Scapular Dyskinesia

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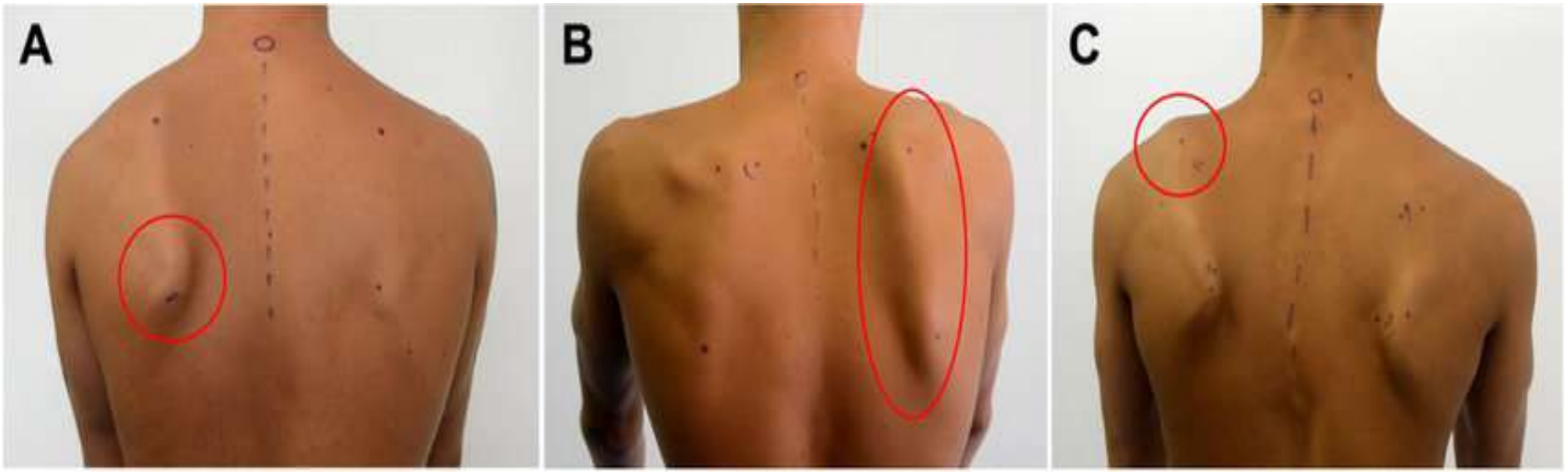
SCAPULAR DYSKINESIA

- Scapular dyskinesia is one component of the syndrome known as SICK….
- **S**capular malposition
- **I**nferior medial border prominence
- **C**oracoid pain and malposition
- dys**K**inesis of scapular movement

Scapular Dyskinesis has been identified as

- (1)abnormal static or dynamic scapular motion characterized by **Medial Border Prominence**
- (2 On arm elevation' Inferior **'Angle Prominence'** and/or early scapular elevation or shrugging
- (3) During arm lowering' **'rapid downward rotation'**
- (Kibler & Sciascia, 2010 p.300)

TYPES OF SICK SCAPULA



- ***While Type 1 And 2 Associated With Labral Pathology And Type 3 Associated With Rotator Cuff Tendinitis.***

TYPE 1

FIGURE 11. Type I scapular dyskinesis, with prominence of the [illegible] scapular border.

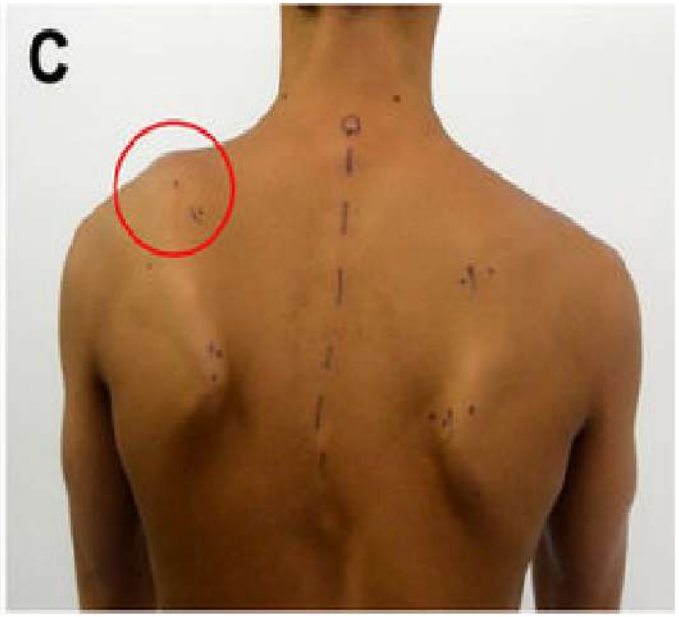
- INFEROMEDIAL SCAPULAR BORDER PROMINENCE AT REST,
- INC PROMINENCE, LACK OF ACROMIAL ELEVATION, AND LACK OF FULL RETRACTION ON COCKING .
- IT IS ASSOCIATED WITH INFLEXIBILITY OF THE PECTORALIS MAJOR AND MINOR, AND WEAKNESS OF THE
- LOWER TRAPS, SEARRATUS AND RHOMBOIDES

TYPE II

- **ENTIRE MEDIAL BORDER WINGING AT REST**, which becomes more prominent with cocking or elevation.
- It is associated with *UPPER AND LOWER TRAPEZIUS AND RHOMBOID WEAKNESS, WITH LITTLE ANTERIOR INFLEXIBILITY.*

FIGURE 12. Type II scapular dyskinesis, with prominence of the entire medial border.

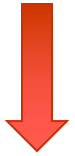
TYPE III



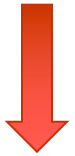
- not associated with superior labral lesions, displays prominence of the SUPEROMEDIAL BORDER OF THE SCAPULA.

