

Massage Therapy Increases Glenohumeral ROM in Screen Printer Suffering From Repetitive Strain Injury (RSI)

Introduction

1. Importance of the case: According to the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), repetitive strain injuries are the nation's most common and costly occupational health problem, affecting hundreds of thousands of American workers, and costing more than \$20 billion a year in workers compensation. According to the U.S. Bureau of Labor Statistics, nearly two-thirds of all occupational illnesses reported, were caused by exposure to repeated trauma to workers upper body (the wrist, elbow or shoulder).

2. Terms that must be understood to understand the case:

a. **Repetitive strain injuries (RSI)** - are "injuries to the musculoskeletal and nervous systems that may be caused by repetitive tasks, forceful exertions, vibrations, mechanical compression, or sustained or awkward positions". RSI is also known as cumulative trauma disorders, repetitive stress injuries, repetitive motion injuries or disorders, musculoskeletal disorders, and occupational or sports overuse syndromes.

b. **Rotator cuff syndrome** - inflammation of tendons and muscles in the shoulder.

c. **Musculoskeletal injury** – refers to damage of muscular or skeletal systems, which is usually due to a strenuous activity.

3. The condition

a. RSI is considered to be an umbrella term to cover multiple instances, this particular RSI may not be as common as some more “popular” injuries from repetitive motions.

b. The most common RSI signs and symptoms include:

- Tenderness in the affected muscle or joint
- Pain in the affected muscle or joint
- A throbbing (pulsating) sensation in the affected area
- Pins and needles (tingling) in the affected area, especially the hand or arm

c. Some common treatments include the use of heat or cold packs on the affected area, elastic supports, or splints to support the affected joint, anti-inflammatory painkillers are also often given to those who suffer from RSIs.

d. The causes of RFI are many, but can be narrowed down to seven true root causes.

1. Working in one position for an extended period of time

2. Numerous repetitions of the same movement

3. Intensity of the work being performed

4. Aging/loss of resilience

5. Poor Ergonomics of the work area

6. Physiology/anatomy of the person suffering from the RSI

7. Personality – by which the personality that may work through the injury

rather than try to get it fixed

4. Literature Review

a. Keywords used in the search for more information on RSI were:

- Repetitive Strain Injury
 - Repetitive Strain Injury Statistics
 - Musculoskeletal injury
 - Rotator cuff syndrome
- b. Relevant articles found:
- Massage Therapy and Repetitive Strain Injuries, Jeff Anliker, LMT
 - Defeating Workplace Repetitive Strain Injuries, Jeff Anliker, LMT
 - Repetitive Strain and Computer Professionals: A New Look, Jack Bellis and Suparna Damany
- c. What information from those articles is pertinent to your case?
- Massage Therapy and Repetitive Strain Injuries, Jeff Anliker, LMT – I used the treatment sequence portion of this article as a guide for my treatment protocol
 - Defeating Workplace Repetitive Strain Injuries, Jeff Anliker, LMT – I used a summary of this article to explain to the client how his injury occurred in the first place and how to prevent further injury.
 - Repetitive Strain and Computer Professionals: A New Look, Jack Bellis and Suparna Damany – Although this article was more toward wrist injuries, the principles of it applied to this particular case; specifically in finding and treating the muscle inflammation and nerve entrapment points.

The Case

5. Subject

- a. Demographics of subject:
- Male
 - 39 Years Old
 - Smoker
- b. Relevant medical history – Nothing significant to report. Subject had been taking NSAID for the pain. Subject saw another massage therapist for 90 days with no results. That therapist did not use any Neuromuscular Therapy techniques only effleurage, petrissage, along with compression in a Swedish style massage.
- c. Other treatments and results – As previously stated, subject received Swedish massage from another therapist in a massage school's student clinic.
- d. Subject's goals from treatment – First and foremost, the subject wanted to have some relief from his pain. On his first visit, he complained that his entire right side (Right shoulder, arm, chest, hip and knee) hurt with a constant throbbing type of pain. Subject also had limited ROM in the right glenohumeral joint.
- e. Contributors to the subject's condition – The subject's profession is a screen

printer. In his job he manually spreads ink over a screen to create a screen printed design. The repeated motion of laterally adducting the right arm in front of the body followed by laterally abducting it back to the original position is the primary contributor to this condition.

6. Treatment

a. Pre-Tx Measurements:

- Shoulder ROM Flexion - 110°
- Shoulder ROM Extension - 50°
- Shoulder ROM Abduction - 160°

b. Treatment Details:

This particular case study consists of six individual treatment sessions, each treatment was 1-hour in length and the treatments were generally two-weeks apart.

Although the subject complained of pain all along his right side, after speaking with him about the history of the pain and his own profession, I believed the cause of the overall body pains came from the main complaint of shoulder tightness/soreness.

