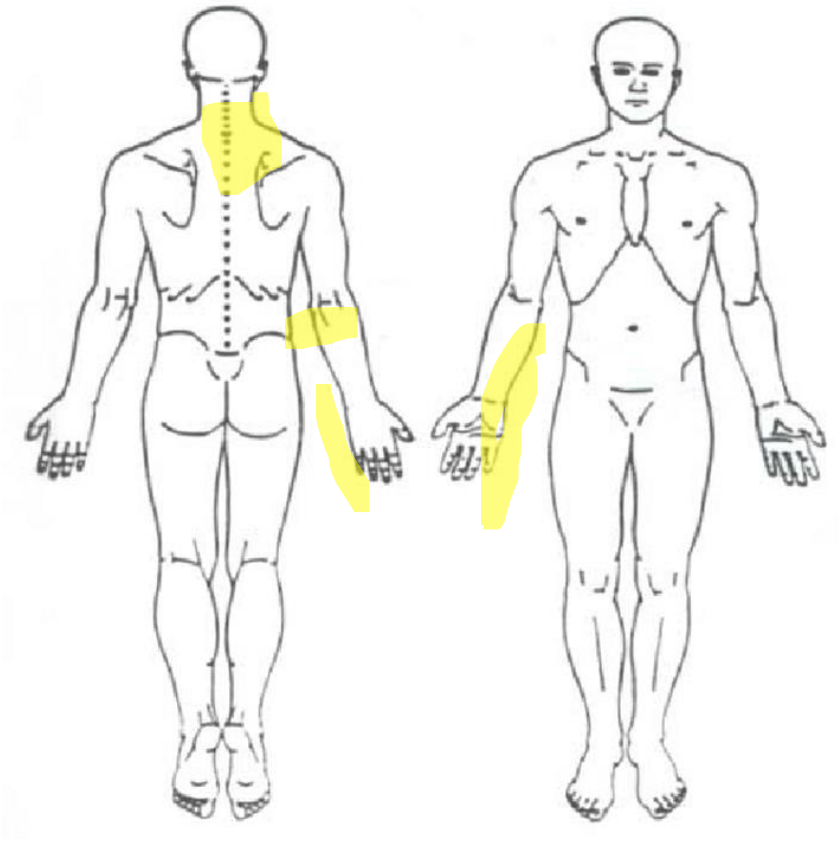
1. Understand a working knowledge of how to begin a regional interdependent evaluation when patient presents with diffuse medial elbow pain

2. Demonstrate techniques on how to measure ULTT for the median and ulnar nerve

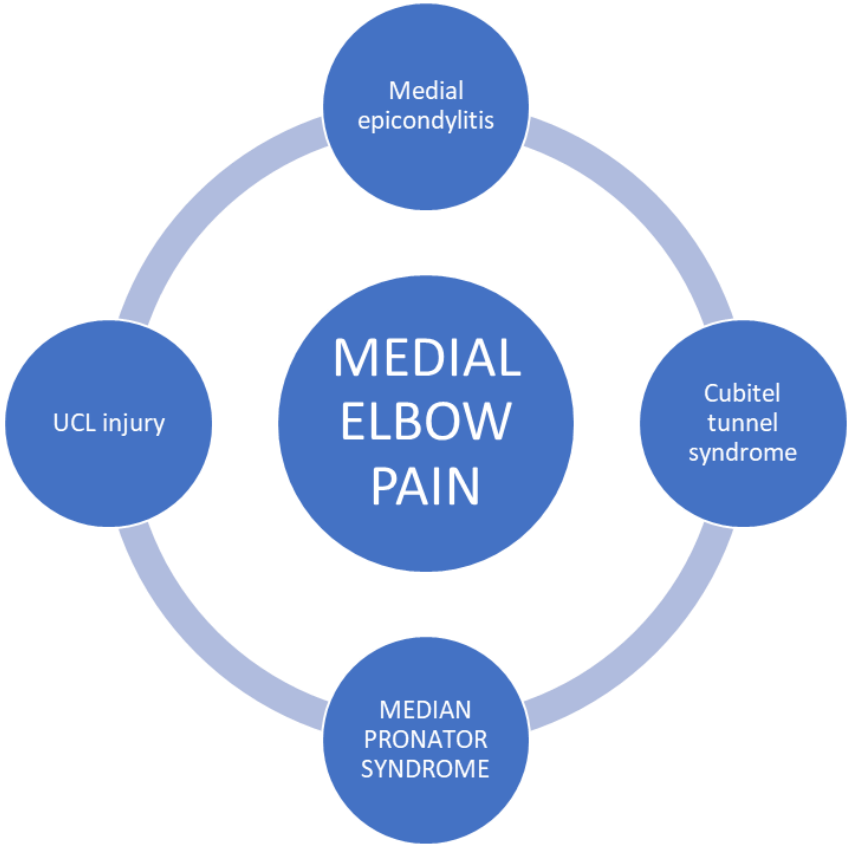
3.Comprehend how posture and proximal muscle imbalances contribute to diffuse elbow pain

4. Develop a functional treatment plan that encompasses open and closed chain exercises.

COMMON PRESENTATION



RULING IN AND RULING OUT



WHERE TO BEGIN

Central to Peripheral

Benefits of Repeated Movement testing

Functional Measurable Gains

HISTORY

ONSET

CURRENT

WHAT WERE SYMPTOMS AT ONSET AND NOW
- LOOK AT THEIR BODY DIAGRAM

DOES THE PATIENT THINK THEY IMPROVING/UNCHANGED/WORSE

CONSTANT VS INTERMITTENT

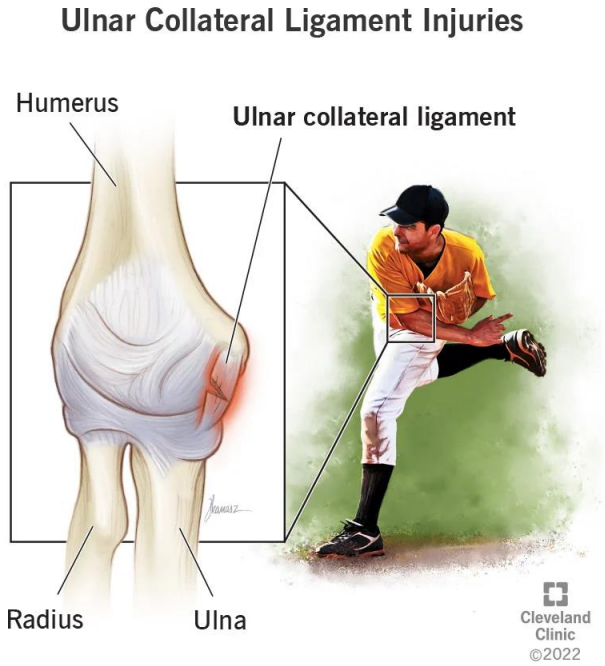
WORSE: " WHEN YOU DO _____ IT WILL WORSEN"
- CONSIDER MOVEMENTS, STATIC POSITIONING, TIME OF DAY

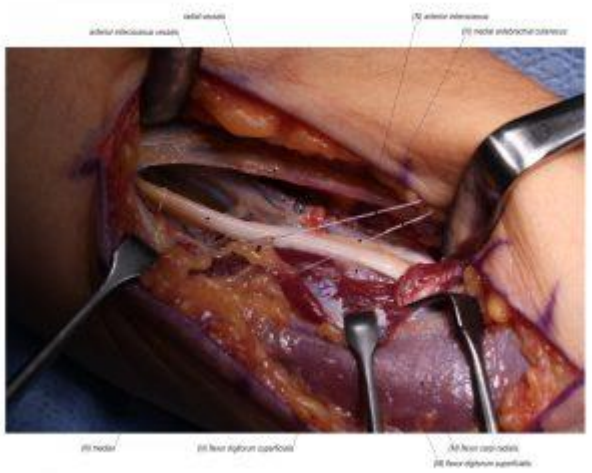
BETTER:

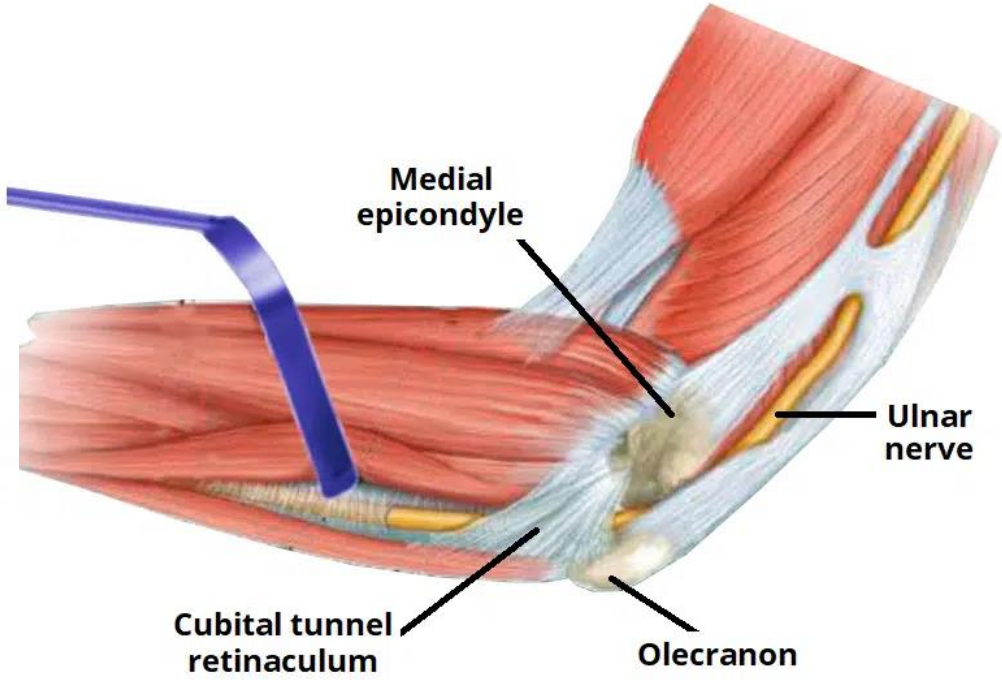
DOES IT WAKEN THEM AT NIGHT

PREVIOUS EPISODES

TREATMENT







Similar Symptoms Different Injury??

