



Effectiveness of Multimodal Pectoral Minor Release in Relieving Shoulder Impingement Syndrome: A Preliminary Study on 20 Patients

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Abstract

Shoulder impingement syndrome (SIS) often involves tight pectoral minor contributing to anterior shoulder compression. This study evaluates a 6-session multimodal protocol—myofascial release (MFR), osteopathic release, TENS, and general shoulder exercises—for pectoral minor targeting in 20 SIS patients. Pre-intervention VAS pain averaged 6.75/10, dropping to 3.85/10 post-intervention (43% reduction, $p < 0.001$ via paired t-test). Shoulder abduction ROM improved from 120° to 150° average, with enhanced hand-behind-back reach. Results suggest pectoral minor release provides symptomatic relief, though limitations exist.

Introduction

SIS affects 20-34% of adults, causing pain from rotator cuff impingement under the acromion. Tight pectoral minor elevates the scapula, reducing subacromial space and exacerbating symptoms (like positive Neer's test). Conservative approaches target muscle imbalances. This pilot assesses if pectoral minor-focused release (MFR + osteopathy) combined with TENS and exercises relieves pain and restores function in 20 patients.

Methods

Participants

20 adults (ages 25-55, mixed gender) with clinical SIS (pain on abduction 60-120°,

positive Hawkins-Kennedy test), recruited from Jaya Rehabilitation Institute. Exclusions: recent surgery, instability, or neurological deficits.

Intervention

(6 sessions over 3 weeks, 2x/week):

Pectoral minor MFR (5-10 min, sustained pressure along fibers from coracoid to ribs).

Osteopathic release (counterstrain/ART for pectoral minor/scapula).

TENS (20 min, 80-120 Hz, sensory level over anterior shoulder).

General shoulder exercises (pendulum, wall slides, external rotation with band; 3x10 reps).

Outcomes:

VAS pain (0-10), abduction ROM (goniometer), hand-behind-back reach (fingertip to T7 spinous process).

Assessed pre- and post-6 sessions.

Data analyzed via paired t-test (Excel).

Results

Pain (VAS):

Pre:

6,7,8,6,7,8,8,8,6,6,6,6,6,7,7,7,7 (mean 6.75 ± 0.82).

Post:

3,4,4,5,5,6,4,5,5,4,4,5,5,3,2,1,2,4,3,6 (mean 3.85 ± 1.31).

Mean reduction: 2.9 points

(43%, $p < 0.001$).

90% showed ≥ 2 -point improvement (MCID threshold).

ROM and Function:

Abduction: 120° pre $\rightarrow$ 150° post (25° average gain; range 15-40°).

Hand-behind-back: All patients reported improved reach (e.g., from thumb-to-T12 to mid-T7 average; subjective).

No adverse events.

Discussion

Pectoral minor release likely decompresses the subacromial space by normalizing scapular tilt, aligning with biomechanics (e.g., Sahrman's scapular model).

Multimodal synergy amplified gains:

MFR/osteopathy for tissue extensibility,

TENS for analgesia, exercises for motor control.

Results mirror studies like Bang & Deyle (2000) on manual therapy (40-50% pain drop), but pectoral focus is novel for SIS.

Limitations

Small sample ($n=20$), no control group—improvements may reflect natural history or placebo.

Short-term follow-up (no 3/6-month retention data).

Subjective outcomes (VAS, reach);

lacked objective metrics like ultrasound for impingement or SPADI questionnaire.

Therapist bias (single provider);

heterogeneous SIS severity.

Future Recommendations

RCT with sham/control arms ($n=60+$),

blinded assessors.

Long-term follow-up (6-12 months) with functional scores (DASH/SPADI).

Imaging (MRI/ultrasound) pre/post to quantify subacromial space.

Compare isolated MFR vs. full protocol; integrate for para-athletes. Larger trials in Indian populations, exploring cost-effectiveness.

Conclusion

6-session pectoral minor release offers promising relief for SIS pain and ROM, supporting its role in rehab protocols.

References

1. Neer CS (2000). Impingement lesions. *Clin Orthop Relat Res*. 1983. Bang MD, Deyle GD. JOSPT.