Title: Effect of Spencer Technique in Shoulder Impingement in an Overhead Recreational Sports Player – A Case Study

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Abstract:

Purpose of the study: To test the effectiveness of Spencer technique in shoulder impingement syndrome.

Case summary: A 22 year old male patient complaint of pain in right shoulder during overhead sports activities since 1 year. He was a recreational volleyball, cricket and badminton player. He had a complaint of pain during backhand stroke and smash while playing badminton. He experienced pain during bowling at the end of throwing. Pain was insidious on onset and dull aching in nature with an NPRS 8/10 during overhead sports activities. Grade 2 tenderness was present on the anterior and lateral aspect of shoulder. His shoulder ROM was painful and restricted. Patient also had an anterior tipping of right scapula. Special tests like Hawkins Kennedy, Neers Impingement and Empty Can test was positive. Score of Quick Dash scale was activities of daily living 25/100; work module 25/100; sports module 50/100. Sports activities are more affected than activities of daily living. Patient was treated with Spencer technique for 7 consecutive days followed by cryotherapy for 15 minutes post Spencer technique.

Result: There was increase in the Shoulder ROM of flexion by 40%, abduction by 45% and internal rotation by 33%, pain intensity was decreased by 50%

Conclusion: Spencer technique is effective in improving shoulder ROM in shoulder impingement syndrome.

Key Words: Spencer Muscle Energy Technique, shoulder Impingement Syndrome, Recreational overhead athlete

Introduction:

Spencer technique is an osteopathic manipulative technique which was developed by Charles H Spencer in the year 1916. This osteopathic technique is also known as the seven stages of the Spencer. This technique is used to manage nonsurgical soft tissue injuries by slowly stretching the shoulder while putting it through its normal range of motion. It is a standardized series of treatments with broad application to diagnose, treat and establish prognosis for shoulder pain due to restricted mobility. It is a multistep technique which combines Spencer's positioning, slow stretching of the shoulder complex within pain-free limits, sequencing done by the therapist while incorporating muscular energy with post-isometric contraction and relaxation, serving of enhancement mobility of glenohumeral and scapulothoracic joints by soft tissue stretching. The sequence is such that it improves the mobility of shoulder complex by treating first most pain-free followed by most restricted motions. This technique re-establishes functional relationship between articular and soft tissues of the shoulder region.¹

Case Summary

A male patient with an age of 22 years old visited the OPD presenting complaints of pain in right shoulder during sports like volleyball, badminton and cricket since 1 year. He is a physiotherapy student and a recreational cricket Player right arm fast bowler and badminton player. He had pain while playing badminton during backhand stroke and smash. He also had pain during bowling at the end of throwing. He was right sided dominant and had pain on sleeping on affected shoulder. Pain was insidious on onset and dull aching in nature with an NPRS of 2/10 on rest; 6/10 on overhead activities and 8/10 during 110° of shoulder flexion and shoulder abduction. Grade 2 tenderness was present on the anterior and lateral aspect of shoulder. Crepitus was present on shoulder flexion above 90°. Trigger points were present on the upper medial border of scapula. His shoulder ROM was painful and restricted. Patient also had anterior tipping of right scapula. Special Tests like Hawkins keneddy, neers impingement and empty can test was positive. Score of quick dash scale was activities of daily living 25/100; work module 25/100; sports module 50/100. More the score severe is the condition. Sports activities were more affected than activities of daily living. Patient was treated with spencer technique 5-7 repetitions for each step for 7 consecutive days followed by cryotherapy for 15 mins. Results were calculated on the 8th day of the study.
### Intervention

Patient was treated with Spencer technique 5-7 repetitions for each step for 7 consecutive days followed by Cryotherapy for 15 minutes post Spencer technique.

- **Steps :-**
  1. Shoulder extended; elbow flexed
  2. Shoulder flexed; elbow extended
  3. Shoulder abducted; elbow flexed; circumduction
  4. Shoulder abducted; elbow extended; circumduction
  5. Shoulder abducted; elbow flexed
  6. Shoulder abducted; IR
  7. Intermittent traction

### Outcome Measures

1. Pain was assessed on NPRS scale.
2. ROM was assessed using universal goniometer.
3. Functional scale using quick dash scale.

### Statistical Analysis

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<th>Adduction</th>
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Result

There was increase in the Shoulder ROM of flexion by 40%, abduction by 45% and internal rotation by 33%. Pain intensity was decreased by 50% There was increase in functional activities by 44% in ADLs, 24% in work module and 24% in sports activities

Discussion

This technique combines Spencer's positioning sequence and its slow, intermittent stretching with patient active isotonic muscle energy technique. It enhances both soft tissue stretching and fluid movement in the area being treated. In each step, muscle energy forces are applied after the parts have been moved against the restrictive barrier. The end result is that the patient has more motion with less pain sooner. Spencer Muscle Energy technique has role in improving pain by altering circulatory biomarkers of pain, and restoring pain-free joint motion by stretching the shoulder capsule and soft tissues. Isometric muscle contraction stimulates joint and muscle mechanoreceptors that closes pain gate at dorsal horn level of the spinal cord, and stimulates descending modulation of pain by periaqueductal gray of midbrain. There were many studies conducted on adhesive capsulitis using spencer technique but there are no studies conducted on shoulder impingement. Isometric contraction maintains the shoulder joint into the restrictive barrier thus activating the Golgi tendon apparatus of the agonist muscles, causing reflex inhibition of contraction and allowing muscle lengthening. This helped the increasing ROM and improved activities of daily living, work and sports. Future studies should include other conditions in the spencer technique and should include other variations of steps like changing the sequence of the mentioned steps in the spencer muscle energy technique to see its effects on shoulder ROM.
Conclusion

Spencer technique is effective in improving shoulder ROM in shoulder impingement syndrome.

Clinical Implication

Spencer technique can be used in improving shoulder ROM and decreasing pain in shoulder impingement syndrome.

References