Treatment #1 - First observation showed a slight elevation of the right shoulder. However when performing the Upper Trapezius/Levator Scapula Differentiation test, the Levator Scapula was indicated as the problem. ROM of shoulder was limited during flexion. Since the Rhomboids and middle Trapezius are retractors of the scapula, they could also restrict flexion. I concentrated the initial treatment on the following muscles: Rhomboids, Levator Scapula, Middle-Trapezius and treated them in the side lying position. Trigger Points (TrP) were discovered in the Levator Scapula (Latent Trigger Point) and Middle Trapezius (Active Trigger Point), these TrP were released using digital pressure to provide static pressure on the TrP. The pressure was held for approximately 8-12 seconds. Following the 8-12 seconds of digital pressure, the same muscles were treated with broader compression and some pin-and-stretch. The Rhomboids, although sore, revealed no TrP. The Rhomboids were treated with compressive strokes along the muscle fiber. Following treatment, the subject stated that his pain levels decreased significantly and ROM for flexion improved to 140° . Post treatment plan was to apply ice to the area for no more than 15-minutes at a time for the next three-hours and to return for further treatment in two weeks.

Treatment #2 – Subject walked in displaying a more prominent inferior position of the shoulders along with Kyphosis (he was crouched over while walking). Subject stated that his shoulder was hurting again, but this time he felt more pain in the chest area, specifically in the right side pectoralis and right side of his neck. Since the referral pattern of the Scalenes is the pectoralis and the shoulder, I suspected the scalene. While seated, I performed the Cramp Test by having the subject rotate his head to the right and drop his chin to his chest, he reported pain/cramping. I next conducted the Scalenes Test by having the subject rotate his head to the left and flex. I flexed the subject's head and the movement was restricted. This confirmed my initial thought of a scalene issue. While still seated, I treated the R Anterior and R Middle Scalene muscles by anchoring my finger along the shoulder/first rib and had the subject laterally flex away from my anchor. This helped but did not eliminate the pain, so I continued treating the subject side lying with a pillow under

his head to align the neck in a relaxed position. Palpation with one finger revealed TrP in the anterior and middle scalene. TrP were released using friction and palpation of these TrPs. After releasing the TrPs in the scalene, I treated the pectoralis in the same side lying position using a pincher grip compression with opposite compression. Although non-compliant, the pectoralis revealed no TrP. Following treatment, subject stated he felt 100% better. When he stood up, his posture was straight with no slouch or shoulder slant. Post treatment plan recommended the same ice procedure and stretches for the shoulder and pectoralis region. Recommended return in two weeks.

Treatment #3 – Continued same treatment as stated in Treatment #2. Subject had limited ROM in shoulder flexion (130⁰) again at beginning of session and repeated the treatment of pectoralis, levator scapula, and upper trapezoid. Applied head to the levator scap and upper trapezius while treating the pectoralis. Responded very well to the treatment, ROM back to 170⁰ Subject stated this was the best he felt of all the treatments. Post treatment plan recommended the same ice procedure and stretches for the shoulder and pectoralis region. Recommended return in two weeks.

Treatment #4 – Subject arrived with a noticeable lateral tilt of the head to the left and considerable pain. I palpated the left side of the neck and felt the Iliocostalis/Longissimus Cervicis was non-compliant. I treated these muscles side line and released TrP in both using digital pressure and holding for 8-10 seconds. After treating those muscles I also checked the Sternocleidomastoid (SCM) for TrP as well. After cross fiber friction on the attachment, I released more TrP in the SCM. Subject stated the pain was gone and upon standing the tilt was gone as well.

Treatment #5 – Observed normal posture in the subject, no tilt of the neck or shoulder. Continued treatment protocol from Treatment #2 and Treatment #3 and released TrP from R upper trapezius, R Levator Scapula, R Pectoralis Major, R scalenes (anterior & middle), and R SCM. Following treatment, subject had full ROM in shoulder and neck and was pain free. Post treatment plan was to continue stretches and return in two weeks.

Treatment #6 – Subject arrived with no pain and full range of motion in shoulder and neck and normal balanced posture. Palpated muscles from previous treatments and found no TrP or non-compliance. Also performed assisted stretches. Subject stated he hasn't felt this good in years!

7. Results.

	Prior to Treatment	Post Treatment
Shoulder ROM Flexion	110 ⁰	170 ⁰
Shoulder ROM Extension	50 ⁰	55 ⁰
Shoulder ROM Abduction	160 ⁰	170 ⁰
Posture – Head	Tilt to the right	Normal
Posture – Shoulder	Rotated Forward	Normal

Discussion

8. Conclusion:

In summary, the results of the treatments given are the results of a partnership between the subject and the practitioner. Although, at the time of the treatments, I was a massage therapy student, the subject had to trust in the treatment plan I devised even though it was very different than what he had previously experienced. The treatments wouldn't have been as effective if the subject wasn't doing the stretches outlined in the post treatment plan.

The process of clinical reasoning really pointed me in the right direction by eliminating the muscles that weren't actually causing the problem and focusing on the muscles requiring treatment. The specific type of RSI isn't as important as the outcome of the treatment and the process to identify it. The same clinical reasoning applied to this specific case, could be applied to any case and assist in coming up with a successful solution.