

5 Joints Webinar Series

The Elbow

Dr. Grove Higgins

With Master Trainer Pat Marques



mfef
MedFit Education Foundation
Committed to the Health of Our Nation

Outline

- Introductions – Dr. Kevin Steele
- Thank you and more to come
 - June 4th & 11th 6 Joint Assessment Webinar
 - June 18th Wrist/Hand Joints Webinar
 - August 4th, 2020 Gait Assessment Webinar
 - Fall 2020 Exclusive Hands On Anatomy Intensive in Colorado
- Anatomy
 - Elbow Basic Anatomy
- Biomechanics
 - Elbow Movement
 - Posture/Seated Posture/Gait
- Assessment
 - Functional Movement Assessment
 - In person
 - Online
- NeuroBiomechanics
 - Drills and Tips
- Q&A

5 Joints Assessment Series

What you will learn

- Practical client assessments for each of the 5 Joints
- How to instruct clients to set up and use smart technologies for assessments and training for best results
- How to cue movement assessments to get accurate/useful results
- Techniques & cutting-edge apps for amazing assessments

Thursday June 4th & 11th at 10am PST

Exclusive \$10each (\$20 for both days) for 5 Joint participants

Introduction

- Dr. Grove Higgins
 - Chiropractor & Soft Tissue Practitioner
 - Speaker and Educator
 - Functional Anatomy Instructor
 - Strength & Conditioning
 - Research
 - Biomechanics Gait and Foot Development
 - Anatomy of Lower Leg Modeling
 - Exercise & Hormonal Response
 - Been in Medicine Since 1993
- Patrick Marques
 - Lt. Col. USA Ret.
 - BS Exercise Science, CPT, ZHealth Master Trainer & Instructor
 - Speaker and Educator
 - Corrective Exercise Therapist
 - Research
 - Exercise & Hormonal Response, Sleep

Introduction

- Neuroathlete & Clinic in Monument CO
 - Use a “Neural Lens” to address performance, pain, and recovery
 - Online – assessment and training all over the world
 - USA, Sweden, & 18,000ft on Mt Everest
 - Clinic – manual therapy, chiropractic, exercise therapy, neuropsychology
 - Work with trainers online and provide mentoring and tools

Like Us Online

Neuroathlete.com / Clinic.Neuroathlete.com



5 Joints



Foot/Ankle – April 30th



Knee – May 7th



Hip – May 14th



Shoulder – May 21st



Elbow – May 28th

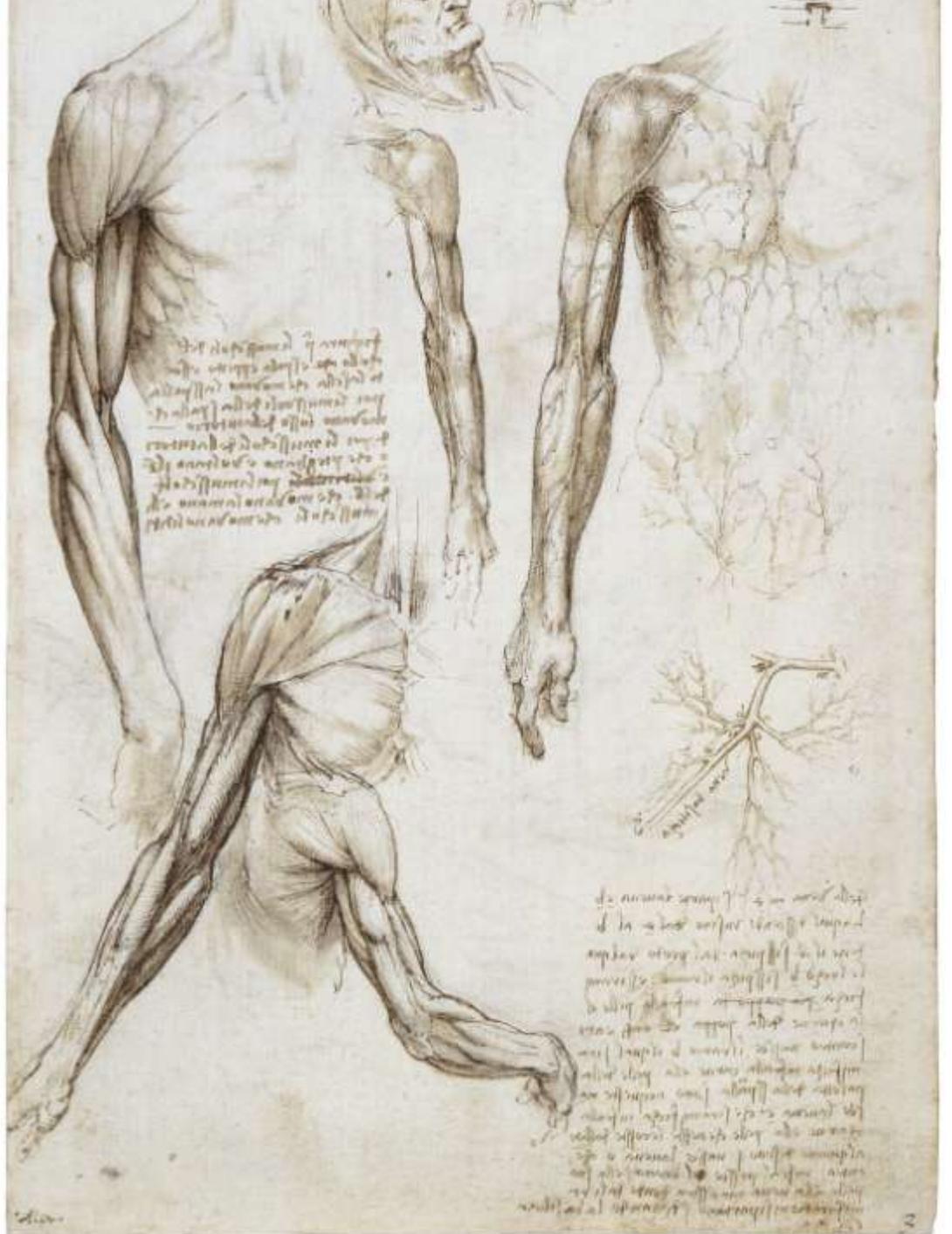
BUT WAIT!

There is more!

Due to popular demand....

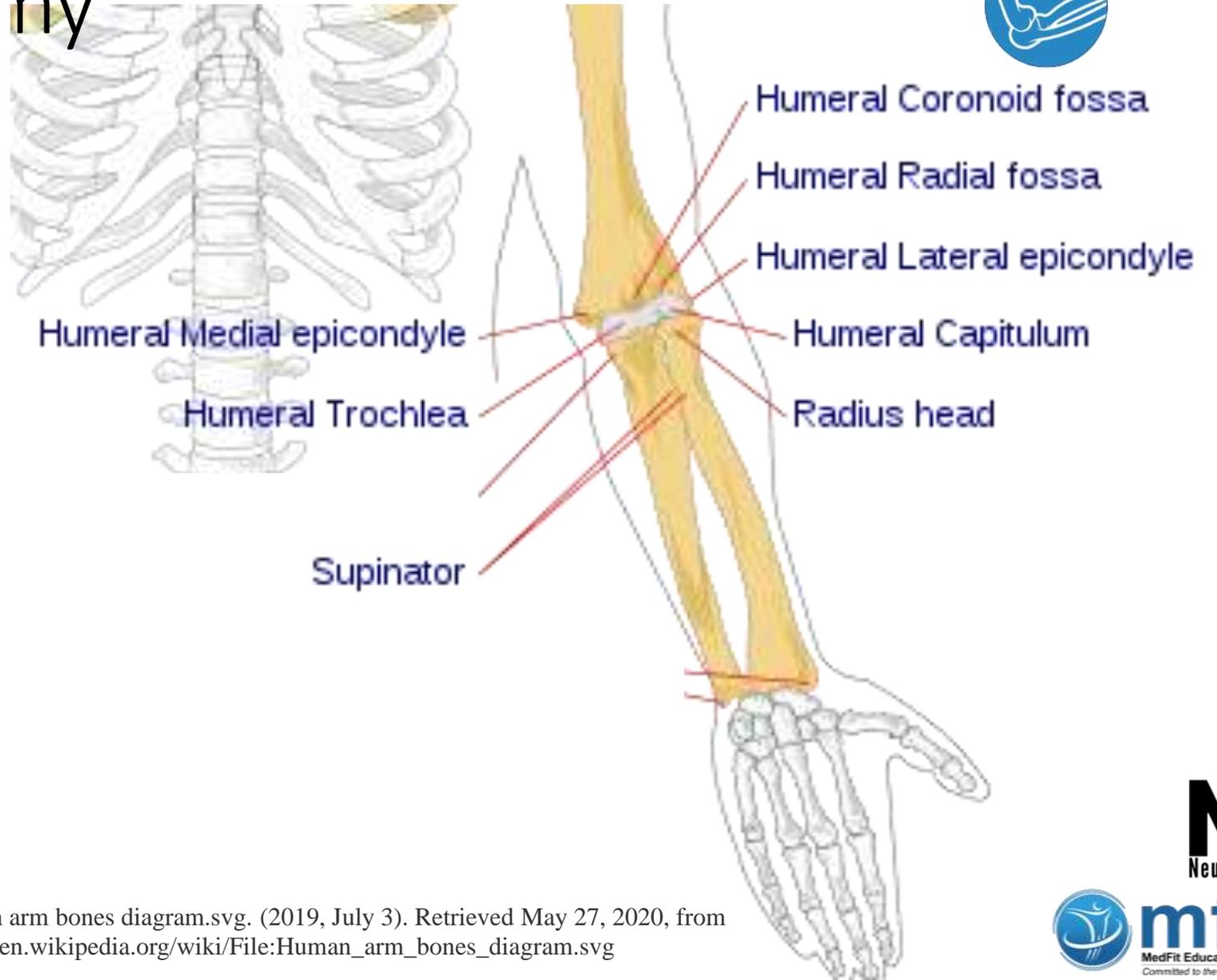
- June 4 & 11 – Joints Assessment Flow and Online Telehealth Technique
- June 18th – 6th Joint Wrist/Hand

