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Original Article

Association Between Serial Weekly Suprascapular Nerve Blocks and Kinesiophobia After Arthroscopic Rotator Cuff Repair: A Retrospective Comparative Study

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ABSTRACT

Objective: Arthroscopic rotator cuff repair (ARCR) is widely used for the surgical treatment of symptomatic rotator cuff tears. Postoperative pain during the early rehabilitation period may contribute to movement-related fear, resulting in kinesiophobia and impaired functional recovery. This study aimed to evaluate whether serial weekly ultrasound-guided suprascapular nerve blocks (SSNBs), administered in conjunction with early rehabilitation sessions, were associated with reduced postoperative kinesiophobia and improved early functional outcomes after ARCR.

Materials and Methods: This retrospective comparative study evaluated prospectively collected clinical data from 87 patients aged 18 to 75 years who underwent arthroscopic repair of non-massive rotator cuff tears between January 2025 and January 2026. Group I (n=43) received four consecutive weekly ultrasound-guided SSNBs using 5 mL of 0.5% levobupivacaine via a supraclavicular approach, beginning at the sixth postoperative week and immediately before outpatient rehabilitation sessions. Group II (n=44) underwent the same standardized rehabilitation program without SSNB. The Tampa Scale for Kinesiophobia (TSK-17) was the primary outcome measure. Secondary outcomes included active range of motion (ROM) and Constant-Murley (CM) scores. Assessments were performed at the sixth postoperative week, before the initiation of active-assisted rehabilitation, and at the third postoperative month by an independent assessor blinded to group allocation.

Results: Sixth-week baseline TSK-17, CM, and ROM measurements were comparable between the groups, although Group I patients were older, and the distribution of the affected side differed significantly between the groups. At the third postoperative month, Group I had significantly lower TSK-17 scores than Group II (25.4±6.5 vs. 29.8±6.3; p<.001) and higher CM scores (88.8±3.1 vs. 84.0±3.1; p<.001). Group I also demonstrated greater forward elevation (161.3°±19.3° vs. 152.8°±16.0°; p=.007) and abduction (153.9°±23.7° vs. 145.8°±16.8°; p=.010), whereas external and internal rotation were comparable between the groups. No immediate block-related complications were observed.

Conclusion: Serial weekly SSNBs administered immediately before outpatient rehabilitation sessions after ARCR were associated with lower kinesiophobia scores, better early functional outcomes, and greater forward elevation and abduction at the third postoperative month compared with rehabilitation alone. These findings suggest that rehabilitation-synchronized SSNB may be a useful adjunct to multimodal postoperative management; however, prospective randomized studies are needed to confirm its clinical benefit.

Keywords: Kinesiophobia, physical therapy, range of motion, rotator cuff repair, suprascapular nerve block, Tampa Scale for Kinesiophobia.

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INTRODUCTION

The rotator cuff muscles are key dynamic stabilizers of the shoulder joint.[1] Rotator cuff tears (RCTs) are among the most common causes of shoulder dysfunction, and their prevalence increases with advancing age.[2,3] RCTs affect approximately 20% of the general population, with the prevalence exceeding 50% among individuals aged 70 years and older.[4,5] In patients with symptomatic supraspinatus tendon tears that fail to respond adequately to conservative treatment, surgical intervention may be indicated, and arthroscopic rotator cuff repair (ARCR) has become a standard surgical approach.[6] Early arthroscopic repair, particularly in traumatic tears, has been associated with lower retear rates and greater functional improvement than delayed repair, whereas postponing surgery beyond four months after injury may adversely affect clinical outcomes.[7] Nevertheless, successful surgical repair alone does not ensure optimal recovery, as persistent pain, joint stiffness, muscle atrophy, and the potential need for revision surgery may occur when postoperative rehabilitation is inadequate or poorly tolerated.

