Weight Training In the Painful Shoulder: Assessment - Treatment - Rehab

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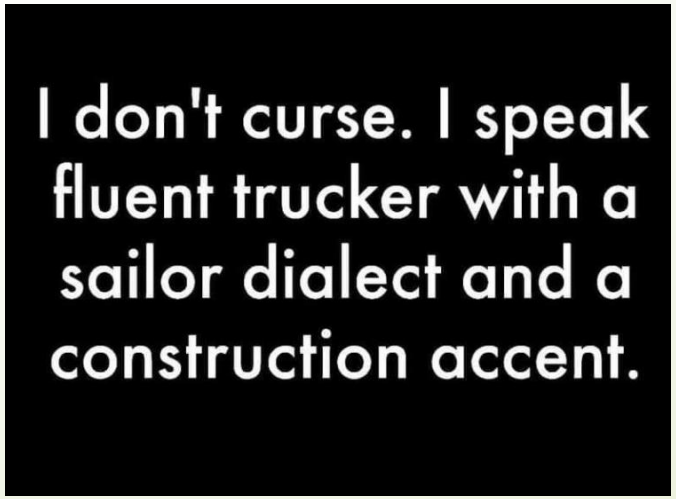
"*Unthinking respect for authority is the greatest enemy of truth*".

~Albert Einstein, 1929

Objectives

- Recognize the MC anatomical elements that are injured in the weight training individual (WTI) based on inherent structure
- Efficiently assess the painful shoulder in the weight training individual (WTI)
- Create an effective treatment plan for the painful shoulder in the weight training individual (WTI)
- Assemble the most effective rehabilitation strategy for a painful shoulder in the weight training individual (WTI)



We are invincible until we are not

1980

2006

2018

Background:
What lives there?; What does it do?; What can go wrong?

- What goes wrong in the weight training shoulder?
- What anatomical structures are most commonly involved?
- What conditions are most common?
- What can we do about it?

What goes wrong in the weight training shoulder?

- The Weight Training Individual (WTI)
  - It wears out
    - Why?
      - **We don't take care of it**
  - What does taking care of it mean?
    - Recovery
    - RTC and scapular training
    - ***Brachiation**
    - Variation in training
    - Treat it before the wheels fall off

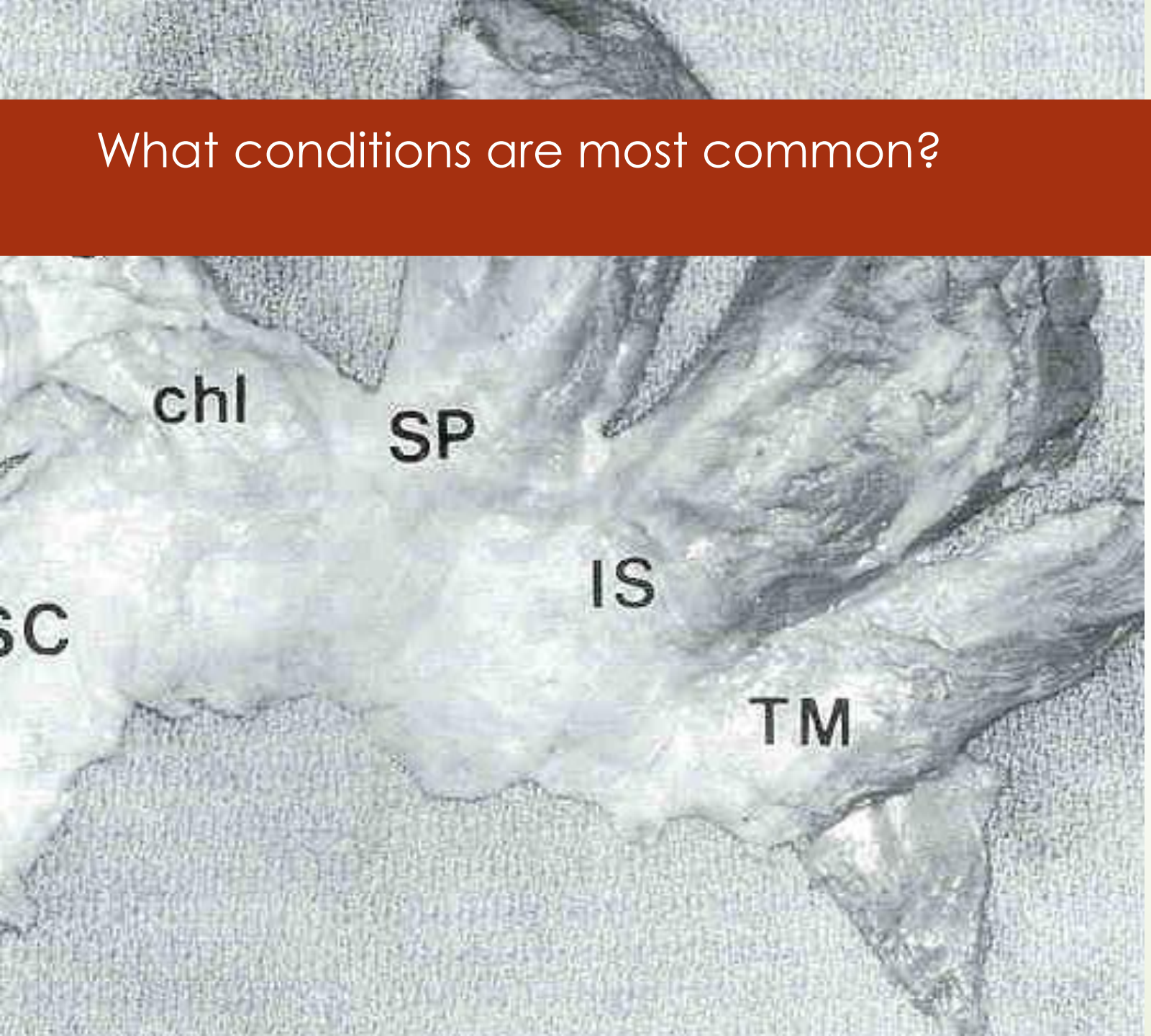
What anatomy is most commonly involved?

- Overuse
  - Rotator Cuff Tendons
    - Supraspinatus tendon MC
  - Labrum
  - Long Head Biceps tendon
- Acute
  - Pectoralis Major tears
  - Distal biceps tendon tears
    - **Consider ergogenic causes for both**
    - Consider training error – too much too fast
      - The deconditioned athlete return to program
    - Unexpected overload

Differential Diagnosis of Anterior Shoulder Pain

Acromioclavicular joint pathology
Impingement syndrome
Rotator cuff tendinitis
Rotator cuff tears
Long head of the biceps tendinopathy
Superior labrum anterior-posterior tears
Subacromial bursitis
Glenohumeral arthritis
Adhesive capsulitis
Glenohumeral instability
Cervical spine pathology
Humeral head osteonecrosis

What conditions are most common?



- Degenerative tendinosis
- Degenerative partial thickness RCT's
- Overload Osteoarthritis
- Ergogenic disruption
- Overload Tendon Avulsion

What can we do about it?