Anatomy of the Shoulder



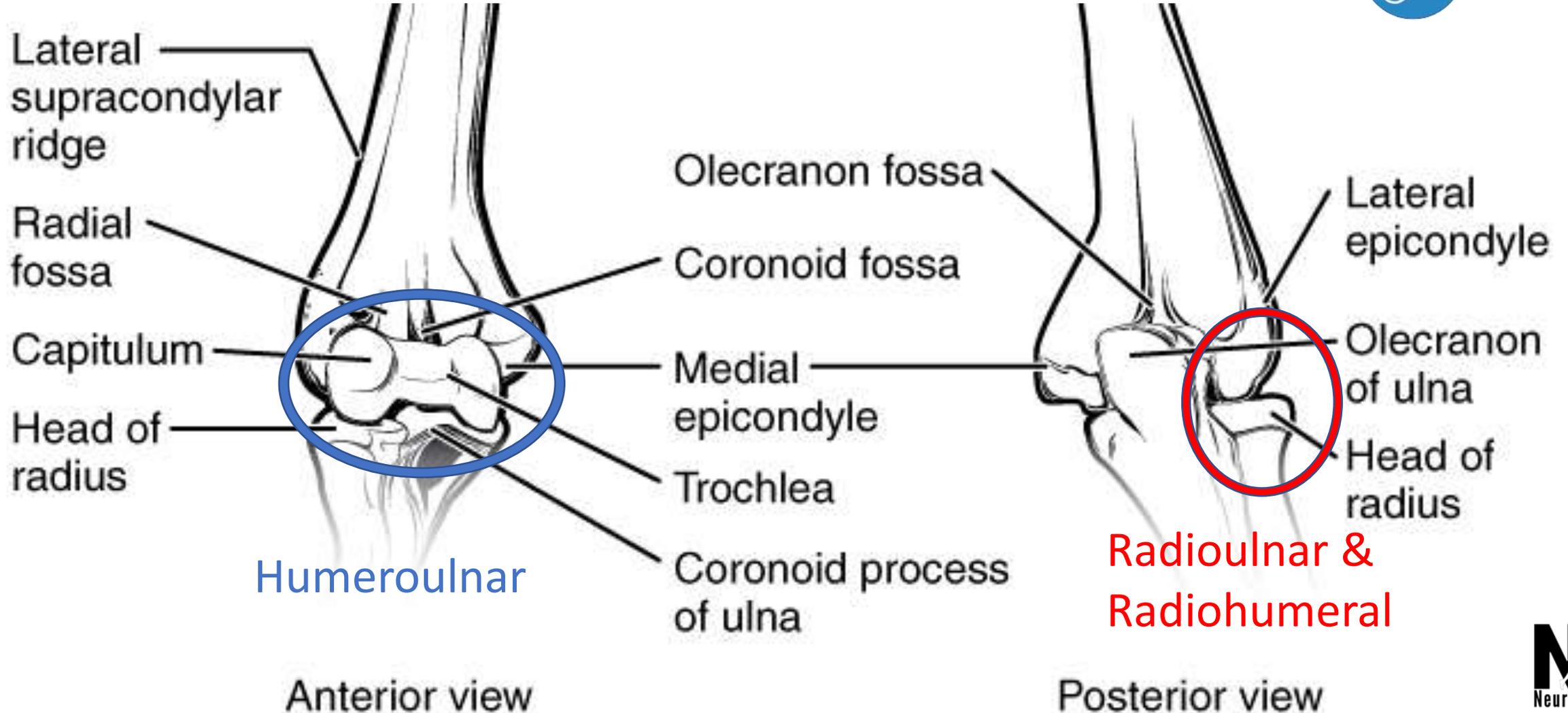
Elbow – Anatomy

- 3 Joints
- 5 Major Ligaments
- Capsule
- 14 Muscles Cross
- 3 Nerves Drive



Human arm bones diagram.svg. (2019, July 3). Retrieved May 27, 2020, from https://en.wikipedia.org/wiki/File:Human_arm_bones_diagram.svg

Elbow – Joints



Elbow – Joints

Elbow (front view)



Lateral epicondyle

Medial epicondyle

Capitulum

Trochlea

Radiohumeral

Humeroulnar

Head of radius

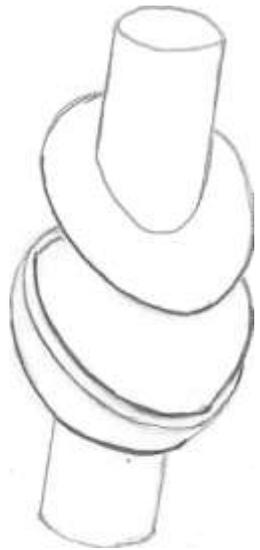
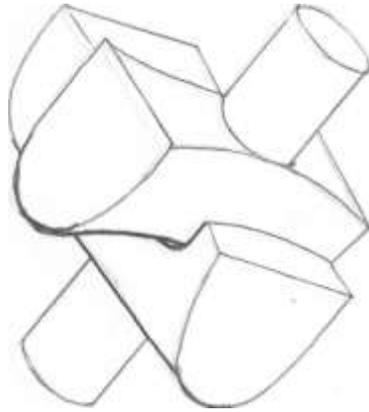
Radioulnar

Coronoid process

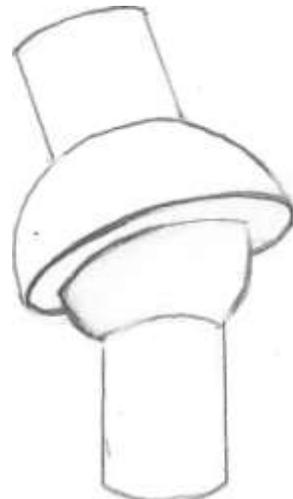
Superior
radio-ulnar
joint

Elbow – Joint Types

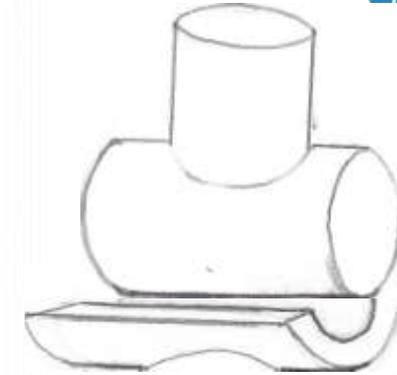
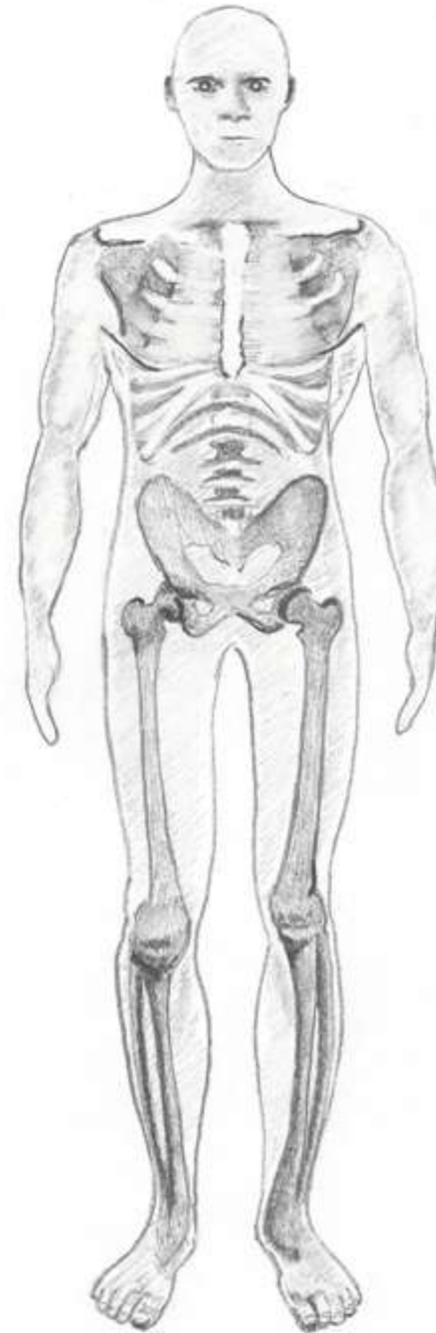
Saddle