Kinesiophobia is characterized by an excessive and debilitating fear of movement or physical activity arising from a perceived vulnerability to pain, injury, or reinjury and may adversely affect range of motion and functional recovery.[8–10] High levels of kinesiophobia have been reported during the early postoperative period following rotator cuff repair and may interfere with rehabilitation and delay the restoration of shoulder function.[11] Postoperative pain, particularly when exercises are initiated, may contribute to the development and persistence of movement-related fear.[11,12] Accordingly, effective pain control during the early rehabilitation period may represent an important strategy for reducing kinesiophobia and facilitating participation in postoperative exercises.

Nonsteroidal anti-inflammatory drugs and opioid analgesics are commonly used for pain control following rotator cuff repair; however, their use may be associated with adverse effects, including platelet dysfunction, prolonged bleeding time, gastrointestinal complications, nausea, vomiting, sedation, and intestinal ileus. Although injection-based strategies have also been proposed for postoperative pain management, evidence regarding the efficacy of local anesthetic or corticosteroid injections remains variable.[13–15,17] Peripheral nerve blocks have therefore gained increasing attention as a targeted analgesic strategy after shoulder surgery, potentially providing effective pain relief while limiting systemic adverse effects.[16] The suprascapular nerve (SSN) provides approximately 70% of the sensory innervation of the shoulder and contributes to the innervation of the glenohumeral and acromioclavicular joints, coracoclavicular and coracohumeral ligaments, and subacromial bursa.[18,19] Owing to this extensive sensory distribution, suprascapular nerve block (SSNB) represents an effective regional analgesic option for pain management following rotator cuff repair.

Previous studies investigating kinesiophobia after rotator cuff repair have primarily considered it either as an outcome of postoperative rehabilitation or as a factor associated with postoperative pain and functional recovery. However, whether an analgesic intervention specifically synchronized with the initiation of rehabilitation can reduce early postoperative kinesiophobia remains insufficiently investigated. Therefore, the present study aimed to evaluate whether serial weekly suprascapular nerve blocks administered during the early rehabilitation period were associated with reduced postoperative kinesiophobia and improved early functional outcomes after arthroscopic rotator cuff repair. We hypothesized that patients receiving serial SSNBs would demonstrate lower postoperative kinesiophobia, greater range of motion, and better functional outcomes at the third postoperative month than patients undergoing standard rehabilitation alone.

MATERIALS AND METHODS

Patients and Study Design

This retrospective comparative study was conducted using prospectively collected clinical and follow-up data. Ethical approval for the retrospective analysis was obtained from the Bilecik Seyh Edebali University School of Medicine Ethics Committee (Decision No. 423750; Date: 30.06.2026). Informed consent had been obtained from all patients for the treatment procedures and clinical follow-up. The study was conducted in accordance with the principles of the Declaration of Helsinki.

The medical records of patients aged 18 to 75 years who were treated between January 2025 and January 2026 and underwent arthroscopic rotator cuff repair for a non-massive full-thickness supraspinatus tendon tear or a combined tear involving the supraspinatus and subscapularis tendons were retrospectively reviewed. The diagnosis had been established preoperatively based on clinical examination and imaging findings obtained by ultrasonography and/or magnetic resonance imaging (MRI).

Patients with massive rotator cuff tears, pseudoparalysis, previous surgery on the same shoulder, concomitant Bankart or SLAP lesions, a history of shoulder infection, glenohumeral osteoarthritis, a follow-up duration of less than three months, systemic rheumatic disease or malignancy, or a known allergy to the medications used for suprascapular nerve block were excluded.

Eligible patients were categorized into two groups based on the postoperative rehabilitation protocol they received. Group I consisted of patients who received serial weekly ultrasound-guided suprascapular nerve blocks (SSNBs), performed by an anesthesiologist, beginning immediately after the sixth-week postoperative assessment and before active-assisted rehabilitation sessions. Group II consisted of patients who underwent the same standardized rehabilitation program without SSNB and served as the control group.

Surgical Technique and Rehabilitation

All surgical procedures were performed by a single orthopedic surgeon with at least five years of experience in shoulder arthroscopy and rotator cuff repair. Surgery was performed under general anesthesia with the patient in the beach-chair position. Standard posterior, lateral, anterosuperior, and anteroinferior portals were used for arthroscopic evaluation of the glenohumeral joint and subacromial space. The subacromial bursa was debrided as necessary to obtain adequate visualization of the rotator cuff. Supraspinatus tendon tears were repaired using a modified Mason-Allen technique. When concomitant subscapularis tendon tears were present, they were repaired arthroscopically using a single-row technique. In patients with concomitant biceps tendon pathology, either tenotomy or tenodesis was performed according to patient age, activity level, and functional expectations.

