The Spencer Technique –

History & Effectiveness in Treating Shoulder Pain & Dysfunction in Special Populations

Title: *The Spencer Technique – History & Effectiveness in Treating Shoulder Pain and Dysfunction in Special Populations*
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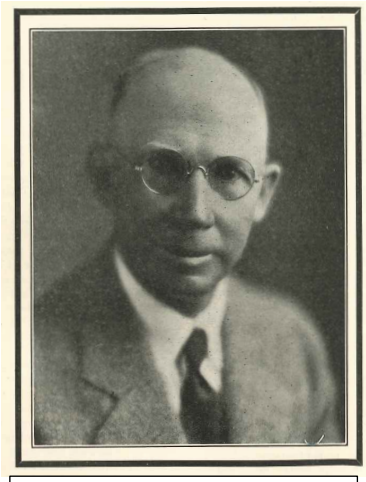
Introduction: The Spencer Technique

Shoulder pain ranks as one of the most common causes of pain and dysfunction affecting the general and athletic populations. (1) It is essential that Osteopathic Manual Therapists have a solid arsenal of manual techniques to address this increasing area of musculoskeletal concern. The Spencer Technique should be part of this arsenal, it is an osteopathic manual technique that I use in my daily practice, and it has been highly effective. With the prevalence of shoulder pain, dysfunction, and disability being so high across a large sector of society, it warrants us to look at the effectiveness of the Spencer Technique, and this is the goal of my thesis. This paper will summarize the Spencer Technique, identify its origins and some of the modifications made to it over the years. It will also highlight the prevalence of shoulder pain and injury across certain population demographics, and finally will introduce what research says about the effectiveness of the Spencer Technique.

The Spencer Technique

Dr. Charles H. Spencer is credited as the developer of the Spencer Technique (which is documented as originating in 1916. Born in Gilboa Ohio in 1875, he taught public school for eight years, then entered Still College of Osteopathy in Des Moines Iowa and graduated in 1902.

During his Osteopathic training, he began to pursue an interest in the care and treatment of baseball players and their injuries. Soon after graduation he became known for successfully treating professional baseball players, including Babe Ruth, Ty Cobb and Joe DiMaggio, and many other athletes of his era. (2) This would make Dr. Spencer one of the founding fathers of modern-day sports medicine.



Charles H. Spencer, DO (2)

Interestingly, according to an article by David Patriquin DO, his original technique originated with only six steps, however, by 1926 he had modified the sequence and added an additional step that remains today. (3) The tables below are from that article, and they show modifications that have been made throughout the years by various osteopathic practitioners and osteopathic colleges.

Table
Spencer Technique Modifications
Based on 1926 Sequence Reported by Spencer

Techniques	Spencer (1916)[1]	Spencer (1926)[2]	St Clair (1941)[3]	Rubenstein (1949)[4]	PCOM class notes (1952)[5]	Nicholas (1974)[6,7]
Shoulder extended Elbow extended	Step 1	. . .	. . .	. . .	. . .	. . .
Shoulder extended Elbow flexed	. . .	Step 1	. . .	. . .	Step 1	Step 1
Shoulder flexed Elbow extended	Step 3	Step 2	Step 1	. . .	Step 2	Step 2
Shoulder abducted Elbow flexed Circumduction	Step 2	Step 4	Step 5	Step 1	Step 3	Step 3
Shoulder abducted Elbow extended Circumduction	Step 4	Step 3	Step 4	. . .	Step 4	Step 4
Shoulder adducted Elbow flexed Adduction, flexion, and external rotation	Step 5	Step 5	Step 2	Step 2	Step 5	. . .
Shoulder abducted Elbow flexed Abduction? flexion, and ? internal rotation	. . .	. . .	. . .	. . .	. . .	Step 5
Shoulder abducted Patient's hand behind back Internal rotation	Step 6	Step 6	Step 3	Step 3	Step 6	Step 6
Forearm on operator's arm—Operator applies intermittent traction while abducting and adducting shoulder	. . .	Step 7	. . .	. . .	. . .	. . .
Hand on operator's shoulder—Operator applies intermittent traction to shoulder	. . .	. . .	. . .	. . .	Step 7‡	Step 7

*Indicates use of isometric muscle energy in each step, to increase motion range.
†Uses muscle energy technique in each step.
‡Text and photography disagree; text agrees with Spencer's description.
§Uses Nicholas' article from *Osteopathic Annals*.
‖Holds patients' wrist between operator's medial aspect of arm and lateral aspect of thorax.
PCOM = Philadelphia College of Osteopathic Medicine.