Lateral Elbow Pain

- Cervical radiculopathy
- Radial tunnel syndrome
- Posterior interosseous syndrome
- Radio-capitellar chondromalacia
- Posterolateral rotatory instability
- Myofascial trigger points in the wrist extensors

CENTRALLY: WHAT DO WE KNOW

Wainner et al

CPR had 99% specificity when all 4 items were positive (positive likelihood ratio, 30.3), and 94% specificity when 3 of the items were positive (positive likelihood ratio, 6.1).52

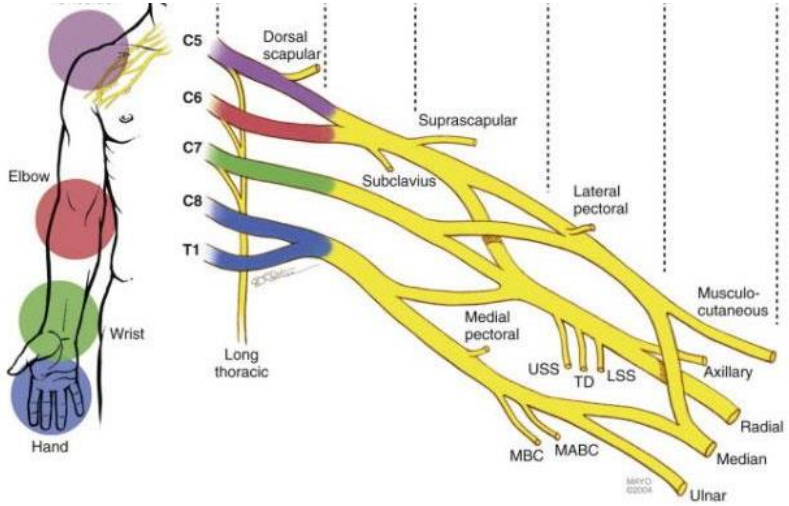
Clinical Tests	(+)	(-)
Nerve Root		
Spurling		
Ipsilateral loss of <60 rotation		
(+) ULTT MN		
Distraction		
TOS		
CRLFT		
Adson's		
ROOS/EAST		
Tendernes to Palp		
Interscalenes		
Costclavicular		
Pec Minor		

Figure 1. The Cervical Rotation Lateral Flexion Test Assessing the Left First Rib

MNC TESTS

Journal of Osteopathic Medicine

https://www.degruyter.com/document/doi/10.1515/jom-2021-0276/html?lang=en#:~:text=Thoracic%20outlet%20syndrome,jom%2D2021%2D0276



BRACHIAL PLEXUS NEURAL PATHWAYS
https://orthoinfo.aaos.org/globalassets/figures/a00678f02.jpg

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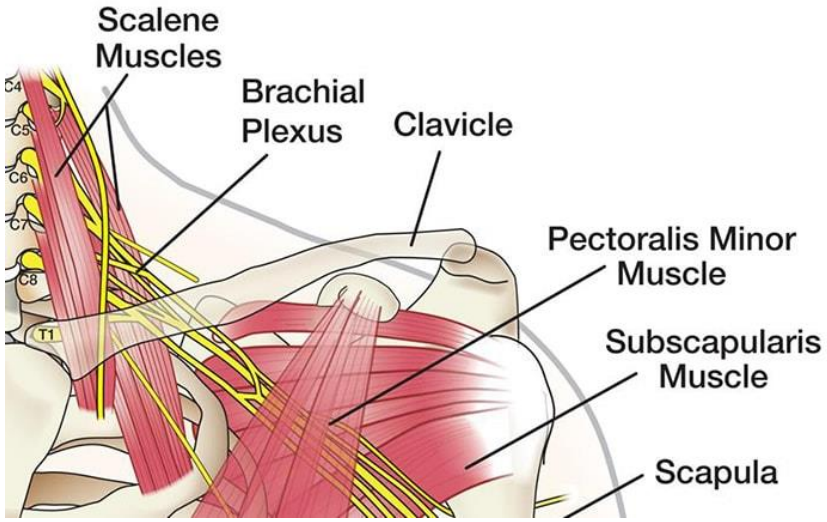
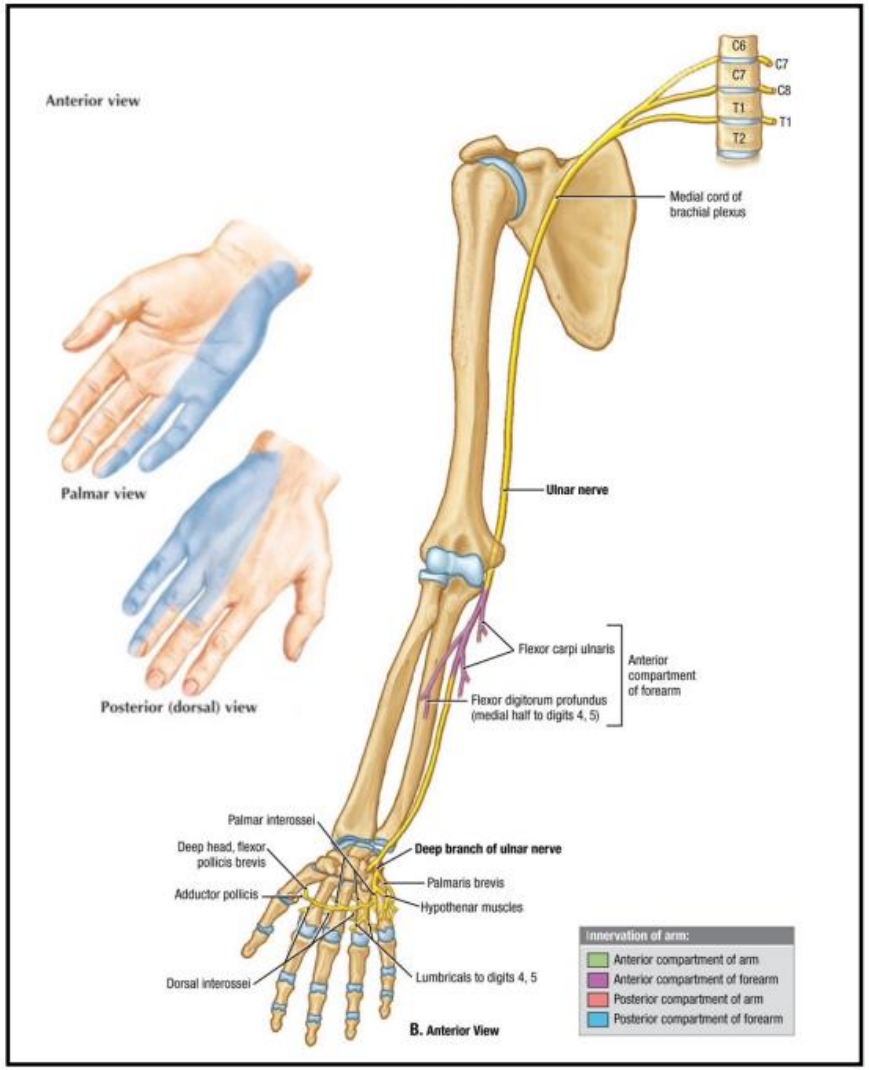
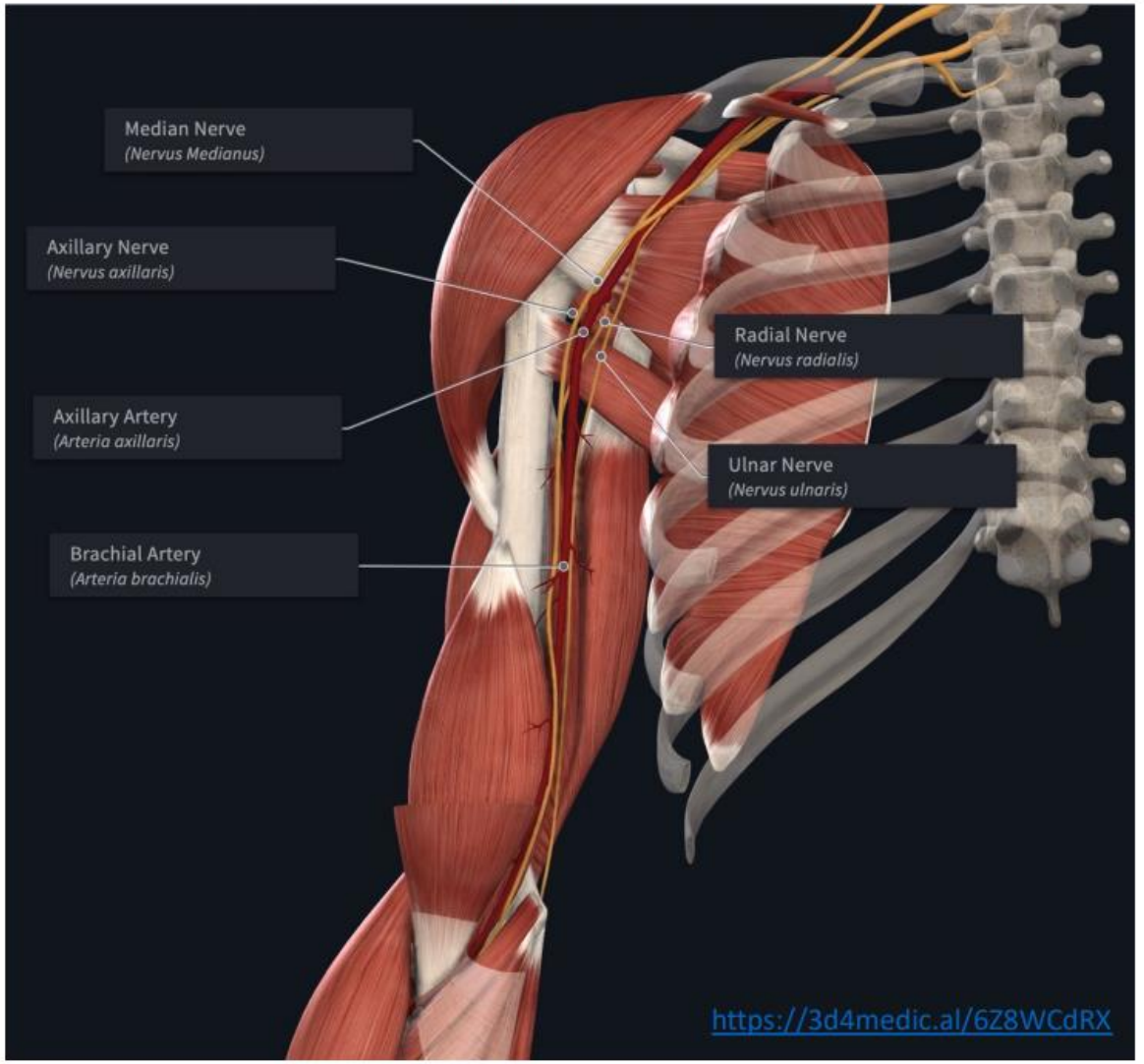
https://percymartinezlaw.com/wp-content/uploads/2017/04/diagram-the-anatomy-of-Brachial-Plexus-min.jpg



NERVE	ORIGIN	COURSE	STRUCTURES INNERVATED
Ulnar	Larger terminal branch of medial cord, receiving fibers from C8, T1 and often C7	• Descends medial arm • Courses posterior to medial epicondyle of humerus • Descends ulnar aspect of forearm to hand	**Motor:** Flexor carpi ulnaris and ulnar half of flexor digitorum profundus (forearm); most intrinsic muscles of the hand **Sensory:** Skin of hand medial to midline of digit 4, medial half of digit 4, all of digit 5

Clinical Anatomy:
Lesions of the ulnar nerve (and its branches) will be explored in upcoming units when we study the anatomical area in which a lesion typically occurs.