- It is associated with impingement and rotator cuff symptoms

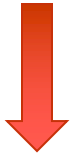
The Major Muscle To Contribute To Inferomedial Scapular Bulk Are Lower Trapezius And Serratus Anterior Along With Rhomboides.



With The Protracted Scapula Predisposing To Impingement In Shoulder It Causes Over Activation Of Upper Trapezius And Deltoid.



Deltoid (Shearing Torque) Act As An Elevator Of Humeral Head Against Torque(compressive Torque) Produced By Subscapularis And Teres Major Which Act As A Depressor.



With Repeated Injury Due To Overuse ...In Gymers Rotator Cuff Get Compromised Functionally And That What Leads To Deltoid To Become Overactivated Causing Superior Migration Of Humeral Head Predisposes To Impingement.

INFERA- VISUAL APPEARANCE OF DROPPED SCAPULA DUE TO SCAPULAR TILTING OR PTOTRACTION **IN VERTICAL HEIGHT OF THE SUPEROMEDIAL SCAPULAR ANGLE OF THE DROPPED SCAPULA IN CENTIMETERS COMPARED WITH THE CONTRALATERAL SUPEROMEDIAL ANGLEDIFFERENCE**

) **LATERAL DISPLACEMENT** **DIFFERENCE IN CENTIMETERS OF THE SUPEROMEDIAL SCAPULAR ANGLE FROM THE MIDLINE BETWEEN THE SICK AND CONTRALATERAL SCAPULA**

) **ABDUCTION**…. **DIFFERENCE IN ANGULAR DEGREES OF THE MEDIAL SCAPULAR MARGIN FROM PLUMB MIDLINE BETWEEN THE SICK AND CONTRALATERAL SCAPULA MEASURED WITH A GONIOMETER**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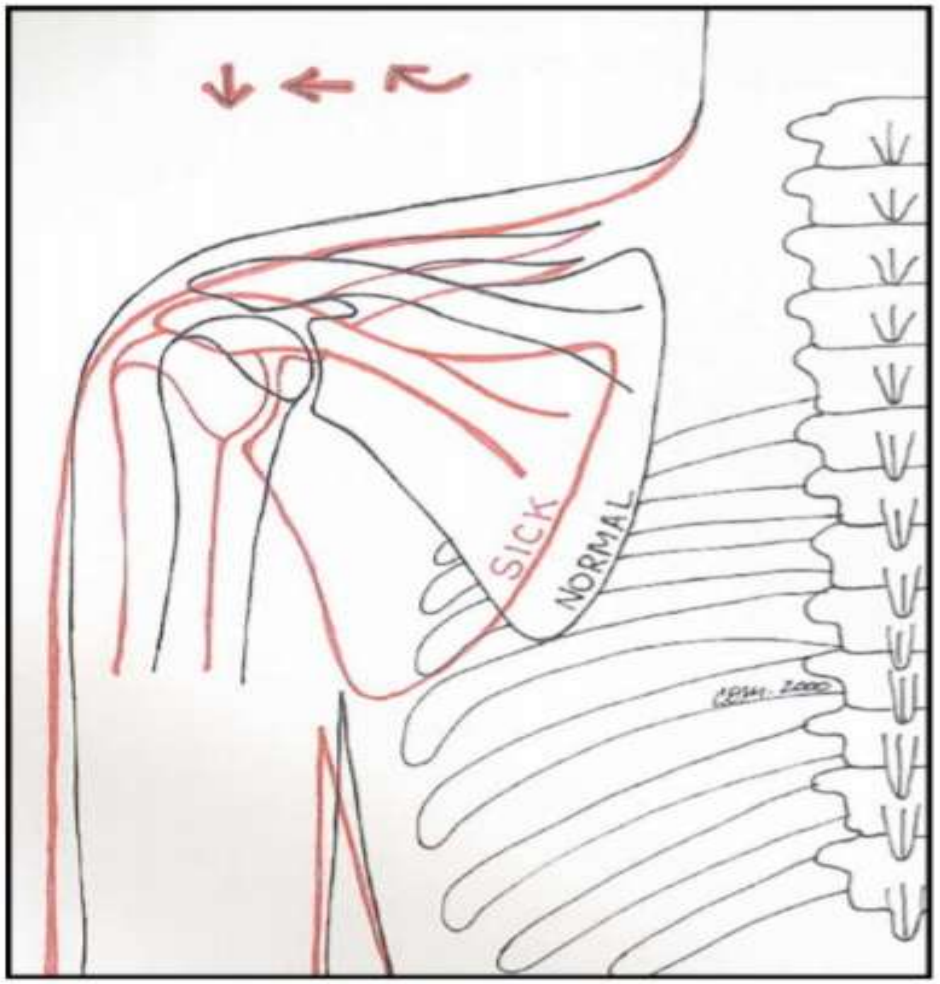
CLINICAL PRESENTATION

1) SCAPULAR MALPOSITION (mc)

2) Its either 1 or combination of infera, abduction and lateral displacementin both static and dynamic

3) Assesed by.. FORWARD FLEXING ARM OR ELEVATION IN SCAPULAR PLANE



2) POSTEROSUPERIOR SCAPULAR PAIN with or without radiation into the paraspinous neck region.