Table, continued
Spencer Technique Modifications
Based on 1926 Sequence Reported by Spencer

Techniques	KCOM (1976)[10]*	CCOM (1985)	Greenman (1989)[8]	DiGiovanna and Schiowitz (1991)[9]	PCOM (1991)†
Shoulder extended Elbow extended	. . .	. . .	. . .	. . .	. . .
Shoulder extended Elbow flexed	Step 1	Step 1	Step 1	Step 1	Step 1
Shoulder flexed Elbow extended	Step 2	Step 2	Step 2	Step 2	Step 2
Shoulder abducted Elbow flexed Circumduction	Step 3	Step 3	Step 3	Step 3	Step 3
Shoulder abducted Elbow extended Circumduction	Step 4	Step 4	Step 4	Step 4	Step 4
Shoulder adducted Elbow flexed Adduction, flexion, and external rotation	. . .	. . .	. . .	. . .	. . .
Shoulder abducted Elbow flexed Abduction? flexion, and ? internal rotation	Step 5	Step 5	Step 5	Step 5	Step 5
Shoulder abducted Patient's hand behind back Internal rotation	Step 6	Step 6	Step 6	Step 6	Step 6
Forearm on operator's arm—Operator applies intermittent traction while abducting and adducting shoulder	. . .	. . .	. . .	. . .	. . .
Hand on operator's shoulder—Operator applies intermittent traction to shoulder	Step 7§	Step 7‖	Step 7	Step 7	Step 7

*Indicates use of isometric muscle energy in each step, to increase motion range.
†Uses muscle energy technique in each step.
‡Text and photography disagree; text agrees with Spencer's description.
§Uses Nicholas' article from *Osteopathic Annals*.
‖Holds patients' wrist between operator's medial aspect of arm and lateral aspect of thorax.
KCOM = Kirksville College of Osteopathic Medicine; CCOM = Chicago College of Osteopathic Medicine; PCOM = Philadelphia College of Osteopathic Medicine.

Patriquin notes that the 1926 technique modifications by Spencer are still in use today. Additionally, he notes that the Spencer Technique is particularly useful because of its broad application in diagnosis, treatment, and of prognosis of the patient's condition. (3)

For more information, I recommend reading the 1992 article by David A. Patriquin, DO titled "The Evolution of Osteopathic Manipulative Technique: The Spencer Technique (https://pubmed.ncbi.nlm.nih.gov/142907).

7-Stages of the Spencer-7 Technique:

The following is a condensed version of the seven stages of the Spencer Technique sequence from the Atlas of Osteopathic Techniques, 3rd Edition by AS Nicholas, EA Nicholas. (35)

Patient position – Lateral recumbent position use for the entire Spencer Technique sequence with the treatment shoulder remaining on top. The practitioner faces inward towards the patient throughout the technique and adjusts the direction their body faces, and hand positions based on

the stage of the technique being performed. The scapula is stabilized and fixed in position on the thorax by either of the hands through all sequence steps to maximize osteoarticular effects at the Glenohumeral joint (GHJ).

Shoulder Osteoarticular Motions: All shoulder movements used during the Spencer Technique include - repeated rhythmic low velocity, moderate to high amplitude movements that include translation, compression, oscillation, traction, and pumping type motions at the barrier of restriction in the GH joint and surrounding soft-tissues. (35, 36)

Muscle Energy Techniques - NUMSS Direct use of the 5-25 Protocol: Using no more than 5 to 20% of the patient's effort, contract for 5-seconds against the practitioners cued direction and counter-resistance, relax for 2-seconds, then advance the stretch of the restricted tissue to the "new" barrier, and hold for 5-seconds. Repeat: 3-5 times. Measure the change in ROM post treatment. (NUMSS coursework).