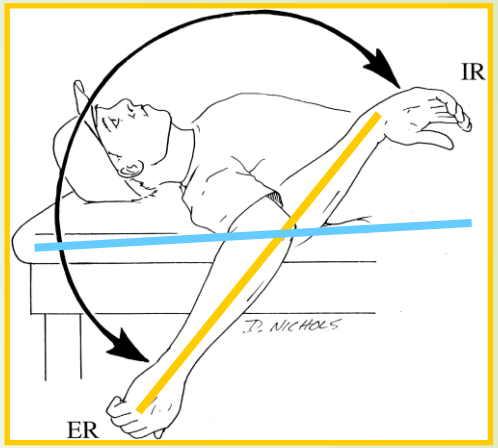
Lube, oil, and filter	Lube, oil, and filter every 3k miles •Soft tissue, vibration, rolling, tempering, nutrition, hydration
Rotate and balance	Rotate and balance the tires every 5k miles •Get assessed for deficits
Align	Align the front end every 5k miles •A chiropractic adjustment is not a bad thing
Wash and wax	Wash and wax once a month •Get a massage, take a day off

Assessment

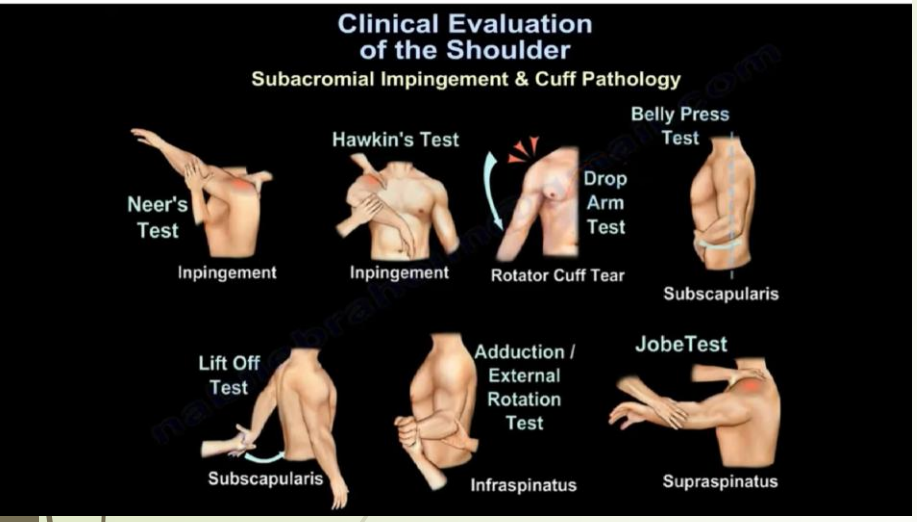
- Deficit versus Adaptation
  - Athletes under 30
  - Athletes 30 - 50
  - Athletes over 65

SECTION 4: ORTHOPEDIC TESTS

- AC Tests p. 34
  - Cross Body Adduction
  - O'Brien
  - Paxinos Squeeze
  - Resisted Extension
- Biceps Tests p. 35
  - Biceps Extension Test
  - Speed's Test
  - Yergason's
  - Modified Yergason's
- Dislocation p. 37
  - Dugas
- Impingement Tests p. 38
  - Kennedy Hawkins Test
  - Neer's Impingement Test
  - Painful Arc
- Instability Tests (Anterior) p. 40
  - Anterior Apprehension
  - Load + Shift
  - Relocation and Release
- Instability Tests (Inferior) p. 41
  - Faegin's Test
  - Sulcus Test
- Instability Tests (Posterior) p. 42
  - Load + Shift
  - Norwood
  - Posterior Apprehension
- Labrum Tests p. 43
  - Anterior Slide
  - Biceps Load
  - Biceps Provocation
  - Crank
  - O'Brien (Active Compression Tests)
  - Passive Compression
  - Passive Distraction
  - Passive Rotation
- Rotator Cuff Tests (Internal and External Rotators) p. 48
  - Arm Drop
  - Bugle
  - Dropping Sign
  - Empty Can
  - External Rotator Lag Sign
  - External Rotators
  - Hug
  - Napoleon
  - Supraspinatus Test



- Inspection
- AROM - gravity
- PROM – 180° rule
- MMT – challenge Rotation
  - Rotation against gravity
- Selected provocative maneuvers
  - So, it hurts?
  - Likely culprit?
- Imaging?
  - How much do you want to know?
  - Assess **architecture**



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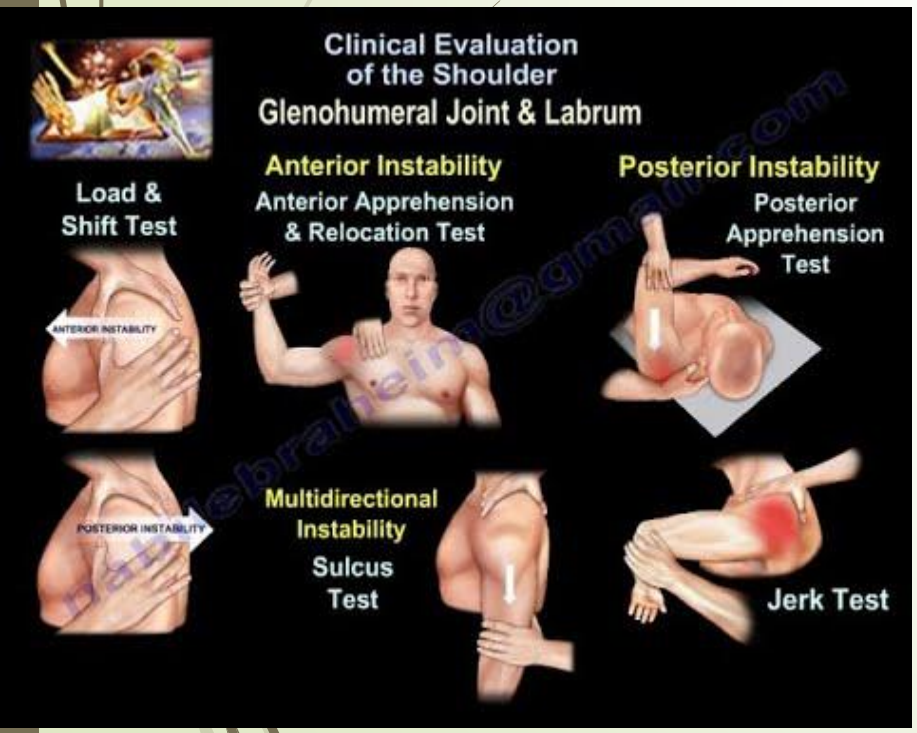

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Evaluation of shoulder pain

Physical Examination	Joint ranges of motion
	Pain provocation maneuvers
	Muscle strength testing
	Scapular dyskinesis
	Glenohumeral instability
	Assess for differential diagnoses