3) PROXIMAL LATERAL ARM pain (subacromial)

3) SUPERIOR SHOULDER PAIN (acromioclavicular joint) are less frequent, and

ANTERIOR SHOULDER COMPLAINTS AND A SICK SCAPULA

- Marked **CORACOID TIP TENDERNESS**, (medial >>lateral), at the point of insertion of the pectoralis minor tendon.
- DD: SLAP lesions
- **Not to confuse it with BICEPS TENDERNESS test for biceps i.E SPEEDS AND YERGASONS.**
- **This pain get aggravated on performing NEER test i. & relieved on WITH SCAPULAR ASSISTANCE TEST**

PATHOPHYSIOLOGY

CORACOID STATIC MALPOSITION AND THE DYSKINESIS THAT IT PRODUCE
BECAUSE OF THE ELLIPSOID SHAPE OF THE THORAX, AS THE SCAPULA TILTS ANTERIORLY, PROTRACTS, AND ABDUCTS, IT TENDS TO RIDE “UP AND OVER” THE TOP OF THE THORAX
CORACOID TILTS ANTEROINFERIORLY AND MOVES LATERALLY FROM THE MIDLINE
THE PECTORALIS MINOR AND SHORT HEAD OF THE BICEPS BECOME ADAPTIVELY TIGHT
THIS TIGHTNESS INCREASES THE SCAPULAR MALPOSITION, LOWERS THE LEADING EDGE OF THE ACROMION, AND DECREASES THE ABILITY TO ACHIEVE FULL FORWARD FLEXION OF THE ARM
IMPINGEMENT-LIKE SYMPTOMS RESULT FROM THE ANTEROINFERIOR ANGULATION OF THE ACROMION BECAUSE OF SCAPULAR PROTRACTION

POSTEROSUPERIOR PERISCAPULAR AND LOWER PARACERVICAL PAIN

- Marked tenderness at the **SUPEROMEDIAL ANGLE** of the affected scapula in the area of insertion of the **LEVATOR SCAPULAE** muscle.

- As the scapula tilts and rotates laterally, *traction on the levator scapulae creates pain and muscle spasm .*

SUBACROMIAL PAIN

- MAL POSITIONED **DYSKINETIC ACROMION** RESULTING FROM SCAPULAR PROTRACTION

- NOT *TRUE MECHANICAL SUBACROMIAL IMPINGEMENT PRODUCED BY A TYPE III ACROMION WITH AN ANTERIOR OSTEOPHYTE*.

- POSITIVE SUBACROMIAL IMPINGEMENT TESTS

ACROMIOCLAVICULAR JOINT PAIN

- RELATIVELY **DISCONGRUOUS POSITION OF THE DISTAL CLAVICLE** IN REFERENCE TO THE ACROMION AS A RESULT OF SCAPULAR MALPOSITION

- *AS THE SCAPULA TILTS AND PROTRACTS, ITS ACROMION PROCESS MOVES ANTERIOR,*

RADICULAR OR THORACIC OUTLET SYMPTOMS

- **A SHIFT IN POSITION OF THE CLAVICLE IN REFERENCE TO THE UPPER CHEST WALL**, PARTICULARLY THE FIRST RIB.

- AS THE SCAPULA SHIFTS, **THE LATERAL CLAVICLE ALSO DROPS ANTERO INFERIORLY**, RESULTING IN A DECREASED SUBCLAVIAN CHEST WALL SPACE.

- THIS SPACE RESTRICTION MAY ***IMPINGE THE***

SCAPULAR MUSCLE IMBALANCE IN PATIENT WITH IMPINGEMENT

FORCE COUPLES BETWEEN THE SERRATUS ANTERIOR AND TRAPEZIUS

Together, SA + TRAPS cause upward rotation of the scapula to maintain the subacromial space above 90 degrees of shoulder elevation

DURING THE FIRST 30 DEGREES OF SCAPULAR

[redacted]

UPWARDLY ROTATE THE SCAPULA.

DURING THE SECOND 30 DEGREES OF SCAPULAR ROTATION (90 TO 180 DEGREES OF SHOULDER ELEVATION), THE AXIS OF ROTATION MOVES LATERALLY TO THE ACROMIOCLAVICULAR JOINT.

LOWER TRAPEZIUS PLAYS A MORE SIGNIFICANT ROLE WITH THE SERRATUS ANTERIOR TO PROVIDE UPWARD ROTATION OF THE SCAPULA AS THE UPPER TRAPEZIUS REACHES ACTIVE INSUFFICIENCY

NOW WITH SERRATUS ANTERIOR BEING COMPROMISED THE TORQUE STILL ABLE TO MAINTAIN DUE TO OVER ACTIVE TRAPEZIUS I.E BELOW 90 DEGRESS OF ELEVATION

BUT BEYOND 90 DEGRESS BOTH LOWER TRAPEZIUS AND SERRATUS ANTERIOR BEING COMPROMISED LEADS TO SCAPULAR WINGING OR INFEROMEDIAL PROMINENCE OF SCAPULA

CLINICAL EVALUATION

Tenderness --- coracoid, ac joint, periscapular, proximal lateral arm, bicipital groove, sup-medial scapular angle, ACJ, GT

ROM…. ACTIVE PASSIVE PAINFUL AND PAINFREE…. GIRD

TEST FOR ROTATOR CUFF- LOOK FOR PAIN AND POWER

TEST FOR IMPINGEMENT…. NEER, HAWKIN KENNEDY, GERBER CORACOID TEST, JOBES RELOACTION TEST

TEST FOR ACJ.. CROSS CHEST ADDUCTION TEST

TEST FOR BICEPS PATHOLOGY- SPEED AND YERGASONS LOOK FOR PAIN AND POWER

Test for SLAP lesion

NOTE : ALWAYS TEST FOR BICEPS FOLLOWED BY TEST FOR SUBSCAPULARIS AND THEN FOR SLAP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Special scapular tests

SAT

FIGURE 13. Scapular assistance test. The examiner stabilizes the upper scapular border and assists upward rotation of the inferomedial border.

SRT

FIGURE 14. Scapular retraction test. The examiner stabilizes the retracted scapula against the thorax.