Postoperatively, all patients were immobilized in a shoulder abduction sling at 30° for four weeks. Pendulum exercises and passive shoulder range-of-motion exercises were initiated at the fourth postoperative week, followed by active-assisted range-of-motion exercises beginning at the sixth week. Strengthening exercises were initiated at the twelfth postoperative week. The same standardized rehabilitation protocol was prescribed to both groups using written and illustrated instructions, and rehabilitation was conducted under the supervision of a physical therapist.

Suprascapular Nerve Block Technique

In Group I, the suprascapular nerve block (SSNB) was performed using a supraclavicular approach under ultrasound guidance. Patients were placed in a sitting position with the head turned toward the contralateral side. A 10–18 MHz linear ultrasound transducer was positioned in a coronal-oblique orientation over the supraclavicular region to identify the omohyoid muscle, suprascapular nerve, brachial plexus, and subclavian artery. Using an in-plane technique, an 80-mm peripheral nerve block needle was advanced toward the suprascapular nerve. Correct identification of the nerve was confirmed by eliciting supraspinatus muscle contraction with nerve stimulation, after which 5 mL of 0.5% levobupivacaine was administered. Patients were observed for 30 minutes after each procedure for potential block-related complications. SSNB was administered once weekly for four consecutive sessions, beginning with the first active-assisted outpatient physical therapy session at the sixth postoperative week. The same ultrasound-guided technique and local anesthetic regimen were used at each session. Immediately after each block, patients participated in an active-assisted exercise session under the supervision of a physical therapist.

Outcome Assessment

The Tampa Scale for Kinesiophobia (TSK-17) was used as the primary outcome measure. Secondary outcome measures included active shoulder range of motion (ROM) and the Constant-Murley (CM) score. Active forward elevation, abduction, and external rotation were measured using a goniometer, whereas internal rotation was assessed according to the highest spinal level reached by the thumb. Clinical assessments were performed at the sixth postoperative week, immediately before the initiation of the active-assisted rehabilitation program, and again at the third postoperative month. The sixth-week assessment was used as the baseline for comparing outcomes between the study groups. All assessments were performed by an independent assessor who was not involved in the treatment protocol and was blinded to group assignment.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics, version 23.0 (IBM Corp., Armonk, NY, USA). The distribution of continuous variables was assessed using the Kolmogorov-Smirnov test. Continuous variables with a normal distribution were expressed as mean±standard deviation, whereas nonnormally distributed variables were summarized using appropriate descriptive statistics. Categorical variables were presented as numbers and percentages. Between-group comparisons of continuous variables were performed using the independent-samples t test for normally distributed data and the Mann-Whitney U test for nonnormally distributed data. Categorical variables were compared using the Pearson chi-square test, Fisher's exact test, or the Fisher-Freeman-Halton test, as appropriate. Within-group comparisons between the sixth-week baseline and third-month assessments were performed using the paired-samples t test for normally distributed variables and the Wilcoxon signed-rank test for nonnormally distributed variables. For normally distributed continuous outcomes, between-group differences were additionally reported as mean differences with 95% confidence intervals. Confidence intervals were not calculated for variables analyzed using nonparametric methods or for internal rotation, which was recorded as an ordinal spinal

level. All statistical tests were two-sided, and a p value<0.05 was considered statistically significant.