Treatment

Goals may dictate the level of treatment

- Train and treat
- Modify and treat
- Rest and treat

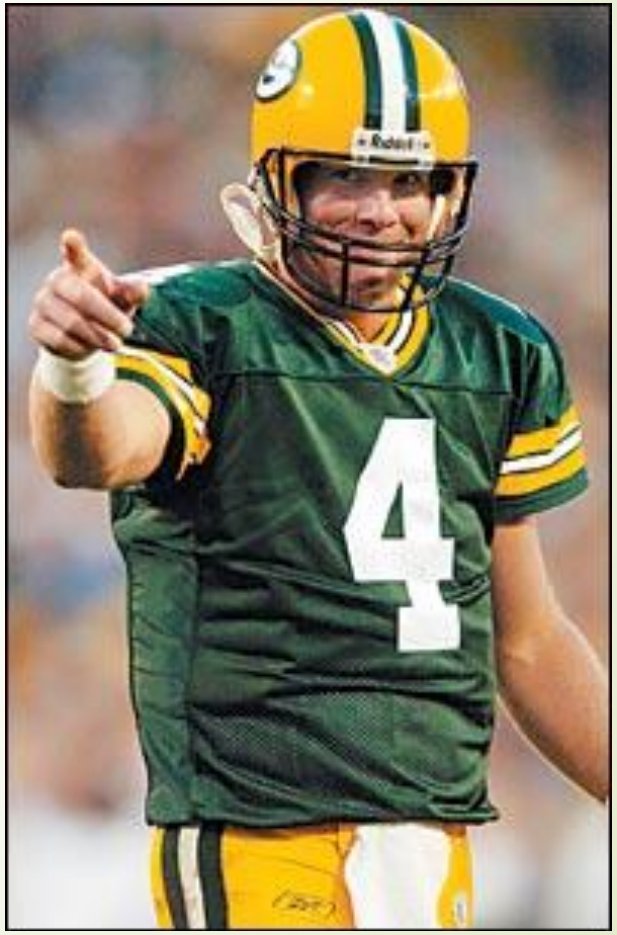
Primary Goal: Return to previous activity

- Pain relief
- Correct deficit
- Recognize the adaptation

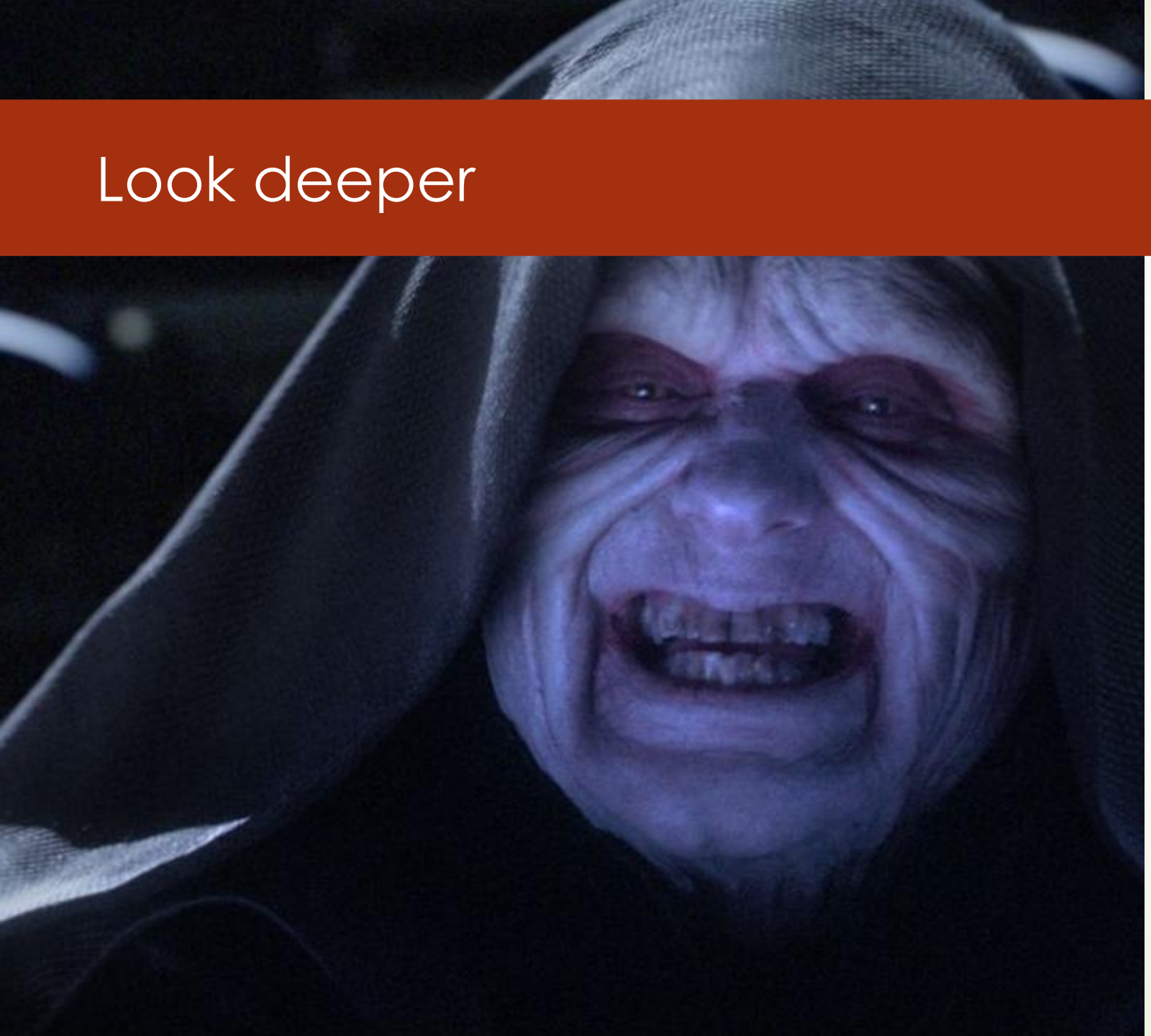
Bill Kazmaier the walking adaptation

what is it you're treating?

- Mechanical pain
- Weakness
- Scapular instability
- Capsular instability
- Anatomical instability