A 20-POINT CLINICAL RATING SCALE FOR THE SICK SCAPULA SYNDROME

- **A healthy symmetrical asymptomatic scapula receives a score of 0, and the worst SICK mal positioned scapula with all the pathologic clinical components is scored as 20.**

- **Score ranges from 0-20 we calculate score from 1st clinical visit and each and every follow up of 6 weeks with scapular winging being used as a functional measure of progress.**

ARTHROSCOPIC SPECIALISTS

DATE _____ SPORT _____
NAME _____ POSITION _____
AGE _____ PRESENTING SX[S] _____

SUBJECTIVE	PAIN	YES	NO	SCORE
	Coracoid	1	0	
	AC Joint	1	0	
	Periscapular	1	0	
	Prox. Lat. Arm	1	0	
	Radicular	1	0	
OBJECTIVE				
	Coracoid	1	0	
	AC Joint	1	0	
	Sup. Med. Scap. Angle	1	0	
	Impingement Test	1	0	
	Scapular Asst. Test	1	0	
	Tos Paresthesias	1	0	

SCAP. MALPOSITION	0cm	1cm	2cm	3cm	SCORE
Infera	0	1	2	3	
Lateral Protraction	0	1	1	3	
Abduction	0°	5°	10°	15°	
	0	1	2	3	
			TOTAL SCORE		

REHABILITATION

- **Scapular Position Is Monitored On A Weekly Basis.**

- **When The Affected Scapula Is More Improved In Position From Its Initial Pathologic Position, The Thrower Is Begun On An Interval Throwing Program**
- **Continues The Scapular Program Until The Scapula Is Symmetric With The Other Side**
- **Return To Sport And Unrestricted Throwing Is Allowed And The Thrower Is Strongly Encouraged To Maintain An Every-other-day Scapular Muscle strengthening Program To Prevent Recurrence Of The Syndrome.**

- Symptomatic SICK Scapula Present With Scores Between 10 And 14.
- Interval Throwing Usually Begins With Scores In The 4 To 6 Range
- Return To Sport At The Thrower's Previous Level Of Performance Is Attained When The Score Drops Between 0 And 2

- In an adherent patient who commits to doing the rehabilitation exercises 3 times per day, the *50% repositioned scapula can be routinely attained within 2 to 3 weeks.*
- Completion of the interval throwing program usually takes 3 to 4 weeks
- Complete symmetrical scapular repositioning usually takes 3 months
- ***THE ANTERIOR TILT (APPARENT INFERA) COMPONENT IS THE FIRST TO RESOLVE, THE LATERAL TRANSLATION GOES AWAY SECOND, AND THE ABDUCTION COMPONENT (LOSS OF PROTRACTION CONTROL) IS THE LAST AND MOST DIFFICULT TO RESOLVE***

REHABILITATION

Treating Inflexibilities

- Pectoralis minor inflexibility decreases
- scapular posterior tilt, upward rotation, and external rotation````

1. **Modified Sleeper Stretch**
2. **Mod Cross Body**

Treating Weakness

- PROXIMAL TO DISTAL
- POST TILT, UPWARD ELEVATION AND ER
- SCAPULAR DYSKINESIA WITH HIP ABD

Fig. 27.2 Modified cross-body stretch.

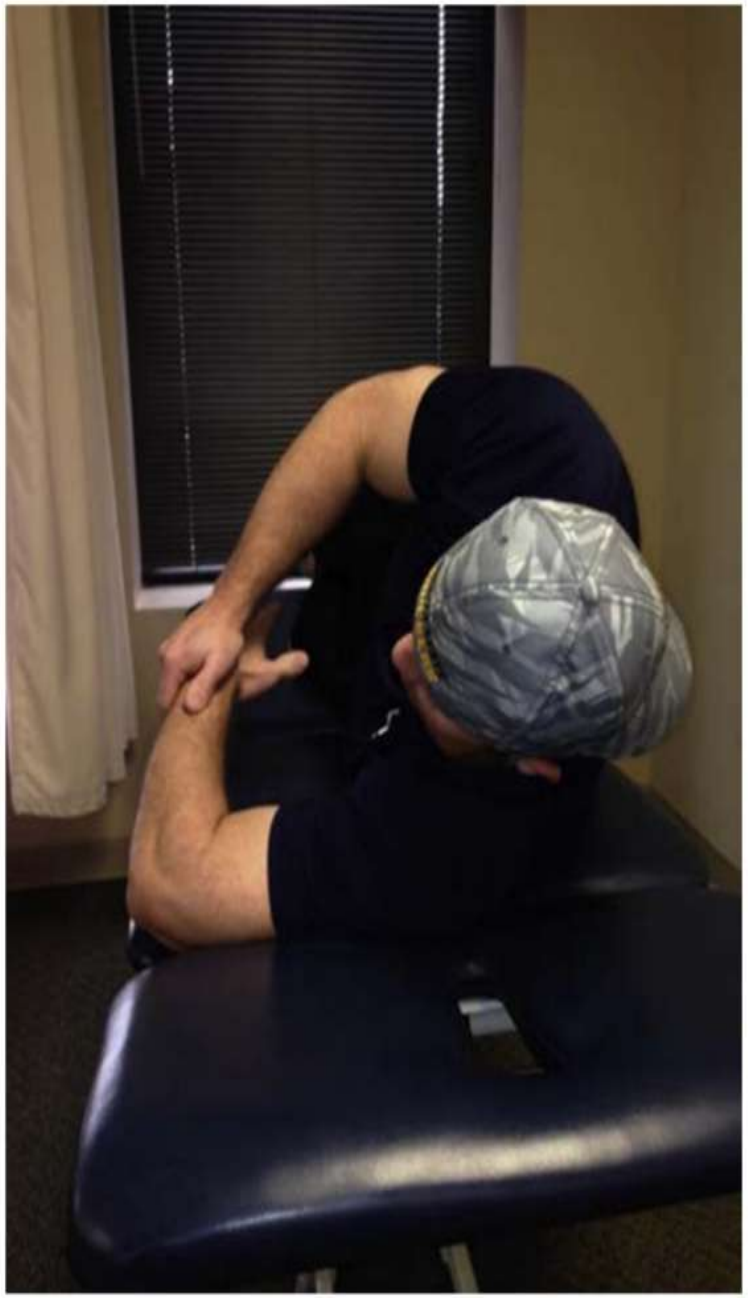
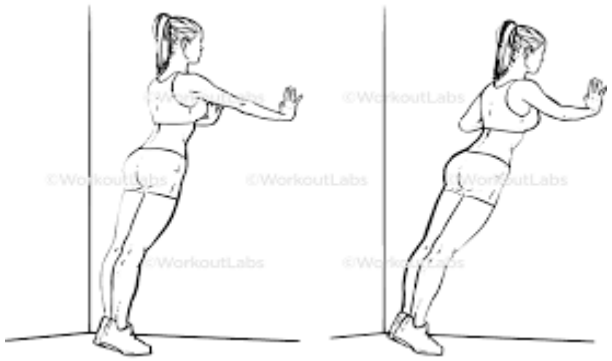


