



## Efficacy Of Strain Counterstrain Technique In Supraspinatus Tendinitis

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### Abstract:

**Background:** Supraspinatus tendinitis is a common shoulder pathology characterized by inflammation and pain in the supraspinatus tendon. Traditional treatment approaches often include physical therapy modalities aimed at reducing pain and improving function.

**Methods:** The study involved 30 patients (comprising 28 males and 2 females) aged 25-35 years of age. Two groups were made by convenient sampling with 15 patients in each. Evaluation was done on the basis of pain using NPRS, abduction range of motion, and internal range of motion and special test used was Hawkins Kneddy test and empty cane test. Treatment protocol was given for thrice a week for 3 weeks.

**Result:** Post intervention, the patients showed reduction in pain as per numerous pain rating scale (NPRS). The abduction range of motion of shoulder joint is increased significantly and internal range of motion of the shoulder joint also showed improvement.

**Conclusion:** Supraspinatus tendinitis poses a considerable burden on patients and healthcare systems alike. While conventional treatment modalities remain the cornerstone of management, adjunctive therapies such as strain counterstrain technique offer promise in alleviating pain and improving functional outcomes.

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**Keywords:** Supraspinatus tendinitis, strain counterstrain technique, shoulder pain, physical therapy, manual therapy

### Introduction:

Supraspinatus tendinitis presents a significant challenge in clinical practice due to its prevalence and impact on shoulder function. While various treatment modalities exist, strain counterstrain technique (SCS) has emerged as a potential adjunctive therapy. aims to explore the efficacy of SCS in the management of supraspinatus tendinitis.<sup>1</sup>Supraspinatus tendinitis, a prevalent condition characterized by inflammation and degeneration of the supraspinatus tendon, presents a significant challenge in clinical practice. As one of the four muscles comprising the rotator cuff, the supraspinatus plays a crucial role in shoulder function, particularly in initiating abduction and stabilizing the glenohumeral joint. However, repetitive overhead activities, trauma, age-related changes, and intrinsic factors can predispose individuals to supraspinatus tendinitis, leading to pain, weakness, and functional impairment.<sup>2</sup>

Traditional treatment modalities for supraspinatus tendinitis typically include rest, nonsteroidal anti-inflammatory drugs (NSAIDs), physical therapy, corticosteroid injections, and, in severe cases, surgical

intervention. While these approaches can provide symptomatic relief and improve shoulder function, they may not address the underlying neuromuscular dysfunction contributing to the pathology. In recent years, manual therapy techniques such as strain counterstrain technique (SCS) have garnered attention as adjunctive therapies for various musculoskeletal conditions, including supraspinatus tendinitis. SCS, also known as positional release technique, is a hands-on approach that involves identifying tender points or "trigger points" in muscles, tendons, or ligaments and applying a passive positioning technique to alleviate pain and reduce muscle tension<sup>3</sup>

The rationale behind SCS lies in its ability to reset aberrant neuromuscular reflex arcs, thereby promoting relaxation, improving tissue blood flow, and facilitating the body's innate healing mechanisms. By gently positioning the affected muscle or tendon in a position of maximal comfort, SCS aims to reduce nociceptive input, restore normal muscle tone, and enhance joint mobility.<sup>4</sup>

While the precise mechanisms underlying the efficacy of SCS in supraspinatus tendinitis remain to be fully elucidated, anecdotal evidence and preliminary studies suggest its potential benefits in reducing pain, improving shoulder range of motion, and enhancing functional outcomes.<sup>5</sup> However, the existing literature on the efficacy of SCS in supraspinatus tendinitis is limited, warranting further research to validate its effectiveness and elucidate its underlying mechanisms of action.<sup>6</sup> The primary aim of this study is to systematically review the existing literature to evaluate the efficacy of strain counterstrain technique (SCS) in the management of supraspinatus tendinitis. Assess the current evidence regarding the effectiveness of SCS in reducing pain associated with supraspinatus tendinitis and Evaluate the impact of SCS on shoulder function, including range of motion, strength, and functional activities, in individuals with supraspinatus tendinitis.

