

The Functional Shoulder



OBJECTIVES

PART ONE - Return to Sports Criteria and Functional Objective Testing

PART TWO - Case Report: Return to CrossFit® After Shoulder Surgery

PART THREE - Lab: Shoulder Mobility, Flexibility, and Stability

PART ONE Return to Sports Criteria and Functional Objective Testing

Objectives

- Define sport
- Discuss return to sport criteria
- Understand a basic timeline for tissue healing
- Discuss the Functional Management Progression Pyramid
- Understand importance of using functional tests in physical therapy to determine return to sport
- Comprehend current evidence regarding upper extremity functional testing
- Describe how to perform: Upper Extremity Y Balance, Closed Kinetic Chain Upper Extremity Stability Test, and Seated Shot Put Test

Sport [spawrt, spohrt] noun

An activity involving **physical exertion** and **skill** in which an individual or team competes against another or others¹

- **Exertion** = strenuous effort
- **Skill** = the ability to do something well

Why are we still using one dimensional testing to determine return to sport?

Return to Sport Criteria

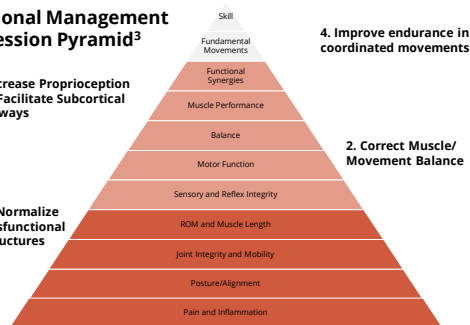
- **One Dimensional Approach**
 - Full Strength - 5/5 MMT
 - Equal Range of Motion
 - "No Pain"
- **Integrative Approach**
 - Tissue Healing Time Frames
 - Functional Progression Management Pyramid
 - Functional Objective Testing



Phases of Tissue Healing

- **Phase 1 - Inflammation (0 - 3 days)**
 - Vasodilation and increased capillary permeability activate leukocytes and macrophages to destroy bacteria, growth factors released to begin forming new granulation tissue²
- **Phase 2 - Proliferation (3 days - 3 weeks)**
 - Endothelial cells at wounds edge begin to proliferate, new capillary channels formed, red-granulated tissue layer is formed, fibroblasts are drawn to this area to synthesize new collagen, cross-links of collagen are formed and the initial scar is produced²
- **Phase 3 - Maturation = (6 months - >1 year)**
 - Scar tissue is reduced and remodeled, tissue is increasing in strength²

Functional Management Progression Pyramid³



Functional Objective Testing

Purpose - to provide **qualitative** and **quantitative** information including, but not limited to the following⁴:

- Strength
- Power
- Endurance
- Flexibility
- Balance and Proprioception
- Speed
- Agility
- Functional Movement Patterns

Functional Upper Extremity Objective Tests

- Unilateral Seated Shot Put Test
- Closed Kinetic Chain Upper Extremity Stability Test
- Upper Extremity Y Balance Test

Unilateral Seated Shot Put Test^{5,6}



- Used to measure upper extremity **strength** and **power**
- Great external validity
- Excellent test-retest reliability
- Strong validity for assessing total-body power when performing a two arm medicine ball throw test
- Must take dominant arm into consideration
- Norms: 100% LSI for non dominant injured arm, >=106% LSI for dominant injured arm

Unilateral Seated Shot Put Test^{5,6}

- Set Up: patient sitting with legs straight, back stabilized, arm has space to extend behind thorax
- Practice: Patient performs 2 submax pushes/throws with 8lb med ball
- Test: 3 maximal pushes/throws with 8lb med ball on non injured followed by injured
- Score:
 - Measure distance in centimeters for each throw
 - Score is = Average of 3 throws in centimeters
- Limb Symmetry Index (LSI%)=
 - (injured extremity average score/non injured extremity average score) X 100.