Seven Stages of the Spencer Technique: (35,36)

- **Step-1 – Extension**
- **Step-2 – Flexion**
- **Step-3 – Circumduction with Compression**
- **Step-4 – Circumduction with Traction**
- **Step-5a – Abduction**
- **Step-5b –Adduction with External Rotation**
- **Step-6 – Internal Rotation**
- **Step-7 – Distraction with Abduction**

Benefits of the Spencer Technique:

- Increases pain free ranges of motion by stretching the shoulder capsule and tight soft tissues, thus restoring specific joint motion.
- Resets neural reflexes from optimal joint position and motion (proprioceptive feedback and mechanoreceptors).
- Increases the lymphatic flow from the treatment area.
- Helps restricted joints to improve their function as well as positively affect other emotional, social and cognitive areas.
- Passive repetitive translatory movement, traction or gliding improves nutrition, circulation and lubrication in the joint structures.
- Helps reverse the negative changes in the joint and normalize arthro-kinematic gliding and rolling movements. The increased gliding will normalize the osteo-kinematic rotation and enable the restoration of shoulder mobility. (30)

The Prevalence of Shoulder of Pain in Society

The following information sheds light on the extent of the problematic shoulder across most age-groups and athletic populations. Osteopathic Manual Therapists and other manual therapists need to be aware of the significance of the **data** below and be able to provide care for a diverse cross-section of patients. Reliable and effective techniques, such as the Spencer Technique, remain at the forefront of manual care for decreasing pain, restoring function, and reducing disability.

Data:

Shoulder pain is a common musculoskeletal complaint experienced by all age-groups, most often associated with aging population with a peak incidence in the fourth to the sixth decades of life. (4) Recently, there has been a rise in shoulder pain with jobs and tasks requiring repetitive use of the upper extremity such as keyboarding and computer use, exposure to vibration, as well as in young athletes who participate in repetitive overhead sports such as competitive swimming, baseball, tennis, golf. Medically speaking, uncontrolled diabetes has also been linked to an increase in peri-arthritis and adhesive capsulitis of the shoulder. (5) Several key factors put the adult shoulder at greater risk of injury including forward head posture and hyper-kyphosis, degenerative changes in muscles, tendon, ligaments, and joints that are associated with the aging process, as well as altered mechanical loads due to sustained and prolonged poor postures. (6)

The prevalence of shoulder pain and its impact on the primary health care system is considerable, according to research by Bento et al., showing that shoulder pain is the 3rd most common musculoskeletal condition with an annual prevalence between 4.7 and 46.7%, and follows closely behind spinal complaints of low back pain (13% to 65%) and neck pain (13% to 65%) (7). A 2012 study looked at consultation rates to primary care physician and concluded that over a 10-year period from 1998 to 2008, the incidence of shoulder pain was as "high" as 29.3 per 1000 persons-years. They also found that 50% of the patients with shoulder pain contacted PCP only once for their complaint, with the highest incidence-based age group being between 45 years to 64 years old, and women being disproportionately affected more than men. (8)

In another study of aging adults (> 60 years old), shoulder pain and dysfunction is a common problem in 31% of participants in the study. In contrast to younger ages with shoulder pain which targeted mostly females, this study found shoulder pain in predominantly males, the veteran populations with 69% of the patient's reporting marked changes in functionality and quality of life. (9) There was also a high incidence of bilateral shoulder pain in this age group, which additionally added to loss of quality of life.