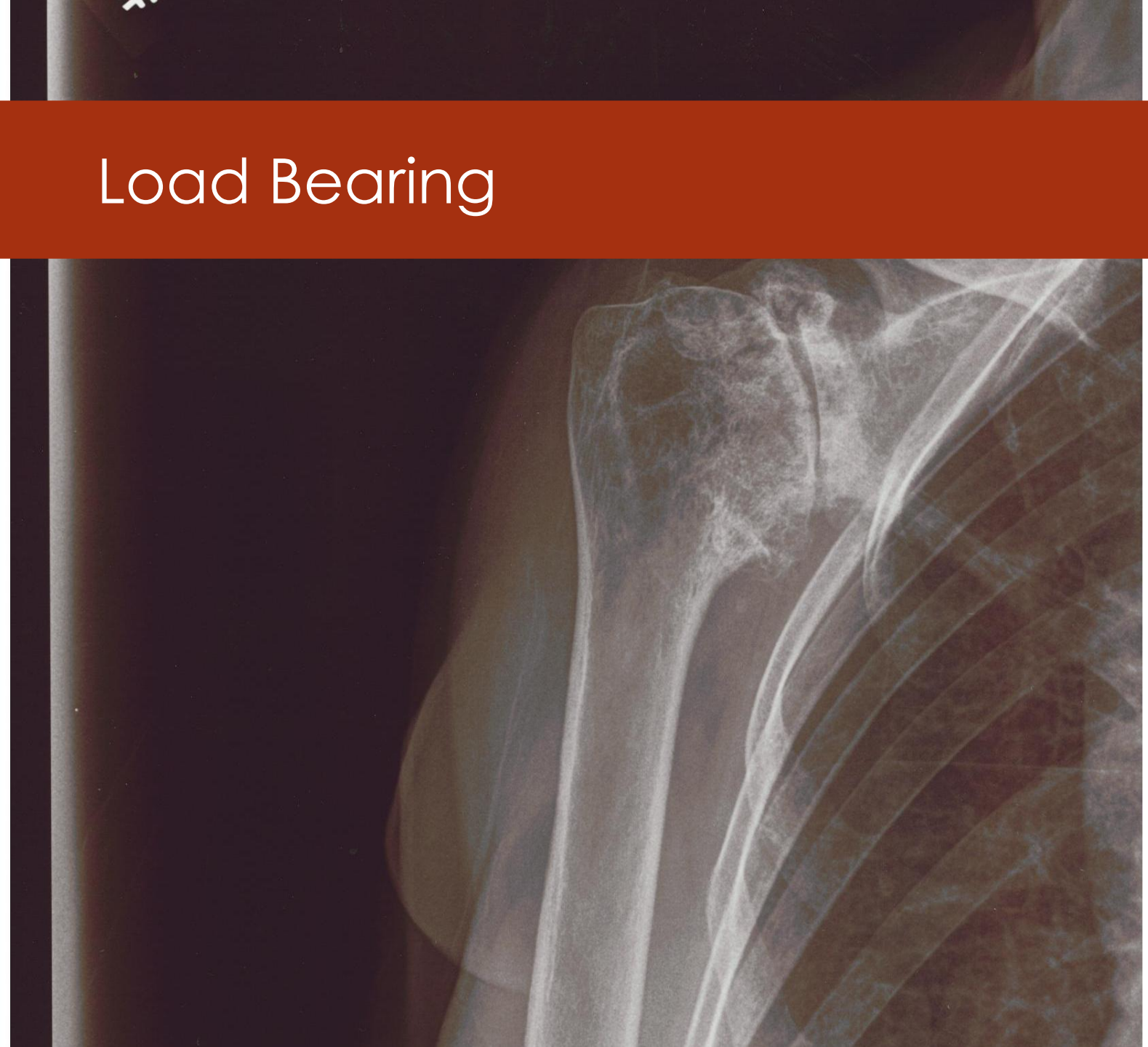


Look deeper



- Load bearing: Heavy loads
- Traction: Brachiation
- Reaction time: Hypermobility

Load Bearing



- Injuries of chronic load
  - Compressive labrum tears
    - Internal Derangement
  - Cartilaginous breakdown HH
    - OA; boney architectural changes
  - Tendon degeneration
    - Tendinosis
  - Compressive ACJ degeneration
    - Arthrosis

Traction

- Hyperelastic tissues
- Traction related Injuries
  - Labrum tears
  - Capsular tears
  - Tendinosis

Reaction Time

- Reduction or slow reaction time
  - Hyperelasticity
  - Hypermobility
  - Instability
  - **CNS** v Musculoskeletal
    - It's not always about bigger
    - Build a faster **CPU**

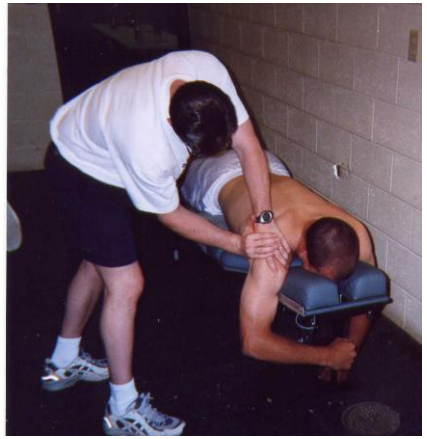
Tissue Types

- **Stiff**
- End range weakness
- <180 degrees
- Linear dominant
- Lacks Rotational motor patterns

- **Loose**
- Poor reaction time
- >200 degrees
- GHJ Hinging
- Lacks both linear and rotational motor patterns

5 keys to successful rehabilitation

- Soft tissue
- Articulations
- Proprioception
- Flexibility
- Strength



Soft Tissue Treatments

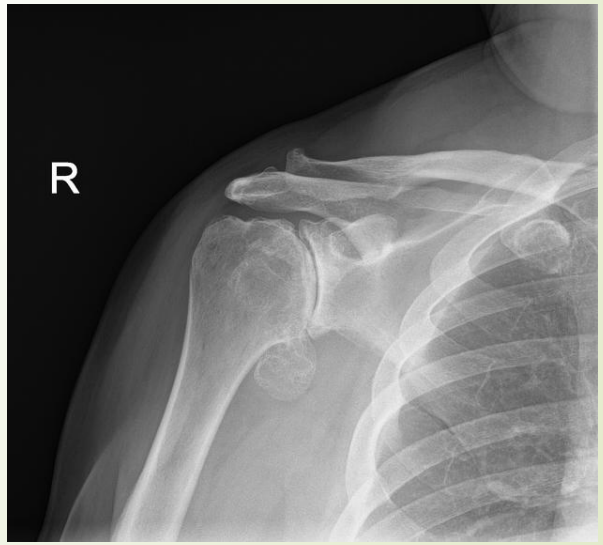
- ART
- IASTM
- CUPPING slide and static
- Compressive Vibration (Hypervolt, etc.)
- Tempering
- Extracorporeal Shockwave (ECSW)
- Treat Compressive to distractive
  - Match the lesion with the treatment

Articular

- What are we manipulating and why?
- Thoracic spine is a prime cuprit in any shoulder problem
- Manipulating a hypermobile GHJ?
  - Nothing good happens after midnight

Rehabilitation

- **Deficits (younger)**
  - GIRD
  - Scapular dysfunction
  - Rotator cuff dysfunction
  - Laxity/instability
- **Adaptations (older)**
  - Improve ROM when appropriate
  - Increase control in the available range
  - Work within the available anatomy

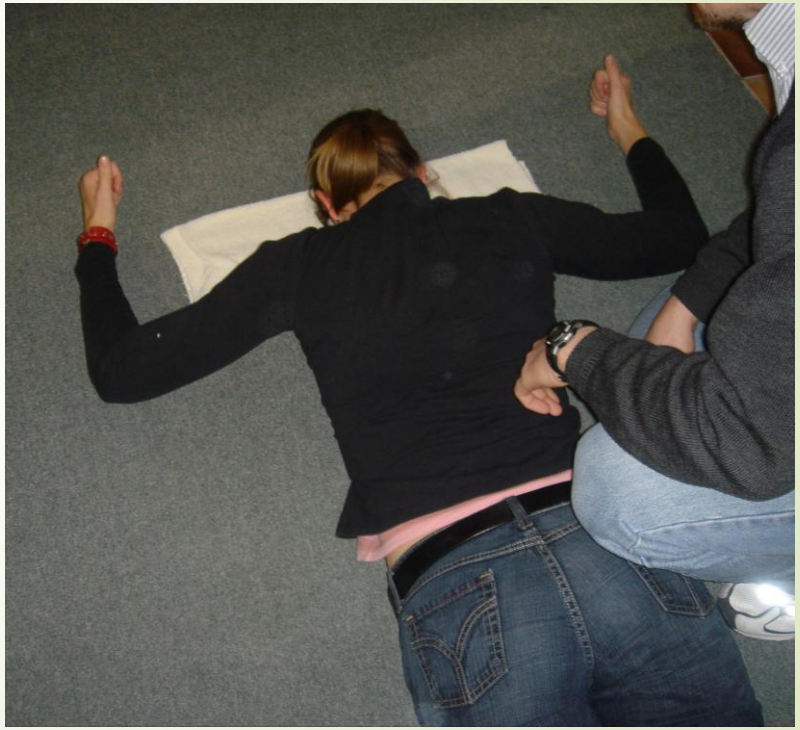


Why train proprioception?