Closed Kinetic Chain Upper Extremity Stability Test 7,8,9,10



- Used to measure upper limb **stability** and **proprioception**
- Excellent test-retest reliability
- Score is the average number of cross body taps after 3 trials at 15 seconds
- Norms: 18.5 - 27 touches for men, 20.5 touches for women (from modified position)

Closed Kinetic Chain Upper Extremity Stability Test

7,8,9,10

- Set Up: 2 markers placed 3 feet apart, starting in plank position for men (modified plank position on knees for women) with both hands on each marker
- Practice: tapping each marker with contralateral hand for 15 seconds, followed by 45 seconds of rest
- Test: 3 trials
 - Make as many cross body touches as possible while maintaining contralateral hand on a marker
 - Each tap counts as a touch
- Score: average the number of touches performed on each trial

Upper Extremity Y Balance Test 11,12,13



- Used to measure scapular stability, scapular mobility, thoracic rotation, and core stability
- Excellent test-retest reliability
- No clinically significant differences noted between dominant and non-dominant shoulders
- Norm: 98.1% LSI for total excursion

Upper Extremity Y Balance Test ^{11,12,13}

- Set Up: Y Balance Lines (45 degrees between each line); arm being measured is stabilizing arm, begin in plank position
- Reaches: the first reach should be medial, followed by superolateral, inferolateral (use the same order each time)
- Remember the reaches are named after the stabilizing arm
- Practice: 1-3 trials
- Test: 3 trials, measured in centimeters
- LSI can be calculated for:
 - Total Excursion - calculated by the average of each excursion per 3 trials
 - Individual Directions - average of medial, superolateral, or inferolateral per 3 trials

PART ONE REFERENCES

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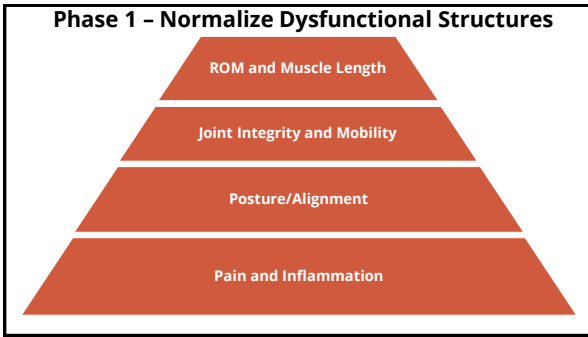
PART TWO
Case Report:
Return to
CrossFit®
After Shoulder
Surgery

Objectives

- Using Clinical Reasoning and Upper Extremity Functional Objective Testing to Safely Return a Patient Back to Crossfit®
 - Discuss what movements are common in CrossFit® and functional fitness
 - Introduce case description
 - Review initial examination results
 - Describe the components of the criteria based algorithm used to return CrossFit® athletes back to sport after shoulder surgery
 - Review Outcomes

NOT YOUR AVERAGE Movement:

- Squat** >>> Sit to stand transfer
- Deadlift** >>> Picking loads up off the ground
- Press** >>> Putting loads up overhead
- Snatch** >>> Picking loads up from the ground to overhead quickly
- Burpee** >>> Floor to stand transfer
- Box Jump/Step Up** >>> Lifting and lowering body against gravity using legs
- Pull Up** >>> Lifting body weight up against gravity using arms

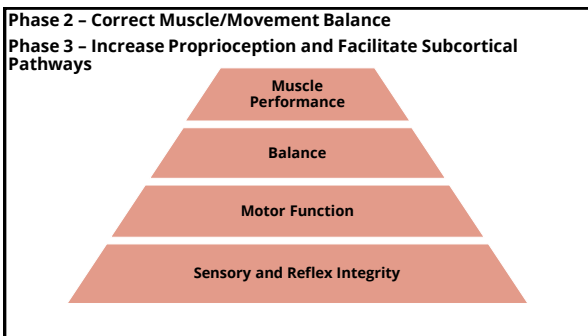


Phase 1 - Normalize Dysfunctional Structures with respect to surgical repairs and tissue healing unique to the patient

Phase 1 Goals - Criteria for progression to Phase 2

- Patient's level of irritability/pain is minimum to none
- Patient has full passive ROM of the affected shoulder, >75% of active ROM of the affected shoulder
- Patient is able to self correct faults in posture and can achieve normal spinal alignment in sitting and standing

Phase 1
0-4 Weeks



Phase 2
4-6 Weeks

Phase 2 – Correct Muscle/Movement Balance with respect to surgical repairs and tissue healing unique to the patient