CUBITAL TUNNEL SYNDROME

Differential DX: CERVICAL RADICULOPATHY AND TOS

Special Tests: Elbow flexion test

Cheng et al38

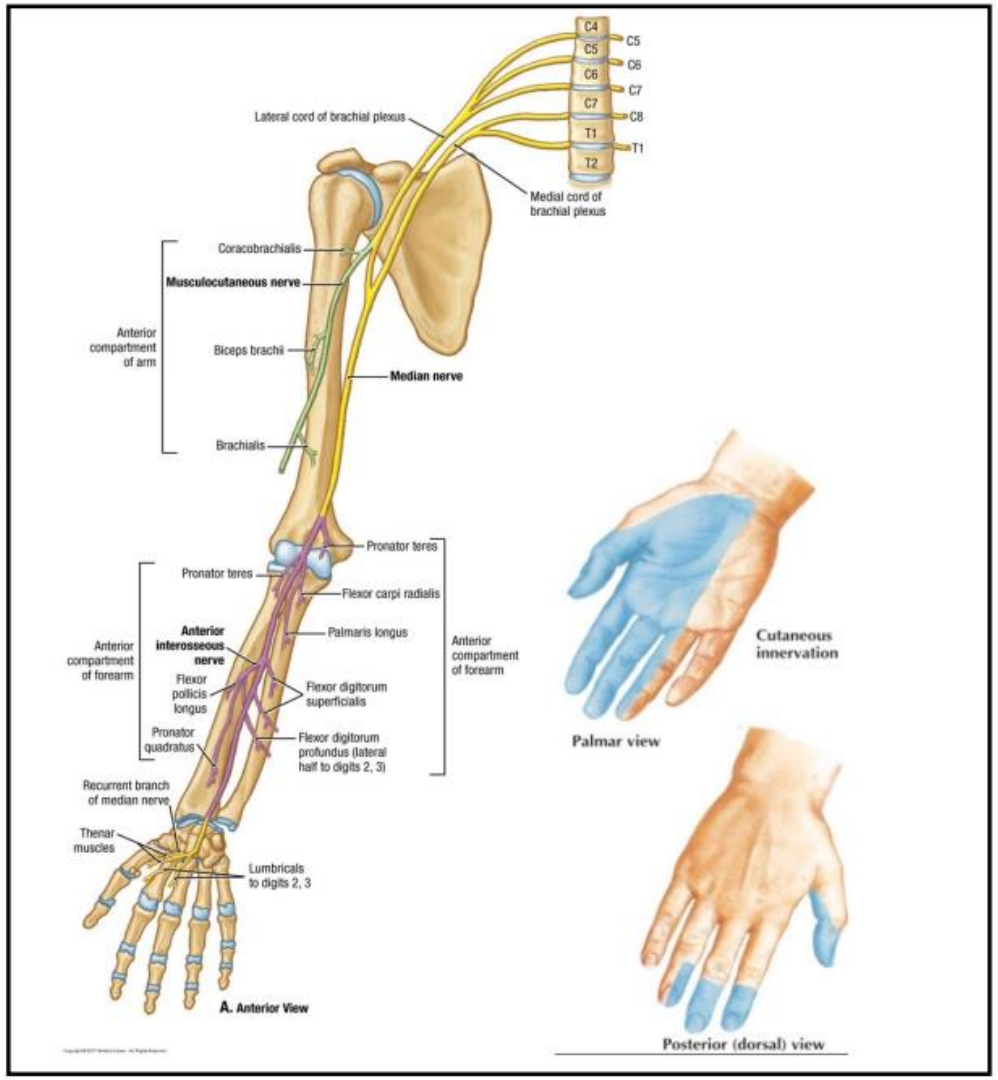
LR+: 45.99

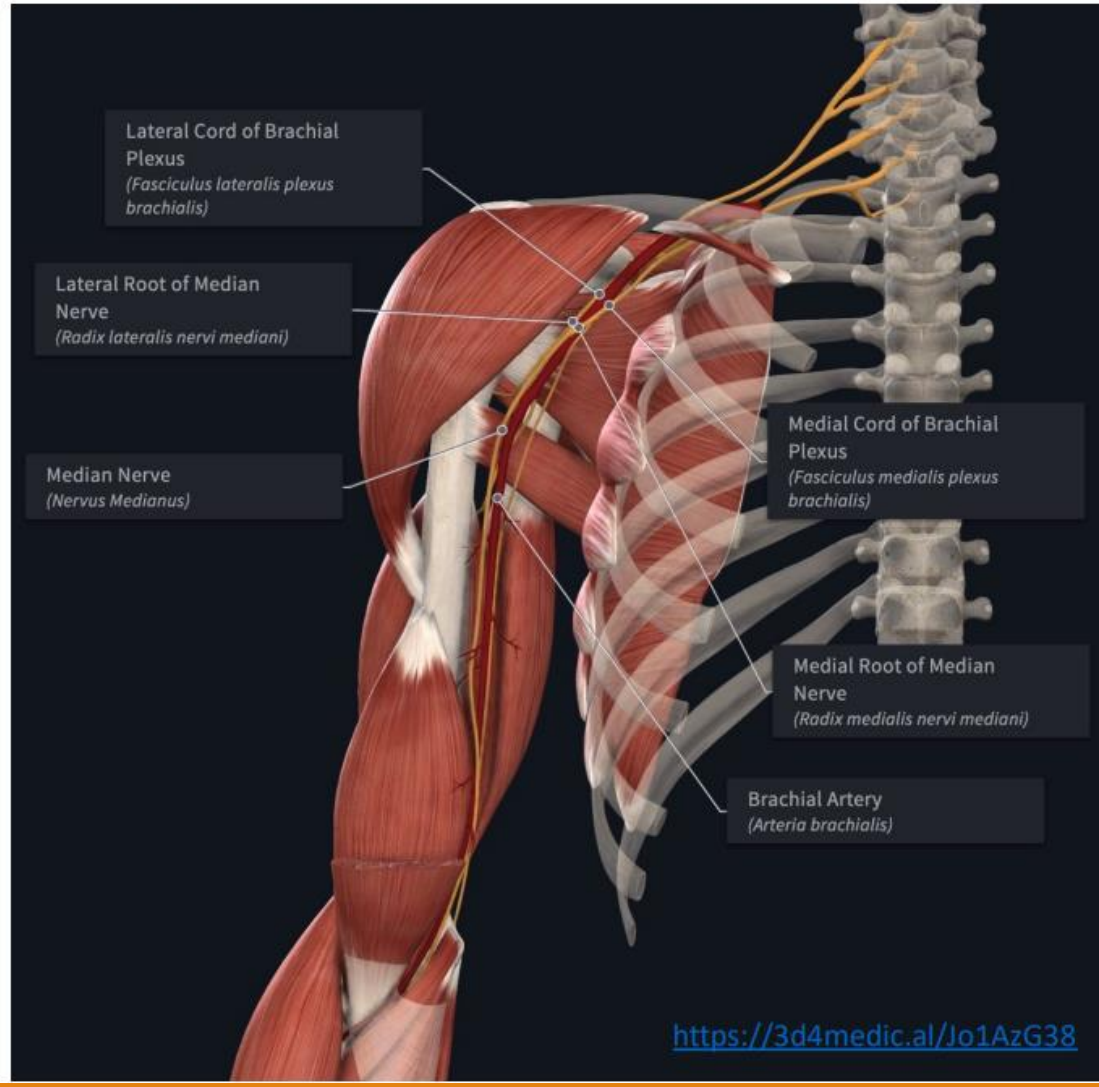
LR-: 0.54

. Cheng CJ, Mackinnon-Patterson B, Beck JL, Mackinnon SE. Scratch collapse test for evaluation of carpal and cubital tunnel syndrome. J Hand Surg Am. 2008;33(9):1518-1524. doi: 10.1016/j.jhsa.2008.05.022

Median	Lateral root of median nerve is a terminal branch of lateral cord (C6, C7) Medial root of median nerve is a terminal branch of medial cord (C8, T1)	• Lateral and medial roots merge to form median nerve (lateral position relative to the axillary artery) • Descends through arm adjacent to brachial artery, with nerve gradually crossing anterior to artery to lie medial to artery in cubital fossa	• **Motor:** Muscles of anterior forearm compartment (except flexor carpi ulnaris and ulnar half of flexor digitorum profundus), lumbricals of digits 2 and 3, and thenar muscles (abductor pollicis brevis, opponens pollicis, flexor pollicis brevis) • **Sensory:** Skin of palm, palmar side of digits 1-3, lateral palmar side of digit 4, and the distal half on the dorsal surface of digits 1-4.

CLINICAL ANATOMY:
Lesions of the median nerve (and its branches) will be explored in upcoming units when we study the anatomical area in which a lesion typically occurs.





MEDIAN NERVE ENTRAPMENT

Differential Diagnosis: Cervical Radiculopathy, Brachial Neuritis(Parsonage-Turner Syndrome)

	Pronator Syndrome	AIN	CTS
LOCATION:	Prox anterior forearm Numb Rad 3 digits	Prox. Ant FA	N/T/P Rad 3 digits
SYMPTOMS	Fatigue/cramp in forearm No night sxs	grip/pinch wkns No night sxs	Grip/pinch wk +Night sxs
N/T	YES	NO	YES
MOTOR LOSS	Uncommon	FPL/FDP of IF/MF pronator quadratus	Weakness of APB, OP/FPB/atrophy

Terminal Branches: Radial Nerve

NERVE	ORIGIN	COURSE	STRUCTURES INNERVATED
dial	Larger terminal branch of posterior cord (largest branch of plexus), receiving fibers from C5–T1	• Exits axilla posterior to axillary artery and passes posterior to humerus in radial groove with deep brachial artery, between lateral and medial heads of triceps • Perforates lateral intermuscular septum • Enters cubital fossa, dividing into *superficial*(cutaneous) and *deep* (motor) *radial nerves* (Fig. 6.46D)	**Motor:** All muscles of posterior compartments of arm and forearm **Sensory:** skin of posterior and inferolateral arm, posterior forearm, and dorsum of hand lateral to axial line of digit 4