Fig. 27.1 Modified sleeper stretch.

Fig. 27.3 Horizontal adduction with IR.

SCAPULAR REHABILITATION

- ✓ **The serratus anterior(ER) and the lower trapezius (stabilizer)**
- ✓ **SCAPULAR STABILIZATION PROTOCOLS** should focus on re-educating these muscles to act as dynamic scapula stabilizers first via the implementation of short lever, kinetic chain assisted exercises and progressing to long lever movements.



- **EARLY AXIAL LOADING EXERCISES** include weight shifts, weight shifts on ball, wall push-ups, and quadruped drills.

- **AXIAL LOADING CLOSED KINETIC**

SCAPULAR DYSKINESIA WITH HIP ABDUCTOR WEAKNESS

- **SINGLE LEG SQUAT**
- **Excessive lateral trunk displacement, valgus knee collapse, excessive hip flexion, trunk flexion, lateral dropping of the pelvis, and lower extremity pain**
- **Hip and trunk flexion help facilitate scapular protraction, whereas hip and trunk extension along with trunk rotation aid in facilitating scapular retraction**

SCAPULAR EXERCISES

1. SCAPULAR PUNCH
2. ISOMETRIC SCAPULAR RETRACTION….
3. LOW ROW EXERCISE - SHOULDER EXTENSION

- TRUNK EXTENSION

- CLOSED CHAIN EXERCISES
- RC START AFTER SCAPULAR

1. CLOSED CHAIN ..HUMERAL HEAD DEPRESSION + GHJ MOBILIZATION
2. WALL WASHES ..TRUNK,

SCAPULAR EXERCISES

1. SCAPULAR PUNCH

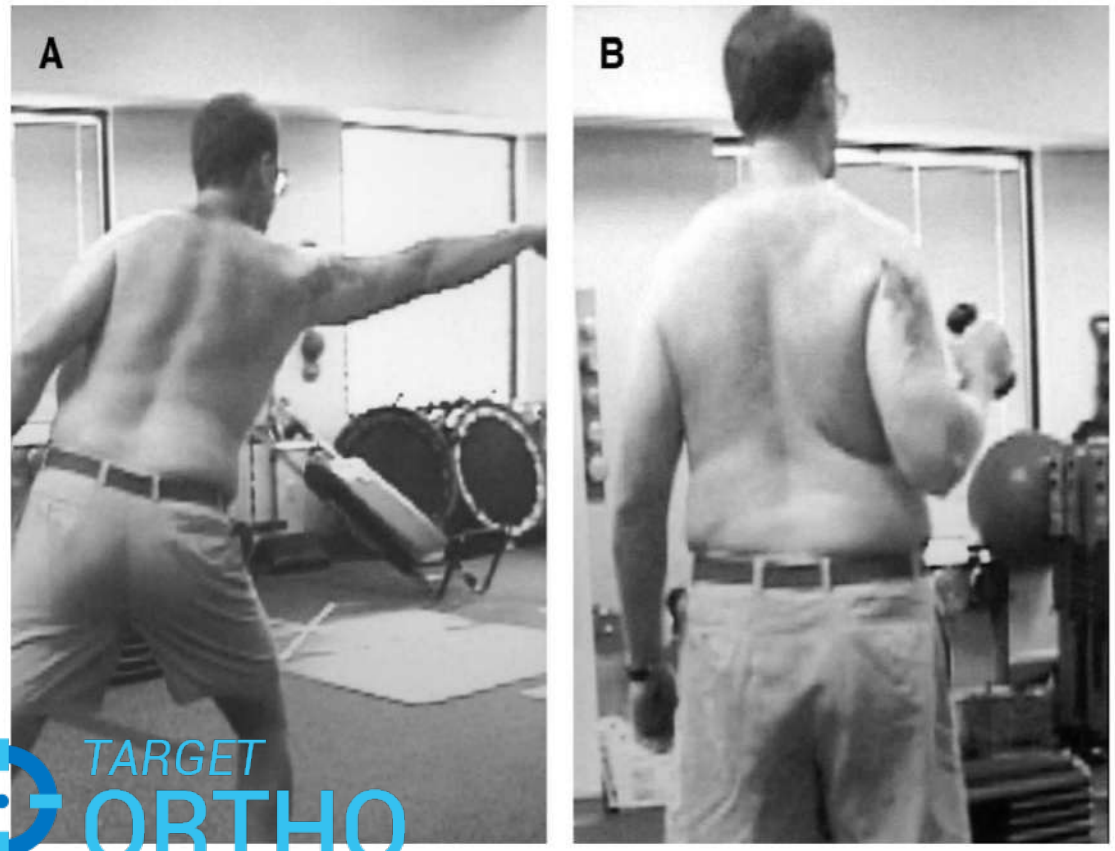


FIGURE 20. Punches: (A) Punch out. The motion may be varied-diagonal, upward, or downward. (B) Return position should always be "elbows in the back pocket" to facilitate scapular retraction.