Phase 2 Goals - Criteria for progression to Phase 3

- Patient has full active ROM of the affected shoulder
- Patient demonstrates 2:1 scapulohumeral rhythm with shoulder elevation
- Patient able to correctly activate targeted periscapular muscles with select exercises appropriate for rehabilitation at this time

Phase 3
6-8 Weeks

Phase 3 – Increase Proprioception and Facilitate Subcortical Pathways

Phase 3 Goals - Criteria for progression to Phase 4

- Patient will resist mod/max pressure with shoulder MMT
- Patient shows no signs of obvious scapular dyskinesia
- Patient able to perform functional movement patterns on affected upper extremity without compensation (i.e shoulder proprioceptive neuromuscular facilitation)

Phase 4 – Improve endurance in coordinated movements

Skill

Fundamental Movements

Functional Synergies

Phase 4
8-12 Weeks

Phase 4 - Improve endurance in coordinated movements

Criteria for discharge to CrossFit with home exercise program:

- Patient demonstrates > 100% LSI on Unilateral Seated Shot Put Test
- Patient demonstrates > =18.5 taps on Closed Kinetic Chain Upper Extremity Stability Test
- Patient demonstrates > = 98.1% LSI on Upper Quarter Y Balance Test
- Patient demonstrates normal static and dynamic posture
- Patient demonstrates 5/5 with all shoulder MMT
- Patient demonstrates equal shoulder ROM bilaterally
- Patient reports 100% understanding of final HEP which includes: a strengthening program for 2-3x a week for weeks 12-16 and extensive education on scaling/modifying CrossFit workouts to protect shoulder in the maturation phase of healing.

Outcomes

- Pt demonstrates > 100% LSI on Unilateral Seated Shot Put Test **MET LSI = 101.9%**
- Pt demonstrates > =18.5 taps on Closed Kinetic Chain Upper Extremity Stability Test **MET 23 taps**
- Pt demonstrates > = 98.1% LSI on Upper Quarter Y Balance Test **NOT MET LSI = 91.4%**
- Pt demonstrates normal static and dynamic posture **MET**
- Pt demonstrates 5/5 with all shoulder MMT **MET**
- Pt demonstrates equal shoulder ROM bilaterally **MET**
- Pt reports 100% understanding of final HEP which includes: a strengthening program for 2-3x a week for weeks 12-16 and extensive education on scaling/modifying CrossFit workouts to protect shoulder in the maturation phase of healing. **MET**

Summary of Weekly Outcomes						
Measurements	Weeks 0-2	Weeks 3-4	Weeks 5-5	Weeks 6-4	Weeks 9-10	Weeks 11-12
Average Rating on VAS pain scale	2/10	1.5/10	3/10	0/10	0/10	0/10
PROM Shoulder Flexion/Abduction	82/72	170/142	175/165	WNL	WNL	WNL
PROM Shoulder External Rotation/Internal Rotation	At 45 deg of abduction 8/70	At 90 deg of abduction 8/170	At 90 deg of abduction 90/75	WNL	WNL	WNL
AROM Shoulder Flexion/Abduction	N/A	N/A	174/161	175/165	175/175	WNL
Functional AROM Shoulder External Rotation/Internal Rotation	N/A	N/A	T4L1	T4L1	T3/T9	WNL
MMT Shoulder Flexion/Abduction (0-5 scale)	N/A	N/A	N/A	4+/4+	5/5	WNL
MMT Shoulder External Rotation/Internal Rotation (0-5 scale)	N/A	N/A	N/A	4+/4+	5/5	WNL
Posture/Scapular Kinematics	Rounded shoulders, thoracic kyphosis	Requires min verbal cues to improve posture	Independent in achieving normal seated/standing posture	R scapular winging, increased upper trap activation	Minimal dyskinesia of R scapula	WNL

OBJECTIVES

1. Learn the five components of the "Functional Shoulder"
2. Recognize how static and dynamic posture affects physical health
3. Understand the complexity of diagnosing shoulder pain
4. Learn and perform soft tissue mobilization techniques to reduce referred pain from the shoulder
5. Learn and perform joint mobility exercises to improve range of motion in the shoulder joint, cervical and thoracic spine
6. Learn and perform flexibility exercises to improve range of motion by lengthening the muscles that surround the shoulder
7. Learn shoulder stabilization exercises to maintain gains made with mobility and flexibility exercises