- Muscle fatigue reduces proprioception up to 78%.
- Patients with generalized joint laxity have reduced proprioception

proprioception

- *Open kinetic chain*: proximal to distal joint awareness
- *Rotational motor patterns*
- *No visual cues*
- *Reaction time*



proprioception

- *Closed kinetic chain*: proximal to distal balance
- Load
- Proprioception
- Compression

What to strengthen

- **Scapula**
  - Lower Serratus Anterior
  - Middle and Lower Trapezius
  - Rhomboids

- **Rotator cuff**
  - Supraspinatus
  - Long Head Biceps
  - Infraspinatus
  - Teres minor
  - Subscapularis
    - Both heads

How to Strengthen

Rehabilitate 90° to gravity

Use *short lever arms* early in the rehab process to decrease torque at the GHJ

Eccentric movements

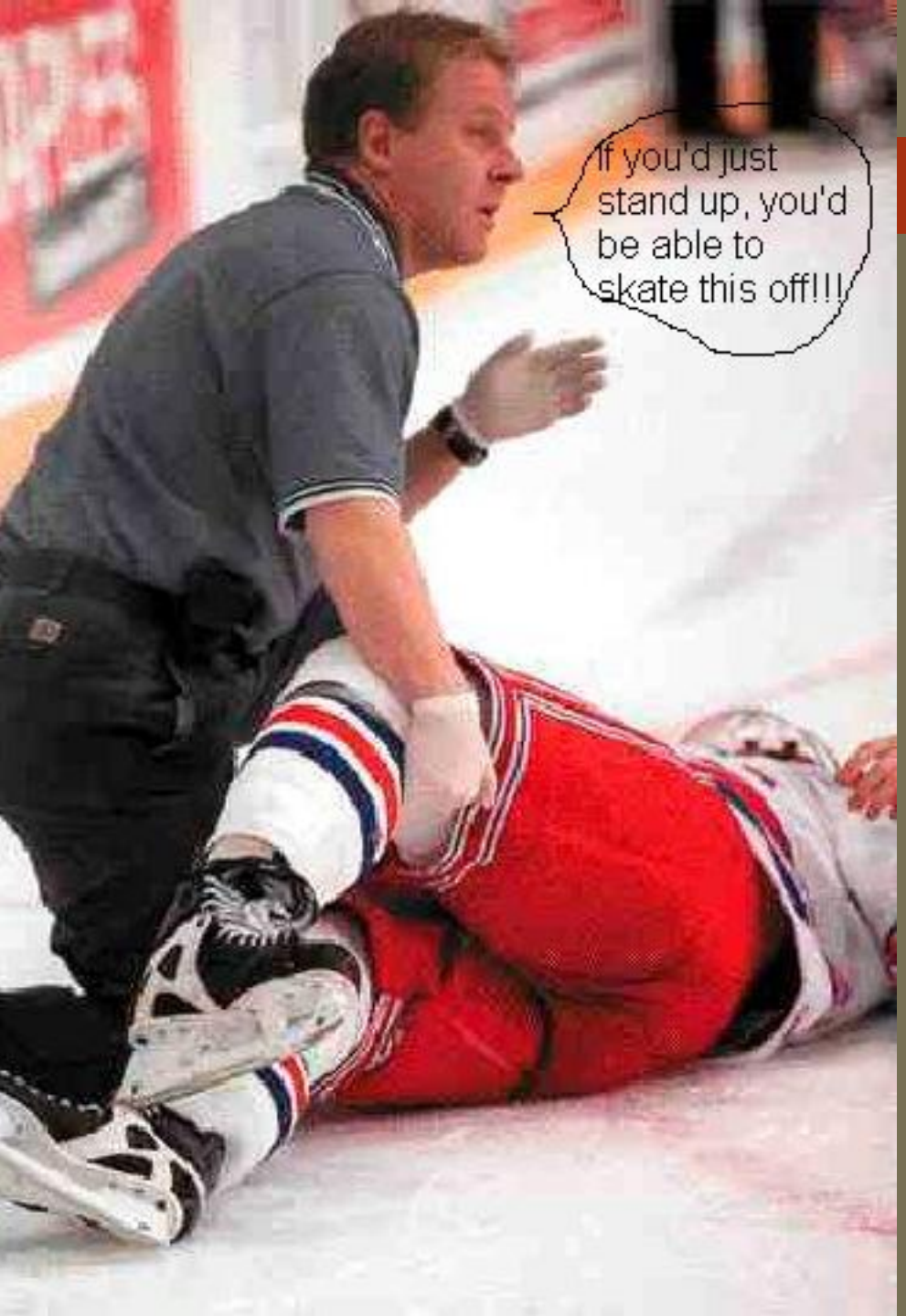
Scapular Control not Stabilization (*scapular setting*)

- Match functional loads and demands
  - Specific Adaptation to Imposed Demands (SAID)

Use short and long axis rotation

Examine and protect the kinetic chain

- Total Arm Strength (TAS)



Errors in Shoulder Rehab

- Failure to follow a strength continuum
- Elastic resistance too early or as the sole method
- Failure to train proprioception
  - Both open and closed kinetic chain
- Failure to isolate the posterior capsule
- Omitting **Brachiation**
- Failure to start the patient in the appropriate clinical phase

Patient Variables and Factors

- Patients tissue status
  - Hyper-elasticity V. Hypo-mobility
- Dynamic stabilizers status
  - Muscle and Bone
  - Muscular strength and balance
  - Proprioceptive ability
- Classification of instability
- Previous activity level
- Desired activity level (expectations)
- Healing abilities (rapid or slow)

