HARVARD MEDICAL SCHOOL AND
BRIGHAM AND WOMEN'S HOSPITAL

Non-operative Atraumatic Instability Therapy Protocol

Instructions for Therapist:

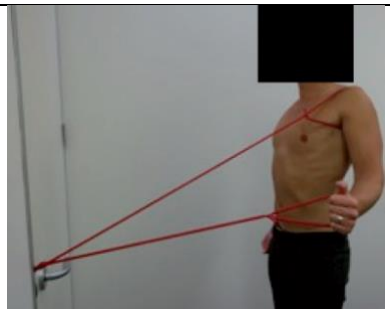
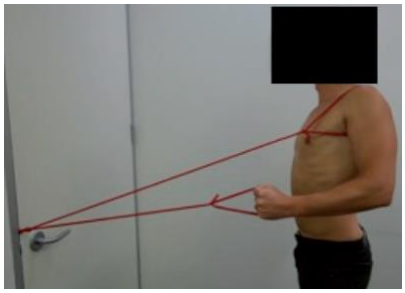
This program duration is 3-6 months performed 1-2x/day, depending on patient presentation.

The correction position that most improves the patient's symptoms is the one that is retrained and adopted through the program

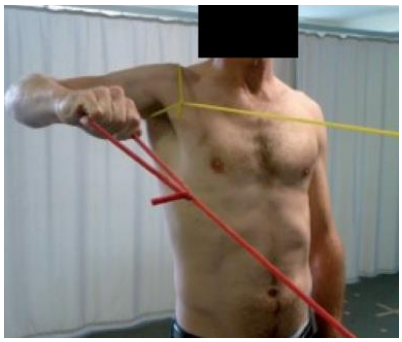
If you have questions please contact Dr. Hettrich at (617)525-3427

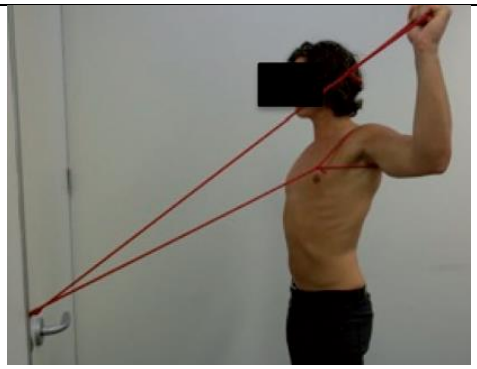
General Instructions	• Patient should be educated regarding their nature of injury, rationale for exercise treatment and importance of compliance to the program • Any activity limitations should be discussed and advised prior to and after completion of program • Begin all movements with small motions/arcs prior to executing larger arcs of motion during most exercise drills • Reduce sets and repetitions if patient is unable to control pain/fatigue • Taping scapula into upward rotation and posterior tilt may be performed if patient has high resting pain/unable to perform >5 side-lying scapular drills
Goals	The two main goals of this physical therapy program are to: (1) Develop scapular and humeral control (2) Progress into functional/sport specific ranges of motion
0-1 weeks	Aim: altering of faulty motor patterns No load/weight: • Start by standing with the arm by the side and **abducted 0-30°** • Shrug scapula into upward rotation, elevation and posterior tilt (scapular setting action) holding each rep for 3-5 seconds Perform 1-3 sets of 20 repetitions in a 10-minute period 

	*If unable to achieve in standing position with proper motor patterns, begin by performing in a side-lying position.
1-3 weeks	If able to recruit proper motor control, increase load by adding resistance band placed around scapula to resist a setting action - Resistant band can be used to resist upward rotation, elevation and/or posterior tilt depending on patient's needs ○ Start with a low resistance band and increase as needed • Perform 1-3 sets of 20 repetitions with arm abducted to **20-30°** • Shrug scapula into upward rotation, elevation and posterior tilt (scapular setting action) holding each rep for 3-5 seconds  **Add 1 lb and 2 lb weights** to patient's hand once 3 sets of 20 repetitions are performed with proper neuromuscular control. *If unable to achieve in standing position with proper motor patterns, begin by performing in a side-lying position.
3-4 weeks	Aim: Increase range to **0-45° of abduction** • Perform 1-3 sets of 20 scapula setting action against scapular resistant band in 0° to 45° of abduction maintaining scapula control • Hold each rep for 3-5 seconds
4-5 weeks	Aim: Strengthening of rotator cuff and scapular muscles • Perform standing External Rotation at **0° of abduction** with scapular resistant band • Control scapula into upward rotation and posterior tilt • Complete 1-3 sets of 20 repetitions holding each rep for 3-5 seconds

	 *If patient is having difficulty, perform Extension drills until more control is achieved and then return to External Rotation 
5-6 weeks	Aim: Begin **Internal Rotation** control • Perform Internal Rotation in standing at **0° of abduction** with scapular resistant band • Control scapula into upward rotation and posterior tilt • Complete 1-3 sets of 20 repetitions holding each rep for 3-5 seconds
6-7 weeks	Aim: External Rotation Strengthening • **Begin side-lying** with support from a pillow up to 45° of abduction • Perform 1-3 sets of 20 reps of External Rotation controlling scapular setting action • Hold each rep for 3-5 seconds  *Progress exercise by increasing loads of scapular drills up to **5 lbs of weight** • Progression is only allowed if proper neuromuscular control of the scapula and humerus is established during each exercise drill