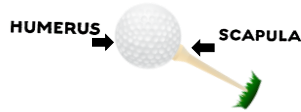
#1 Shoulder Anatomy 101

Five Components of the Functional Shoulder

- Glenohumeral Joint
- Scapulothoracic Joint
- Muscles of the Shoulder Girdle
- Cervical Spine
- Thoracic Spine

Glenohumeral Joint

- Ball and Socket Joint
 - Humeral Head
 - Glenoid Cavity
 - Glenoid Labrum



Scapulothoracic Joint

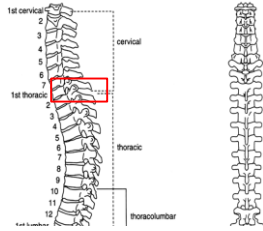
- Not a "true joint"
 - Responsible for the movement of the scapula on the thoracic rib cage
- 2:1 Scapulohumeral Rhythm
- Force Couple for Upward Rotation
 - Upper Trapezius
 - Lower Trapezius
 - Serratus Anterior

Muscles of the Functional Shoulder

- | | |
|--|--|
| <ul style="list-style-type: none"> ● Subclavius ● Sternocleidomastoid ● Scalenes ● Serratus Anterior ● Pectoralis Minor ● Pectoralis Major ● Rhomboids ● Trapezius Muscle (Upper, Middle, Lower) ● Levator Scapulae | <ul style="list-style-type: none"> ● Rotator Cuff (SITS) <ul style="list-style-type: none"> ○ Subscapularis ○ Infraspinatus ○ Teres Minor ○ Supraspinatus ● Latissimus Dorsi (Lats) ● Teres Major ● Biceps ● Triceps |
|--|--|

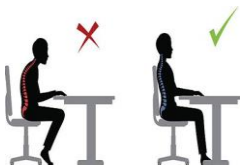
Cervical and Thoracic Spine

- Cervical-Thoracic Junction (aka the "CT" Junction) is where the cervical spine meets the thoracic spine



#2 Posture

Static Posture



- The alignment of the body in a prolonged position such as sitting, standing, and sleeping
- **Problem** - prolonged time spent in poor static posture leads to musculoskeletal adaptations such as:
 - shortened/stiff muscles
 - weak/long muscles
 - decreased joint mobility
 - discomfort/pain

Dynamic Posture



- The alignment of the body during movement
- **Problem** - injury may result if the body is lacking the stability, flexibility, mobility, and/or coordination to perform skilled movements

Cause and Effect?

- Poor **STATIC** posture leads to...
- Poor **DYNAMIC** posture during workouts, which leads to...
- Soreness that doesn't go away during workouts, which leads to...
- Soreness with daily activities, which leads to...
- Pain during workouts and daily activities, which leads to...
- INJURY

#3
Pathology

Soreness Rules¹

Criteria	Action
1. Soreness during warm up that continues	1. 2 days off, drop down 1 level
2. Soreness during warm up that goes away	2. Stay at level that lead to soreness
3. Soreness during warm up that goes away, but redevelops during the session	3. 2 days off, drop down 1 level
4. Soreness the day after lifting that is not muscle soreness	4. 1 day off, do not advance to the next level
5. No soreness	5. Advance 1 level per week, or as instructed by healthcare professional

Differential Diagnosis

- Internal vs. **External Impingement (Dx-1)**
- Subacromial vs. Subdeltoid Bursitis
- **Rotator Cuff Tendinopathy (Dx-2)** vs. Rotator Cuff Tears
- **Biceps Tendinopathy (Dx-2)** vs. Biceps Tears
- Subluxation vs. Dislocation
- Degrees of Muscle Strain
- Degrees of Ligament Sprain
- Glenoid Labral Tears
- Fractures on the Glenoid
- Fractures on the Humeral Head
- Acromioclavicular Joint Dysfunction
- Cervical Spine Radiculopathy
- **Postural Dysfunction (Dx - 3)**