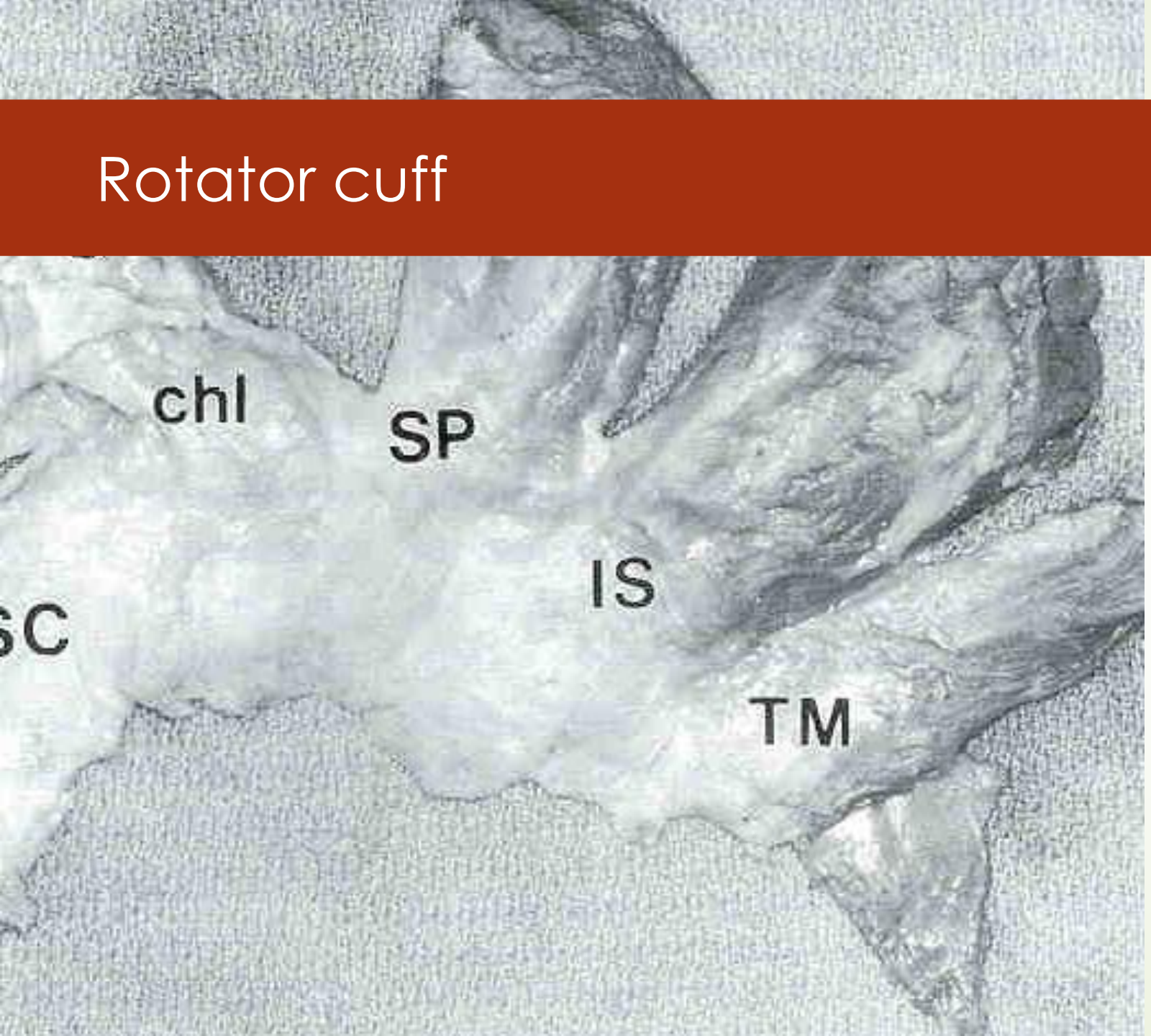
Keys to Shoulder Rehabilitation

- Thoracic extension
- Scapular control
- Rotator cuff strength
- Proprioception
- Balance of compression and distraction
- Hip strength
  - If ground reaction force is present
  - Throwing and striking sports

How to Strengthen: Progression

- **Loose**
  - Posture
  - Scapula
  - RTC
  - Partial load bearing
  - Partial Brachiation
  - Suspension
  - Full load bearing
- **Stiff**
  - Flexibility
  - RTC
  - Brachiation
  - Suspension
  - Load bearing

Rotator cuff



- Can be overrated
- RTC programs can be ineffective unless the proximal segments such as the thoracic spine and scapula are mobilized and controlled first.
- Going through the motions looks good, but what is actually doing the work? Does it look rotary while being linear?

Scapular Based Weight Training

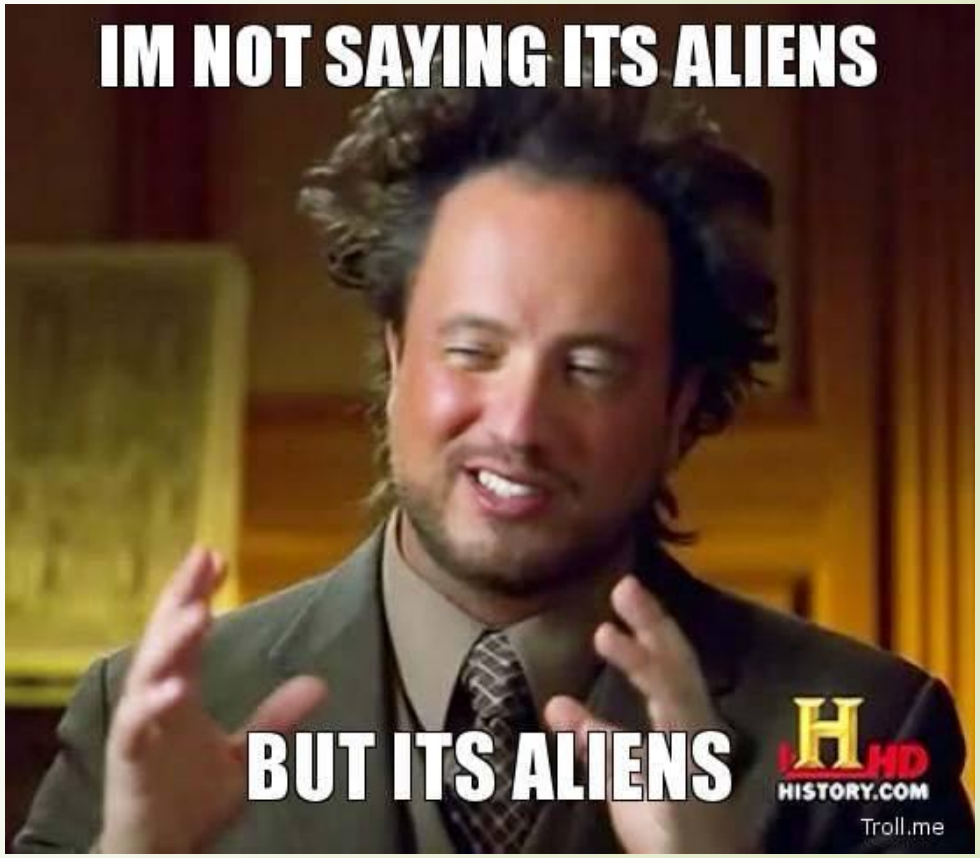
The scapulo-thoracic articulation is the base as well as the *weakest link* in an open kinetic chain…*the upper extremity*

Start with a ***scapular set*** when it makes mechanical sense

Scapular Set: retraction and depression of the scapula prior to glenohumeral motion

Advanced RTC Rehabilitation

- Plus on ball
- Prone Field Goal
- Modified Empty Can
- Dynamic Blackburn on ball
- Prone Bilateral Blackburn-3x3
- Flying Buchberger
- TRX I/Y/V