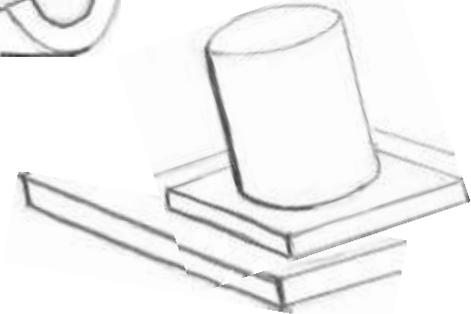
Condyloid



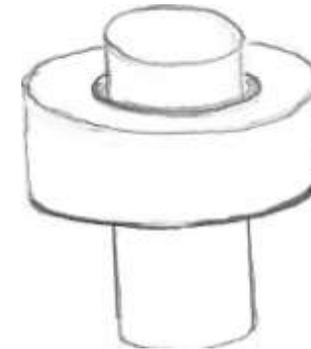
Ball & Socket



Hinge



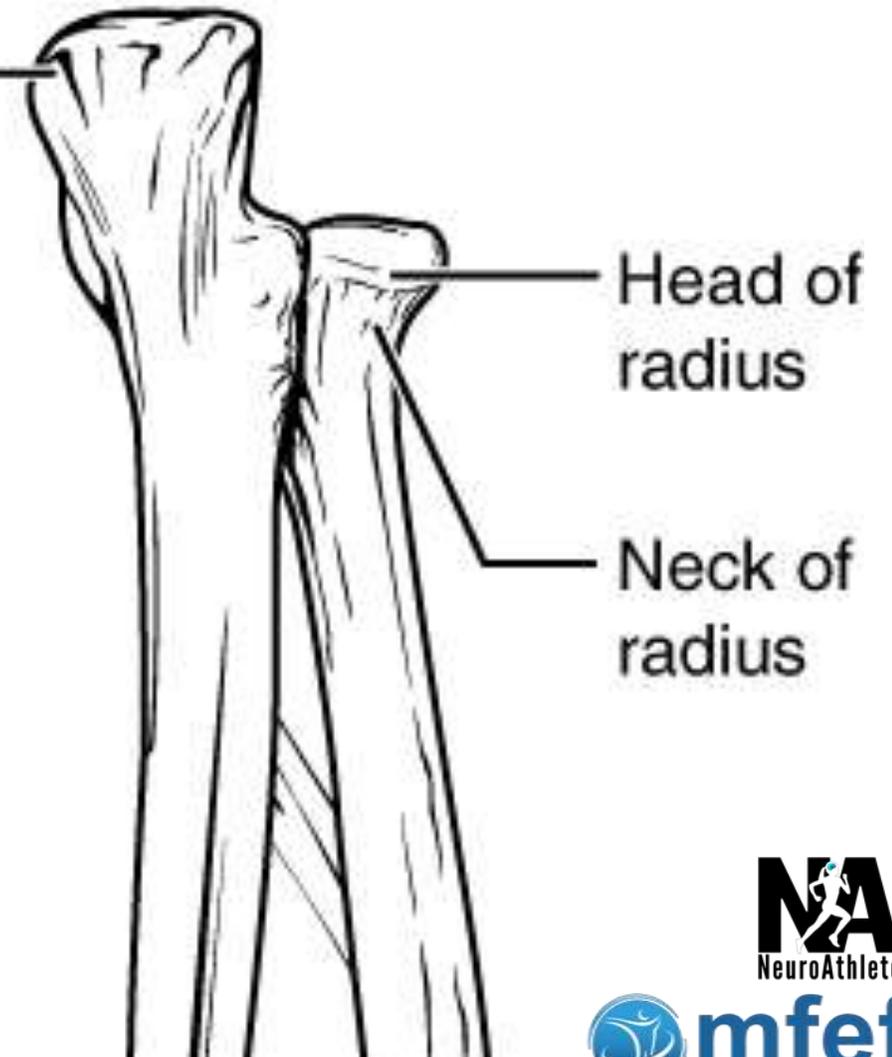
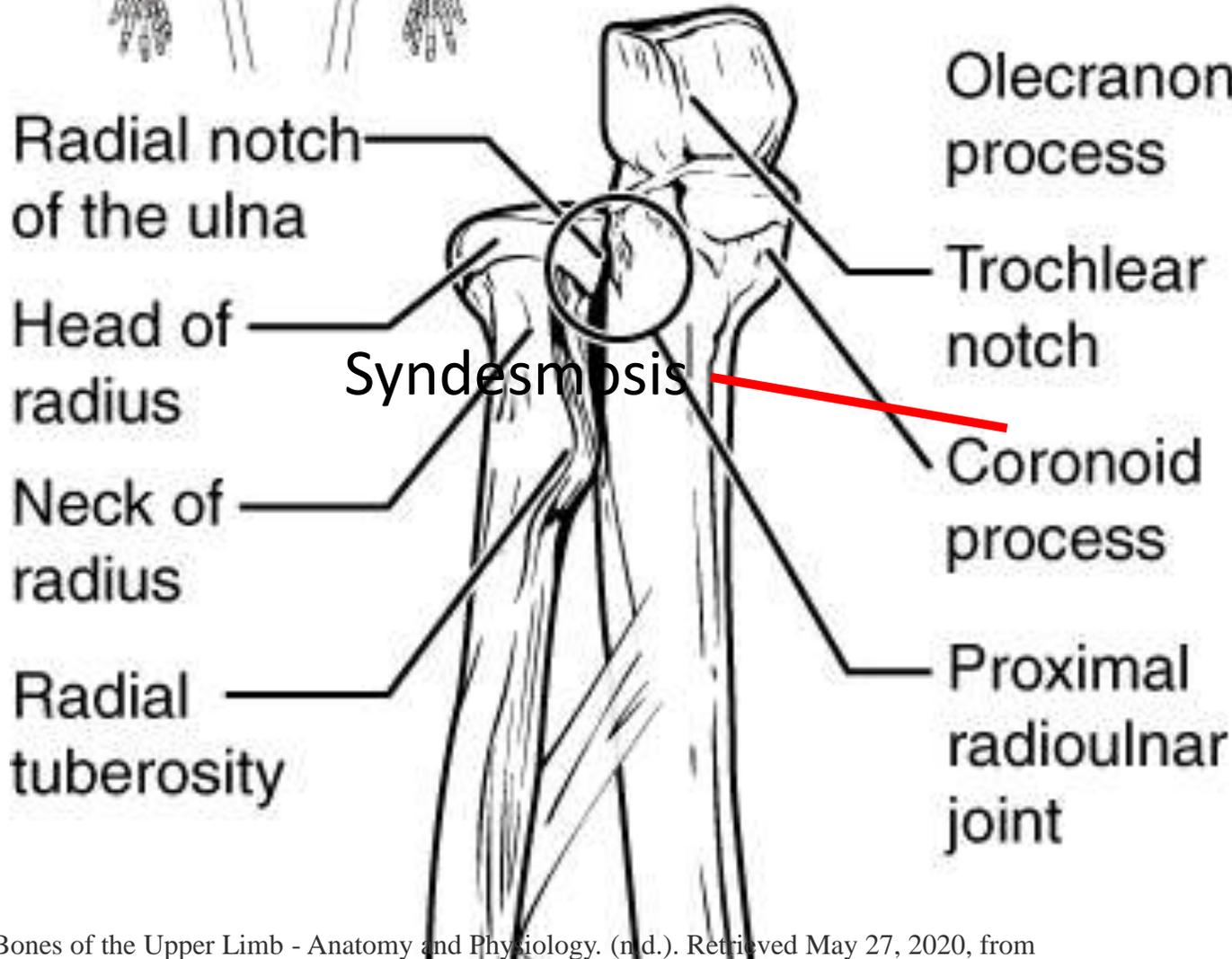
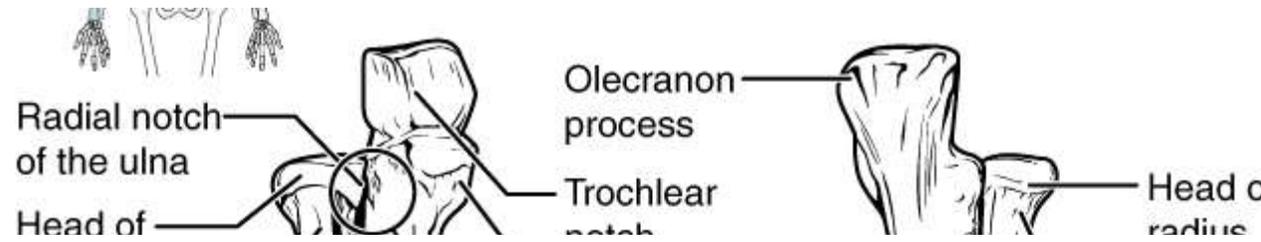
Planar