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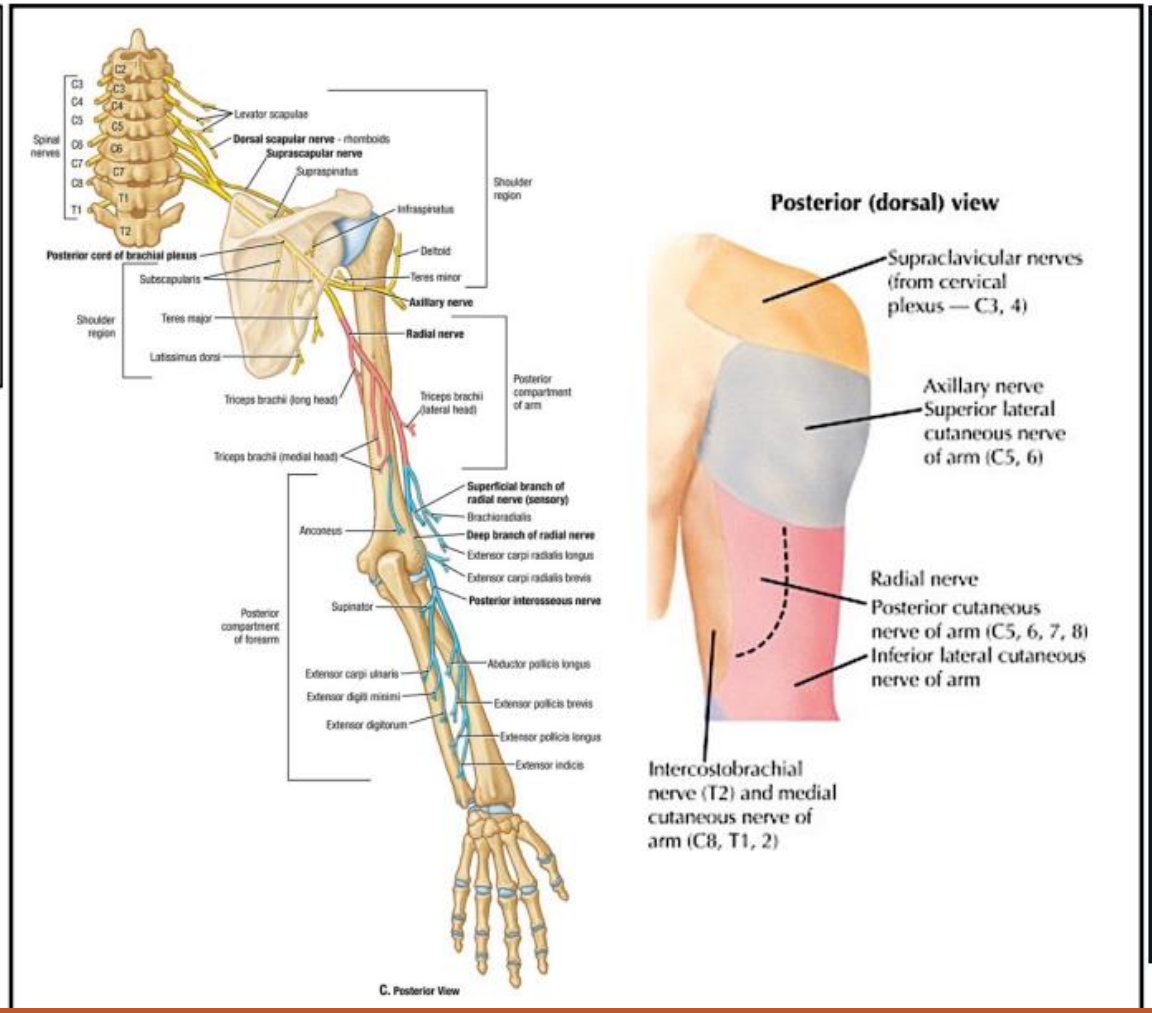
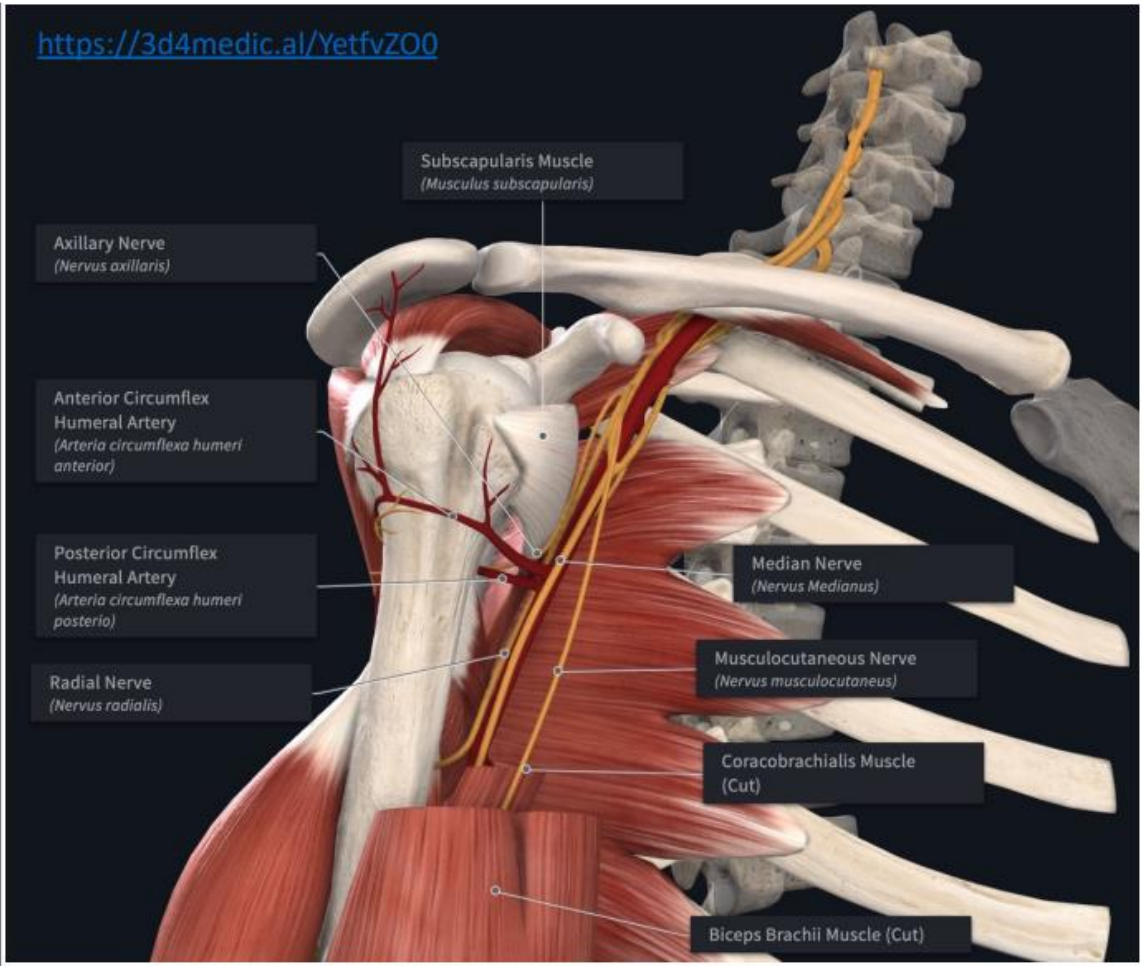
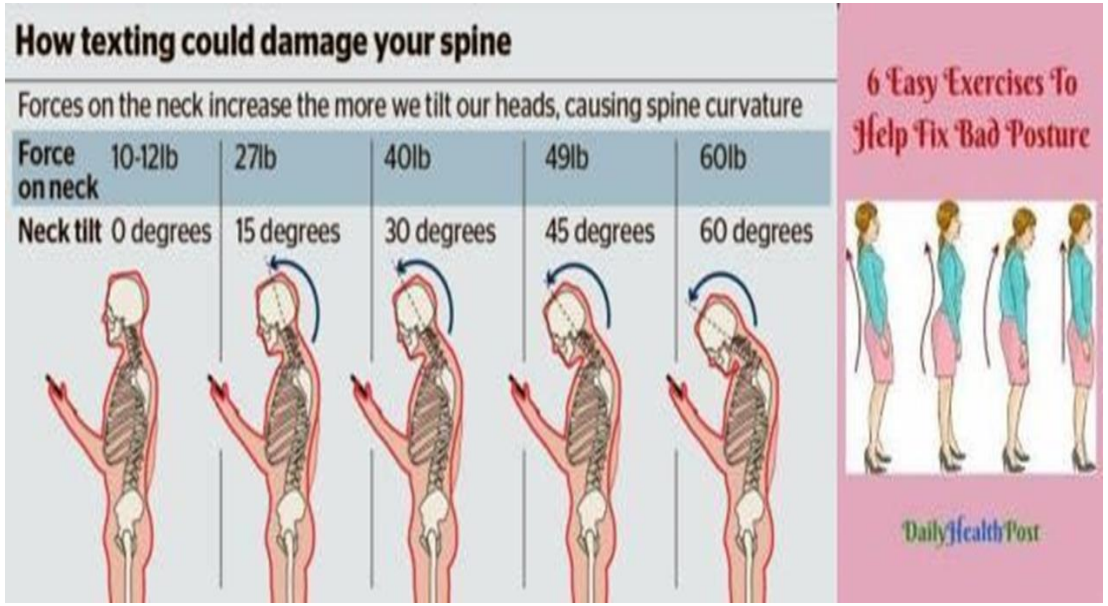


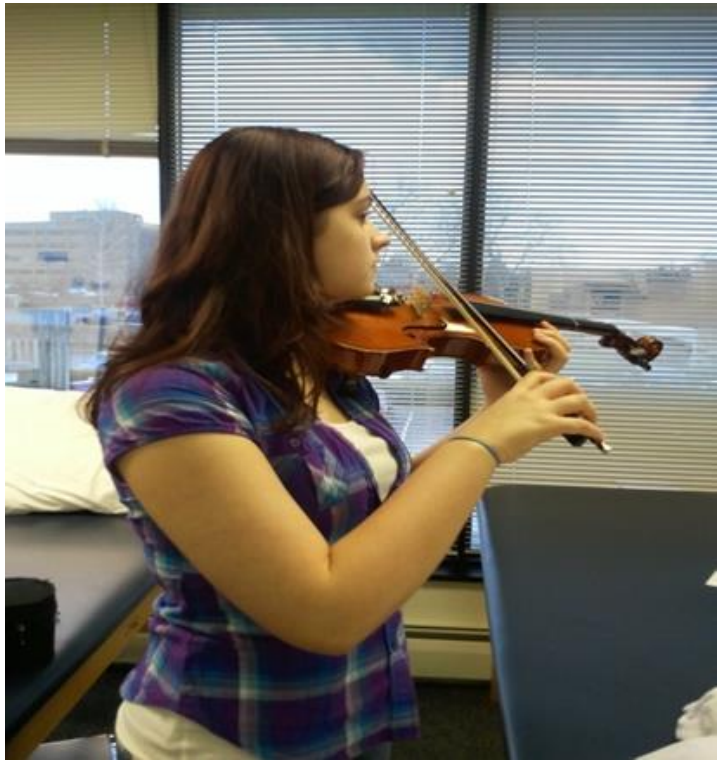


RADIAL NERVE ENTRAPMENT

Differential DX: Lateral elbow tendinopathy or PIN syndrome

	RTS	LET	PIN
◦ Tenderness over lateral epicondyle	(5cm distal to LE)	YES	NO
◦ Pain with resisted wrist extension	yes/no	Yes	NO
◦ Pain with resisted supination	YES –elbow ext	Yes	NO
◦ Motor loss/sensory loss	NO/YES	NO	YES(finger/thumb ext/NO





WHY WE CONSIDER AN INTER-REGIONAL APPROACH ??!!