Dx 1: Subacromial Impingement Syndrome

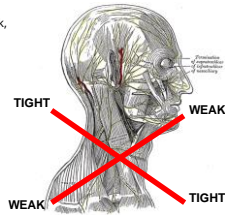
- **Signs and Symptoms:**
 - Shoulder pain that increases between 60 - 120 degrees of shoulder elevation
 - Pain is usually felt around the side of the shoulder near the deltoid
- **Cause:**
 - The supraspinatus muscle and/or the subacromial bursa (sac of fluid) gets pinched under the acromion due to:
 - The humeral head lacking rotator cuff stability to maintain position on the glenoid fossa with overhead movements
 - The glenohumeral joint lacking mobility to roll and slide into correct positions with overhead movement
 - Tight/short muscles around the shoulder girdle that disable the shoulder from working properly in an overhead motion
- **Treatment:**
 - Strengthen what is weak
 - Improve flexibility and mobility in necessary areas to achieve optimal positioning

Dx 2: Tendinopathy

- **Signs and Symptoms** (Can have tendon injury to **Biceps** and/or **SITS** muscles)
 - Shoulder Pain particularly with overhead movement and external rotation
 - Early stages pain goes away with rest (tendonitis)
 - Later stages pain is consistent (tendinopathy)
- **Cause:**
 - Weak rotator cuff muscles
 - Weak scapular muscles
 - Poor mobility and flexibility in thoracic spine, cervical spine, scapulothoracic joint, and/or glenohumeral joint
 - Performing heavy resistance during skilled movements without proper form
 - Overactivity of the biceps muscles (biceps tendinopathy)
 - Lack of proper rest
- **Treatment:**
 - REST!!!!
 - Strengthen what is weak
 - Improve flexibility and mobility in necessary areas to achieve optimal positioning
 - Reduce resistance in order to achieve optimal position and/or reduce pain

Dx 3: Posture Syndrome (Upper Cross)

- **Signs and Symptoms:**
 - Headaches
 - Dull/Achy pain in neck, upper/mid back, shoulders
- **Cause:**
 - Tight:
 - Cervical Paraspinals
 - Upper Trapezius
 - Levator Scapula
 - Pectoralis Musculature
 - Weak:
 - Deep Neck Flexors
 - Rhomboids
 - Serratus Anterior
- **Treatment:**
 - Stretch what is tight
 - Strengthen what is weak
 - Correct postural faults



#4 Soft Tissue Mobilization

Reasons to Perform STM²

- Increase blood flow to muscles to prepare for activity
- Increase range of motion
- Reduce intensity of referred pain from trigger points
- Reduce soreness from Delayed Onset Muscle Soreness (**DOMS**)

Referred Pain

- **"Referred Pain"** is pain or soreness that is felt in a different location than the actual source
- A **Myofascial Trigger Point** can refer pain
 - **Active** Trigger Points when palpated produce a reproduction of symptoms
 - *apply STM*
 - **Latent** Trigger Points refer pain, but not a reproduction of symptoms
 - *leave these alone*
- **Non-musculoskeletal referred pain is a red flag**

STM Tools and Techniques

Tools

- Lacrosse Ball
- Foam Roller
- IMR
 - Index finger
 - Middle finger
 - Ring finger
- Dummy Thumb
 - Tip of your thumb
 - More Dense than IMR and Lacrosse Ball

Techniques (Rx)

- Cross Friction Massage - moving against/perpendicular to the muscle fibers
- Trigger Point Release/Sustained Holds - application of deep pressure to trigger point
- Rolling

Scalenes

Tools:

- Lacrosse Ball
- IMR

Rx:

- Seated or Standing
- Cross Friction (side to side) using Lacrosse Ball or IMR
- 30 seconds - 2 minutes or until soreness is reduced
- Be careful in this area, you do not want to mobilize over your jugular vein or carotid artery
- **Make sure you are on the part of the muscle closest to your collarbone**



Upper Trap

Tools:

- Lacrosse Ball
- IMR

Rx:

- Seated or Standing
- Cross Friction (up and down) using Lacrosse ball or IMR
- Trigger Point Release/Sustained Holds using Lacrosse Ball or IMR
- 30 seconds - 2 minutes or until soreness is reduced
- **Make your goal to reduce soreness from 2-3 trigger points at a time as the upper trap is an area where many trigger points (active and latent) are present**