Pivot

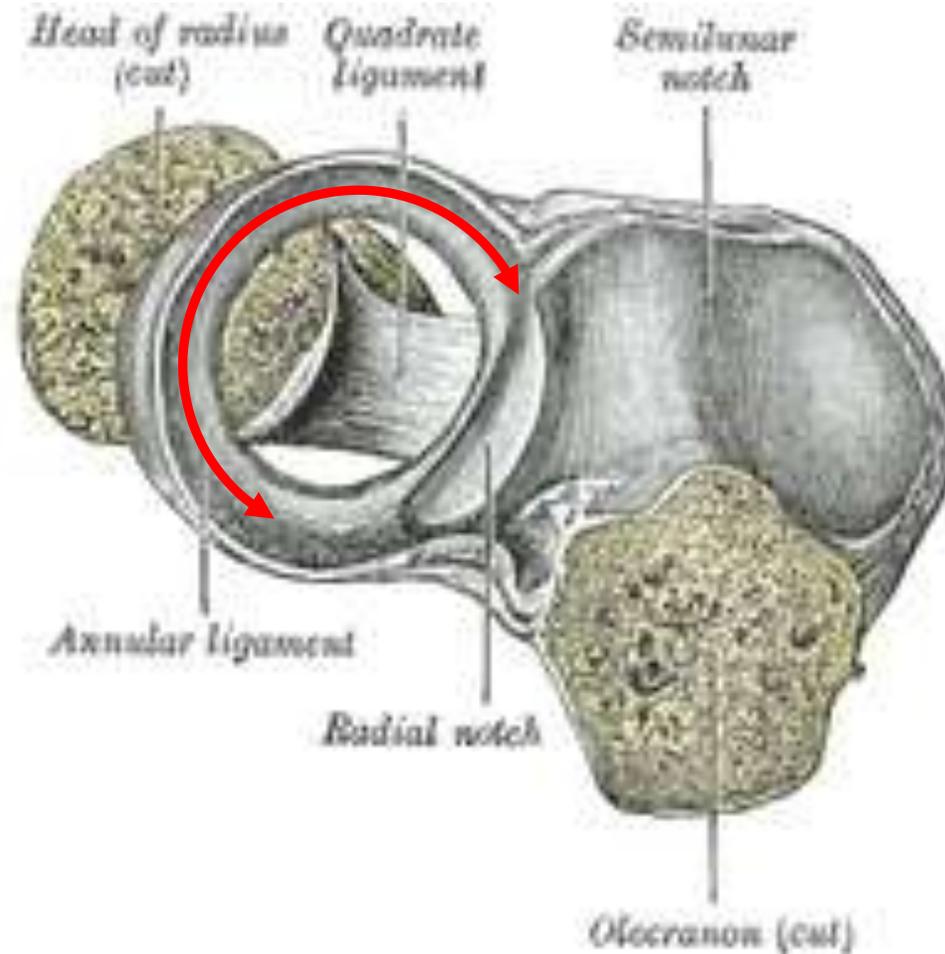


Elbow – Joints

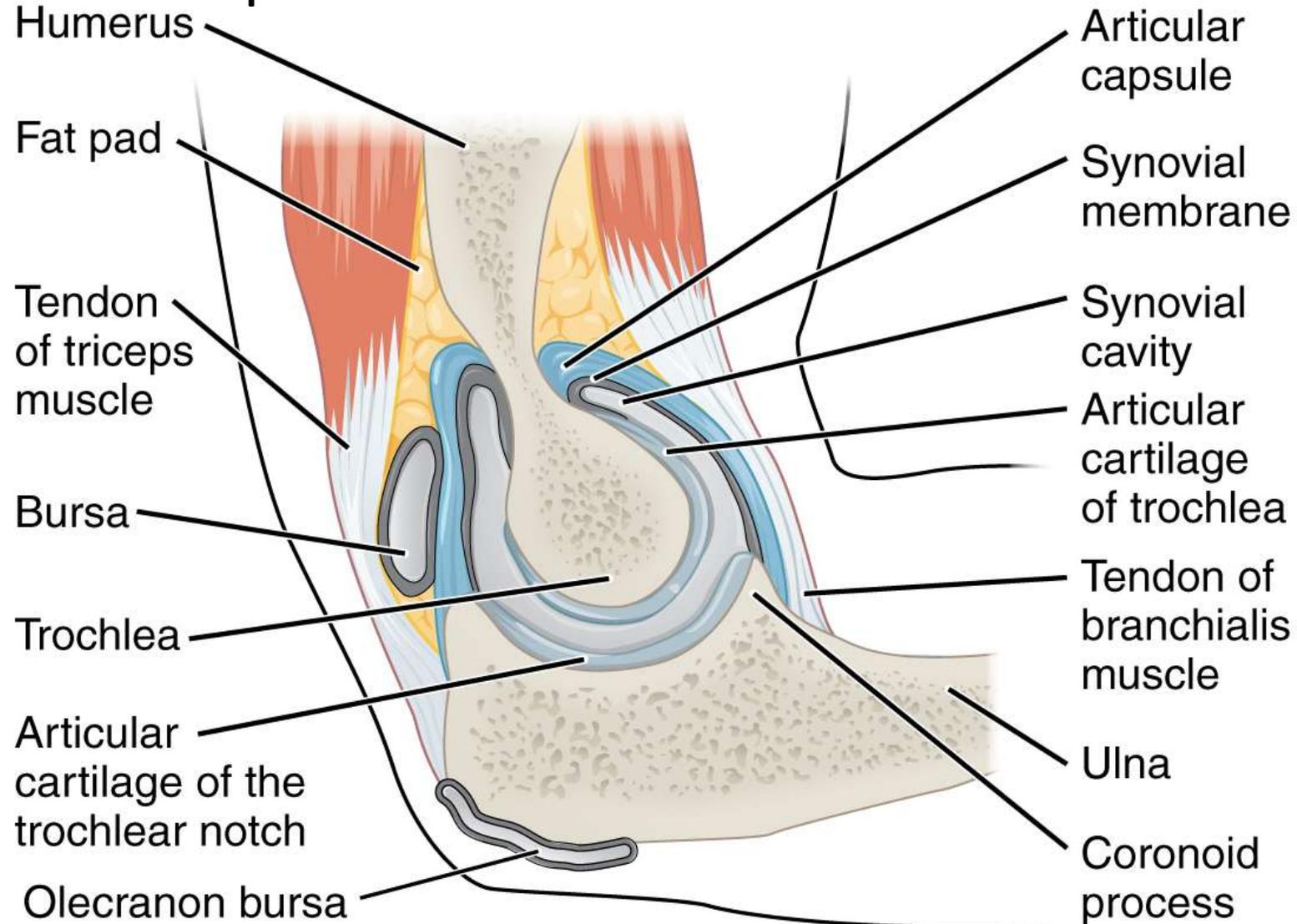


of radius

Elbow – Annular Ligament



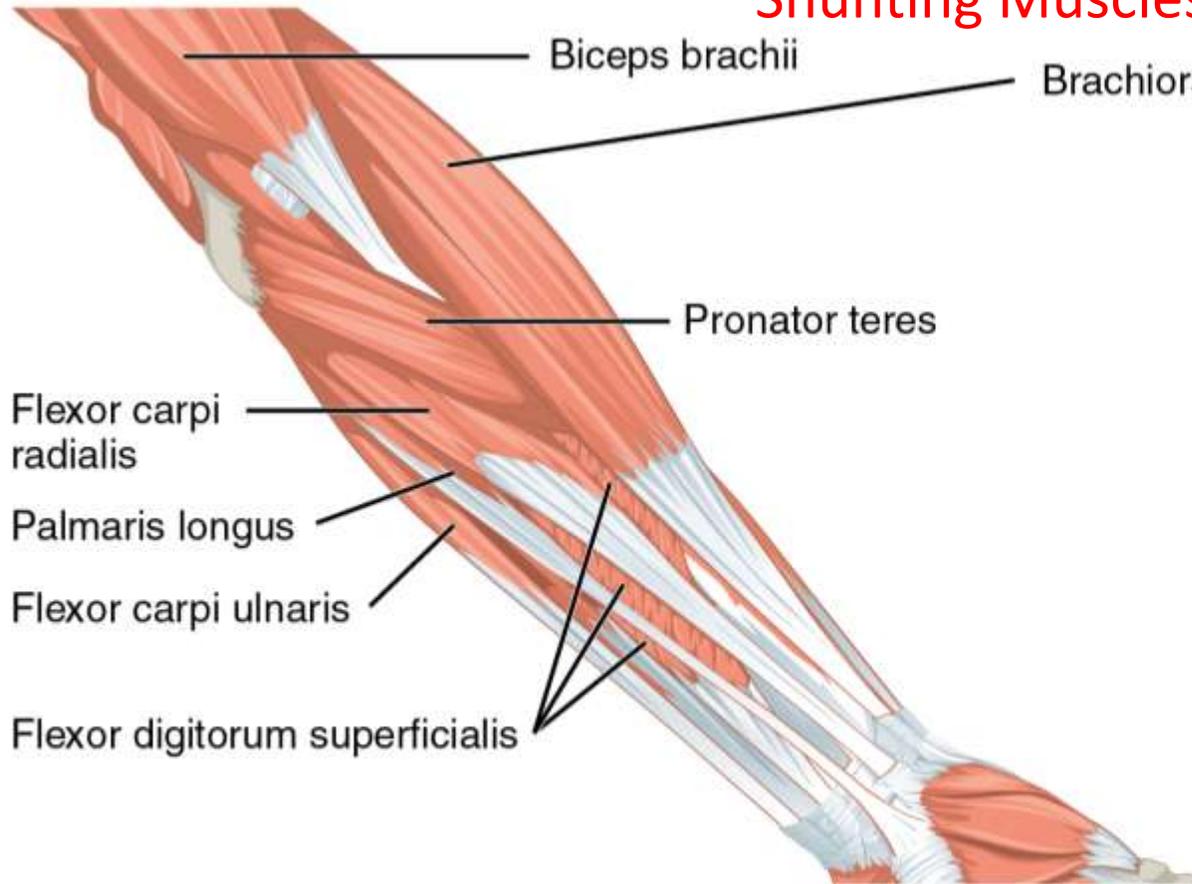
Elbow – Deep



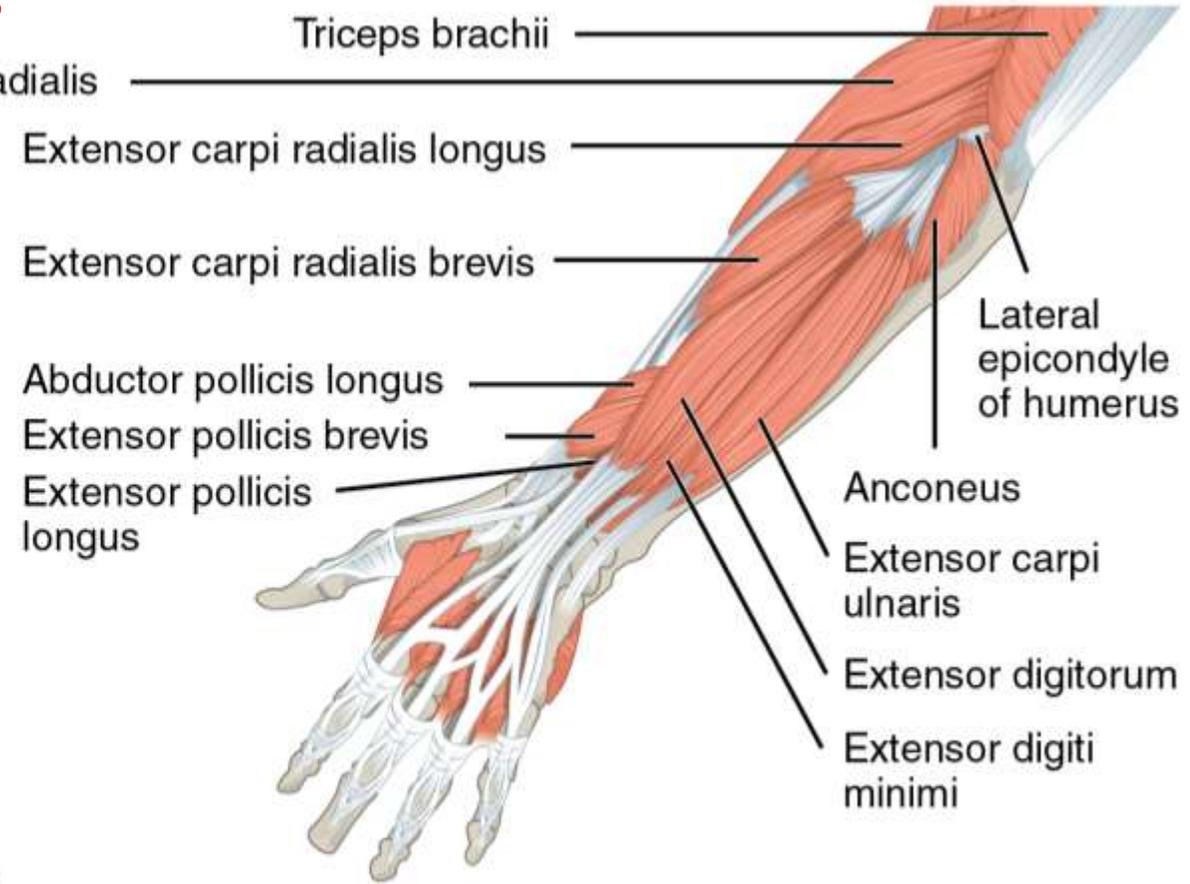
Elbow – Superficial Musculature



Shunting Muscles

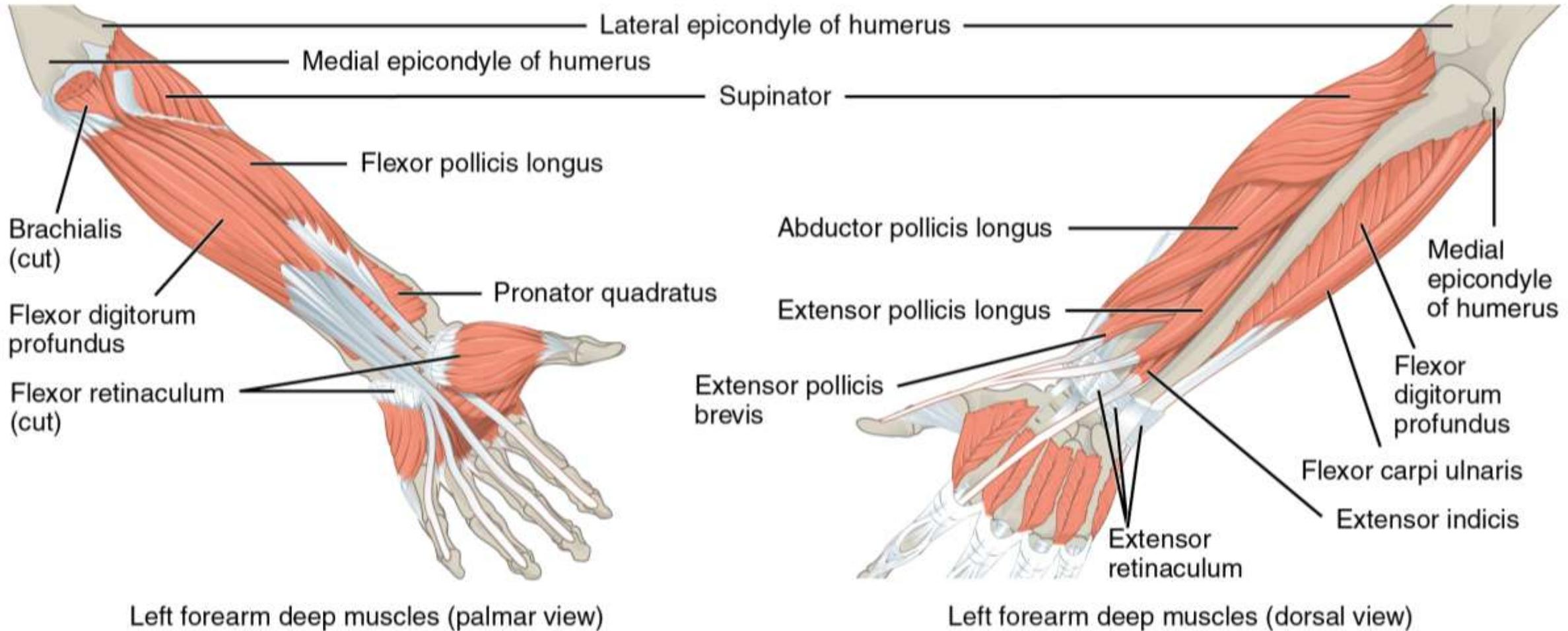


Left forearm superficial muscles (palmar view)



Left forearm superficial muscles (dorsal view)