1. ISOMETRIC SCAPULAR

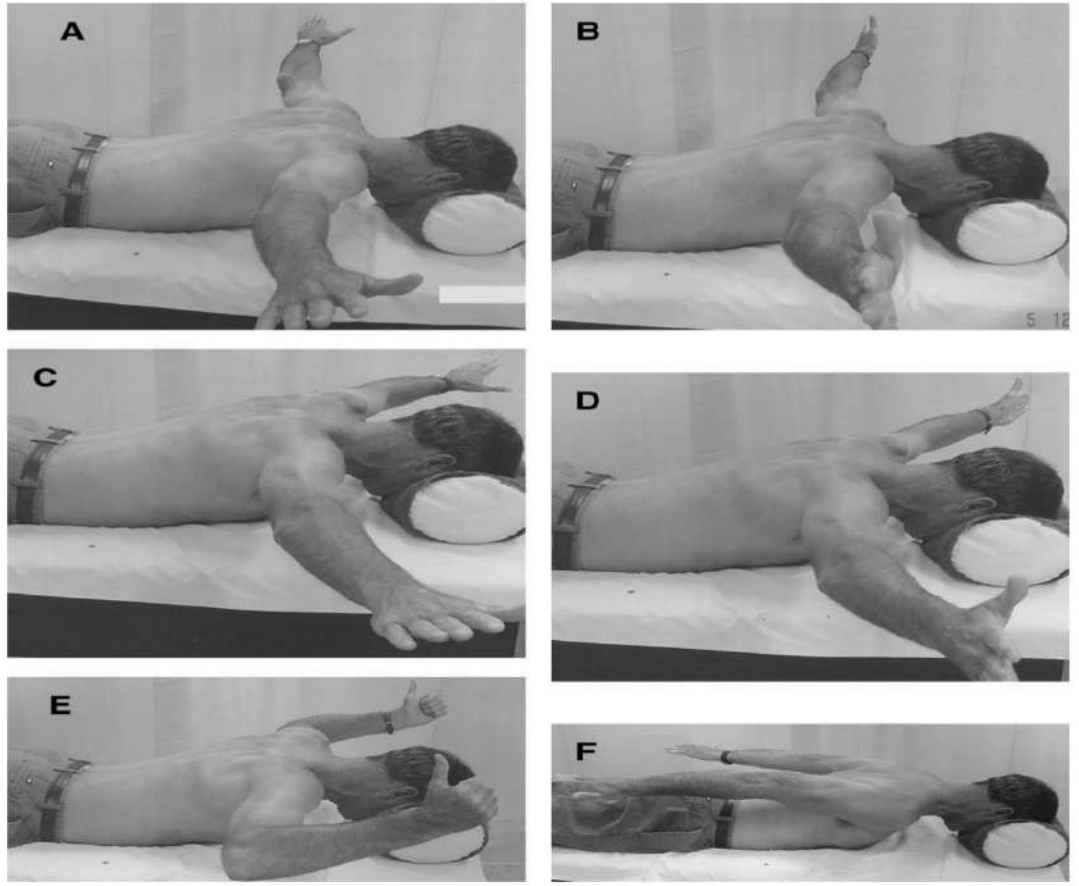


FIGURE 25. Blackburn exercises to strengthen scapular retractors and posterior rotator cuff. (A) Position 1, (B) position 2, (C) position 3, (D) position 4, (E) position 5, and (F) position 6.

1. LOW ROW EXERCISE - SHOULDER EXTENSION

TRUNK EXTENSION

SCAPULAR RETRACTION

FIGURE 16. The "low-row" trunk extension, scapular retraction, and arm extension. This can be initially done as an isometric exercise, progressing to an isotonic movement.

- **SCAPULAR WALL… 12-6 & 9-3**

FIGURE 17. Scapular clock: The hand is placed on the wall or a ball, with varying degrees of abduction and flexion.