RESULTS

A total of 87 patients met the eligibility criteria and were included in the analysis. Group I comprised 43 patients who received serial suprascapular nerve blocks (SSNBs) in conjunction with the postoperative rehabilitation program, whereas Group II comprised 44 patients who underwent the same rehabilitation program without SSNBs. The mean age of the overall cohort was 61.8±9.2 years, and the mean follow-up duration was 3.5±0.6 months. The study population included 47 women and 40 men. Patients in Group I were significantly older than those in Group II (64.1±7.0 vs. 59.4±10.6 years; p=.043). The mean follow-up duration was comparable between the groups (3.4±0.5 vs. 3.6±0.7 months; p=.157). A significant difference was observed in the distribution of affected sides, with right-sided involvement being more frequent in Group II (p<.001). No significant between-group differences were observed in sex distribution, history of trauma, previous physical therapy, or duration of symptoms (all p>.05). Baseline characteristics of the study groups are summarized in Table 1.

Both groups demonstrated significant improvements in Constant-Murley (CM) scores from the sixth-week postoperative baseline assessment to the third-month follow-up (p<.001 for both groups). At the sixth-week baseline assessment, CM scores were comparable between Group I and Group II (55.2±6.2 vs. 53.4±5.3, respectively; p=.213). At the third postoperative month, Group I had a significantly higher CM score than Group II (88.8±3.1 vs. 84.0±3.1; mean difference, 4.8; 95% CI, 3.5–6.1; p<.001). The comparison of CM scores between the groups is presented in Table 2.

Table 1. Baseline characteristics of the study groups

Characteristic	Group I (n=43)	Group II (n=44)	p
Age, y	64.1±7.0	59.4±10.6	**0.043**
Sex, female: male	24:19	23:21	0.831
Follow-up duration, mo.	3.4±0.5	3.6±0.7	0.157
Affected side, right: left	26:17	41:3	**<0.001**
History of trauma, yes/no	35:8	33:11	0.605
Previous physical therapy, n	26	25	0.829
Duration of symptoms, mo.	8.3±10.3	10.9±11.5	0.087

Data are presented as mean±standard deviation or number of patients, as appropriate. Bold P values indicate statistically significant between-group differences (p<0.05).

Table 2. Comparison of Constant-Murley Scores between the study groups

Assessment	Group I (n=43)	Group II (n=44)	p
Sixth-week postoperative baseline	55.2±6.2	53.4±5.3	0.213
Third postoperative month	88.8±3.1	84.0±3.1	<.001

Data are presented as mean±standard deviation. Both groups demonstrated significant within-group improvement from the sixth-week postoperative baseline to the third-month assessment (p<0.001 in both groups). The between-group mean difference and 95% confidence interval for the third-month assessment are reported in the text.

At the sixth-week postoperative baseline assessment, no significant differences in range of motion (ROM) were observed between the groups. At the third postoperative month, Group I demonstrated significantly greater abduction than Group II (153.9°±23.7° vs. 145.8°±16.8°; p=.010) and greater forward elevation (161.3°±19.3° vs. 152.8°±16.0°; p=.007). In contrast, external rotation (41.1°±8.9° vs. 41.5°±5.3°; p=.638) and internal rotation (median spinal level, L2 vs. L3; p=.100) were comparable between the groups at the third-month assessment. The between-group comparison of ROM measurements is presented in Table 3.

At the sixth-week postoperative baseline assessment, TSK-17 scores were comparable between Group I and Group II (47.8±8.7 vs. 48.4±8.4, respectively; p=.727). At the third postoperative month, Group I demonstrated a significantly lower TSK-17 score than Group II (25.4±6.5 vs. 29.8±6.3; mean difference, −4.4; 95% CI, −7.1 to −1.7; p<.001). The comparison of TSK-17 scores between the groups is presented in Table 4. No immediate block-related complications were observed during the 30-minute post-procedure monitoring period following any SSNB session.

DISCUSSION

This retrospective comparative study investigated the association of serial weekly suprascapular nerve blocks, administered at the initiation of outpatient physical therapy following arthroscopic rotator cuff repair, with postoperative kinesiophobia, range of motion, and functional outcomes. The main finding was that patients who received four consecutive weekly SSNBs before rehabilitation sessions demonstrated lower TSK-17 scores (25.4±6.5 vs. 29.8±6.3), higher Constant-Murley scores (88.8±3.1 vs. 84.0±3.1), and greater forward elevation (161.3°±19.3° vs. 152.8°±16.0°; p=.007) and abduction (153.9°±23.7° vs. 145.8°±16.8°; p=.010) at the third postoperative month compared with patients who underwent rehabilitation alone. To the best of our knowledge, this is the first study to specifically evaluate a serial weekly SSNB protocol

