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# Immediate Effect Of Strong Surged Faradic Current On Active Myofacial Trigger Point In Upper Trapezius

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## ABSTRACT

Background: Trapezius pain is a common musculoskeletal disorder and is often associated with stress. Various therapeutic interventions, including Strong Surged Faradic Current (SSF), have been utilized to ease symptoms but immediate effect of SSF is still not known. This study was designed to evaluate the immediate effect of SSF on trigger points in the upper trapezius.

Method: The study was conducted on 30 individuals aged between 18 to 24 years who had active trigger points in the upper trapezius. The participants were randomly divided into two groups: Group A, received Strong Surged Faradic Current (SSF) along with conventional therapy, while Group B, received only conventional treatment. Pain tolerance at the trigger point was assessed using a pressure algometer before and after the intervention, while pain intensity was evaluated using the Numerical Pain Rating Scale (NPRS) pre and post treatment.

Result: Both Group A and Group B showed significant improvements in within-group comparisons, with a p-value $< 0.05$ for both the pressure algometer and NPRS. However, when comparing between groups, there was no significant difference observed ($p > 0.05$).

Conclusion: The study concluded that while both Groups significantly improved pain tolerance and reduced pain intensity in upper trapezius trigger points, but there was no immediate additional benefit of SSF.

**Keywords**: Myofascial Trigger Points, Upper Trapezius, Strong Surged Faradic Current, NPRS

## INTRODUCTION

Musculoskeletal disorders are increasingly prevalent among young adults, largely due to prolonged screen time, poor posture, and sedentary lifestyles. Among these, trapezitis and myofascial trigger points in the upper trapezius muscle are common causes of pain and functional limitation. The trapezius, being a large superficial muscle of the posterior neck and upper back, plays a crucial role in maintaining posture and facilitating shoulder and neck movements. Inflammation or the presence of active trigger points within this muscle often leads to pain, muscle spasm, stiffness, and restricted activities of daily living (ADLs). (1)(2)

Conventional management strategies for trapezitis and myofascial trigger points include stretching, strengthening, postural correction, and electrotherapy modalities. One such modality, Strong Surged Faradic Current (SSF), has been used to induce repeated muscle contractions followed by relaxation, thereby mimicking voluntary muscle activity. This mechanism is believed to improve local circulation, remove metabolites, relieve spasm, and enhance muscle flexibility. Despite its clinical use, there is limited evidence exploring the immediate effects of SSF on pain and pressure pain threshold in individuals with active trigger points of the upper trapezius. (1)(2)(3)(4)(5)

Given the rising incidence of trapezius-related pain in younger populations and the lack of consensus regarding the short-term effectiveness of SSF, this study aims to evaluate its immediate effect when used in combination with conventional therapy. Establishing such evidence will provide valuable insights for physiotherapists in optimizing treatment strategies for managing myofascial trigger points.

## MATERIAL AND METHODS

**Study design:** This was comparative interventional study. Total number of 30 subjective were randomly selected from the outpatient department of KD institute of physiotherapy Ahmedabad.

**Study groups:** The study consisted of 2 groups. Group A and Group B.

- Group A (Interventional group): SSF (10 contraction, 3 set) along with Conventional exercise.
- Group B (control group): Conventional exercise.

**Participants:** College going students aged between 18-24 years.

**Study Duration:** 3 months

**Inclusion Criteria**

- Male and female participants aged between **18 to 24 years**.
- Individuals **willing to participate** in the study.
- Participants **clinically diagnosed with acute or subacute trapezitis**.

**Exclusion Criteria**

- Individuals with **musculoskeletal disorders other than trapezitis**.
- Participants with a **history of surgery** in the neck or spine region.
- Individuals diagnosed with **chronic trapezitis**.

**Procedures**

A total of 32 subjects were screened for eligibility. Two participants were excluded as they were unable to participate, resulting in a final sample size of 30. The participants were randomly allocated into two groups, with 15 subjects in each group. Group A received Strong Surged Faradic Current (SSF) along with conventional exercises, while Group B received only conventional exercises.

In Group A, pre-intervention outcome measures were recorded, including three readings of pressure pain threshold (PPT) using a pressure algometer at the tender point of the upper trapezius and pain intensity assessed using the Numeric Pain Rating Scale (NPRS). Each participant was seated comfortably on a stool with the affected shoulder and trapezius region exposed. Electrodes were then placed over the identified trigger point region, and SSF was applied using the following protocol: frequency of 100 Hz, 10 contractions per set for three sets, with surge duration and pulse width as per equipment standards, and intensity adjusted according to the patient's tolerance. The stimulation produced repeated contractions and relaxations, mimicking voluntary muscle activity. Following SSF application,

participants performed conventional exercises consisting of trapezius stretching and isometric neck exercises. After the intervention, post-treatment outcome measures were recorded, including three PPT readings and NPRS scoring.

In Group B, baseline assessments were performed in the same manner as Group A. Participants were seated comfortably on a stool, and only conventional exercises, including trapezius stretching and isometric neck exercises, were performed without SSF application. At the end of the session, outcome measures were reassessed using PPT and NPRS.

