



Clinical Case Report Competition

Utopia Academy

Spring 2009

Second Place Winner

Andrea Dobrostanski

The potential effect of massage therapy
on an undiagnosed shoulder restriction

**Spring 2009 MTABC Clinical Case
Report Award
Utopia Academy competition
2nd Place — Andrea Dobrostanski
for**

**The Potential Effect of Massage Therapy on
an Undiagnosed Shoulder Restriction**

ABSTRACT

Objective: This study investigated the efficacy of massage therapy techniques to increase range of motion in flexion and abduction of the shoulder complex.

Methods: A protocol of three 75 minute massage sessions over a two week period. Techniques applied included Swedish, Muscle Energy, Joint Manipulation, Stretching, Myofascial, Cranial Sacral and Trigger Point Techniques. The focus of the work was on the left shoulder complex; however attention was also given to the accessory structures of the C-spine and ribs to help increase their mobility.

Results: The client experienced limitation in flexion and in abduction in his left shoulder when compared to his right. At the end of the three treatments passive range of motion was increased by 9.4 percent in flexion, a 7.9 percent increase in abduction, and a 6.4 percent increase in internal rotation.

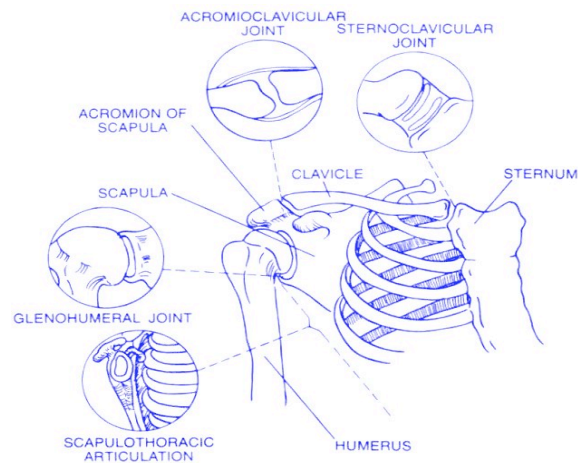
Conclusion: Massage therapy may have a beneficial effect on the treatment of restricted range of motion of the shoulder complex.

INTRODUCTION

The shoulder complex is so named because of the large area that it covers and the complexity of its anatomy and biomechanics. It has the greatest range of motion of any joint in the body. The coordinated activity of numerous muscles working together allows the hand to be positioned anywhere in space. The shoulder complex includes most of the upper trunk from front to back and is made up of three bones, which are connected by muscles, ligaments, and tendons.

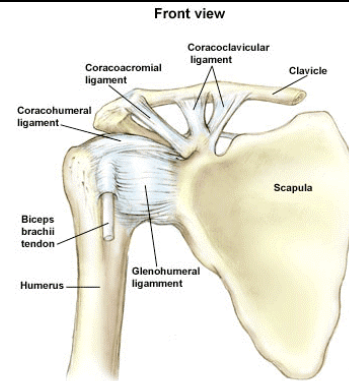
The bones of the shoulder are the humerus, the scapula, and the clavicle. The roof of the shoulder is formed by a part of the scapula called the acromion. There are four joints that make up the shoulder complex:

- Glenohumeral joint – where the head of the humerus meets the glenoid fossa.
- Acromioclavicular (AC) joint – where the clavicle meets the acromion of the scapula
- Sternoclavicular (SC) joint – where the clavicle meets the sternum
- Scapulothoracic joint – where the scapula meets with the ribs at the back of the chest



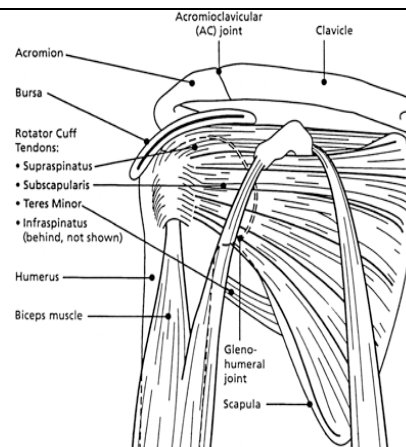
Ligaments are connective tissue that that helps to connect bones. In the shoulder it is the ligaments that are the main source of stability. They help hold the shoulder in place and keep it from dislocating. The shoulder joint capsule is made up of a group of ligaments that connect the humerus to the glenoid fossa of the scapula. There are several important ligaments in the shoulder, namely:

- Coracoclavicular ligament
- Coracoacromial ligament
- Costoclavicular ligament
- Glenohumeral ligaments
- Sternoclavicular ligament



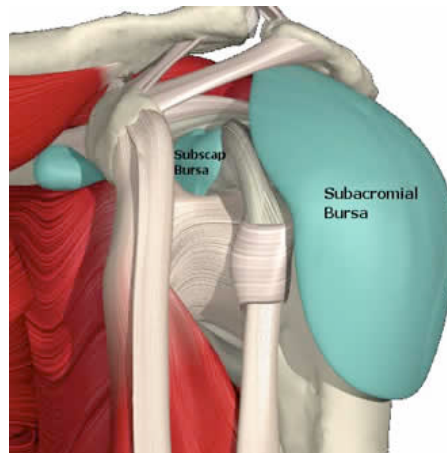
Tendons are much like ligaments except that tendons attach muscle to bone. Muscles move the bones by pulling on the tendons. One of the more important tendons in the shoulder is the Biceps tendon, because it travels through the shoulder joint. The Biceps tendon originates at the top of the supraglenoid tuberosity and then passes across the front of the shoulder to connect to the biceps muscle. Other key tendons are:

- Subscapularis tendon
- Supraspinatus tendon
- Infraspinatus tendon
- Teres Minor tendon
- Biceps tendon



There are 30 muscles that providing support for the shoulder complex. 15 muscles move and stabilize the scapula, 9 muscles that provide movement to the glenohumeral joint, and 6 muscles that help support the scapula on to the thorax.

The shoulder complex also has eight to nine of bursas. A bursa is a fluid-filled sac that helps with reducing friction. They occur wherever two body parts move against each other.

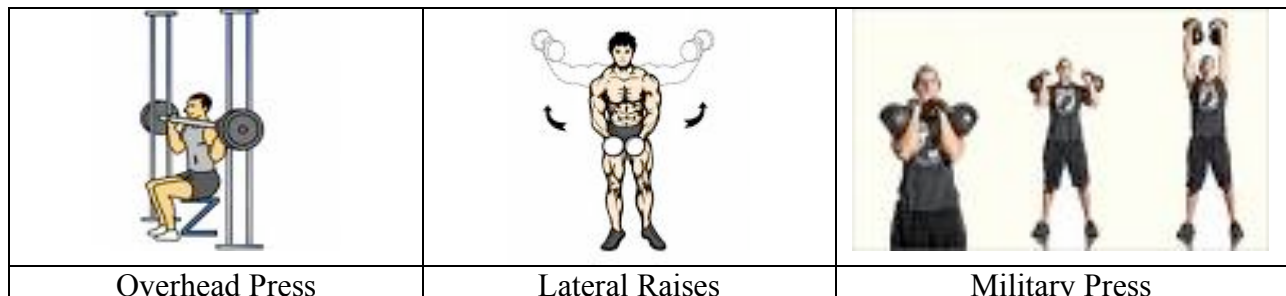


The shoulder complex is particularly vulnerable to neurovascular injuries due to its intimate anatomical relationship with the Brachial Plexus and Axillary vessels. All the nerves that travel down the arm pass through the axilla just under the shoulder joint and is known as the Brachial Plexus. The Brachial Plexus innervates all the muscles of the shoulder and arm except the Trapezius, which is innervated by the Cervical Plexus.