Levator Scapulae

Tools:

- Lacrosse Ball
- IMR

Rx:

- Seated or Standing
- Cross Friction (up and down/diagonal) using Lacrosse Ball or IMR
- Trigger Point Release/Sustained Holds using Lacrosse Ball or IMR
- 30 seconds - 2 minutes or until soreness is reduced



Rhomboids

Tools:

- Lacrosse Ball

Rx:

- Standing Against a Wall OR Lie on Back on top of ball
- Cross Friction (up/down)
- Trigger Point Release/Sustained Holds
- 30 seconds - 2 minutes or until soreness is reduced
- **Not a common area for trigger points**



Pec Major/Minor

Tools:

- Foam Roller
- Lacrosse Ball
- IMR

Rx:

- Standing or Seated
 - Cross Friction using Lacrosse ball or IMR
 - can move up and down OR side to side
- Lie on your belly with a 90 deg angle between your body and your shoulder
 - Rolling (side/side) in this position
 - Can attempt Trigger Point Release/Sustained Holds on your belly using body weight for over pressure
- 30 seconds - 2 minutes or until soreness is reduced



Latissimus Dorsi/Teres Major

Tools:

- Foam Roller

Rx:

- Lie on your side with the shoulder to be rolled flexed overhead
- Rolling (up/down) with foam roller perpendicular/horizontal to your chest/back
- 30 seconds - 2 minutes or until soreness is reduced



Subscapularis

Tools:

- Dummy Thumb
- IMR

Rx:

- Seated or Standing
- Cross Friction (up/down) using Dummy Thumb or IMR
- Trigger Point Release/Sustained Holds using Dummy Thumb or IMR
- 30 seconds - 2 minutes or until soreness is reduced
- Try to feel inside of your shoulder blade before application



Biceps

Tools:

- Lacrosse Ball
- IMR
- Dummy Thumb

Rx:

- Seated or Standing
- Cross Friction using Lacrosse Ball, IMR, or Dummy Thumb (side/side)
- Trigger Point Release/Sustained Holds using IMR, Dummy Thumb or Lacrosse Ball
- 30 seconds - 2 minutes or until soreness is reduced
- Common Area for DOMS



Triceps

Tools:

- Lacrosse Ball
- Foam Roller
- IMR

Rx:

- Seated or Standing
- Trigger Point Release/Sustained Holds using IMR or Lacrosse Ball
- Cross Friction using Lacrosse Ball or IMR (side/side)
- Rolling
- 30 seconds - 2 minutes or until soreness is reduced
- Common area for DOMS



#5 Joint Mobilization

Mobility vs. Flexibility

- **Mobility** = determined by the ability of a joint to move through range of motion
- Mobilize the **JOINT** to improve **MOBILITY**
- **Example:** to raise your arm overhead the humerus (ball) must glide down on the scapula (socket)
- **Common joints with mobility issues:** cervical spine, thoracic spine, glenohumeral joint
- **Flexibility** = determined by the length of a muscles that crosses a joint
- Stretch the **MUSCLE** to improve **FLEXIBILITY**
- **Example:** to raise your arm overhead your Lats must have normal length
- **Common muscles limiting overhead movement:** lats, teres major, pecs, subscapularis

Functional Lifts - When Do I Need What?

- **Overhead [OH]:** various pull ups; ending position for strict press, push press, jerk, snatch, overhead squat, military press, turkish get ups, thrusters, wall balls etc; handstands
- **External Rotation [ER]** various pull ups; ending position for all movements listed in (OH); back squat particularly at the bottom of the squat; front rack position for front squats and cleans
- **Internal Rotation [IR];** arm swing with box jumps and kettlebell movements; sumo deadlift high pull; during pulling phase of clean and snatch, deadlifting

Distraction

Tools:

- Mobility Bands

Rx:

- Hold 30 Seconds - 1 minute

1. Inferior Capsule (Bottom of Shoulder Joint) - [OH]
2. Anterior Capsule (Front of Shoulder Joint) - [ER]
3. Posterior Capsule (Back of Shoulder Joint) - [IR]

Inferior Glide

Tools:

- Chair

Rx:

- [OH]
- 10 reps hold 2 seconds
- **Dx 1** - Used to glide the head of the humerus down on the glenoid and reduce impingement with overhead movements