7-8 weeks	Aim: Increase standing External Rotation to **45° of abduction** • Perform External Rotation in 45° of abduction maintaining scapular control with scapular resistant band • Complete 1-3 sets of 20 reps holding for 3-5 seconds each
8-9 Weeks	• Perform standing extension row in 0-45° of abduction with scapular resistant band • Maintain scapular control in upward rotation, elevation and posterior tilt during entire exercise drill • 1-3 sets of 20 holding for 3-5 seconds 
9-10 Weeks	Aim: Increase strength and control of the posterior muscular control; begin in **0° of abduction** • Perform a bent over row in 0° of abduction • Maintain scapular control in upward rotation, elevation and posterior tilt during entire exercise drill • 1-3 sets of 20 repetitions holding for 3-5 seconds
10-11 weeks	Aim: Sagittal plane flexion motor control in **0-45° of elevation** • Perform forward punching motion with scapular resistant band maintain scapular setting action ○ Shorts arcs of motion are performed with a light resistance band to a heavier resistant band • Start at 20-30° of elevation and progress to 45° • 1-3 sets of 20 repetitions holding for 3-5 seconds

	 *May increase load in hand up to 10 lbs of weight depending on patient demands
11-12 Weeks	Aim: Progress to sagittal and coronal plane control from **45-90° of elevation** • Gain control of scapula in an **Extension Row motion** from 45-90° of abduction with scapular resistance band ○ Increase scapular resistance band from light to a heavier resistance • 1-3 sets of 20 repetitions holding scapular setting action for 3-5 seconds 
12-13 weeks	Aim: Increase arc of motion • Perform 1-3 sets of 20 reps after gaining proper scapular control of the extension row exercise • Hold each rep for 3-5 seconds • **External rotation at 90° of elevation** ○ May begin in scapular plane and progress to coronal plane once control has been established

	
	
	• **Internal rotation at 90° of elevation** once patient can perform 20 repetitions of external rotation with a red resistant band
	
	• **Flexion at 90° of elevation**
	  ○ Load is determined by the functional and sporting requirements of the patient
	
	• **Horizontal flexion into horizontal extension**
	  ○ Gradually turn body in increments toward affected shoulder until in a starting position with arm across chest
	
	 
	
	*May increase load in hand from **0.5-4kg** of weight depending on patient demands

13-14 weeks	Aim: Isolated deltoid drills • Progression from load in 0° of abduction: For posterior deltoid perform **bent over rows from 45° to 90°** • Complete 1-3 sets of 8-20 reps after gaining proper scapular control of the extension row exercise • Loads/weight in hand should progress from **2 lbs to 4 lbs between 45° to 90° of abduction and 6 lbs to 10 lbs at 0° of abduction** • Hold reps for 3-5 seconds

- Anterior deltoid drills are performed as a flexion action in supine, sitting or standing depending on the patient within **0° to 45° to 90° of abduction**
    - Caution with supine drills as they may cause posterior translation if patient scapula and humeral head is not well controlled (may place a rolled towel under humerus for posterior support).
- Complete 1-3 sets of 8-20 reps after gaining proper scapular control of the extension row exercise
    - Load progression at **6 lbs to 10 lbs**
- Hold for 3-5 seconds

- Middle deltoid drills are performed initially in small ranges of abduction **(30°-90°)** with a short lever working to ranges that are required by the patient
- Perform 1-3 sets of 8-20 repetitions holding each scapular setting action for 5 seconds
    - Load progression at **6 lbs to 10 lbs**

14-15 weeks	Aim: Progress arc of motion to **120° up to end of range of abduction** • Perform Internal rotation, External rotation, deltoid and flexion drills from 120° to end ranges of motion in abduction with scapular resistance band in varying positions • Emphasize scapular upward rotation control and end of range • Integrate kinetic chain during this part if not prior to • Perform 1-3 sets of 8-20 repetitions holding each scapular setting action for 3-5 seconds

15-16 weeks	Aim: Sport and/or Functional specific ranges
	
	• Exercises should closely mimic patient's sport/activity
	  ○ Dosage needs to represent what is functionally required of the patient
	
	 
	
	Example of the pull phase in a freestyle stroke for swimmers
	
	• Can emphasize concentric and/or eccentric or ballistic (plyometric) actions
	• Progress from wall weight bearing drill to full weight bearing drill
	  ○ Should not be prescribed if any component of posterior instability remains
	
	*Gradual return to sport training and/or work

Maintenance Program	A maintenance program at 2-3x/week of 4-8 exercises should be given to the patient at the end of the program to maintain their level of function

References:
1) Watson L, Warby S, Balster S, Lenssen R, Pizzari T. The treatment of multidirectional instability of the shoulder with a rehabilitation program: Part 1. *Shoulder Elbow.* 2016;8(4):271-278.

2) Watson L, Warby S, Balster S, Lenssen R, Pizzari T. The treatment of multidirectional instability of the shoulder with a rehabilitation programme: Part 2. *Shoulder Elbow.* 2017;9(1):46-53.

3) Warby SA, Ford JJ, Hahne AJ, et al. Comparison of 2 Exercise Rehabilitation Programs for Multidirectional Instability of the Glenohumeral Joint: A Randomized Controlled Trial. *Am J Sports Med.* 2018;46(1):87-97.