CANS which refer to Complaints of Arm, Neck and Shoulder pain has a prevalence of 19%, with a similar gender predominance favoring women, and 43% reporting symptoms in more than one anatomical site and affecting age groups between 45 and 65 years of age. (10)

The incidence of musculoskeletal pain amongst school-aged children continues to rise, with a reported incidence of neck, shoulder, and back pain ranging between 7% to 74%. (11) Factors contributing to the increase in adolescent neck and shoulder pain, include poor postural habits, repeated exposures to prolonged sitting positions, poor ergonomics, and hypokinetic lifestyle. (12,13). Additionally, among the growing number of adolescents who spend prolonged time on cell phones and smart devices, are experiencing higher incidences non-traumatic headaches (35.0%), sleep disturbances (36.6%) and neck/shoulder pain (37.7%). (14)

Shoulder Pain in the Overhead Athlete

The shoulder is highly exposed to injury in competitive overhead sports such as swimming and baseball due to the high degree of force generation required, coupled with repetitive motions. The five most common dysfunctional structures causing shoulder pain in the overhead athlete include (15)

1. Capsular laxity – defined as a mechanically compromised static and dynamic joint stabilizers that cannot prevent the symptomatic glenohumeral joint from subluxation and/or dislocation. (16)
2. Humeral retroversion (torsion) – defined as the rotational difference in the relative position of the humeral head and the axis of the elbow at the distal humerus. (17).
3. Glenoid retroversion – defined as the abnormal posterior angulation of the articular surface of the glenoid of the scapula. (18)
4. GIRD – (Gleno-humeral internal rotation dysfunction/deficit) – defined as adaptive process in which the throwing shoulder experiences a loss of internal rotation (IR). GIRD has most commonly been defined by a loss of >20° of IR compared to the contralateral shoulder. (19)
5. Scapular dyskinesis (Sick Scapula Syndrome) – is defined as an alteration or deviation in the normal resting or active position of the scapula during shoulder movement. (20)

The Sick Scapula Syndrome (Scapular Dyskinesis)

Ben Kibler MD, a retired orthopedist and a leading authority on shoulder function, describes scapular dyskinesis as “altered motion and positioning of the scapula” and states it is a common denominator with most shoulder injuries. In addition, it is associated with other shoulder conditions such as shoulder impingement, rotator cuff disease, labral injuries, AC-joint injury, and osteoarthritic changes as well multi-directional instability. (21) Given this, it is imperative that the OMT complete a thorough examination of the scapula-thoracic and gleno-humeral functions to determine the source(s) of dysfunction in the painful shoulder.

Two Overhead Athletes with the Most Shoulder Injuries - Swimmers and Baseball Pitchers
1 - Swimmers:
The shoulder is the "number one area of complaint and injury for the competitive swimmer." Injuries to the shoulder are defined as an area complaint that requires any contact with a trainer or physician for diagnosis and treatment. (22). A study looking at EMG activity of the shoulder girdle muscles in competitive swimmers demonstrated higher muscle activity levels on the symptomatic side in the upper trapezius, serratus anterior, and latissimus dorsi, all three muscle groups are associated with scapular dyskinesis, sub-acromial impingement syndrome and rotator cuff injuries and tendonitis. (23) A skilled high school or collegiate swimmer will have a typical count of 8 to 10 strokes per 25-m lap, each shoulder performs 30,000 separate arm rotations each week. The repetitive nature of the swimming places a tremendous amount of stress and fatigue on the head, neck, torso, shoulder girdle musculature, and glenohumeral joint. Leading shoulder pain as the most frequent Musculo-skeletal complaint. (24)

2 – Baseball Pitchers
The shoulder is a frequently injured part of the body, regardless of skill and play level amongst high school, college, and professional baseball players. (25) Recent studies of professional baseball pitchers, showed that a rotational insufficiency is associated with higher frequency of shoulder injury. The authors of the study concluded that shoulder preseason screening of shoulder external rotation ROM may identify professional baseball pitchers and swimmers at risk of injury. (26)

Effectiveness of Spencer Technique on College Level Baseball Players
In 2017, Janine Curcio, DO reported that use of a single session of the Spencer Technique used on collegiate level Seton Hall University pitchers, was highly effective at restoring balance between the internal and external rotators of the shoulder, and is a necessary injury prevention strategy. The results of this study support the use of the Spencer Technique by OMT's to counteract the potentially negative effects of repeated throwing on internal and external shoulder rotation in completive baseball pitchers. (27)