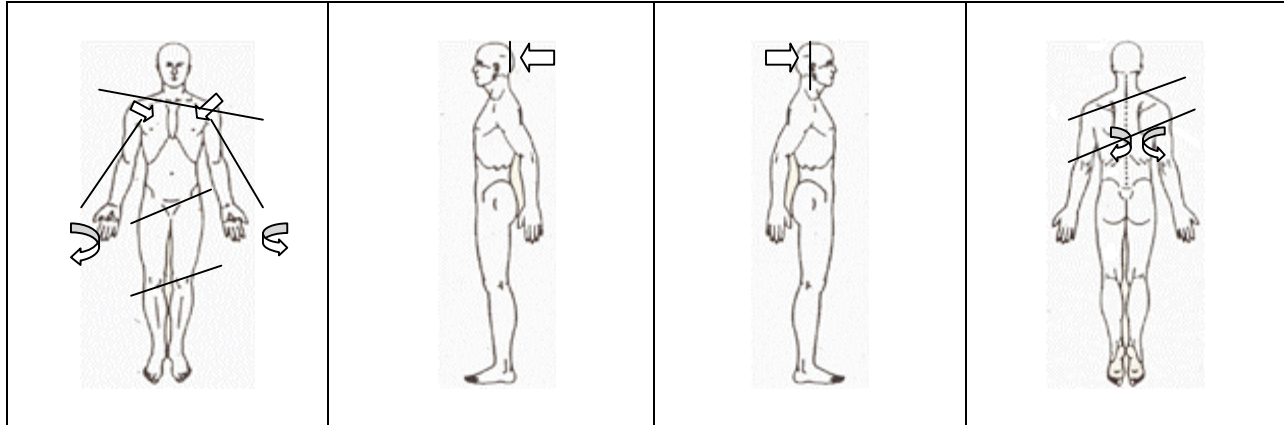
CASE HISTORY

The subject in this case study was a 39 year old male in general good health. Approximately 3 years ago in an effort to get into better shape the subject started to work out in a gym 4-5 times a week. His routine involved one day upper body work out, next day cardiovascular, next day lower body, then cardiovascular again. His work out included a universal gym circuit, free weight circuit, cardiovascular circuit (rowing machine and treadmill). The subject noticed right away that he had less mobility and strength in his left shoulder then his right when using the Overhead Press, Lateral Raises, and Military Presses. No pain was involved. His left shoulder reached end range before his right.

The subject has been in a 4 car accidents and 3 motorcycle accidents. Has a fractured L5 with anterior displacement, and sees a chiropractor once a week for maintenance. The subject has sustained a number of other fractures including: arms, right leg, multiple ribs, lower jaw and clavicle (but unsure which one). The subject also has loss of sensation on his lateral side of his left leg, and suffers from hearing loss which is mostly in his right ear.



ASSESSMENT



- Head forward posture
- Left shoulder is slightly lower than right
- Shoulders are rolled forward
- hands and forearms are externally rotated,
- Scapulas are winged and left is lower than right
- The left hip and knee is higher than the right
-

Rule Outs:

- ✓ Cervical Spine (AF flexion, extension, side bending, rotation...all w/overpressure)
- ✓ Elbow (AF flexion, extension, pronation, supination...all w/overpressure)
- ✓ Thoracic Outlet Syndrome (Adson's, Wright's Hyperabduction, Costoclavicular Syndrome)
- ✓ Systemic Conditions/Referred Pain (myocardial infarction, gall bladder, liver)

Dermatomes:

- ✓ C4 – shoulder/clavicle/upper scapula Positive Negative
- ✓ C5 – lateral shoulder (axillary nerve) Positive Negative
- ✓ C6 – radial border of hand Positive Negative

Myotomes:

- ✓ C4 – resisted shoulder elevation Positive Negative
- ✓ C5 – resisted shoulder abduction Positive Negative
- ✓ C6 – resisted elbow flex/wrist ext Positive Negative

Deep Tendon Reflex:

- ✓ C5 – biceps tendon Positive Negative
- ✓ C6 – brachioradialis tendon Positive Negative
- ✓ C7 – triceps tendon Positive Negative