Posterior Glide

Tools:

- A Firm Wall

Rx:

- [OH, IR]
- 10 reps hold 2 seconds
- **Dx 1** - Used to glide the head of the humerus backwards on glenoid and reduce impingement with overhead movements

Chin Tucks

Tools:

- None

Rx:

- **[OH]**
- 10 reps hold 2 seconds
- **Dx 1,3** - to reduce forward head from static posturing and allow resistance to clear the head with overhead movements



Thoracic Extension

Tools:

- Foam Roller OR
- Chair with Firm Back

Rx:

- **[OH]**
- 10 reps hold 2 seconds
- **Dx 1,3** - To improve extension of upper back at the CT junction and allow the shoulder to achieve full range of motion overhead



Thoracic Rotation

Tools:

- None

Rx:

- Upper Thoracic Rotation on all 4's (1)
- Lower Thoracic Rotation on your back aka Open Books (2a-b)
- 10 reps hold 2 seconds
- Mobilize Both Sides
- Important for rotational and unilateral movements, if you lack thoracic rotation your lumbar spine compensates



#6 Flexibility

Stretching

<p style="text-align: center;">DYNAMIC</p> <ul style="list-style-type: none"> • Movement based stretching • Goal: to prepare body for action, most beneficial BEFORE workout • Benefits: <ul style="list-style-type: none"> ○ Improved blood flow ○ Activates the central nervous system ○ Enhances strength, power, and range of motion ○ Some studies show dynamic stretching aids in injury prevention 	<p style="text-align: center;">STATIC</p> <ul style="list-style-type: none"> • Holding a stretch for a prolonged period of time • Goal: to lengthen soft tissue, most beneficial AFTER workout • Benefits <ul style="list-style-type: none"> ○ Reduces muscle tension ○ Increases muscle relaxation ○ Regular stretching improves flexibility and thus range of motion ○ Some studies show static stretching reduces power prior to exercise
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Upper Trap

Tools:

- No Equipment

Rx:

- [OH]
- Static - Hold 15 - 30 seconds for 4-6 times or until you feel reduced muscle tension
- **Dx 3** - to reduce muscle tension in neck, stretching can also enable lower trap and serratus to stabilize scapula



Levator Scapulae

Tools:

- No Equipment

Rx:

- [OH]
- Static - Hold 15 - 30 seconds for 4-6 times or until you feel reduced muscle tension
- **Dx 3** - to reduce muscle tension in neck, stretching can also enable lower trap and serratus to stabilize scapula



Pec Minor and Pec Major

Tools:

- Foam Roller OR
- Doorway

Rx - Stretch is Angle Dependent

- [OH, ER]
- Dynamic - on foam roller moving side to side for 30 seconds to 1 minute (1)
- Static - hold at doorway for 15 - 30 seconds for 4-6 times or until you feel reduced muscle tension (2)



Latissimus Dorsi/Teres Major

Tools:

- PVC Pipe

Rx:

- [OH, ER]
- Dynamic - See Lat Pull Down/Shoulder Extension Stability
- Static in Prayer Position 15 - 30 seconds for 4-6 times or until you feel reduced muscle tension



Subscapularis

Tools:

- PVC Pipe

Rx:

- [OH, ER]
- Dynamic - See Rotator Cuff (SITS) stability
- Static with PVC hold 15 - 30 seconds for 4-6 times or until you feel reduced muscle tension



Biceps

Tools:

- PVC Pipe

Rx:

- Dynamic moving in and out of position for 30 seconds to 1 minute
- Static - hold with PVC for 15 - 30 seconds for 4-6 times or until you feel reduced muscle tension
- Dx 2 - to reduce biceps tendon tension and improve flexibility with shoulder extension



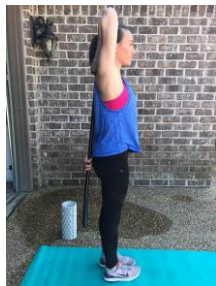
Triceps

Tools:

- PVC Pipe OR
- None

Rx:

- [OH]
- Static - hold with PVC for 15 - 30 seconds for 4-6 times or until you feel reduced muscle tension



Posterior Capsule

Tools:

- None

Rx:

- **[IR]**

- Dynamic - moving in and out of position for 30 seconds to 1 minute

- Static - hold 15 - 30 seconds for 4-6 times or until you feel reduced muscle tension



1 - Cross Body Stretch
 2 - Sleeper Stretch
 current evidence supports 1 > 2

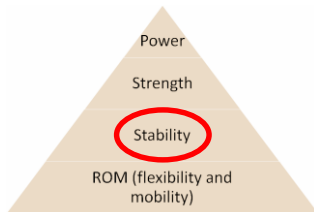
#7 Stability

Strength vs. Stability

Strength: overcoming resistance

Power: overcoming resistance in the shortest amount of time

Stability: ability to maintain proper joint position and control



Let's Not Forget...

proximal stability for distal mobility

Shoulder Stabilizers

- **Static**
 - Ligaments
 - Labrum
- **Dynamic**
 - Rotator Cuff Muscles
 - Long Head of the Bicep
 - Periscapular Muscles

Rotator Cuff Exercises



Tools:

- Therapy Band (Low Resistance)

Rx:

- 1-2 sets
 - 12 - 20 reps to fatigue
- 1 - External Rotation in neutral
2 - Internal Rotation in neutral

Dx 1,2 - increase rotator cuff endurance and stabilization to reduce impingement and rotator cuff pathology

Rotator Cuff Exercises

Tools:

- Therapy Band (Low Resistance)

Rx:

- 1-2 sets
- 12 - 20 reps to fatigue

- 1 - External Rotation at 90 deg of abduction
- 2 - Internal Rotation at 90 deg of abduction

Dx 1,2 - increase rotator cuff endurance and stabilization in a more functional position away from base of support in order to reduce impingement and rotator cuff pathology



Rotator Cuff Exercises

Tools:

- Light Dumbbell

Rx:

- 1-2 sets
- 12 - 20 reps to fatigue

Sidelying External Rotation



Dx 1,2 - increase rotator cuff endurance and stabilization in a gravity resisted position in order to reduce impingement and rotator cuff pathology

Periscapular - Latissimus Dorsi

Tools:

- Therapy Band (Low Resistance)

Rx:

- 1-2 sets
- 12 - 20 reps to fatigue

Lat Pull Downs (shoulder extension)

Dx 1,2,3 - improve postural and periscapular activation and prevent injuries associated with these diagnoses



Periscapular - Rhomboids

Tools:

- Therapy Band (Low Resistance)
- Light Dumbbell

Rx:

- 1-2 sets
- 12 - 20 reps to fatigue

- 1 - standing row
- 2 - prone row

Dx 3 - improve activation and endurance in muscles that are commonly weak and long
Dx 1,2 - improve stability of the shoulder girdle



Periscapular - Middle Traps

Tools:

- Light Dumbbell

Rx:

- 1-2 sets
- 12 - 20 reps to fatigue

Prone Horizontal Abduction

Dx 1,2,3 - improve postural and periscapular activation and endurance to prevent injuries associated with these diagnoses



Periscapular - Lower Trap

Tools:

- Therapy Band (Low Resistance)
- Light Dumbbell

Rx:

- 1-2 sets
- 12 - 20 reps to fatigue

- 1 - Lower Trap Lift Off
- 2 - Prone Scaption

Dx 1,2,3 - improve normal upward rotation of scapular



Periscapular - Serratus Anterior

Tools:

- Therapy Band (Low Resistance)
- Light Dumbbell

Rx:

- 1-2 sets
- 12 - 20 reps to fatigue

- 1 - Standing Serratus Punch
- 2 - Supine Serratus Punch

Dx 1,2,3 - improve normal upward rotation of scapular



Periscapular - Serratus Anterior

Tools:

- None

Rx:

- 1-2 sets
- 12 - 20 reps to fatigue

Push up Plus

Dx 1,2,3 - improve normal upward rotation of scapular through scapular protraction in a closed kinetic chain position



References

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- 2) Chesham SW, Kolber MJ, Cain M, Lee M. The effects of self-myofascial release using a foam roll or roller massager on joint on joint range of motion, muscle recovery and performance: a systematic review. *Int J Sports Phys Ther.* 2015;11(6):827-836.