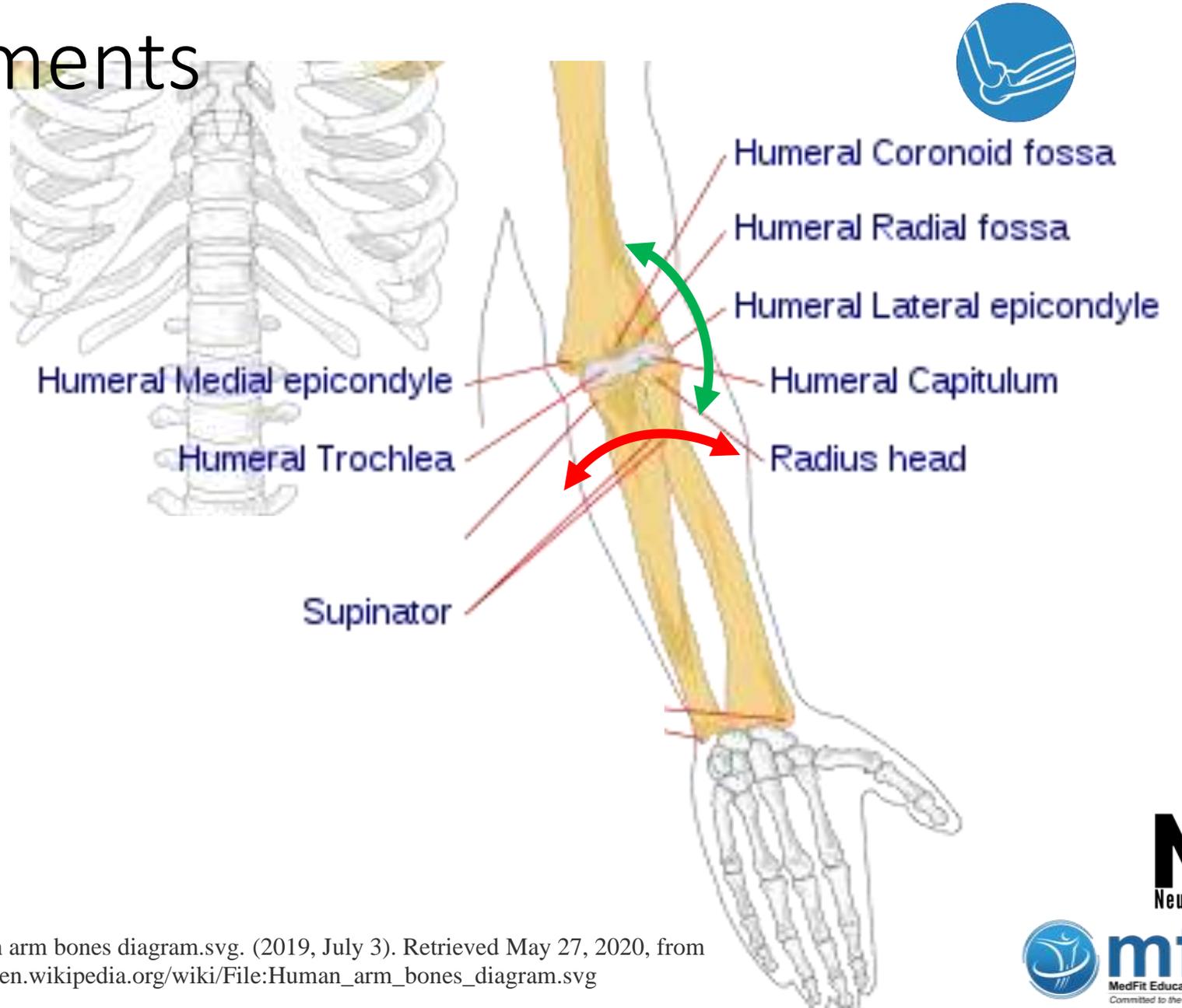
Elbow – Deep Musculature



Elbow – Movements

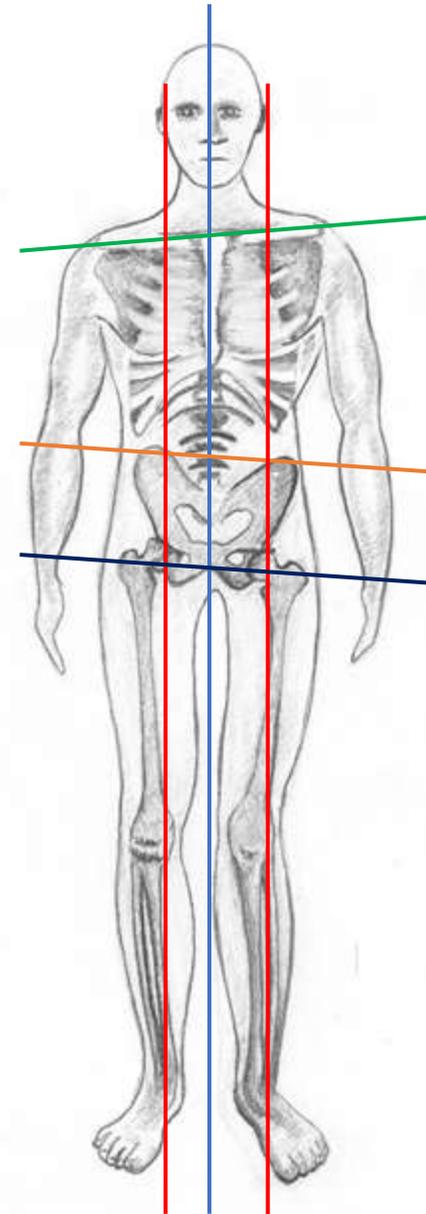
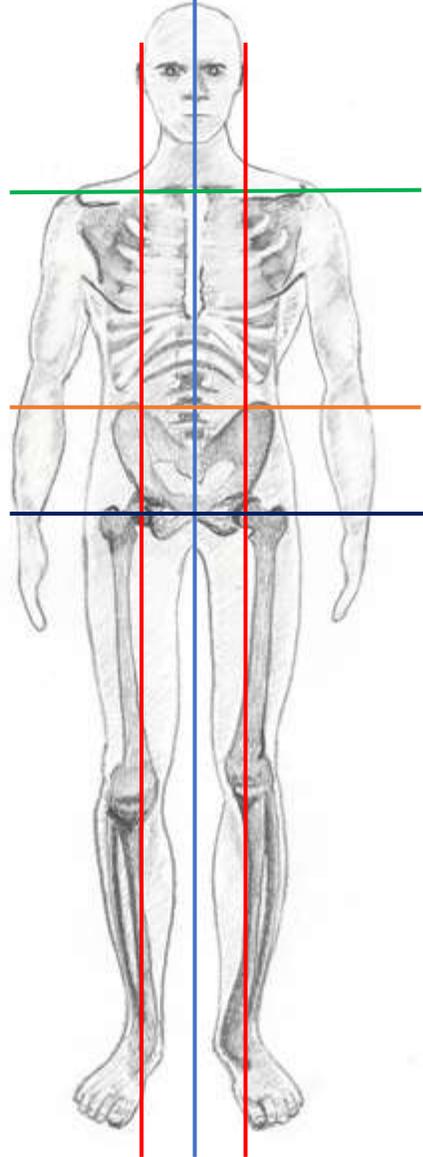
2 Degrees of Freedom of Motion