Table 3. Comparison of range of motion between the study groups

Range of Motion	Group I (n=43)	Group II (n=44)	p
Abduction, deg			
Sixth-week postoperative baseline	95.6±17.7	96.0±17.5	0.498
Third postoperative month	153.9±23.7	145.8±16.8	0.010
Forward elevation, deg			
Sixth-week postoperative baseline	130.5±22.3	128.8±29.5	0.826
Third postoperative month	161.3±19.3	152.8±16.0	0.007
External rotation, deg			
Sixth-week postoperative baseline	29.9±7.7	28.4±5.6	0.408
Third postoperative month	41.1±8.9	41.5±5.3	0.638
Internal rotation, spinal level			
Sixth-week postoperative baseline	Hip	Hip	0.821
Third postoperative month	L2	L3	0.100

Data are presented as mean±standard deviation for abduction, forward elevation, and external rotation, and as median spinal level for internal rotation. P values represent between-group comparisons at each assessment time point.

Table 4. Comparison of TSK-17 Scores between the study groups

Assessment	Group I (n=43)	Group II (n=44)	p
Sixth-week postoperative baseline	47.8±8.7	48.4±8.4	0.727
Third postoperative month	25.4±6.5	29.8±6.3	<0.001

Data are presented as mean±standard deviation. Both groups demonstrated a significant within-group reduction in TSK-17 scores from the sixth-week postoperative baseline to the third-month assessment. The between-group mean difference and 95% confidence interval for the third-month assessment are reported in the text.

synchronized with outpatient rehabilitation sessions after ARCR, with kinesiophobia as the primary outcome.

The rationale for using repeated rather than single-shot SSNB is based on the pharmacokinetics of local anesthetics and the recurrent pain associated with rehabilitation exercises. A single injection of 0.5% levobupivacaine provides effective analgesia for approximately 8 to 12 hours, after which its analgesic effect diminishes.[20] Because shoulder rehabilitation involves repeated exercise sessions over several weeks, a single pre-rehabilitation block provides analgesia for only a limited period. In the present protocol, weekly SSNBs were therefore administered immediately before scheduled physical therapy sessions to provide a predictable analgesic window during rehabilitation. Mortada et al. compared a single SSNB with nine repeated SSNBs in 96 patients with diabetes and frozen shoulder and reported significantly greater improvements in clinical and ultrasonographic outcomes with repeated injections.[21] Benefits of repeated or continuous suprascapular blockade combined with physical therapy have also been reported in refractory adhesive capsulitis.[22] Similar benefits have been reported in hemiplegic shoulder pain.[23] The present study extends this concept to the postoperative ARCR setting by using scheduled weekly bolus injections synchronized with rehabilitation sessions.

Both groups demonstrated significant improvements in CM scores from the sixth-week postoperative baseline to the third-month assessment (p<.001 in both groups), consistent with the established functional improvement after arthroscopic rotator cuff repair.[6,7] CM scores were comparable between the groups at the sixth-week baseline assessment (p=.213), whereas patients receiving serial SSNBs had significantly higher scores at the third postoperative month. Although the retrospective, nonrandomized design precludes attributing this difference solely to the intervention, the findings suggest a potential additional functional benefit associated with serial SSNB during rehabilitation. Coory et al. [16] demonstrated that SSNB resulted in superior CM scores compared with subacromial injection at 6 and 12 weeks in patients with symptomatic rotator cuff tears. Kim et al. [15] further reported lower VAS pain scores during the first 72 postoperative hours after ARCR with an indwelling SSNB catheter. Our findings extend this evidence by suggesting that SSNB administered specifically before rehabilitation sessions may be associated with improved functional recovery during the early postoperative period.