Figure 1: Strong Surged Faradic Current

Figure 2: Conventional Therapy (Trapezius stretching)

## RESULTS

A total of 30 participants completed the study and were analyzed. Data were tested for normality using the **skewness test**, which confirmed a normal distribution (Pre-NPRS = –0.349; Post-PPT = –0.358).

### Within-Group Comparison

Both groups showed significant improvements in pain intensity and pressure pain threshold (PPT) after the intervention. In **Group A (SSF + Conventional Exercise)**, PPT increased from 1.14 ± 0.29 to 1.61 ± 0.26 ($p = 0.002$), and NPRS decreased from 4.0 ± 0.92 to 1.0 ± 0.98 ($p = 0.001$). In **Group B (Conventional Exercise only)**, PPT increased from 1.23 ± 0.25 to 1.62 ± 0.38 ($p = 0.001$), and NPRS decreased from 3.4 ± 0.25 to 1.6 ± 1.11 ($p = 0.001$). These findings indicate that both interventions were effective in reducing pain and improving pain tolerance.

**sssssTable 1. Within-group comparison of PPT and NPRS**

| Outcome Measure | Group | Pre (Mean ± SD) | Post (Mean ± SD) | p-value |
|---|---|---|---|---|
| PPT (kg/cm²) | A (SSF + CE) | 1.14 ± 0.29 | 1.61 ± 0.26 | 0.002* |
| | B (CE only) | 1.23 ± 0.25 | 1.62 ± 0.38 | 0.001* |
| NPRS (0–10) | A (SSF + CE) | 4.0 ± 0.92 | 1.0 ± 0.98 | 0.001* |
| | B (CE only) | 3.4 ± 0.25 | 1.6 ± 1.11 | 0.001* |

*Significant at $p < 0.05$

**Between-Group Comparison**

Post-intervention comparisons between the two groups revealed no statistically significant differences. Group A showed a PPT of 1.61 ± 0.26 and NPRS of 1.40 ± 0.98, while Group B showed a PPT of 1.62 ± 0.38 and NPRS of 1.66 ± 1.11. The differences were not significant (PPT: $p = 0.922$; NPRS: $p = 0.949$).

**Table 2. Between-group comparison of post-intervention outcomes**

| Outcome Measure | Group A (Mean ± SD) | Group B (Mean ± SD) | p-value |
|---|---|---|---|
| PPT (kg/cm²) | 1.61 ± 0.26 | 1.62 ± 0.38 | 0.922 (NS) |
| NPRS (0–10) | 1.40 ± 0.98 | 1.66 ± 1.11 | 0.949 (NS) |

NS = Not Significant

## DISCUSSION

The present study aimed to evaluate the immediate effect of Strong Surged Faradic Current (SSF) in comparison with conventional exercise on active myofascial trigger points in the upper trapezius. The results demonstrated that both groups—SSF with conventional exercise and conventional exercise alone—showed significant improvements in pressure pain threshold (PPT) and pain intensity (NPRS) within groups. However, no significant difference was observed between groups, indicating that the addition of SSF did not provide an additional immediate benefit over conventional exercise alone.

Our findings are in line with those reported by **Sharwari Shinde (2021)**, who compared SSF with self-stretching in young females with chronic upper trapezius spasm. That study concluded that self-stretching was more effective than SSF in improving range of motion (ROM), supporting the notion that exercise-based interventions can be equally or more beneficial than electrotherapy in trapezius-related conditions(3). Similarly, **Nalawade et al. (2020)** compared surged faradic current with transcutaneous electrical nerve stimulation (TENS) for trapezius myofascial trigger points and found significant clinical and statistical improvement in pain and ROM among patients treated with faradic stimulation and phonophoresis. These results highlight the therapeutic potential of SSF, although in our study its additional effect beyond exercise was not evident. (4)

Furthermore, **Y. Aman (2024)** investigated the use of neuromuscular inhibition techniques (INIT) with and without SSF in patients with subacute trapezitis. Their findings suggested that both INIT alone and INIT combined with SSF were equally effective in reducing pain and improving ROM, which aligns with our results that the combination of SSF with conventional exercise did not yield superior outcomes compared to exercise alone. (6)

Taken together, the results of our study and the existing literature suggest that while SSF may contribute to muscle relaxation, pain reduction, and circulation improvement, its immediate effect is not significantly greater than conventional therapeutic exercises. This indicates that conventional management strategies such as stretching and isometric strengthening remain effective and accessible options for patients with trapezius trigger points.

Future studies with larger sample sizes, longer intervention durations, and follow-up assessments are recommended to evaluate the long-term benefits of SSF and to determine whether it has a more pronounced effect in chronic conditions or in combination with other therapeutic modalities.

## CONCLUSION

Both groups showed significant improvement in pain reduction and pain tolerance in individuals with upper trapezius trigger points; however, Strong Surged Faradic Current did not provide any immediate additional benefit over conventional exercise alone.

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