- Flexion / Extension
- Supination / Pronation

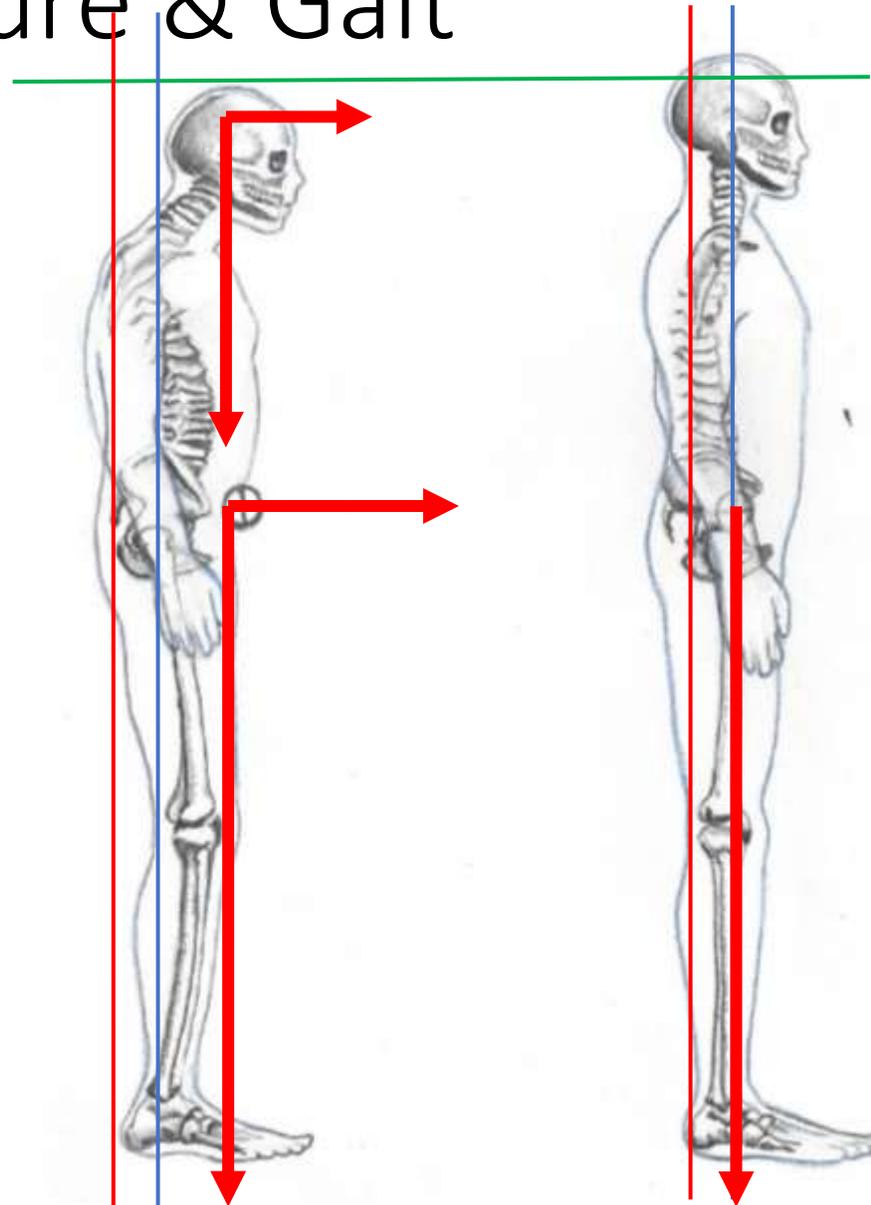


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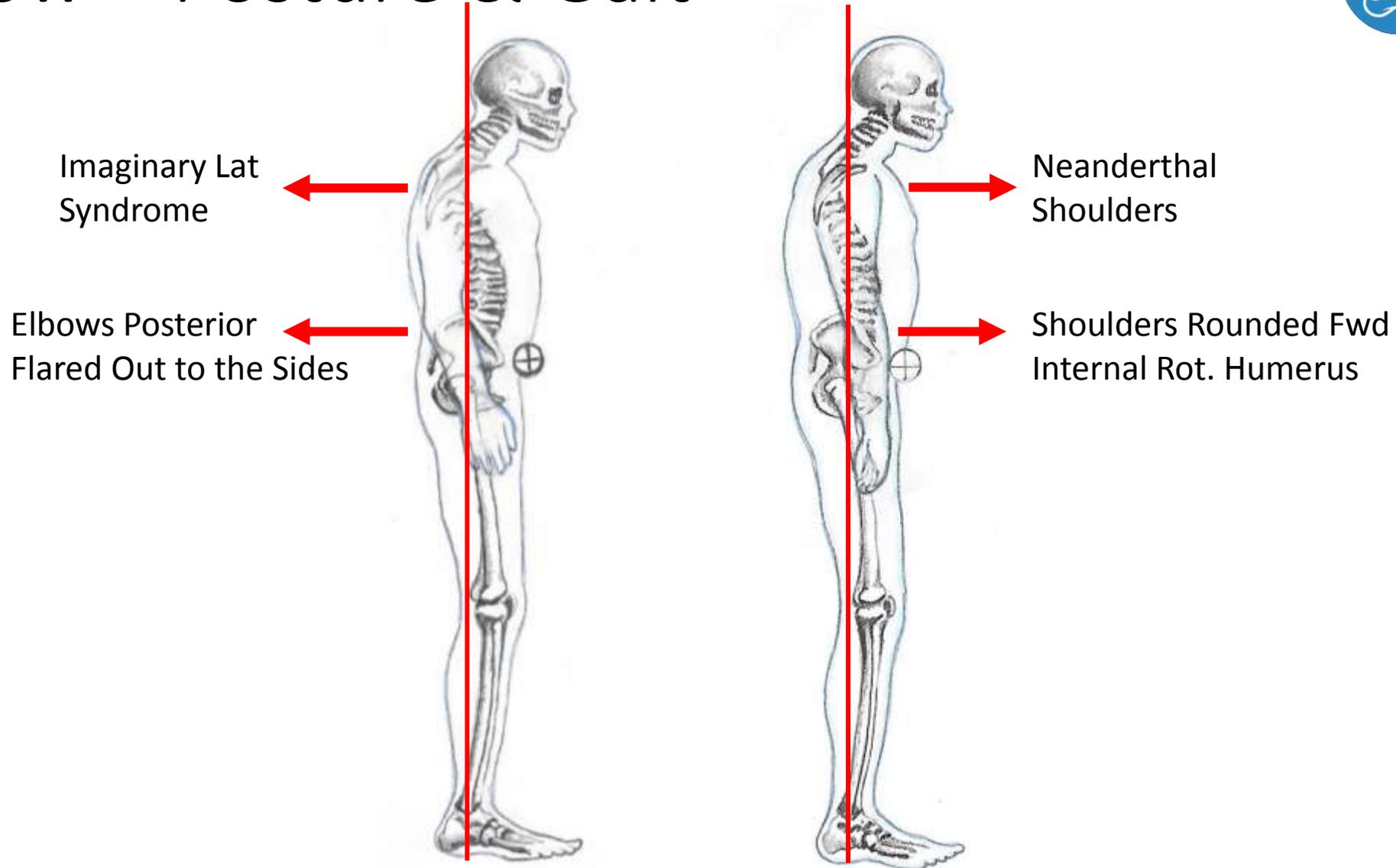
Elbow – Posture & Gait



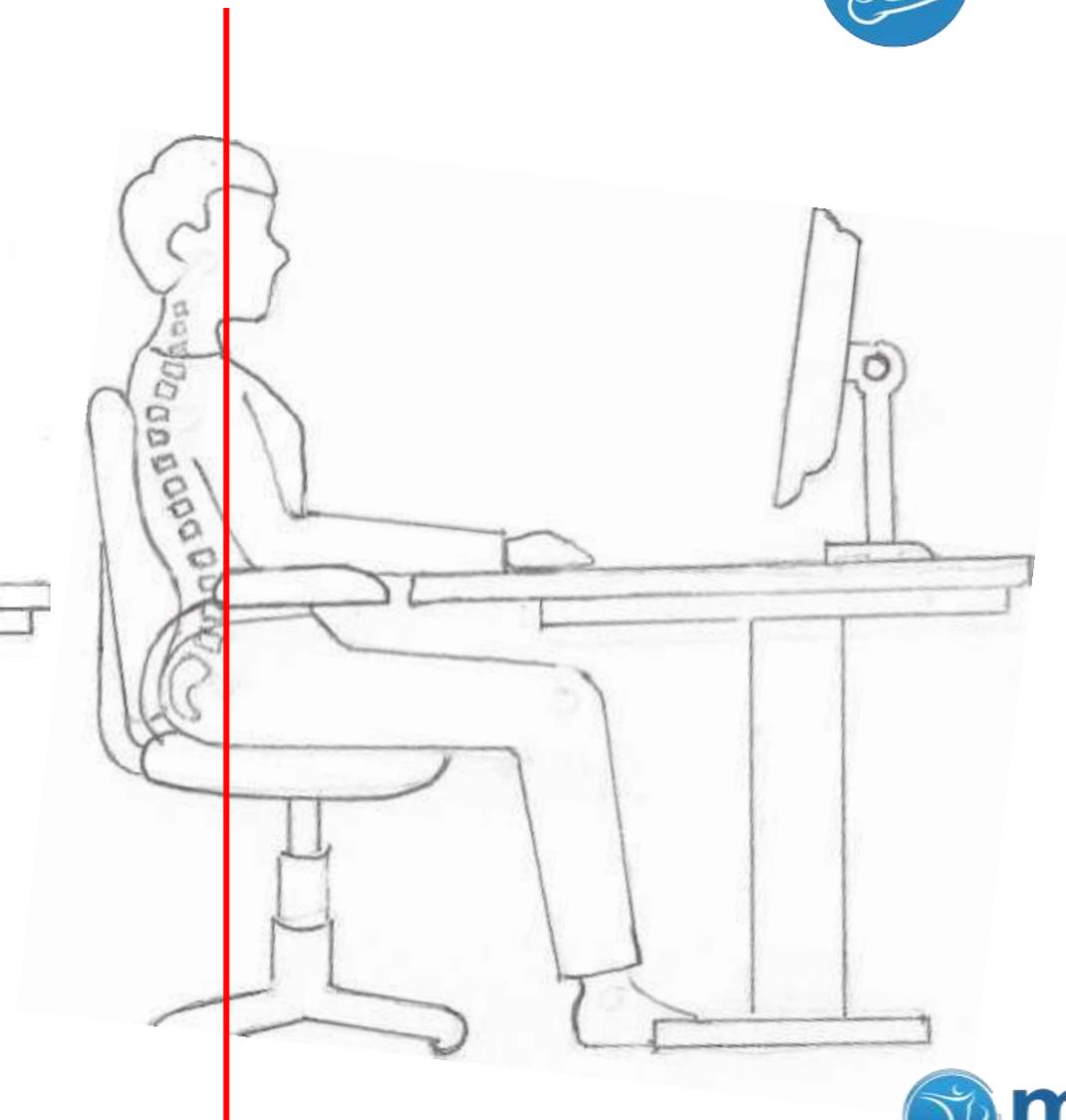
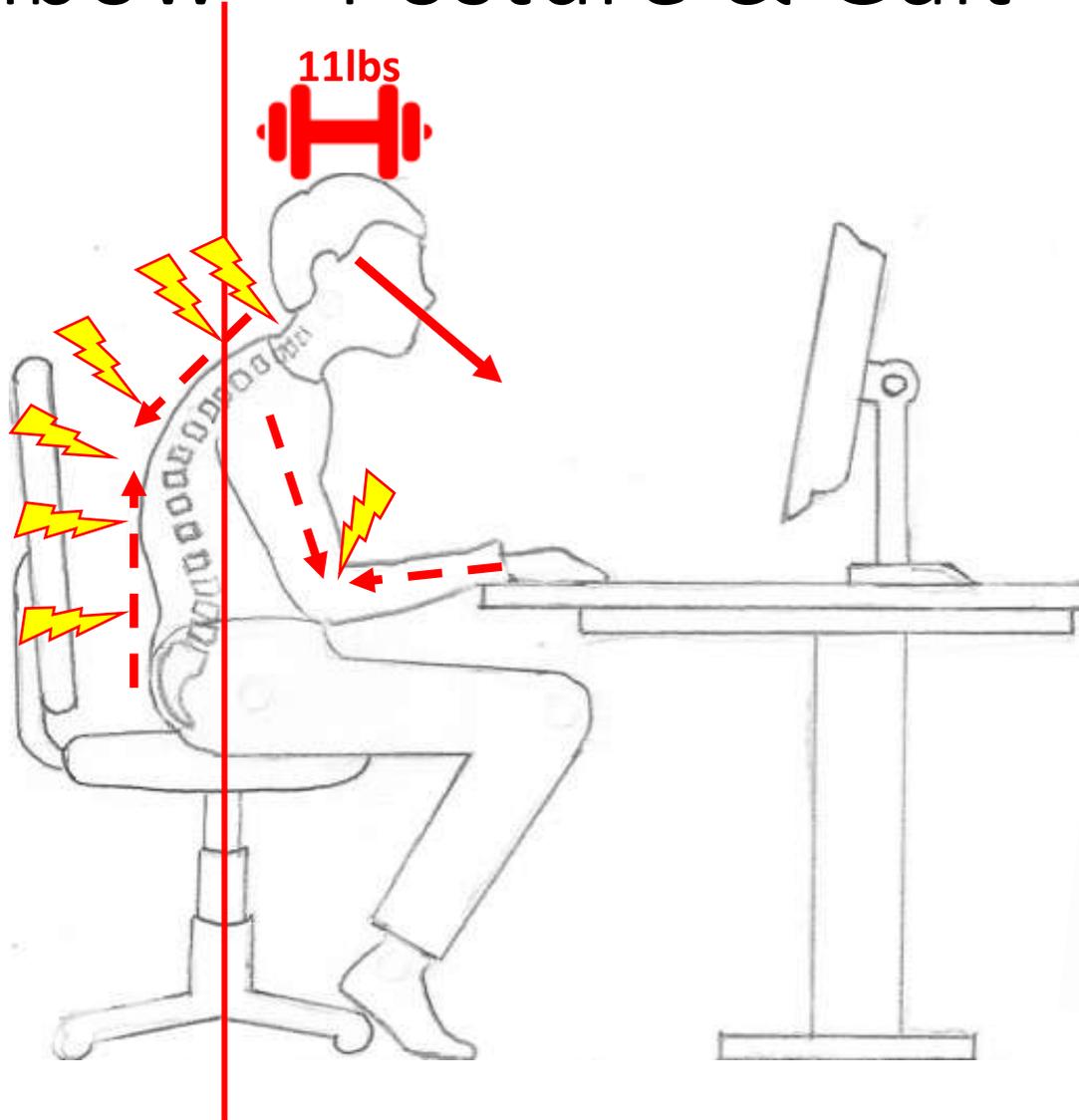
Elbow – Posture & Gait



Elbow – Posture & Gait



Elbow – Posture & Gait



Elbow – Posture & Gait



- Headache
- Neck Stiffness
- Shoulder Pain
- Back Pain
- Spinal Immobility
- Numbness
- Tingling



Shoulder – Posture

Ankle or Knee Causing Elbow Pain

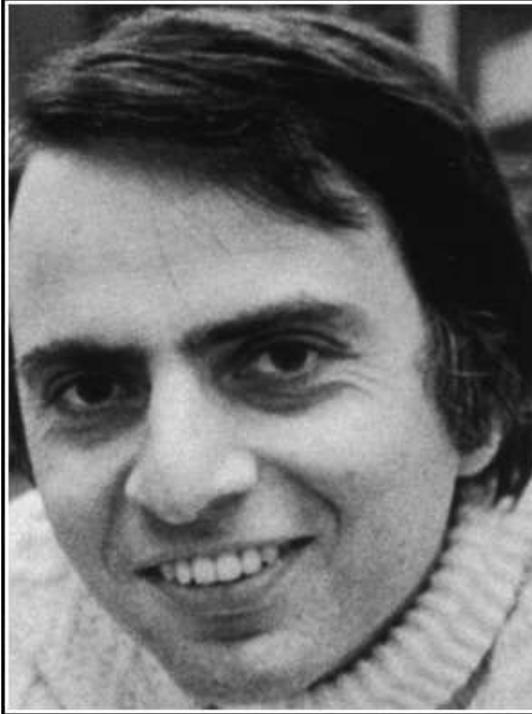


Shoulder – Simple Assessment



- Posture
- Gait – Walking is your #1 Screening Tool ALWAYS!
- ROM
 - Flex/Ext
 - Supination/Extension
- Grip
 - 90°
 - Ext

Questions?