REPEATED MOVEMENT TESTING

Mechanical Diagnosis and Treatment

Hallmark Features:

- Classification through mechanical and symptomatic responses

-Focus on centralization

-Self-treatment

-Progression of forces

-Patient education

DERANGEMENT

Demonstrates

Directional preference

Usually have motion loss

- Pain distribution: local or referred
- Time frame: acute or chronic
- Constant vs Intermittent: either
- Pain during movement or at endrange
- History: varies
- Displacement within a motion segment of whatever origin
- Response to repeated movement: see rapid change

DYSFUNCTION

Key Features

Present for at least 6-8 weeks

Always local except in case of ANR (Adherent Nerve Root)

Never lasts

Consistent endrange pain that is restricted is painful

Most common or Extension and Flexion Dysfunction

POSTURE SYNDROME

CARDINAL FEATURES

ALWAYS INTERMITTENT

ALWAYS LOCAL

NO PAIN WITH MOVEMENT OR ACTIVITY

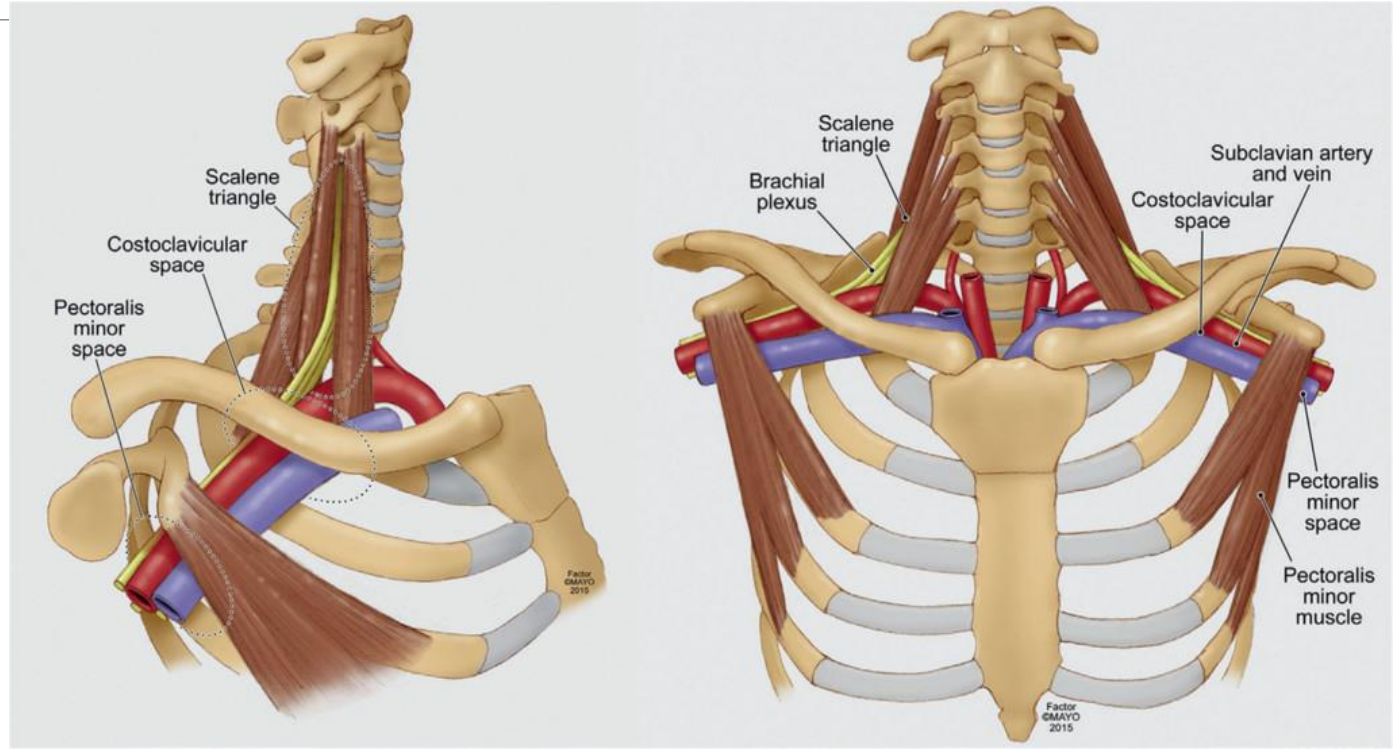
NO LOSS OF MOVEMENT

INTERMITTENT PAIN BROUGHT ON ONLY BY PROLONGED STATIC LOADING OF NORMAL TISSUES

CAUSED BY PROLONGED LOADING OF CONTRACTILE AND INERT TISSUE OVER TIME THAT CAUSES EITHER DEFORMATION OR VASCULAR INSUFFICIENCY OF THE TISSUE.

THORACIC OUTLET

https://media-now.aapmr.org/wp-content/uploads/2021/11/18221602/Thoracic-Outlet-Syndrome-Figure-1024x554.jpg



EPIDEMIOLOGY/RISK FACTORS

Cases per Incidence of 3-80 1000.[2]

Proportionately, neurogenic TOS (nTOS) is estimated to comprise over 90% of TOS.

Venous TOS (vTOS) accounts for 3%

Arterial TOS (aTOS) is estimated to have the lowest incidence, at less than 1%.[4]

nTOS can be seen in ranges between teenage to 60 years of age.[28]

vTOS usually seen between 20 to 30 years of age.[29]

Both vTOS and aTOS typically found in younger ages

The female/male ratio for nTOS is 3.5:1

https://now.aapmr.org/thoracic-outlet-syndrome

There is no sex predilection for aTOS or vTOS.[5, 29] Studies indicate that vTOS affects a similar proportion of men and women.[5, 29]

TYPES OF THORACIC OUTLET

- **Neurogenic thoracic outlet syndrome**
- Happens when there's pressure on your brachial plexus

  Represents about 95% of all cases of thoracic outlet syndrome

Venous thoracic outlet syndrome:

This is compression of your subclavian vein.

- Symptoms typically manifest in their dominant arm.

Arterial thoracic outlet syndrome

The most common causes are repetitive stress injuries (often from sports) and sudden trauma to your neck (like whiplash).

The most common cause of acute blood clots in the arm.

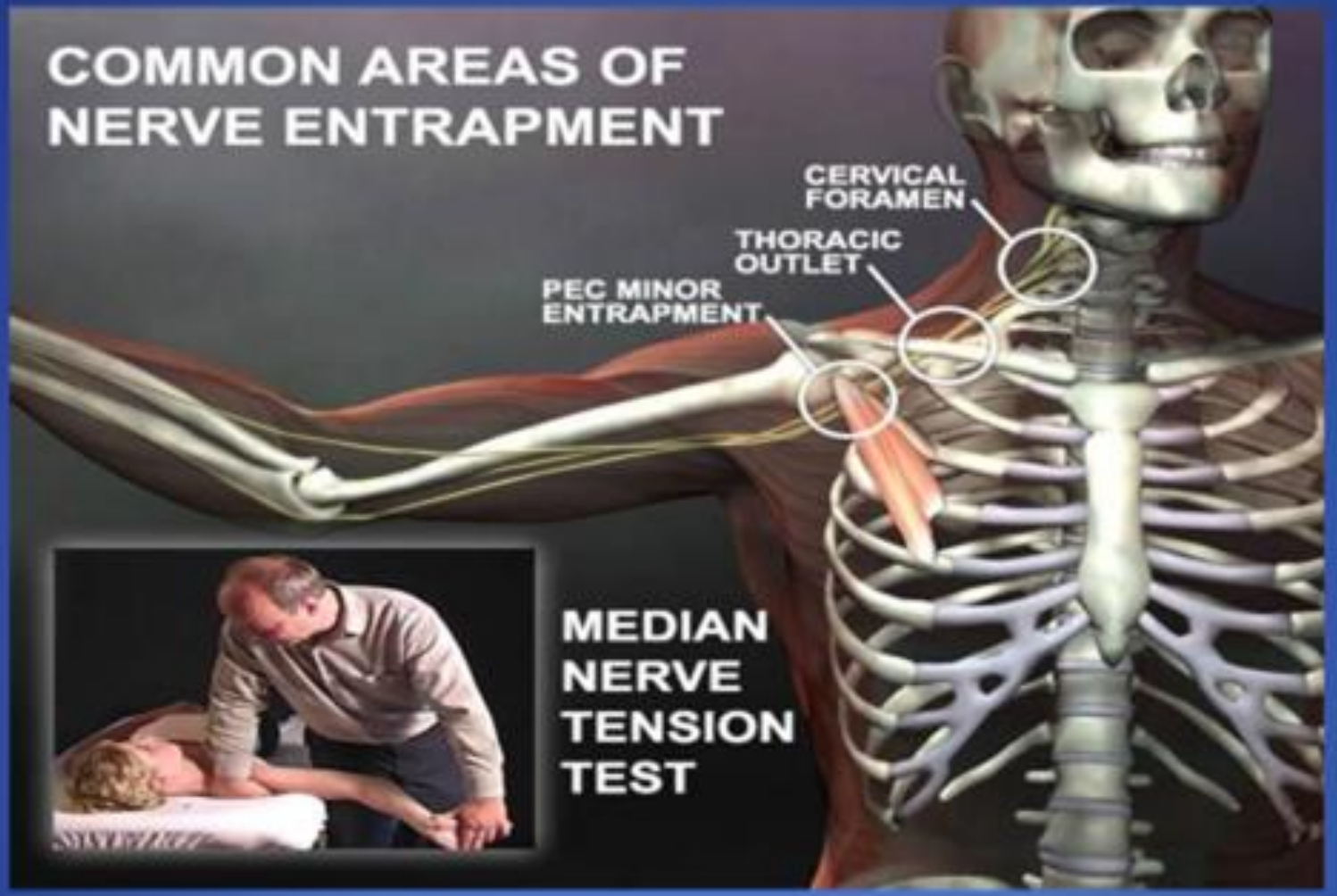
- Commonly born with (like a cervical rib).
- More common among women and people assigned female at birth
- 70% of cervical ribs occur in women.

EXAMPLE OF SURGICAL NTOS-Success

Chris Young pitching for the Kansas City Royals in 2015.Chris Young, 35, won the American League Comeback Player of the Year Award as a starting pitcher with the Seattle Mariners last season, going 12-9 with a 3.65 ERA. But as the name of the award suggests, he went through a down period – several years, in fact – in which his prospects were not so bright.

Chris's journey took him to Washington University vascular surgeon Robert Thompson, MD, at Barnes-Jewish Hospital after several years of debilitating shoulder pain, surgeries, and ups and downs in his baseball career.

Multiple Nerve Compression



PERIPHERAL

SHOULDER/SCAPULA POSITIONING”

-dyskinesia, capsular tightness/irritability

ELBOW: SPECIAL TESTS –WHAT DO THEY REALLY TELL US??? JOSPT: Clinical Practice Guidelines

WRIST/HAND:

KNOW PAIN KNOW GAIN

- **Pain neuroscience education has the potential, when combined with appropriate movement-based strategies, to change both patient outcome and clinician outlook, which may ultimately prove invaluable to society. Thus the heuristic, "Know pain, know gain."** March 2016 Journal of Orthopaedic and Sports Physical Therapy 46(3):131-134DOI:10.2519/jospt.2016.0602

2014 JOHT " **Outcomes following the conservative management of patients with non-radiular peripheral neuropathic pain**" Joseph M. Day MSPT, PhD, OCS, CIMT, Jason Willoghby MHS OTR/L, CHT/L, Donald Greg Pitts MS, OTR/L, CHT, Michelle McCallum PT, DPT, OCS, Ryan Foister OTR/L CHT, Time L Uhl PT, ATC, PhD, FNATA

2019 **Efficacy of Cervicothoracic spine mobilization and Posture Correction in relieving hand and wrist pain in patients without intrinsic hand and wrist pathology** Barker L, Canter K, Fletcher C, McCallum M, English T

2020-2022**-Effectiveness of Physical Therapy Interventions on Medial Elbow Pain Using a Regional Interdependence Model:**

Where We Started

Efficacy of Cervicothoracic Spine Mobilization and Posture Correction in Relieving Hand and Wrist Pain in Patients without Intrinsic Hand and Wrist Pathologies

Barker L, Canter K, Fletcher C, McCallum M, English T
Department of Physical Therapy ♦ College of Health Sciences ♦
University of Kentucky ♦ Lexington, KY; Bluegrass Orthopaedics♦Lexington, KY

College of Health Sciences
Physical Therapy

BGO BLUEGRASS ORTHOPAEDICS

BACKGROUND/ PURPOSE

Cervical radiculopathy is a common pathology in the cervical region causing wrist and hand pain. Although patients experience pain distally, the cause of their pain is not due to an intrinsic wrist or hand pathology; rather, its origin is in the cervical spine as the involved nerve root exits the intervertebral foramen. When distal wrist and hand pain is linked to proximal cervical spine abnormalities, a conservative bout of physical therapy treatment consisting of cervicothoracic spine mobilizations/manipulations and postural correction exercises are often successful in ameliorating patient symptoms.