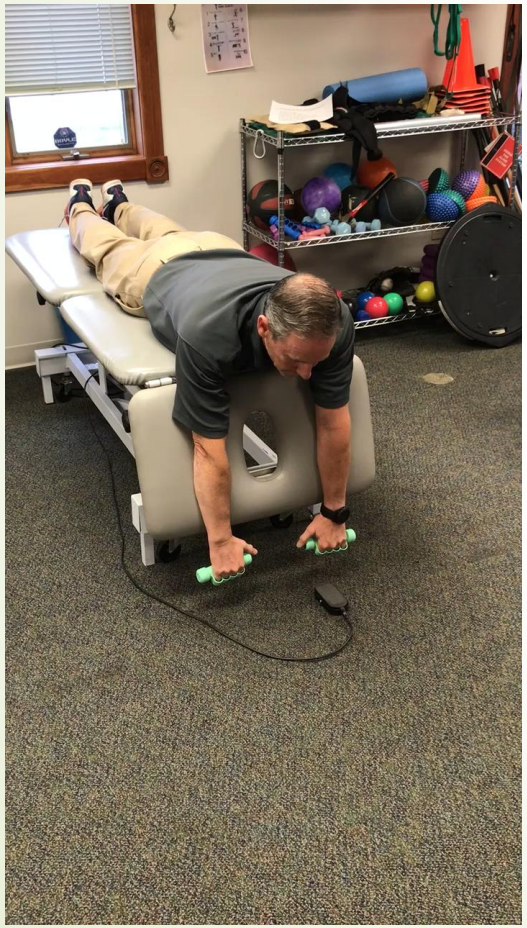


https://www.shouldermadesimple.com/product/buchberger-12-clinical-edition/

“Plus” on a Ball

- Both heads of Subscapularis
- Serratus anterior
- Closed chain proprioception

“Field Goal” Exercise

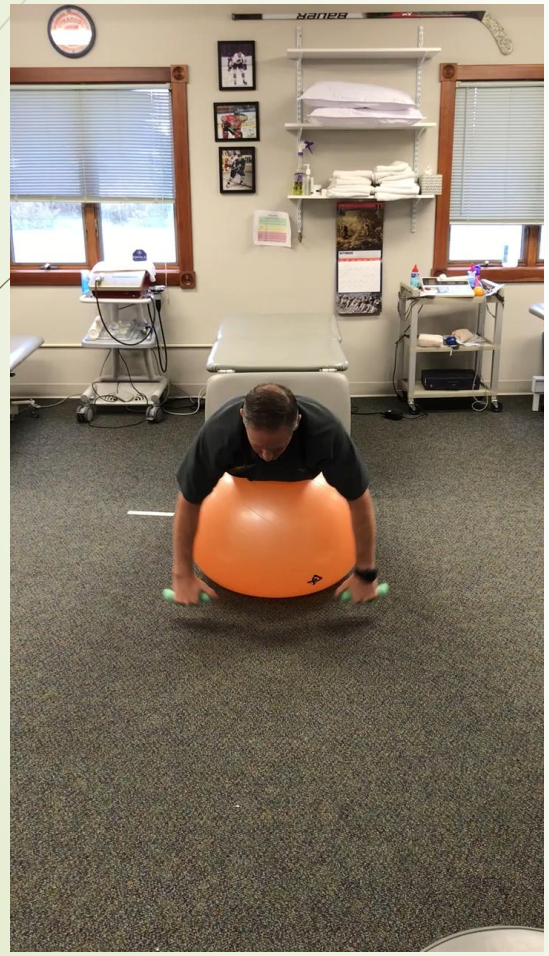


- Rhomboids
- Posterior RTC
- mid-traps
- SA
- Thoracic extension
- Open chain proprioception

Modified Empty Can

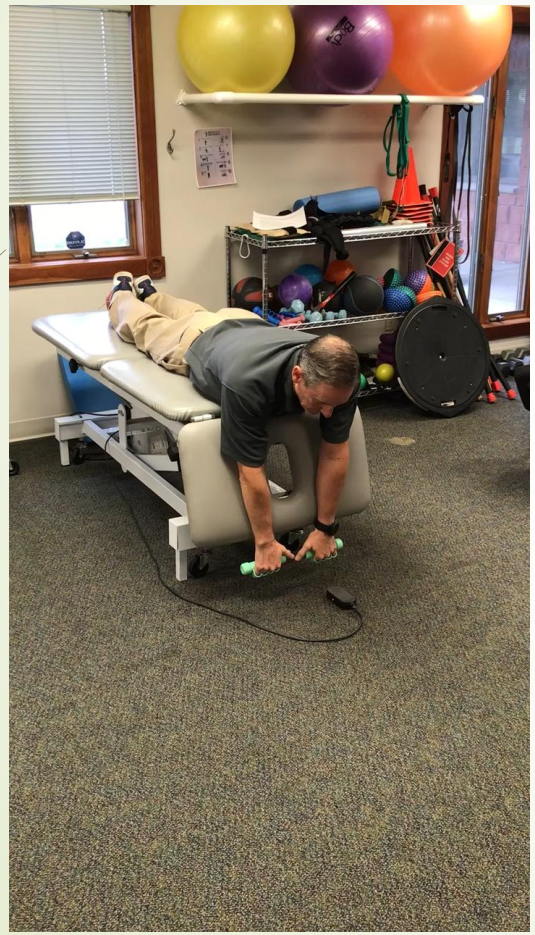
- Supraspinatus
- Rhomboids
- Lower trap
- Open chain proprioception

Dynamic Blackburn on BALL



- Rhomboids
- Posterior RTC
- mid-traps
- Serratus Anterior
- Thoracic extension
- Open chain proprioception
- Long Axis rotation

Bilateral Blackburn 3 x 3

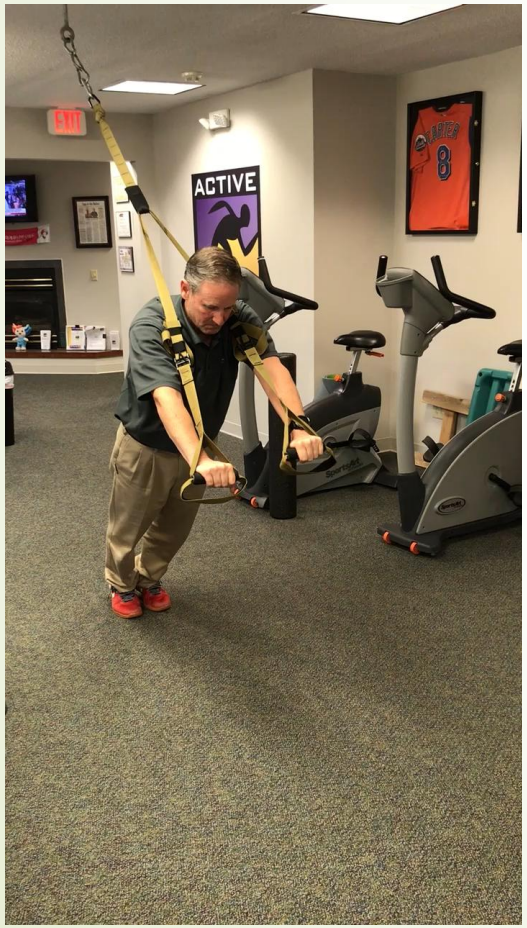


- Rhomboids
- Posterior RTC
- mid-traps
- SA
- Thoracic extension
- Open chain proprioception

Flying Buchberger

- Glut
- Back
- Scap
- Cuff

TRX – I/Y/V



- Long axis proprioception
- RTC co-contraction
- CORE connection

Progression[8]

- Basic RTC and Peri-scapular conditioning (control and ROM)
- Brachiation progression
- Advanced RTC and Peri-scapular conditioning

https://movegst.com/coaches/

Reaction Time and Compressive load

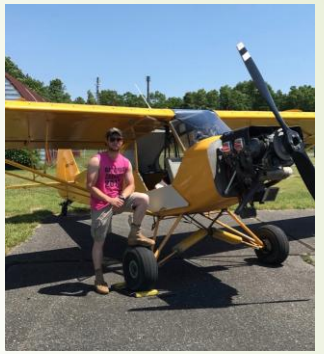
Summary

- Can we find the primary pain generator?
- Go after the primary pain generator
- Selective rest is reasonable
- Not everything gets better in one visit
- Often times, time, dedication, and work are required
- There is no pill to fix the problem.
- The shoulder in the weight training individual (WTI) is a challenge and does not get easier with age.