Review Literature on the Spencer Technique

The following are the 8 research studies that have been performed to determine the effectiveness of the Spencer Technique. Although there is not a large cross-section of patients seen in these studies, I believe that the pain and restrictive ROM of a typical adhesive capsulitis patient are likely similar to many of our shoulder pain patients. Furthermore, the research conclusions bode well for the Spencer Technique, and its ability to help reduce pain, improve range of motion, which is what the general population of shoulder pain sufferers is hoping to achieve.

1. **Use of the Spencer Technique on Collegiate Baseball Players: Effect on Physical Performance and Self-Report Measures.** Conclusion: The results of this study support the use of the Spencer Technique in counteracting the potentially negative effects of repeated throwing on internal rotation. However, a single administration did not affect functional ability in this study. (27)
2. **Effectiveness of Spencer Muscle Energy Technique on Periarthritis Shoulder** Conclusion: The study result concludes that in patients with periarthritis shoulder, the Spencer Muscle Energy technique group is effective in decreasing pain, improving ROM, and functional disability. (28)
3. **Improving Functional Ability in The Elderly via The Spencer Technique, an Osteopathic Manipulative Treatment: A Randomized, Controlled Trial.** Conclusion: After treatment, those elderly subjects who had received OMT demonstrated continued improvement in their ROM, while ROM in the placebo group decreased. (29)
4. **Comparative Effective Spencer Technique Versus Mulligan's Technique For Subjects With Frozen Shoulder.** Conclusion: It is concluded that both MWM and Spencer Technique are shown to have short term effect on improving pain, shoulder mobility and functional disability. However, MWM was found clinically more effective with greater percentage of improvement on improving shoulder abduction, external rotation ROM and functional disability than Spencer technique in subjects with frozen shoulder. (30)
5. **Comparison of Spencer Muscle Energy Technique and Passive Stretching In Adhesive Capsulitis A Single Blind Randomized Controlled Trial**. – Conclusion: Spencer technique was found to be more effective than passive stretching in treating patients with adhesive capsulitis. (31)
6. **The Effects of Spencer Technique on the ROM, Pain, Function in Patients with Shoulder Adhesive Capsulitis –** Conclusions: The study suggests that consider the use of the Spencer technique for patients with shoulder adhesive capsulitis. Further studies on Spencer technique are needed in the future. (32)
7. **Short-Term Efficacy of an Integrated Approach using Spencer's Mobilization and Agni karma (form of Ayurveda) on Movement and Functional Disability in a Patient with Shoulder Impingement Syndrome**. Conclusion: The authors of this case report strongly support the combined application of interventions of two disciplines in the management of shoulder pathologies. (33).
8. **Effect of Spencer Muscle Energy Technique on Pain and Functional Disability in Cases of Adhesive Capsulitis of Shoulder Joint.** Conclusion: The Spencer MET is more effective increasing functional ability in patients with adhesive capsulitis as compared to conventional treatment. (34)

Conclusions:

The Spencer Technique is an osteopathic manual therapy that has withstood the test of time with very few modifications from its original sequence. It addresses gleno-humeral joint pain, soft-tissue restrictions, and dysfunction and is proven to be effective, highly modifiable, and easily integrated into any shoulder care program. It is efficacious across the general population and is also a "go-to" technique in the care of the overhead athlete by both manual osteopaths and many sports medicine programs. My own clinical experience confirms Dr. Kibler's conclusion regarding scapular dyskinesis as a "common denominator" in shoulder injuries and other shoulder maladies. A thorough examination that includes scapulothoracic function is essential to diagnose all aberrant forces contributing to shoulder pain before proceeding to the Spencer Technique. Finally, as research concludes, combining other modalities with the Spencer Technique can further improve therapeutic outcomes. In my opinion, Spencer Technique should be in the "toolbox" of all Osteopathic Manual Therapists.

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