The purpose of this study was to link distal wrist and hand pain to its origin in the cervicothoracic spine and to provide support for proximal treatment consisting of spine mobilizations/manipulations and posture correction exercises as quality treatment methods that are currently being administered at Bluegrass Orthopaedics.

This study aims to link distal hand and wrist pain to the cervicothoracic spine to provide support for spine mobilizations, posture correction, and proximal treatment. The null hypothesis is that cervical ROM, QuickDash scores, and grip strength will remain unchanged post-cervicothoracic manipulation/mobilization and post-postural correction

SUBJECTS

-15 subjects
-age range 21-54 mean of 36.3 years
-11 females and 4 males

METHODS/ PROCEDURES/ ETC...

Inclusion criteria: unsuitable for hand surgery or no improvement from surgery, + ULTT, Cervical Rotation <60, Thoracic Extension <25, Limited grip strength
Exclusion criteria: intrinsic hand pathology, History of diabetes, peripheral neuropathy, pregnancy or progressive neuro disorder

1. Patients referred to PT and screened.
2. Outcomes used: Quickdash, Cervical and Thoracic ROM, Grip Strength, Middle and lower trapezius strength, Head to acromion process distance, Elbow angle in ULLT
3. Interventions provided; postural exercises, flexibility exercises, Manual Therapy to first rib and thoracic spine.

Seen 2-3 times per week for 4-6 weeks

ANALYSIS

All statistical analyses were completed using SPSS Version 24 (Armonk, NY). Histograms were constructed based on the pre-test and post-test differences to determine normal distribution of the data. One sample t-tests were performed on the normalized data sets, and the nonparametric Wilcoxon test was used with data sets not normally distributed.

RESULTS (significant findings in gray)

Parameter	Mean1- Mean 2	Standard Deviation	P vlaue
Cerv. Flex. (Degrees)	57-56	12.6	.438
Cerv. Extension(Degrees)	74-90	21.2	.013
Left rotation (Degrees)	70-81	17.5	.082
Right rotation (Degrees)	69-81	17.7	.013
Left Side Bend (Degrees)	43-54	16.3	.046
Right Side Bend (Degrees)	41-54	13.3	.001
Left Mid. Trap (lbs)	25-33	4.6	.000
Right Mid. Trap (lbs)	27-35	5.3	.001
Right Grip (lbs)	76-80	9.7	.29
Left Grip (lbs)	70-76	7	.016
Median N. ULTT (Degrees)	45-22	33.9	.002
Quick Dash	25-20	4.7	.007

LIMITATIONS

Lower level of evidence
Robust number of outcome measures
Occasional measurement inconsistencies
Small sample size → not generalizable

CONCLUSIONS AND RELEVANCE

Null hypothesis: rejected

Cervical ROM, QuickDASH, hand grip strength and upper limb tension test showed statistically significant results

Cervicothoracic mob AND Postural stability interventions were used

Provision of effective assessment and treatment for this population

Foundation for future studies

Acknowledgements

Thanks to Drs. Juan Martin Favetto and William L. O'Neill for their contributions of patient referrals

Effectiveness of Physical Therapy Interventions on Medial Elbow Pain Using a Regional Interdependence Model

Michelle McCallum, PT, DPT, OCS, Cert MDT[1], Reagan Day, DPT[2], Wade Meredith, DPT[2], Jordan Byrne, DPT[2], Griffin Snyder, SPT[2], Andy Hickey, SPT[2], Tim L. Uhl, PT, PHD, ATC, FNATA[2]
[1] Bluegrass Orthopaedics, Lexington, KY
[2] Physical Therapy Department, University of Kentucky, Lexington, KY

INTRODUCTION

Patients presenting with medial elbow pain without structural deficits, and non-specific local clinical presentation can be challenging to manage. Associated nerve entrapments may be an underlying cause. Limited evidence exist on the effectiveness of using a regional interdependent approach on these symptoms..

PURPOSE OF STUDY

- The overall objective of this study is to investigate the effectiveness of a regional interdependence rehabilitation model to treat patients with medial elbow pain with nerve involvement. We hypothesize a regional interdependence-based rehabilitation approach will increase pain-free cervical ROM, scapular retraction strength, neural mobility, and patient reported function in patients with non-structural elbow pain.

NUMBER OF SUBJECTS

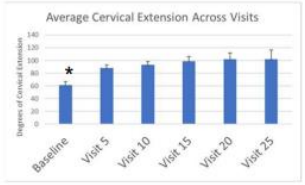
- A total of 36 participants met the inclusion criteria to be eligible for the study. Ultimately, 22 participants (43.0 years ± 16.0) were used for data analysis as they were followed until discharge by the physical therapist.

METHODS

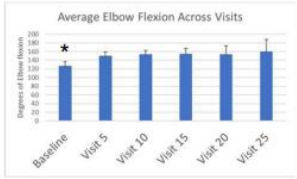
- Five dependent measures were used to evaluate improvement in this study including cervical extension mobility, median and ulnar nerve mobility, scapular retraction strength, and a FOTO Scale score for the upper extremity. At the patient's initial evaluation, all measurements were collected at baseline and repeated every 5th visit until discharge. One unblinded physical therapist, with 25 years of experience, performed all outcome measures and applied all interventions.

RESULTS

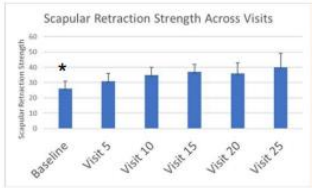
- **Figure 1**: Represents FOTO scores by visit.
- * denote that all other measures were significantly greater than baseline (p<0.05)
- † denotes that visit 10 was clinically greater than baseline



- **Figure 2**: Represents change in average cervical extension by visit.
- * denote that every measure after this point was found to be clinically and significantly greater than baseline (p<0.05)



- **Figure 3**: Represents change in average elbow flexion by visit.
- * denote that every measure after this point was found to be clinically and significantly greater than baseline (p<0.05)



- **Figure 4**: Represents scapular retraction strength by visit.
- * denote that every measure after this point was found to be clinically and significantly greater than baseline (p<0.05)

RESULTS

- The findings support our hypothesis as all outcome measures were significantly improved by visit 5. (Figure 1-4).
- The FOTO score made clinical meaningful improvement by visit 10 with a score 72 (CI_{95} 68-76) (Figure 1) as did scapular retraction strength improved from 26 lbs. to 35lbs. (p<0.001, Figure 4)
- Secondary goal of pain-free active cervical extension and elbow flexion improved by visit 5 (p<0.001, Figure 2 & 3)
- Average number of visits to discharge was 15, which was 70 ± 37 days.

DISCUSSION

- A regional interdependence-based rehabilitation approach will increase pain-free cervical ROM, scapular retraction strength, neural mobility, and patient reported function in patients presenting with non-structural elbow pain.
- These results imply that targeting postural education, strengthening of proximal musculature, stretching of the tight musculature, and enhancing spinal and nerve mobility can all contribute to decreasing referred, distal elbow pain

CONCLUSION

- Using a regional interdependence-based rehabilitation approach addressing proximal impairment initially with mobility, posture and strengthening interventions relieved the distal symptoms of the non-structural elbow pain.

ACKNOWLEDGEMENT

- A special thanks to Dr. J. Martin Favetto and Dr. Owen McGonigle for their contributions of patient referrals

Participant Demographics:

- Sex: 10 Males and 12 females
- Mean (standard deviation)
- Mean age: 43 (16) years
- Mean height: 79 (23) inches
- Mean weight: 171 (17) lbs

- Referral Diagnosis:
  - MNC = 14
  - Cervical Spondylolysis = 1
  - Cervical Radiculopathy = 1
  - Shoulder/Elbow Pain = 1
  - Medial Epicondylitis = 1
  - Bicep Pain = 1
  - Elbow Pain = 3

Outcome Measure: FOTO Score

- Intrarater reliability: 0.95
- Minimal Clinical Important Difference: 9.0
  - Hart et al, FOTO Inc. 2013

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METHODS

Measurements: assessed at baseline & every 5th visit

Pain free cervical extension
ICC: 0.68
MDC: 9 deg.

Lower trap strength
ICC: 0.98
MDC: 9lbs

Angle of elbow flexion during ulnar nerve ULTT
ICC: 0.35
MDC: 7 deg.

Angle of elbow extension during median nerve ULTT
ICC: 0.73
MDC: 10 deg.