## Methods:

All the patients were assessed clinically history was noted and the parameters of the study were checked to include the subject in the study. Every patient was informed about the study ,treatment interventions and written consent was taken from patients. Protocol was designed and given to patient thrice a week for 3 weeks in clinical setup. Before starting the treatment NPRS was noted along with abduction and internal range of motion. Further progress was checked by end of every week for three consecutive weeks and data was recorded on excel sheets Strain counter-strain technique was given. Patient arm shoulder is abducted to 90 and arm is made to rest on thigh of therapist while patient is lying supine on bed. Tendon of supraspinatus muscle is then palpated by deep pressure with finger pads underneath the deltoid muscle .once the tendon is held therapist then applies pressure for 90 seconds . internal rotation is added along with pressure in cases where it was better tolerated by the patients .in cases where pressure is not tolerated well, it was increases in next session the 90 second hold was repeated for 3 times in one session. - Inclusion criteria Studies investigating the efficacy of strain counter strain technique in the management of supraspinatus tendinitis ,Randomized controlled trials, non-randomized controlled trials, prospective cohort studies, retrospective studies, and case series ,Studies reporting outcomes related to pain reduction, shoulder function, range of motion, strength, and adverse effects Exclusion criteria Case reports, review articles, and editorials ,Studies not specifically focused on strain counter strain technique or supraspinatus tendinitis, Studies with inadequate methodology or insufficient data.

Outcome Measures:

1. Pain –
  - Numeric Rating Scale (NRS) for pain intensity
2. Shoulder Function:
  - Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire.
  - Shoulder Pain and Disability Index (SPADI).
  - Constant-Murley Score.
  - Range of motion measurements (e.g., abduction, flexion, external rotation).
  - Strength assessments (e.g., manual muscle testing, dynamometry).

## Result

There was statistical significant difference Strain Counter strain Technique group and Strain Counter strain along with conventional exercises group in NPRS week 1;NPRS week 2 & NPRS week 3 with  $P < 0.05$  except not significant in NPRS Pre with  $P > 0.05$ . Strain Counter strain along with conventional exercises group had greater mean value than Strain Counter strain Technique group. There was statistical significant

difference Strain Counter strain Technique group and Strain Counter strain along with conventional exercises group in Abduction week 1; Abduction week 2 & Abduction week 3 with  $P < 0.05$  except not significant in Abduction Pre with  $P > 0.05$ . There was statistical significant difference Strain Counter strain Technique group and Strain Counter strain along with conventional exercises group in Internal Rotation week 2 & Internal Rotation week 3 with  $P < 0.05$  except not significant in Internal Rotation Pre & Internal Rotation week 1 with  $P > 0.05$ . Strain Counter strain along with conventional exercises group had less mean value than Strain Counter strain Technique group.

**Table 5.1: Comparison between Strain Counter strain Technique group and Strain Counter strain along with conventional exercises group in 3 weeks NPRS in adult N=30**

Group	Strain Counter strain Technique group	Strain Counter strain along with conventional exercises group	t value	P-value*	Result
Internal Rotation Pre	46.60 ± 7.890	47.53 ± 5.866	0.368	0.716	Non Sig.
Internal Rotation week1	58.87 ± 7.918	55.73 ± 5.574	1.253	0.220	Non Sig.
Internal Rotation week2	70.60 ± 7.790	63.87 ± 5.397	2.752	0.010	Sig.
Internal Rotation week3	81.73 ± 6.307	70.53 ± 5.998	4.984	0.001	Sig.

**Table 5.2 show that comparison between Strain Counter strain Technique group and Strain Counter strain along with conventional exercises group in 3 weeks Abduction in adult.**

Group	Strain Counter strain Technique group	Strain Counter strain along with conventional exercises group	t value	P-value*	Result
NPRS Pain Pre	9.13 ± 0.834	9.13 ± 0.640	0.00	0.999	Non Sig.
NPRS pain week 1	7.20 ± 1.082	8.20 ± 0.676	3.035	0.005	Sig.
NPRS pain week 2	4.67 ± 1.047	6.47 ± 1.125	4.536	0.001	Sig.
NPRS pain week 3	2.33 ± 0.976	3.80 ± 1.146	3.773	0.001	Sig.