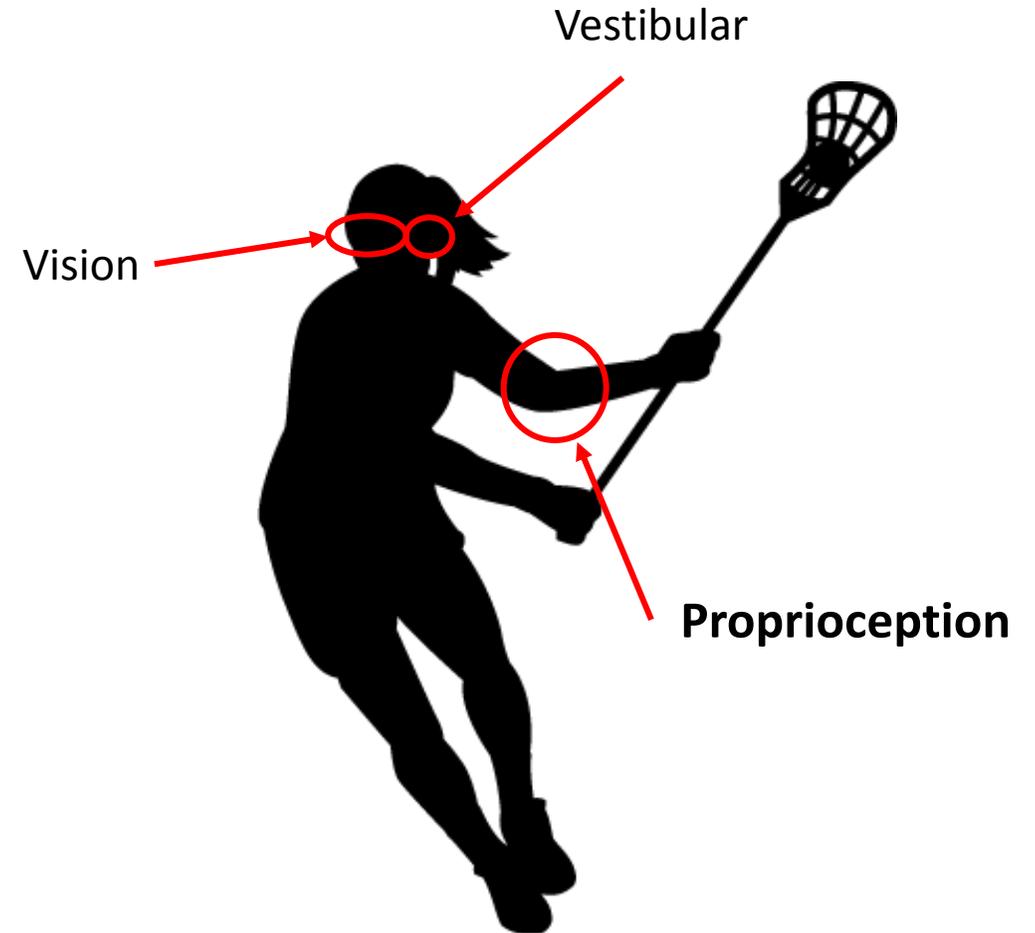
There are naive questions, tedious questions, ill-phrased questions, questions put after inadequate self-criticism. But every question is a cry to understand the world. There is no such thing as a dumb question.

— Carl Sagan —

AZ QUOTES

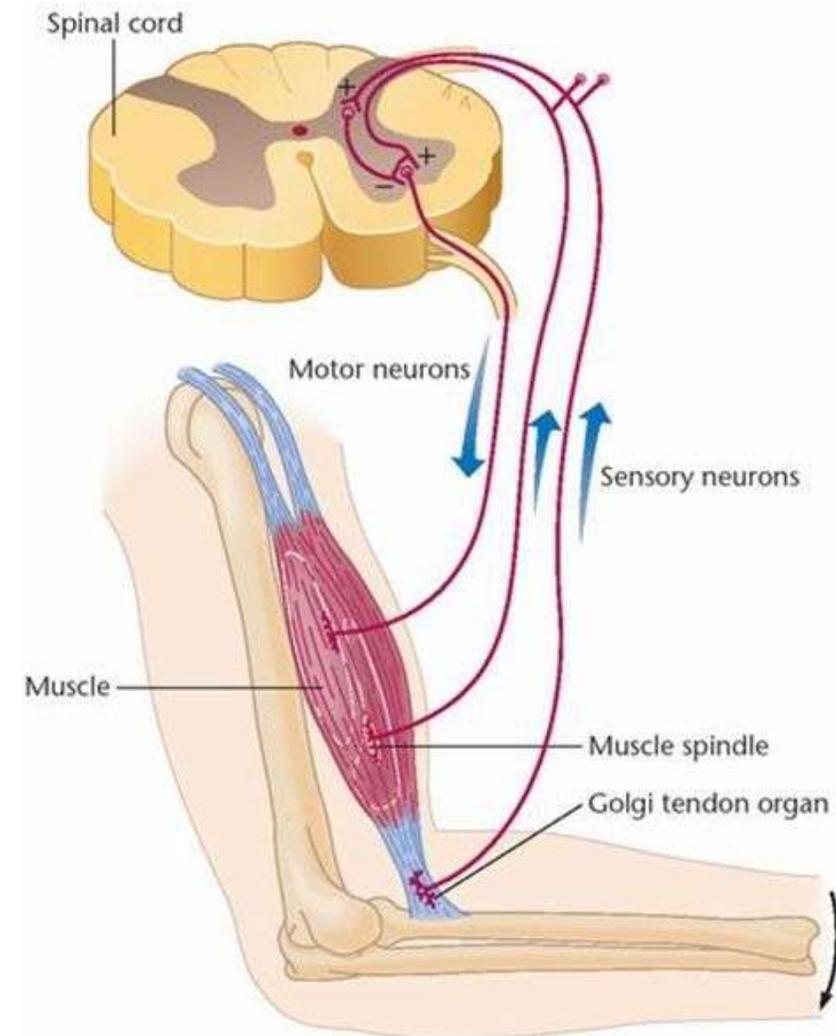
NeuroBiomechanics of the Elbow

- Good balance & movement requires input from 3 systems:
 - Vision
 - Vestibular
 - **Proprioception**
- Your Brain is the GPS, these systems are the satellites



NeuroBiomechanics of the Elbow

- Proprioception
 - Lives in the brain
 - Your brain's 3D map of you in time and space
- Nerve endings that provide many different types of information to the nervous system such as:
 - Mechanoreceptors (**end ROM = more input!*)
 - Chemoreceptors
 - Thermoreceptors
 - Baroreceptors
 - Electromagnetic Receptors
 - Nociceptors



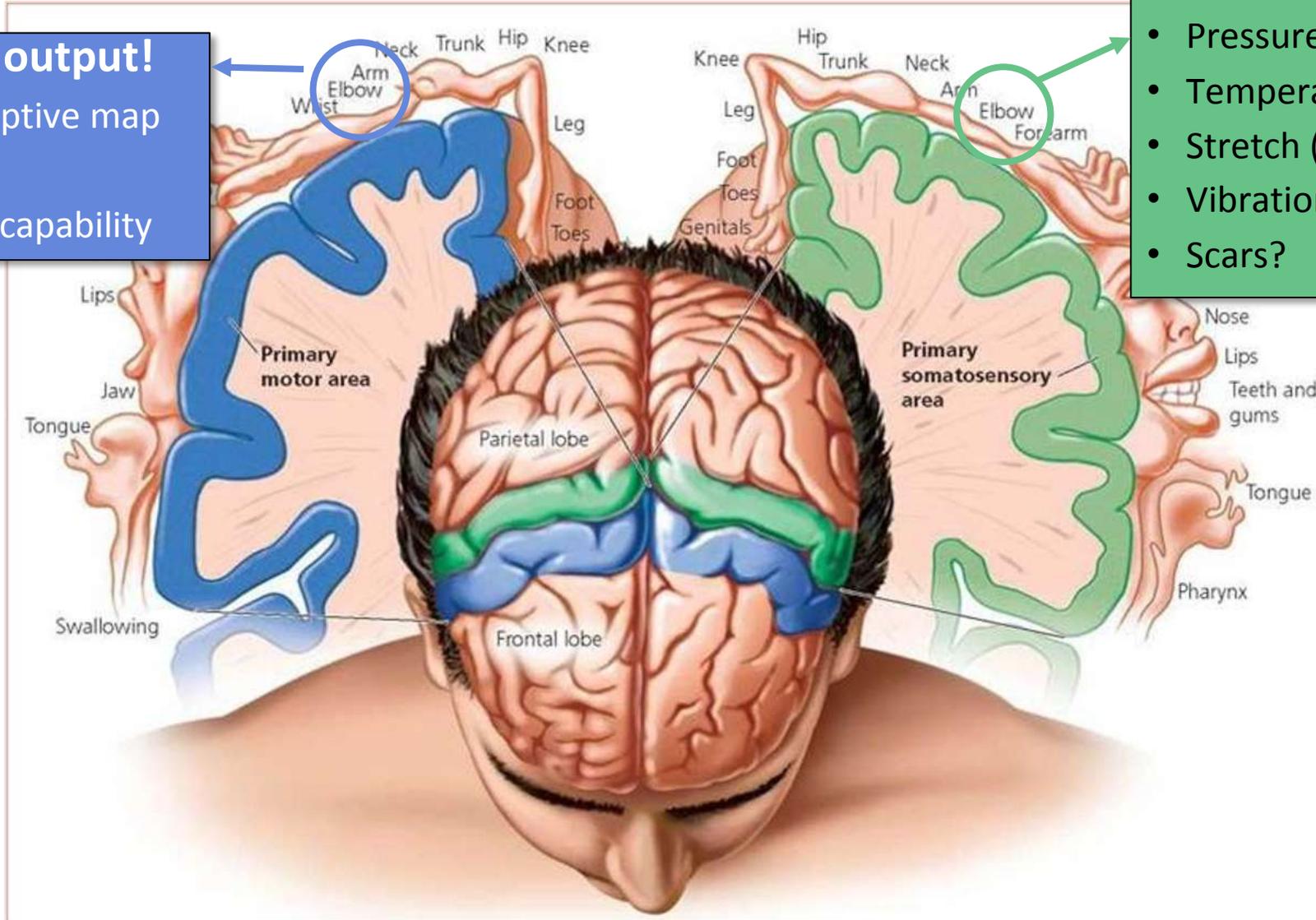
NeuroBiomechanics of the Elbow

2. Better Motor output!

- Clearer proprioceptive map
- Less threat
- Better predictive capability

1. Increased sensory input:

- Skin Stimulation
- Pressure (wraps)
- Temperature (hot/cold)
- Stretch (kinesiology tape)
- Vibration
- Scars?