A key finding of the present study was the lower TSK-17 score at the third postoperative month in patients receiving serial SSNBs. Nociceptive pain during rehabilitation exercises is an important contributor to movement-related fear and avoidance behaviors.[11,12] By providing analgesia during scheduled rehabilitation sessions, repeated blocks may reduce reinforcement of the fear-avoidance cycle described in the literature.[9,10] Improved pain control during movement may facilitate participation in active-assisted exercises and reduce the negative association between shoulder movement and anticipated pain. This interpretation is consistent with

the fear-avoidance model described by Leeuw et al., in which reduced pain during exposure to movement may promote safety learning and decrease fear-related cognitions.[9] Previous studies after rotator cuff repair have also demonstrated an association between postoperative kinesiophobia and impaired functional recovery.[11] Although the present study did not directly measure pain immediately before and after each block, the lower TSK-17 scores observed in the SSNB group support further investigation into the use of analgesia during rehabilitation as a strategy to address postoperative movement-related fear.

With respect to ROM, patients receiving serial SSNBs demonstrated greater forward elevation and abduction at the third postoperative month. This finding may be related to improved tolerance of active-assisted rehabilitation during the early recovery period. Wang et al. reported that high levels of kinesiophobia during the first 6 postoperative weeks were associated with poorer ROM and functional outcomes following rotator cuff repair, suggesting that fear-related movement avoidance may contribute to limitations in early recovery.[11] Accordingly, providing analgesia during rehabilitation sessions may facilitate more effective participation in exercises, thereby contributing to early ROM gains. Similar rehabilitation-related benefits of suprascapular blockade have been reported in patients undergoing intensive treatment for adhesive capsulitis.[22] However, external and internal rotation did not differ significantly between the groups in the present study, suggesting that the observed benefit was not uniform across all planes of shoulder motion.

The supraclavicular approach used for SSNB provides reliable and repeatable localization of the suprascapular nerve in an outpatient setting without radiation exposure.[24] Ultrasound guidance facilitates direct visualization of the relevant anatomical structures and may reduce the risk of complications associated with landmark-guided techniques.[20] No immediate block-related complications were observed during the post-procedure monitoring periods across the four SSNB sessions in the present cohort, consistent with the favorable safety profile previously reported for ultrasound-guided SSNB.[14,25] Hussain et al.[25] reported a lower complication burden with suprascapular nerve block than with interscalene block, supporting its potential suitability for postoperative analgesia when avoidance of interscalene-related adverse effects is desired. In the present protocol, 0.5% levobupivacaine was used without corticosteroid, maintaining the intervention as a purely regional anesthetic technique similar to previous investigations of SSNB as an analgesic strategy after arthroscopic rotator cuff repair.[26]

Several limitations should be acknowledged. First, the retrospective, nonrandomized study design introduces the possibility of selection bias and residual confounding. Patients in Group I were significantly older than those in Group II (64.1±7.0 vs. 59.4±10.6 years; p=0.043), and the distribution of the affected side also differed significantly between the groups. These baseline imbalances may have influenced postoperative outcomes independently of the intervention. Although CM scores at the sixth-week postoperative baseline assessment were comparable between the groups (p=0.213), similarity in baseline functional status does not rule out confounding by measured or unmeasured factors. Second, the relatively short follow-up period (mean, 3.5±0.6 months) precludes conclusions regarding the long-term persistence of the observed differences in ROM, functional scores, and kinesiophobia. Wang et al.[11] reported that kinesiophobia-related functional differences may diminish over longer-term follow-up, suggesting that the advantages observed in the present study may reflect accelerated early recovery rather than sustained long-term superiority. Third, acute pain intensity was not routinely assessed using a visual analog scale immediately before and after each weekly block session. Consequently, the immediate analgesic effect of each injection and the relationship between changes in pain and kinesiophobia could not be directly quantified. Finally, although outcome assessments were performed by an independent assessor blinded to group allocation, patients and treating clinicians were aware of the treatment received. Future prospective randomized trials incorporating a sham-injection control group, standardized pain assessments at each intervention session, and longer follow-up are warranted to confirm these findings and better define the relationship between serial SSNB, pain, kinesiophobia, and functional recovery.