Conclusions

Thank You!



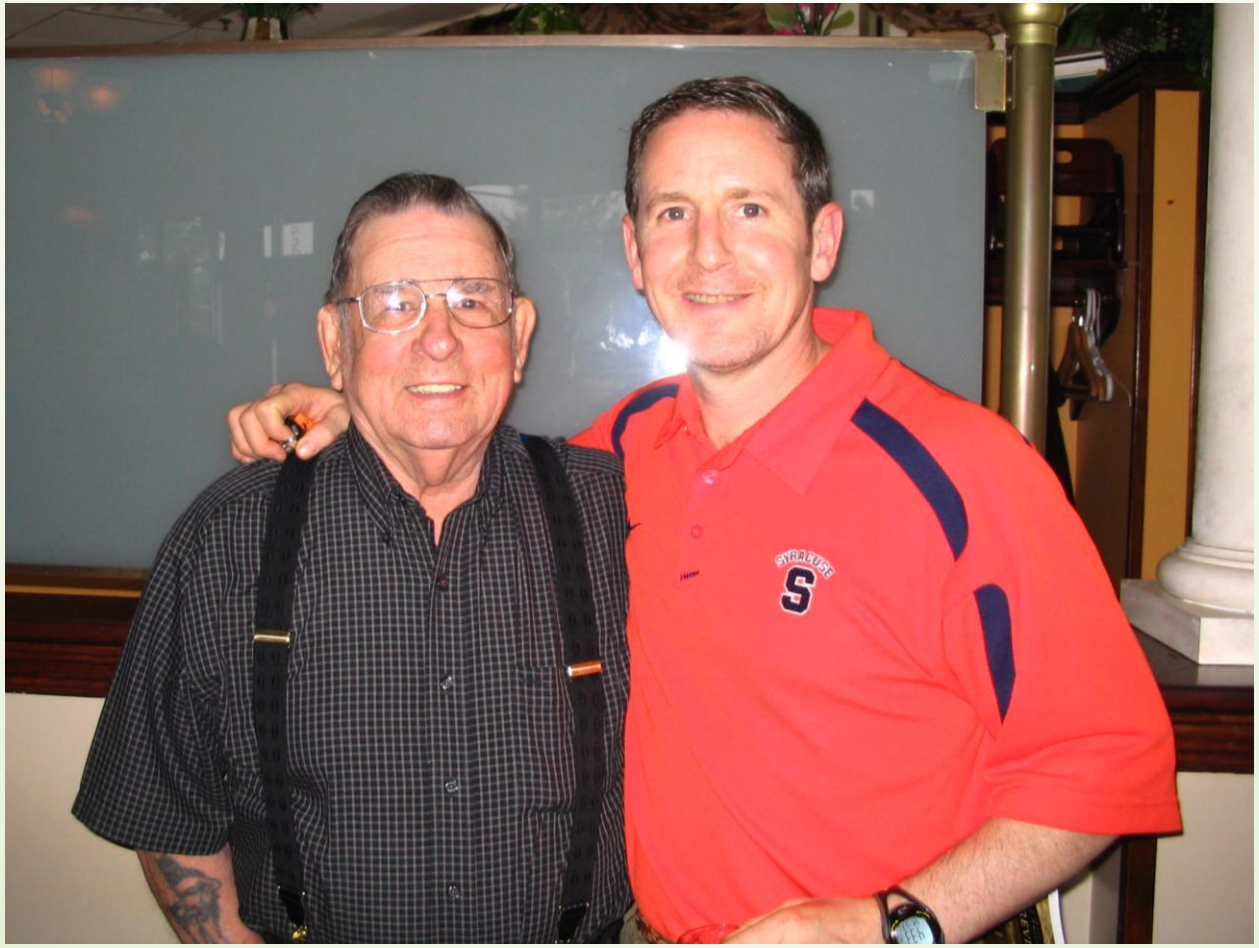







In Loving Memory of Lyle J. Buchberger
Thanks for everything!
Love ya Dad!

May 30, 1928 - January 12, 2009



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References

- 1) Decker MJ, Tokish JM, Ells HB, Torry MR and Hawkins RJ. Subscapularis Muscle Activity During Selected Rehabilitation Exercises. Am J Sports Med 31(1); 126-134, 2003

2) Blackburn TA, McLeod WD, White B, Wofford L. EMG analysis of posterior rotator cuff exercises. Athl. Train. 1990;25:40-45

3) McMahon PJ, Jobe FW, Pink MM, Brault JR and Perry J. Comparative electromyographic analysis of shoulder muscles during planar motions: Anterior glenohumeral instability versus normal. J Shoulder Elbow Surg 1996;5:118-123

4) Itoi E, Kido T, Sano A, Urayama M, Sato K. Which is more useful, the "full can test" or the "empty can test," in detecting the torn supraspinatus tendon. Am J Sports Med 1999;27:65-68

5) Greis PE, Kuhn JE Schultheis J, Hintermeister R, Hawkins R. Validation of the lift-off test and analysis of subscapularis activity during maximal internal rotation. Am J sports Med 1996; 24:589-593.

6) Buchberger DJ Scapular dysfunctional impingement syndrome as a cause of grade two rotator cuff tear: a case study. Chiropr Sports Med 1993; 7:38-45.

7) Kelly BT, Kadrmas WR, Speer KP. The manual muscle examination for rotator cuff strength. An electromyographic investigation. Am J Sports Med 1996; 24:581-587.

8) Gass A. Personal communication 2022; https://movegst.com/coaches/

9) Tokish JM. The mature athletes shoulder. Sports Health. 2018;6:31-35.

10) Churgay CA. diagnosis and treatment of biceps tendinitis and tendinosis. Am F Physician. 2018; 80(5):470-476

References

11) Tokish JM. The mature athletes shoulder. Sports Health. 2018;6:31-35.

12) Churgay CA. diagnosis and treatment of biceps tendinitis and tendinosis. Am F Physician. 2018; 80(5):470-476

13) https://radiopaedia.org/articles/osteoarthritis-of-the-shoulder

14) Buchberger DJ. Buchberger-12 Clinical Addition; 2015; https://www.shouldermadesimple.com/product/buchberger-12-clinical-edition/