NeuroBiomechanics of the Elbow

- Assessments:
 - Grip
 - Supination & Pronation
 - Active Pain-Free ROM (elbow flexion & extension)
- Individual Joint Mobility Drills:
 - Elbow Circles (Top & Bottom)
- Sensory:
 - Wrapping
- Neuromechanics:
 - Radial Nerve Glide
 - Ulnar Nerve Glide



NeuroBiomechanics of the Elbow

• Elbow Circles (Top)

- Begin in a neutral stance with elbow locked, arm out to the side or at 45°, palm facing down
- Move the hand toward the face to initiate the elbow circle
- Complete the circle with the elbow locked, palm facing up
- Rotate palm down again and repeat
- Perform in the opposite direction
- Be sure to fully lock and unlock the elbow
- Repeat for 3-5 repetitions in each direction



NeuroBiomechanics of the Elbow

• Elbow Circles (Bottom)

- Begin in a neutral stance with elbow locked, arm out to the side or at 45°, palm facing down
- Move the hand toward the lower ribs to initiate the elbow circle
- Complete the circle with the elbow locked, palm facing up, and shoulder internally rotated
- Rotate palm up again and repeat
- Perform in the opposite direction
- Be sure to fully lock and unlock the elbow
- Repeat for 3-5 repetitions in each direction



NeuroBiomechanics of the Elbow

- **Wrapping**

- Wrap distal to proximal over the joint (wrap towards the heart)
- 50% overlap of the wraps, and do not exceed 50% stretch
- Tuck in the end
- Perform 45-60 seconds of unloaded movement (flex/extend, pronate/supinate)
- Perform 45-60 seconds of loaded movement (push-ups)
- Remove the wrap and reassess



NeuroBiomechanics of the Elbow

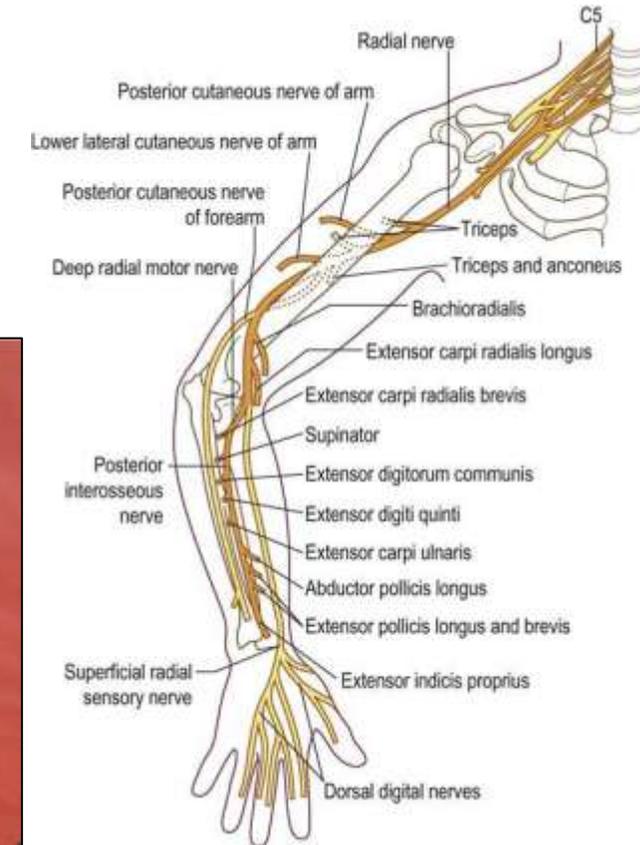
Radial Nerve Glide Tensioning:

- **Tensioning Sequence:**

- Thumb & wrist flexion
- Wrist pronation & shoulder internal rotation
- Elbow extension
- Scapular depression
- Slight shoulder abduction
- Cervical lateral flexion to opposite side

Radial Nerve Flossing:

- Taking one joint in and out of the tensioned position:
 - In and out of cervical lateral flexion
 - In and out of scapular depression
 - In and out of wrist flexion
- 6-8 reps of “flossing”



NeuroBiomechanics of the Elbow

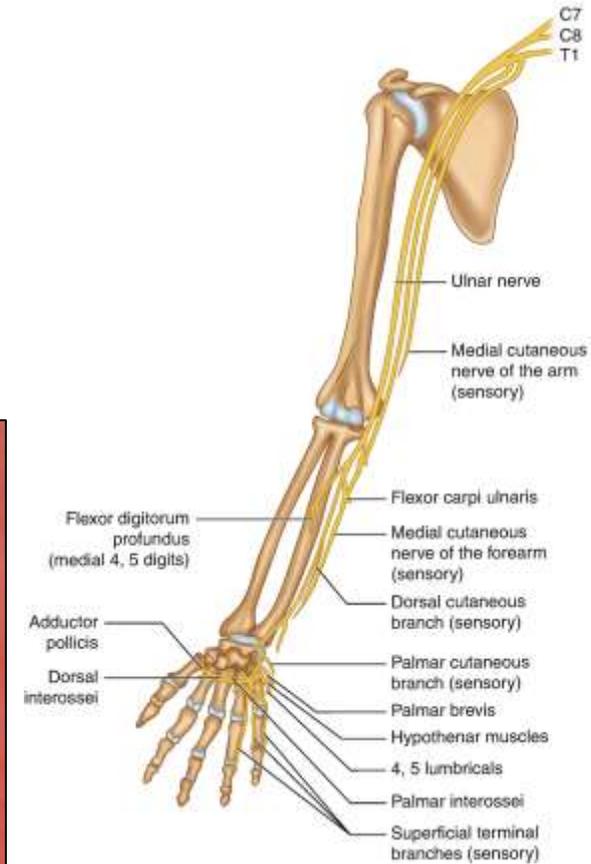
Ulnar Nerve Glide Tensioning:

- **Tensioning Sequence:**

- Finger & wrist extension
- Elbow flexion
- Shoulder flexion
- Shoulder external rotation & horizontal abduction
- Wrist pronation (point thumb forward)
- Scapular depression
- Cervical lateral flexion to opposite side

Ulnar Nerve Flossing:

- Taking one joint in and out of the tensioned position:
 - In and out of cervical lateral flexion
 - In and out of scapular depression
 - In and out of wrist pronation
- 6-8 reps of “flossing”



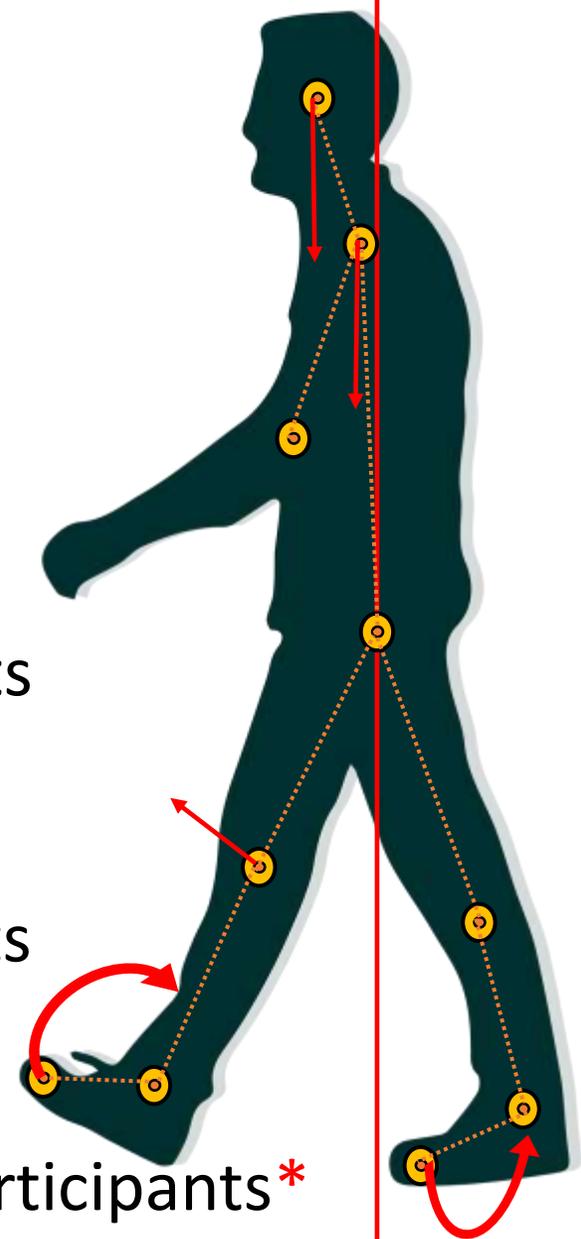
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What you will learn

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- Techniques & cutting-edge apps for amazing assessments

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Help us raise awareness & interest

- BONUS 2 Part Joint Online Assessment Webinar
- August 4th, 2020 Gait Assessment Webinar
- Fall 2020 Exclusive Hands On Cadaver Based Anatomy Intensive in Colorado
- Virtual Cadaver Series
- Stroke Exercise Specialist Certification
- More Neurological focused training curriculum



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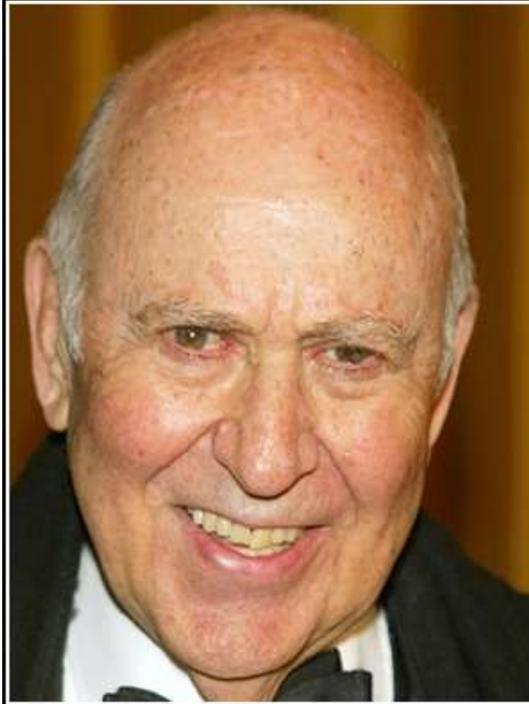


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Questions?



I'm an entertainer and I entertain people and they entertain me back by asking questions. And some of them I answer.

— Carl Reiner —

AZ QUOTES

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 ✓ Knee – May 7th

 ✓ Hip – May 14th

 ✓ Shoulder – May 21st

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