CONCLUSION

In conclusion, serial weekly suprascapular nerve blocks administered immediately before outpatient physical therapy sessions following arthroscopic rotator cuff repair were associated with lower kinesiophobia scores, better early functional outcomes, and greater forward elevation and abduction at the third postoperative month compared with rehabilitation alone. These findings suggest that rehabilitation-synchronized SSNB may represent a useful component of multimodal postoperative management during the early recovery period. However, given the retrospective and nonrandomized design of the present study, prospective randomized controlled trials are required to confirm the clinical benefit of this approach.

DECLARATIONS

Ethics Committee Approval: This study was approved by The Institutional Review Board at the Bilecik Şeyh Edebali University (30/06/2026 - E-10333602-050.04-423750).

Informed Consent: Written informed consent was obtained from all participants for the use of their clinical data for research purposes.

Conflict of Interest: The authors declared no conflict of interest.

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ABBREVIATIONS

ARCR	Arthroscopic rotator cuff repair
CI	Confidence interval
CM	Constant-Murley
MRI	Magnetic resonance imaging
RCT	Rotator cuff tear
ROM	Range of motion
SD	Standard deviation
SLAP	Superior labrum anterior to posterior
SPSS	Statistical Package for the Social Sciences
SSN	Suprascapular nerve
SSNB	Suprascapular nerve block
TSK-17	17-item Tampa Scale for Kinesiophobia
VAS	Visual analog scale

REFERENCES

1. Huegel J, Williams AA, Soslowsky LJ. Rotator cuff biology and biomechanics: a review of normal and pathological conditions. Curr Rheumatol Rep 2015;17:476. [CrossRef]
2. Dubé MO, Desmeules F, Lewis JS, Roy JS. Does the addition of motor control or strengthening exercises to education result in better outcomes for rotator cuff-related shoulder pain? A multiarm randomised controlled trial. Br J Sports Med 2023;57:457–63. [CrossRef]
3. Hinsley H, Ganderton C, Arden NK, Carr AJ. Prevalence of rotator cuff tendon tears and symptoms in a Chingford general population cohort, and the resultant impact on UK health services: a cross-sectional observational study. BMJ Open 2022;12:e059175. [CrossRef]
4. Naseri F, Dadgoo M, Pourahmadi M, Amroodi MN, Azizi S, Tabrizian P, et al. Dry needling in a multimodal rehabilitation protocol following rotator cuff repair surgery: study protocol for a double-blinded randomized sham-controlled trial. BMC Musculoskelet Disord 2023;24:330. [CrossRef]
5. Yamamoto A, Takagishi K, Osawa T, Yanagawa T, Nakajima D, Shitara H, et al. Prevalence and risk factors of a rotator cuff tear in the general population. J Shoulder Elbow Surg 2010;19:116–20. [CrossRef]
6. Weber S, Chahal J. Case studies AAOS clinical practice guideline: management of rotator cuff injuries. J Am Acad Orthop Surg 2021;29:e104–8. [CrossRef]
7. Gutman MJ, Joyce CD, Patel MS, Kirsch JM, Gutman BS, Abboud JA, et al. Early repair of traumatic rotator cuff tears improves functional outcomes. J Shoulder Elbow Surg 2021;30:2475–83. [CrossRef]
8. Bordeleau M, Vincenot M, Lefevre S, Duport A, Seggio L, Breton T, et al. Treatments for kinesiophobia in people with chronic pain: A scoping review. Front Behav Neurosci 2022;16:933483. [CrossRef]
9. Leeuw M, Goossens ME, Linton SJ, Crombez G, Boersma K, Vlaeyen JW. The fear-avoidance model of musculoskeletal pain: current state of scientific evidence. J Behav Med 2007;30:77–94. [CrossRef]
10. Turk DC, Wilson HD. Fear of pain as a prognostic factor in chronic pain: conceptual models, assessment, and treatment implications. Curr Pain Headache Rep 2010;14:88–95. [CrossRef]
11. Wang H, Hu F, Lyu X, Jia H, Wang B, Liu F, et al. Kinesiophobia could affect shoulder function after repair of rotator cuff tears. BMC Musculoskelet Disord 2022;23:714. [CrossRef]
12. Suer M, Philips N, Kliethermes S, Scerpella T, Sehgal N. Baseline kinesiophobia and pain catastrophizing scores predict prolonged postoperative shoulder pain. Pain Physician 2022;25:E285–92.
13. Kumara AB, Gogia AR, Bajaj JK, Agarwal N. Clinical evaluation of post-operative analgesia comparing suprascapular nerve block and interscalene brachial plexus block in patients undergoing shoulder arthroscopic surgery. J Clin Orthop Trauma 2016;7:34–9. [CrossRef]
14. Lee SM, Park SE, Nam YS, Han SH, Lee KJ, Kwon MJ, et al. Analgesic effectiveness of nerve block in shoulder arthroscopy: comparison between interscalene, suprascapular and axillary nerve blocks. Knee Surg Sports Traumatol Arthrosc 2012;20:2573–8. [CrossRef]
15. Kim JY, Kang MW, Lee HW, Noh KC. Suprascapular nerve block is an effective pain control method in