**Table 5.3 show that comparison between Strain Counter strain Technique group and Strain Counter strain along with conventional exercises group in 3 weeks Internal Rotation in adult.**

Group	Strain Counter strain Technique group	Strain Counter strain along with conventional exercises group	t value	P-value*	Result
Abduction Pre	101.53 ± 10.656	103.07 ± 11.158	0.385	0.703	Non Sig.
Abduction week1	128.33 ± 13.367	118.53 ± 10.569	2.227	0.034	Sig.
Abduction week2	152.80 ± 8.402	137.27 ± 5.812	5.888	0.001	Sig.
Abduction week3	174.33 ± 5.851	156.20 ± 17.646	7.294	0.001	Sig.

## Discussion

Supraspinatus muscle is an important part of rotator cuff of shoulder and also is most prone for repetitive strain leading to micro trauma in the tendon which eventually leads to tendonitis that is inflammation of the tendon. This is one of the most common cause of shoulder pain.<sup>7</sup> Our study aimed to check for the efficacy of technique for this condition and this is obtained that use of strain counter strain technique is effective in

treating the shoulder supraspinatus tendonitis. There was notable reduction in pain and better range of motion gain in group given SCS technique.<sup>8</sup> Also it is clear that prevalence of supraspinatus tendonitis is more among male population as compared to female population.<sup>9</sup> In total 86.7% is male population and female population comprises of 13.3% in total sample size. It has been already proved that use of manual therapy is effective in shoulder supraspinatus tendonitis but it was always combined treatment option and hence the efficacy of particular technique was not signified in any study.<sup>10</sup> Our study has proved that the SCS is effective statistically in reducing pain with  $P < 0.05$ . Also there is significant improvement in abduction range of motion and internal range of motion.<sup>11</sup> The diagnosis was done on clinical basis. A complete assessment including history, lifestyle of patient followed by physical examination by skilled palpation of the structures and confirmatory special tests are proven way of reaching an exact diagnosis.<sup>12</sup> The existing literature states that strain counter strain aids in alleviating musculoskeletal pain, gain range of motion by bringing out a cellular change in function if the tissues being treated<sup>13</sup>

Our study has proved that SCS can be effectively the intervention of choice in cases of supraspinatus tendonitis. This will help clinicians in bringing out a better outcome in less duration of time which further will bring the patient back to function. Since this is a complete manual technique, the clinician need to have a through knowledge of identification of the anatomical structures.<sup>14</sup> A patient with injury to the supraspinatus muscle will be unable to perform the hand-to-shoulder blade test (adduction, internal rotation) in which the patient puts his or her arm behind the back and attempts to touch the inferior angle of the opposite scapula.<sup>15</sup> Individuals without injury to the supraspinatus muscle usually reach the spine of the scapula with their fingertips. Patients with repetition strain injury of the supraspinatus muscle will show slight restriction of movement.

#### **Clinical Implications:**

- Despite the need for additional research, the preliminary evidence supports the integration of SCS as an adjunctive therapy in the comprehensive management of supraspinatus tendinitis.
- Healthcare providers should consider SCS as part of a multimodal treatment approach, tailored to individual patient needs and preferences.
- However, the optimal dosage, frequency, and duration of SCS interventions require further investigation to optimize treatment outcomes.

#### **Conclusion**

In conclusion, strain counterstrain technique shows promise as a therapeutic intervention for individuals with supraspinatus tendinitis, offering potential benefits in pain reduction and functional improvement. However, further high-quality research is needed to establish its efficacy, elucidate its mechanisms of action, and optimize its clinical implementation.

Healthcare providers should exercise caution and consider the available evidence when incorporating SCS into the management of supraspinatus tendinitis, while remaining attentive to patient preferences and safety considerations.

#### **Limitations and Future Directions:**

- The review is subject to several limitations, including the heterogeneity of study designs, small sample sizes, and methodological weaknesses of included studies.
- Future research should prioritize well-designed randomized controlled trials with larger sample sizes and longer follow-up periods to provide more robust evidence on the efficacy and safety of SCS.
- Additionally, comparative studies evaluating the effectiveness of SCS versus other conventional treatments are warranted to inform evidence-based clinical decision-making.

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