- **CLOSED CHAIN ..HUMERAL HEAD DEPRESSION + GHJ MOBILIZATION**

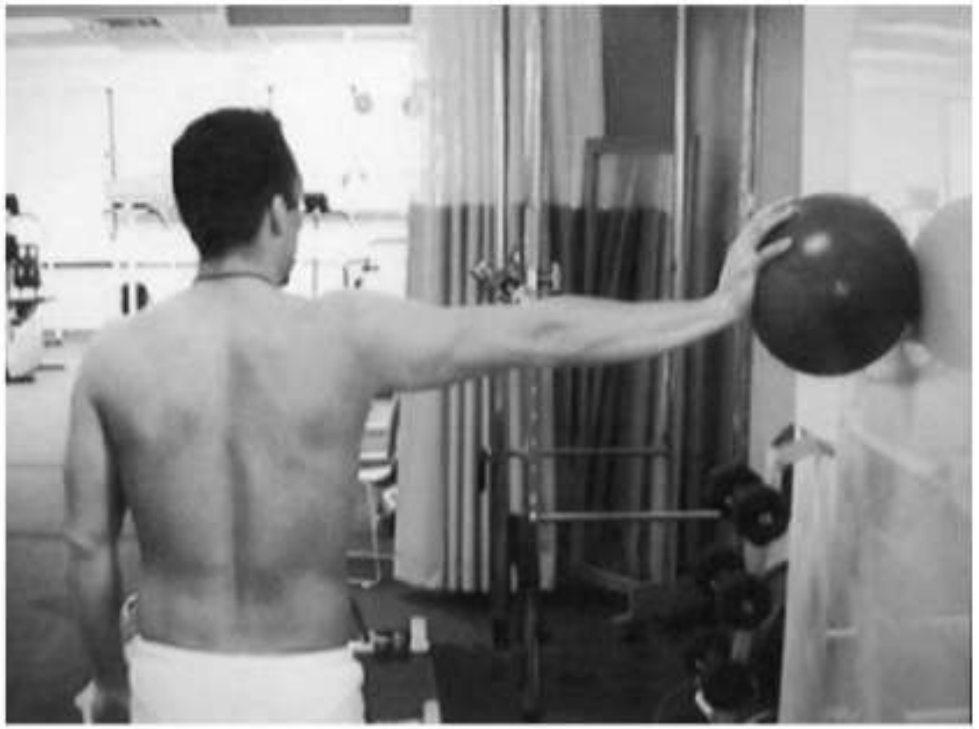


FIGURE 18. Humeral head depressions and rotations with the hand on a ball.

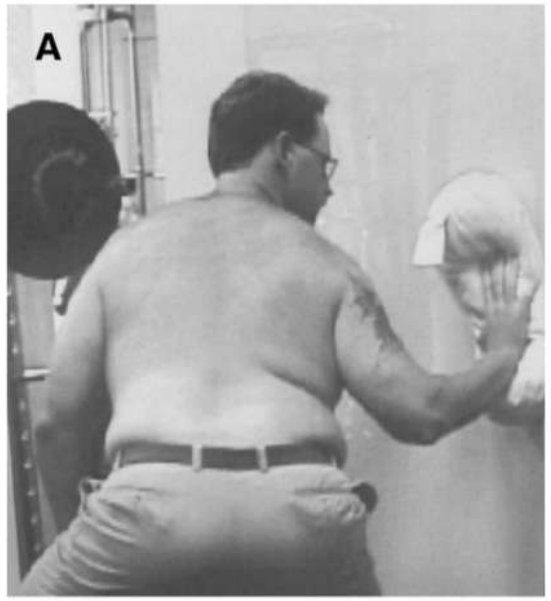
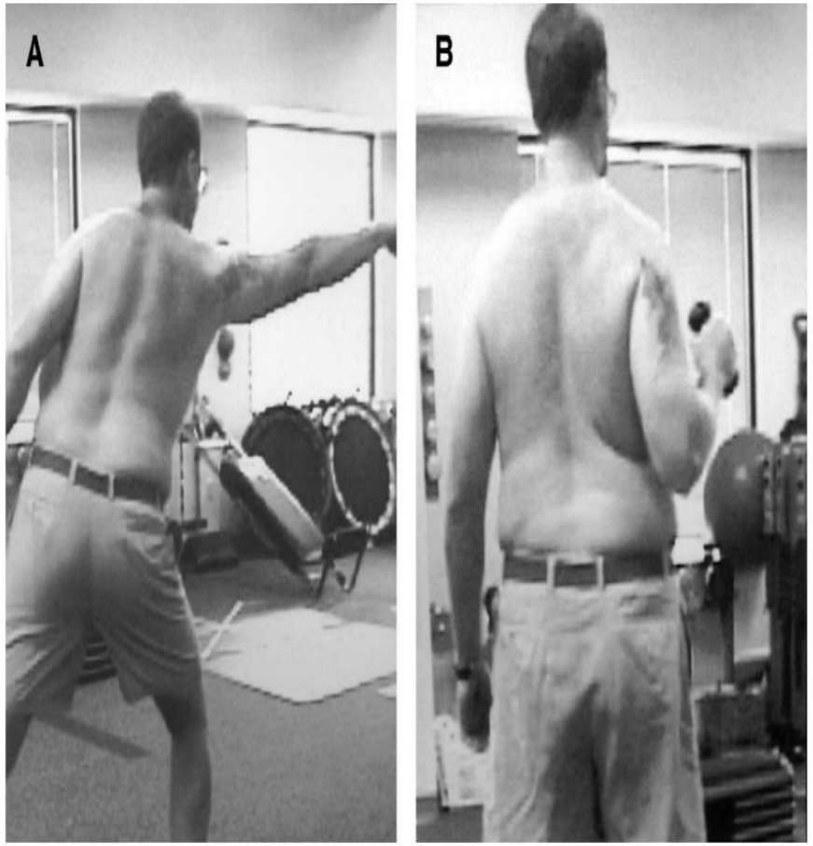


FIGURE 19. Wall washes: (A) Starting position and (B) movement pattern. The arm is then brought back to the starting position.