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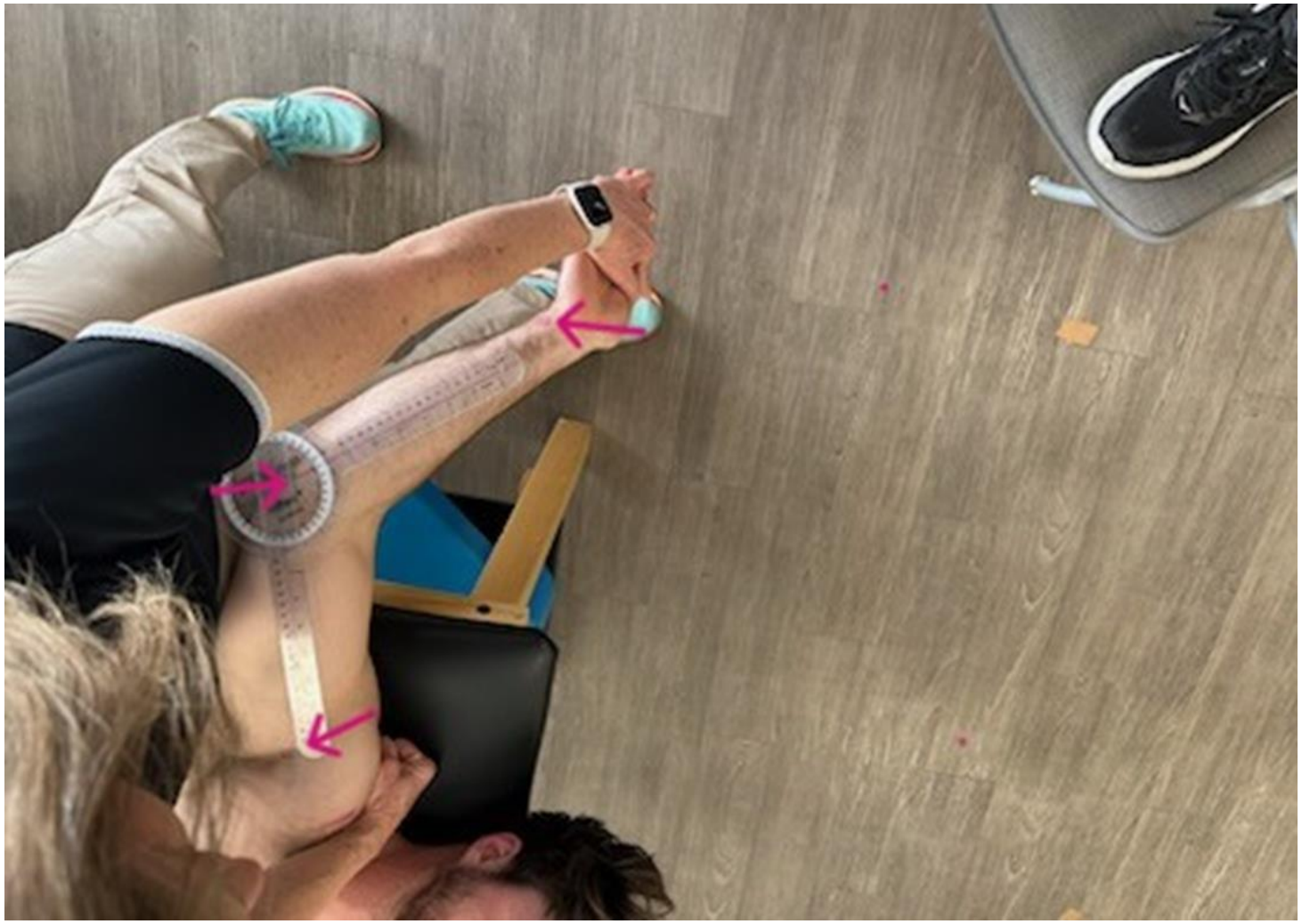
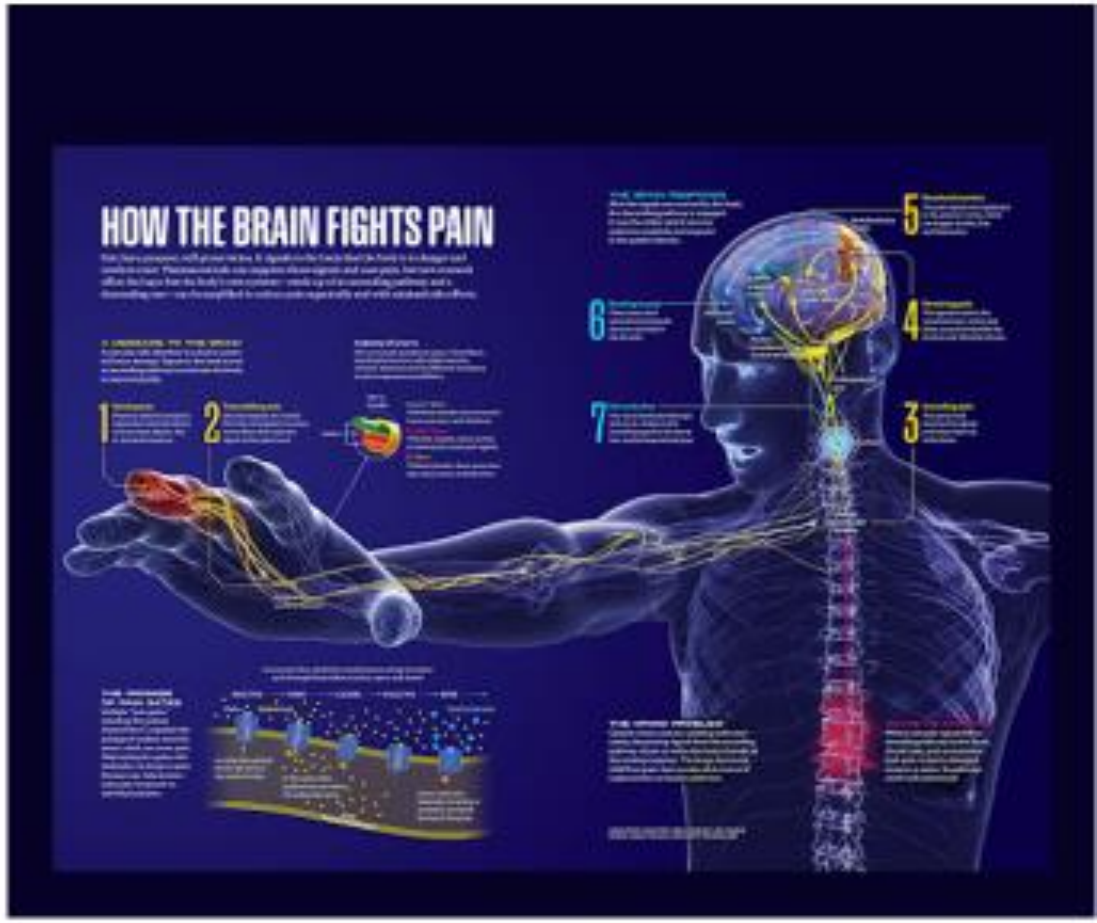
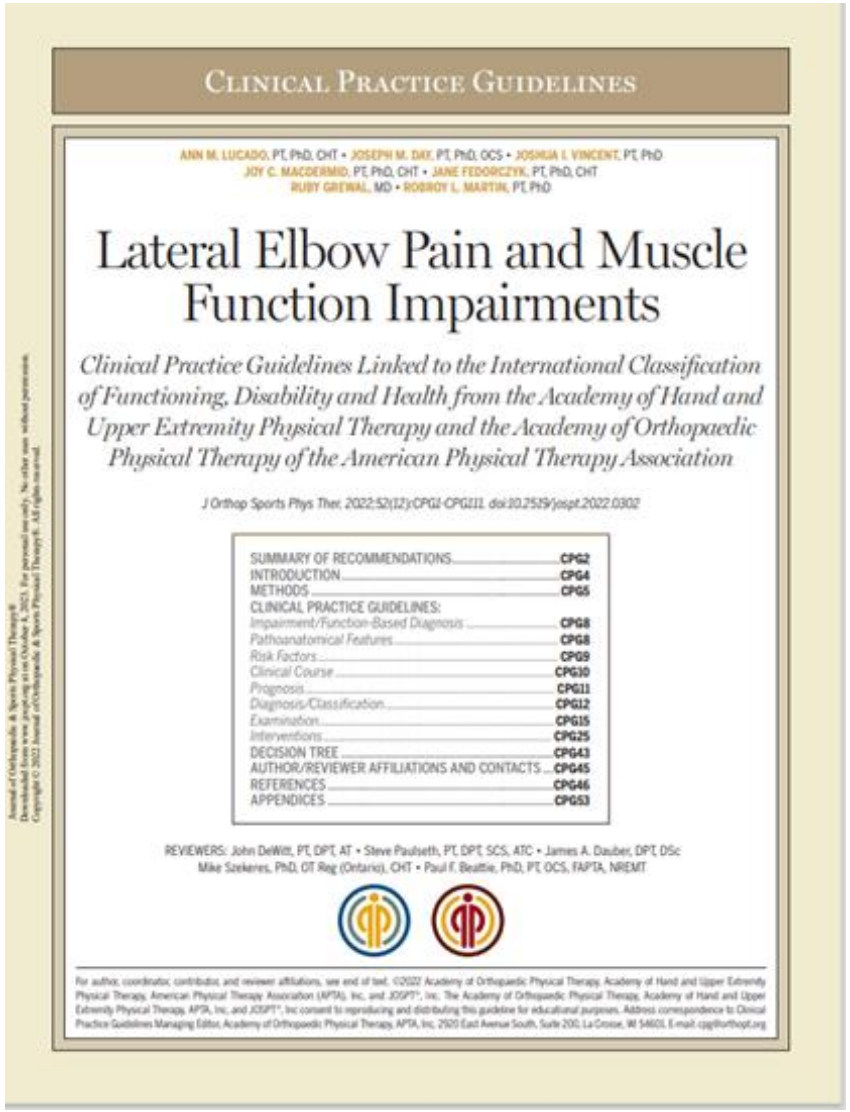


UPPER LIMB TESTING FOR NEURAL MOBILITY

Regional Interdependence: What is it?

- The concept of regional interdependence considers that musculoskeletal pain may arise or be influenced directly or indirectly from other body regions more proximal, or from another system entirely.
    - Seuki et al., J man Manip Ther. 2013





CLINICAL PRACTICE GUIDELINES

ANN M. LUCADO, PT, PhD, CHT • JOSEPH M. DAY, PT, PhD, OCS • JOSHUA I. VINCENT, PT, PhD
JOY C. MACDERMID, PT, PhD, CHT • JANE FEDORCZYK, PT, PhD, CHT
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Lateral Elbow Pain and Muscle Function Impairments

Clinical Practice Guidelines Linked to the International Classification of Functioning, Disability and Health from the Academy of Hand and Upper Extremity Physical Therapy and the Academy of Orthopaedic Physical Therapy of the American Physical Therapy Association

J Orthop Sports Phys Ther. 2022;52(12):CPG1-CPG111. doi:10.2519/jospt.2022.0302

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TREATMENT

Level B evidence

-Clinicians should use isometric, concentric, and/or eccentric therapeutic resisted exercises of the wrist extensors in the treatment of individuals with subacute or chronic LET

-Clinicians should use therapeutic resisted wrist extension strengthening exercises in combination with other therapeutic interventions, including manual therapy, in the treatment of patients with subacute or chronic LET

-Clinicians should use local elbow joint manipulation or mobilization techniques to reduce pain and increase pain

JOSPT

Physical Therapy for People with Lateral Elbow Tendinopathy Using the Evidence to Guide Musculoskeletal Rehabilitation Clinical Practice J Orthop Sports Phys Ther 2023;53(1):5-6. doi:10.2519/jospt.2023.050

Level B evidence

Clinicians should use either tendon or trigger point dry needling for the treatment of pain and functional deficits associated with LET.