patients undergoing arthroscopic rotator cuff repair: a randomized controlled trial. Orthop J Sports Med 2021;9:2325967120970906. [CrossRef]

16. Coory JA, Parr AF, Wilkinson MP, Gupta A. Efficacy of suprascapular nerve block compared with subacromial injection: a randomized controlled trial in patients with rotator cuff tears. J Shoulder Elbow Surg 2019;28:430–6. [CrossRef]
17. Zadro J, Rischin A, Johnston RV, Buchbinder R. Image-guided glucocorticoid injection versus injection without image guidance for shoulder pain. Cochrane Database Syst Rev 2021;8:CD009147. [CrossRef]
18. Ritchie ED, Tong D, Chung F, Norris AM, Miniaci A, Vairavanathan SD. Suprascapular nerve block for postoperative pain relief in arthroscopic shoulder surgery: a new modality? Anesth Analg 1997;84:1306–12. [CrossRef]
19. Checcucci G, Allegra A, Bigazzi P, Gianesello L, Ceruso M, Gritti G. A new technique for regional anesthesia for arthroscopic shoulder surgery based on a suprascapular nerve block and an axillary nerve block: an evaluation of the first results. Arthroscopy 2008;24:689–96. [CrossRef]
20. Chan CW, Peng PW. Suprascapular nerve block: a narrative review. Reg Anesth Pain Med 2011;36:358–73. [CrossRef]
21. Mortada MA, Ezzeldin N, Abbas SF, Ammar HA, Salama NA. Multiple versus single ultrasound guided suprascapular nerve block in treatment of frozen shoulder in diabetic patients. J Back Musculoskelet Rehabil 2017;30:537–42. [CrossRef]
22. Martens G, Fontaine R, Goffin P, Raaf M, Tasset H, Lecoq JP, et al. Continuous suprascapular nerve blockade to potentiate intensive rehabilitation for refractory adhesive shoulder capsulitis: a cohort study. Int Orthop 2024;48:495–503. [CrossRef]
23. Dogan AT, Pekin Dogan Y, Aytekin E, Sogut S, Gokkaya Z, Tumer M, et al. Effectiveness of repeated ultrasound-guided suprascapular nerve blocks in hemiplegic shoulder pain: A randomized controlled trial. Medicine (Baltimore) 2026;105:e47547. [CrossRef]
24. Siegenthaler A, Moriggl B, Mlekusch S, Schliessbach J, Haug M, Curatolo M, et al. Ultrasound-guided suprascapular nerve block, description of a novel supraclavicular approach. Reg Anesth Pain Med 2012;37:325–8. [CrossRef]
25. Hussain N, Goldar G, Ragina N, Banfield L, Laffey JG, Abdallah FW. Suprascapular and interscalene nerve block for shoulder surgery: a systematic review and meta-analysis. Anesthesiology 2017;127:998–1013. [CrossRef]
26. Desroches A, Klouche S, Schlur C, Bauer T, Waitzenegger T, Hardy P. Suprascapular nerve block versus interscalene block as analgesia after arthroscopic rotator cuff repair: a randomized controlled noninferiority trial. Arthroscopy 2016;32:2203–9. [CrossRef]