- WALL WASHES ,,TRUNK, SCAPULAR ACTIVATION + RC ACTIVATION–

- PUNCH ..CC SHOULDER ACTIVATION + OPEN CHAIN ARM



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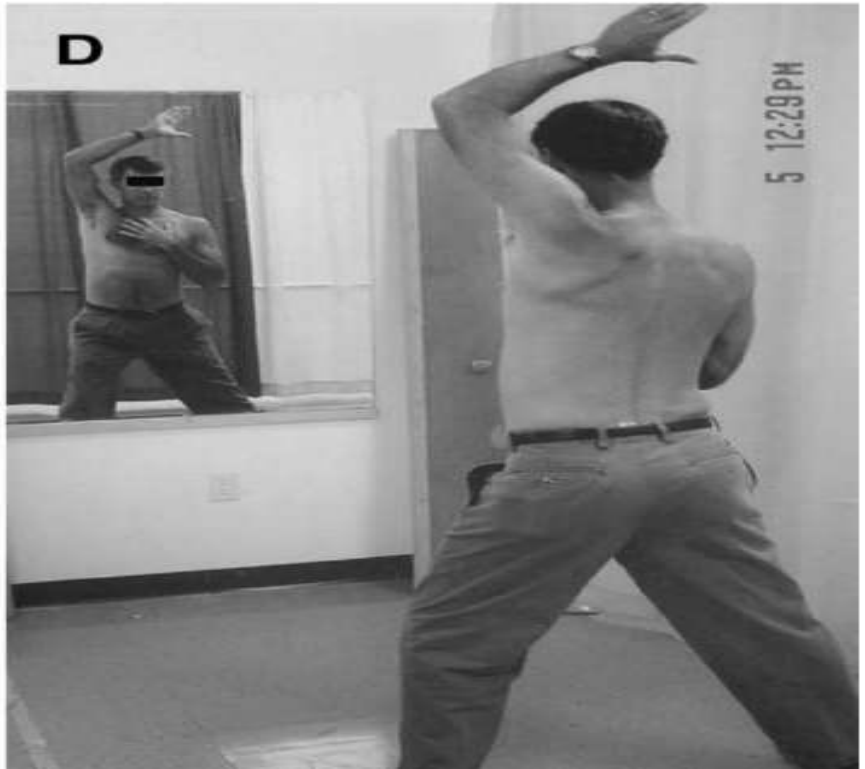


REHABILITATION PROTOCOL

1. SLEEPER STRETCH PROGRAM---- GIRD
2. DIGITAL ISCHEMIC PRESSURE & TRANVERSE DEEP FRICTIONAL MASSAGE FOR BICIPITAL TENDON
3. SOFT TISSUE MOBILIZATION OF…..

UPPER TRAPS RHOMBOIDES

PEC MINOR BICEPS

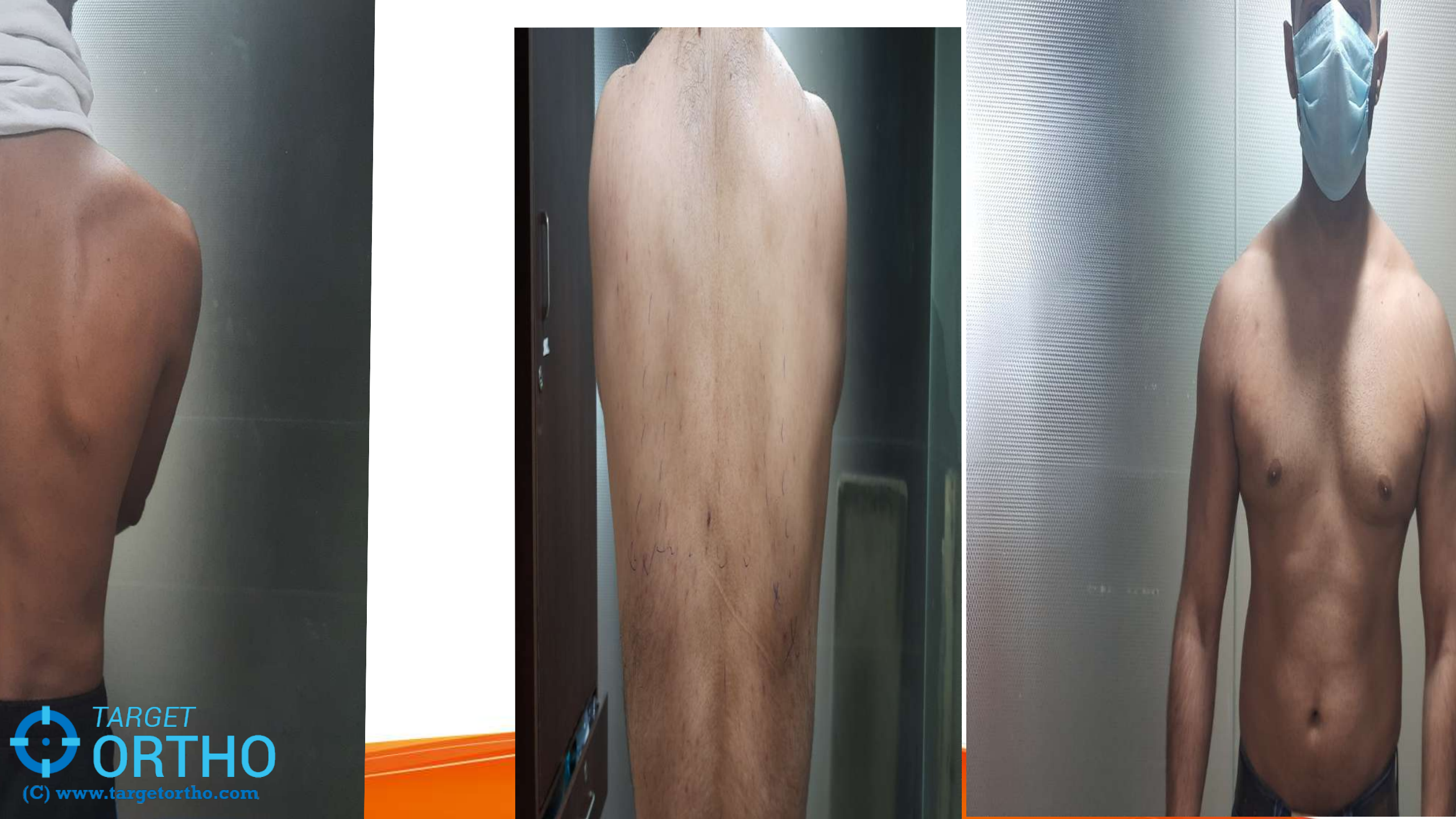
DELTOID

4. STRENGTHENING OF PEC MAJOR SERATUS ANTERIOR

LOWER TRAPS LATISMUS DORSI

5. ROTATOR CUFF TENDON LOADING PROTOCOL

START FROM ISOMETRIC TO ISOTONIC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