- use rigid taping techniques for immediate/short-term pain relief and improvement in pain-free muscle function in those with irritable LET

LEVEL C EVIDENCE:

-Combination wrist extensor as well as scapula stabilization

-Combination joint mobilization to neck/thoracic/elbow

-Assisted tools for soft tissue as well as manual soft tissue

CURRENT EVIDENCE

Physical Therapy for People with Lateral Elbow Tendinopathy Using the Evidence to Guide Musculoskeletal Rehabilitation Clinical Practice J Orthop Sports Phys Ther 2023;53(1):5-6. doi:10.2519/jospt.2023.050

Level B

Therapeutic EX:

Combined with manual

Manual:

Joint mobs(regional) followed by resistive ex

Dry needling, Rigid Taping

Laser: >4 weeks – 6 months

Level C:

Modalities:

Iontophoresis: only 2-4 weeks

Tens Burst and Tens +Ice

Phonophoresis with10% hydrocortisone gel

2mg/d prednisone

1% diclofenac gel

Manual:

Instrument assisted tools along with mobilizations

LEVEL E EVIDENCE

MEDIAL ELBOW PAIN

case report Jon Goldfarb, PT, DPT1,2 < Jason K. Grimes, PT, DPT, PhD, OCS1 < Paul Bauer, PT, MSPT, OCS, FAFS, FMR jospt cases | volume 1 | number 1 | february 2021

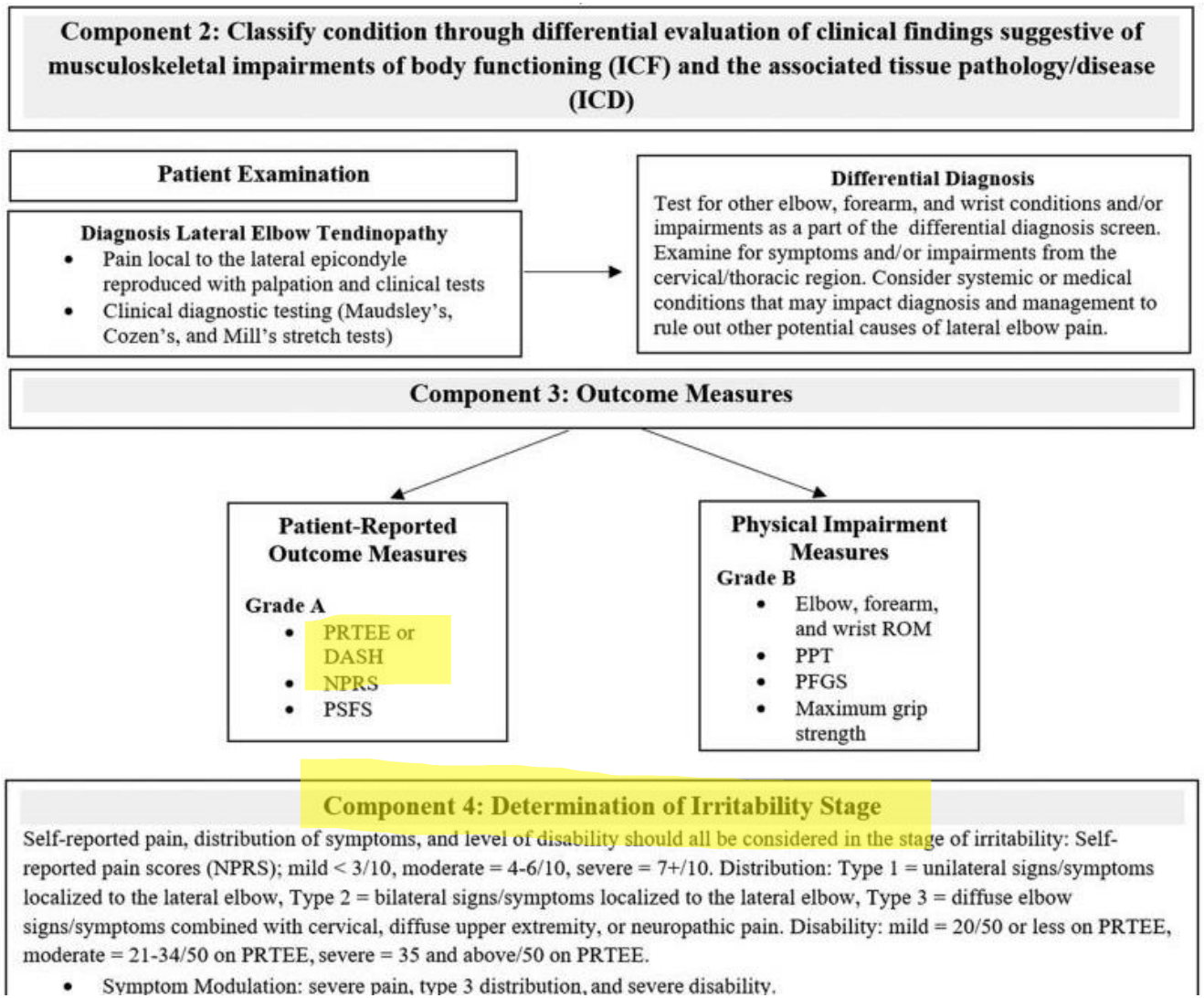
Utilizing Scapular Stabilization Exercises in a Patient With Medial Epicondylalgia: A Case Report

STAGE = PHASE

Most are not acute again this is not structural damage

Typically, greater than 6-8 weeks

IRRITABILITY?



IRRITABILITY

TYPE 1: (U) –localized

TYPE 2: (B)-localized

TYPE 3: Diffuse elbow sx's and cervical /UE /nerve symptoms

TREATMENT

Short lever arm to Long Lever Arm Strengthening

- Closed Chain
  - Weight shift on hands /knees
  - Weight shift hands/toes
  - Quadriped Reach Moving pads
  - Modified Plank on Knees 2 star
  - Plank on Toes 2 star

Open Chain

- Rhythmic Stab Supine
- Serratus punches w/resist
- Bird dog reach T and Y
- Prone on Ball T & Y
- Stand T and Y

	PHASE 1	PHASE 2	PHASE 3
EDUCATION	Cervical roll T/L roll Posture bra/shirt Avoidance of Aggravating posture	Review and Revise HEP	Review and Revise Hep Recovery of function
EXERCISES: MOBILILTY	Cerv & Thoracic Nerve Glides	Foam roll Slow Inc ER time	
EXERCISES STRENGTH/STABILITY		Light Resistive Bands Scapula Stabilization Low Rows Lawn Mower Fencing Quadriped	Mod to heavy Resistance Above 90 degrees elevation Wall PNF CC Reaches Wall washes and walks Dynamic Prone Quadriped OC Trunk Rot with Med Ball
MANUAL THERAPY: MODALITIES:	Joint mobs/movement: cervical/thoracic/ST joint Chronic: Tens with MH	Cervical/Thoracic mobs to endrange for full restoration of movement	PRN

Phase 1:

Stretching/mobility:
Chin Retraction

Strengthening/motor control:
Scapular Retraction

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Phase 2:

Stretching/mobility:
Doorway Pec Stretch

Strengthening/motor control:
Standing shoulder ER from 90 degrees

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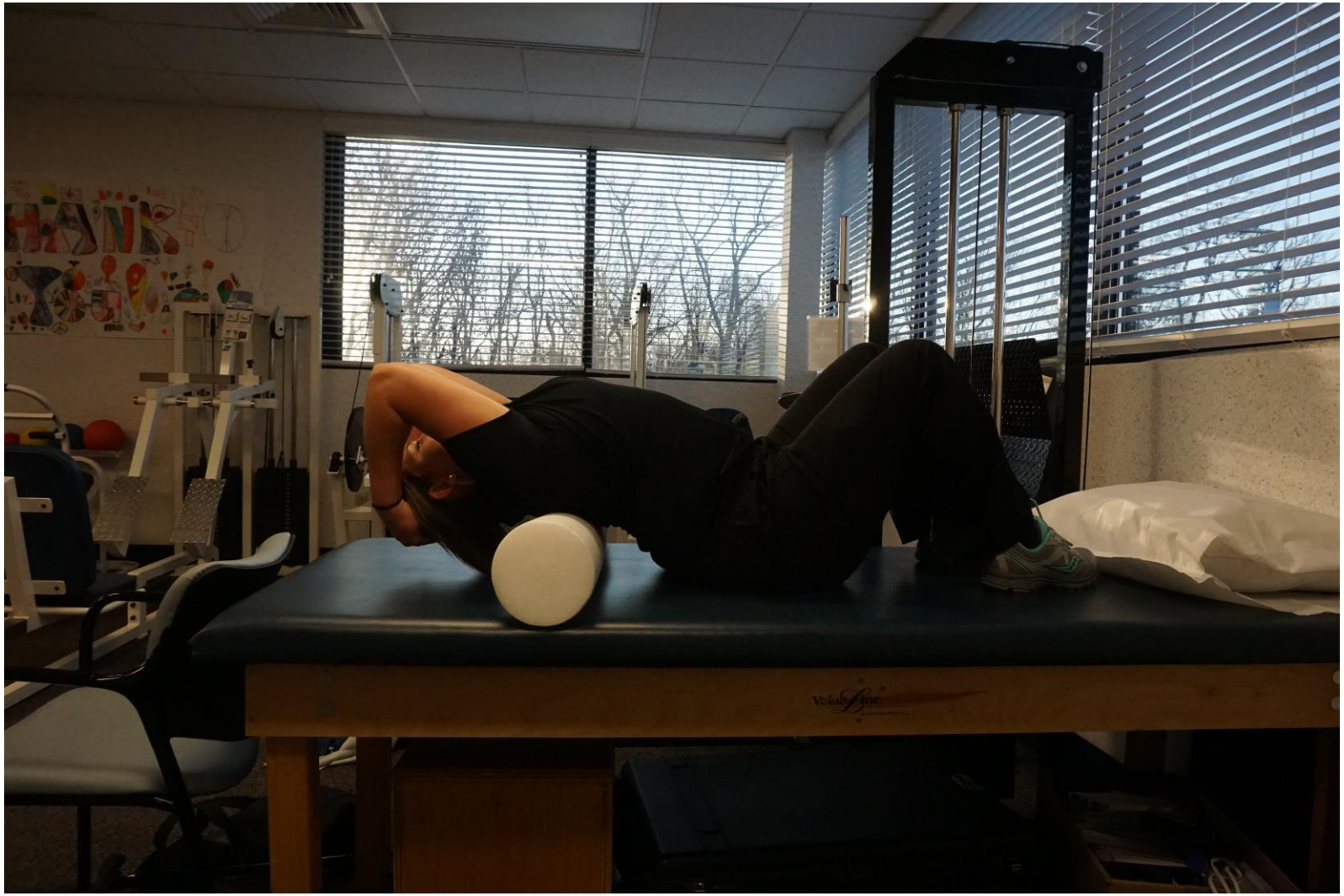
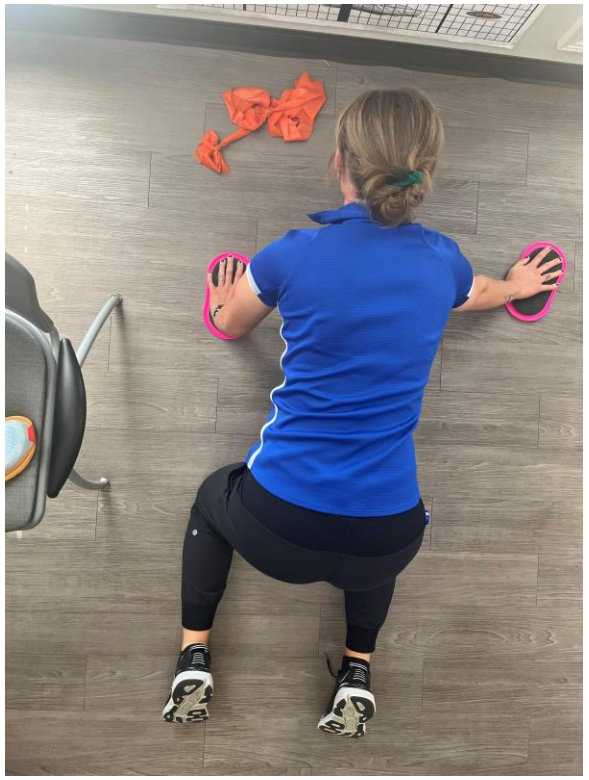



ROGUE
BGO
BLUEGRASS
ORTHOPAEDICS

Phase 2-3




Posture Pro Analysis Grid

Postural Recommendations

Posture Positioning

Posture
Support

THANK YOU