Special Tests: session	Beginning of 1 st session		End of 3 rd
Yergason's Negative	Positive	Negative	Positive
Speed's Negative	Positive	Negative	Positive
Empty Can Negative	Positive	Negative	Positive
Drop Arm Negative	Positive	Negative	Positive
Lift Off Sign Negative	Positive	Negative	Positive
Pectoralis Major Contracture Negative	Positive	Negative	Positive
Rockwood Negative	Positive	Negative	Positive
Push-Pull Negative	Positive	Negative	Positive
Feagin Negative	Positive	Negative	Positive
Neer Impingement Negative	Positive	Negative	Positive
Upper Limb Tension (ULTT) #1 Negative	Positive	Negative	Positive
ULTT #2 Negative	Positive	Negative	Positive
ULTT #3 Negative	Positive	Negative	Positive
ULTT #4 Negative	Positive	Negative	Positive
Adson's Negative	Positive	Negative	Positive
Travell's Variation Negative	Positive	Negative	Positive
Wright's Hyperabduction Negative	Positive	Negative	Positive
Eden's Negative	Positive	Negative	Positive
Provocative Elevation Negative	Positive	Negative	Positive

Muscle Testing	Start Grade	End Grade	Muscle Testing	Start Grade	End Grade	Muscle Testing	Start Grade	End Grade
Supraspinatus	012345	012345	Deltoid-Mid	012345	012345	Coracobrachial	012345	012345
Infraspinatus	012345	012345	Deltoid-Post	012345	012345	Pec-Major	012345	012345
Teres Minor	012345	012345	Trap-Upper	012345	012345	Levator Scapula	012345	012345
Subscapularis	012345	012345	Trap-Middle	012345	012345	Rhomboids	012345	012345
Deltoid-Ant.	012345	012345	Trap-Lower	012345	012345	Serratus Anterior	012345	012345

	Start		End		Start		End	
	Active ROM		Active ROM		Passive ROM		Passive Rom	
	R	L	R	L	R	L	R	L
Flexion (160-180 deg)	172	145	173	153	175	145	178	160
Extension (50-60 deg)	50	50	50	50	50	50	50	50
Abduction (160-180 deg)	180	150	180	162	180	152	180	165
External Rot (80-90 deg)	95	85	95	85	95	85	95	85
Internal Rot (60-100 deg)	50	50	50	56	50	50	53	60

TREATMENT PLAN

Treatment was provided to both the right and left shoulder complex, and followed the same specific 75 minute protocol in each session:

- Started prone with thermophore on upper back and left shoulder.
- Back: myofascial work to relieve adhesions to back area. Skin rolling to upper traps, were rolled over onto their selves. Elbow stroking along erector. Rib spreading. Rocking and joint mobs to scapula to increase mobility. MET to Rhomboids to increase strength. Stretching of Latissimus Dorsi.
- Side lying: MET to the shoulder complex in extension, flexion, and abduction to increase mobility – a hold and relax technique is used.
- Supine: Myofascial release to Platysma and upper chest area. Joint mob to Clavicle. Finger kneading over Coracoacromial and Coracoclavicular ligaments. Stretching of hypertoned Pectoralis Major and Minor. Static compression to Subscapularis. MET to Serratus Anterior to increase strength, muscle is weak. Joint mobs to c-spine. Sub-Occipital release. Finished with Cranial Sacral therapy.
- Homecare: Strengthening exercise for Serratus Anterior and Rhomboid. Stretching exercise for Pectoralis. Change in ADLs – sleep on your back or right side.

The only variable that differed between treatments was the location of TrP's.

OUTCOMES

At the end of the third treatment passive range of motion was increased by 9.4 percent in flexion, a 7.9 percent increase in abduction, and a 6.4 percent increase in internal rotation. The subject said he felt “more openness in his anterior chest area” and less stiffness in his left shoulder.

What Did I learn and What would I do differently in the future:

One of the things I learned from doing this case study is you need to plan ahead and be careful of outside influences that may skewer your results. In the first attempted to start my case study I couldn't figure out how to use the goniometer and how to separate the GH joint from the Shoulder complex. So I didn't treat the subject that day because I didn't want to adversely affect the base measurements. Another thing that might have had an effect on the results is the subject started a stretch class just before the last treatment. He only attended one session but still was it enough to effect the result, who knows. Another thing that makes me wonder if I didn't adversely affect the results is by giving home care. The subject now sleeps on his right side. He curls his shoulder medially when he sleeps. I haven't said anything to him about it, because I don't want him to change his habit. I want to wait a couple of months and retest the measurements and see if there is a decrease in ROM in the right shoulder now that he is sleeping on it.

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