The Effect of Osteopathic Longitudinal Arm Traction Technique On Shoulder Abduction

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Context:

Shoulder pain

Shoulder is third most common musculoskeletal complaint in primary care offices, second only to knee for referrals. Incidence 25/1000 patients. Up to 26% of athletic injuries involve the shoulder.

The shoulder is the most mobile joint in the human body. A group of four tendons in the shoulder, called the rotator cuff, give the shoulder a wide range of motion.

Swelling, damage, or bone changes around the rotator cuff can cause shoulder pain. You may have pain when lifting the arm above your head or moving it forward or behind your back.

Causes

The most common cause of shoulder pain occurs when rotator cuff tendons become trapped under the bony area in the shoulder. The tendons become inflamed or damaged. This condition is called rotator cuff tendinitis.

Shoulder pain may also be caused by:

- Arthritis in the shoulder joint
- Bone spurs in the shoulder area
- Bursitis, inflammation of a fluid-filled sac (bursa) that normally protects the joint and helps it move smoothly
- Broken shoulder bone
- Dislocation of the shoulder
- Shoulder separation
- Frozen shoulder, which occurs when the muscles, tendons, and ligaments inside the shoulder become stiff, making movement difficult and painful
- Overuse or injury of nearby tendons, such as the bicep muscles of the arms
- Tears of the rotator cuff tendons

Sometimes, shoulder pain may be due to a problem in another area of the body, such as the neck or lungs. This is called "referred pain." There is usually no pain when moving the shoulder.
Objective:
To evaluate the effect of Osteopathic Arm traction on increasing of restricted shoulder Abduction.

Design:
Descriptive with repeated measures before and after technique.

Setting:
Allied Physiotherapy And Rehabilitation clinic

Patients:
The Patients have been selected from restricted ROM in abduction among patients with shoulder pain. Range of age between 32 to 68 . AC joint has been excluded from selection. Total number of patient = 5. Total number of session 30.

Intervention:
Range-Of-Motion measurements of Abduction were assessed before and after completion of two sets of one minute longitudinal arm traction just slightly below the end range while patients were lying on a bed with 45 degree back rest up. Each patient received the same treatment. All patients also received their regular treatments, right after applying the technique. Regular treatment included 10 times inferior glide joint mobilization , grade II or III followed by related modalities and exercises.

Outcome Measure:
Pain free Active shoulder abduction in standing.

Setting of Intervention:
Measurement of abduction by goniometer, on standing, before and after applying longitudinal arm traction. Traction has been applied, below end range of abduction. All measurements recorded right before and after the technique.
Results: Measurement on degrees

Case E=RC Inury.

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Mean ROM before Tx: 78.43
Mean ROM after Tx: 81.96

Average increase for each session in ROM

Case A: 2.0 degrees
Case B: 2.1
Case C: 4.8
Case D: 4.5
Case E: 4.2

Conclusion:

Based on result, the arm traction produced a minor increase in relaxation and flexibility. As you see in average increase of ROM, arm traction was less effective on patients with frozen shoulder compared to RC injury cases. However, this change in motion may not be clinically significant.
Key Points:

The arm traction increased muscular relaxation and decreased pain before performing joint mobilization.

Participants:

Participants included 5 patients from Allied Physiotherapy And Rehabilitation Clinic (2 frozen shoulder; age 55 and 68, 3 RC injury patients; average age 36.3). Sex has not been considered as determinant factor in the research. 2 of the RC injury patients had their first shoulder pain experience.

Instrumentation:

I used the plastic 12" goniometer 360 degree ISOM for measurement.

Procedures:

All Patients attended 1 testing session before treatment. Data were collected in Allied Physiotherapy and Rehabilitation clinic. Before participation, each patient provided informed consent.

I examined the abduction. The ROM measurements were taken before and after completion of the treatment. The ROM measurements were taken using identical methods for all patients in all sessions.
Abduction Measurement:

To assess abduction, I placed patients in a standing position. I stood at behind the patient. I stabilized the lateral border of scapula to limit scapular rotation as trick movement. Then allow the patient actively abduct the arm with maximum pain free ROM. At the end range of abduction, the goniometer replaced to the new ROM and recorded the amount of motion.

Osteopathic Arm Traction:

I as a primary investigator applied arm traction to the patients who were lying with back rest bent to 45 degrees. I explained the procedure to the patients before proceeding the technique. Next the investigator passively abducted shoulder towards end range by grasping the arm above elbow and supporting forearm by investigator's armpit. Traction was held constant at the end ROM for one minute with mild to moderate tension based on patients' pain tolerance, and then repeated one more time with 30 second' rest between traction episodes.

Discussion:

As you see in the chart, this technique offered minor increase in ROM. However patients showed increase in ROM with smooth paced after few session, but this increase was obtained by combination of all different treatment methods such as mobilization, modalities and exercises. This technique has been done only on 5 selected patients and it needs more research for a meaningful result. I did not go through hypothesis testing calculation because the sample of the research were not sufficient for a valid meaningful result.
Acknowledgments:

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References:


Article From Journal of Athletic Training.