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SPORT MESSAGE AND PERCEIVED BODY RELAXATION IN SCHOOL PENCAK SILAT ATHLETES

*Hary Septianwari^{1-ABCDE}, Laili Isnawati^{1-ABCD}, Mahfuz^{1-ABCD}, Hariadi^{1-ABCD}

¹Physical Education Study Program, Faculty of Education, Universitas Hamzanwadi, East Lombok, West Nusa Tenggara, Indonesia

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Abstract

This study examined changes in perceived body relaxation after sport massage among male athletes in the standardized solo-artistic pencak silat extracurricular program at SMKN 3 Selong. Materials and Methods: A one-group pretest-posttest design involved 10 purposively selected athletes aged 16–19 years. Relaxation was assessed with a five-point Likert questionnaire before and after a standardized sport-massage session. Category distributions were summarized descriptively, and paired scores were compared at the 5% significance level. Results: The distribution shifted from discomfort and neutral responses toward comfortable and very comfortable responses after massage. The paired analysis identified a statistically significant increase in relaxation, with a large standardized within-participant change. Conclusions: Sport massage was associated with greater perceived relaxation immediately after treatment. The finding supports massage as an optional recovery strategy for subjective comfort, but controlled research with validated outcomes is required before causal or performance benefits can be claimed.

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A - Conception and design of the study; B - Acquisition of data; C - Analysis and interpretation of data; D - Manuscript preparation; E - Obtaining funding

Correspondence:

Hary Septianwari

Email: septianwari@hamzanwadi.ac.id



INTRODUCTION

Standardized solo-artistic pencak silat requires athletes to perform a prescribed sequence with accuracy, rhythm, balance, mobility, and sustained muscular control. Repeated high-intensity practice can leave athletes feeling stiff, heavy, or uncomfortable. These perceptions matter because recovery is not limited to restoring measurable physical performance; it also includes how ready, relaxed, and comfortable an athlete feels before the next session.

Massage is widely used in sport, but its benefits should be described precisely. The largest meta-analysis of manual sports massage found no clear

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improvement in strength, jump, sprint, endurance, or fatigue performance, while small benefits were observed for flexibility and delayed-onset muscle soreness (Davis et al., 2020). A broader systematic review likewise concluded that massage does not reliably enhance motor performance, but it can reduce pain and perceived fatigue and improve mood, relaxation, and perceived recovery (Konrad et al., 2023). Massage is therefore better understood as a recovery and comfort intervention than as a direct performance enhancer.

Subjective responses are supported by controlled studies. Massage reduced immediate soreness and muscular-fatigue ratings after an ultramarathon without producing extended functional benefits (Crawford et al., 2016). Repeated massage improved swimmers' perceptions of well-being, heaviness, and pain but did not improve sprint or functional performance (Carvalho et al., 2023). In resistance-trained men, massage improved perceived recovery and soreness outcomes after exercise (Kargarfard et al., 2016). These findings are directly relevant to a study whose outcome is a self-reported relaxation questionnaire.

Possible autonomic effects may also contribute to relaxation. Moderate-pressure massage has been associated with increased parasympathetic activity (Diego & Field, 2009), and foot-reflexology massage improved selected heart-rate-variability indices after repeated sprint exercise (Lee et al., 2019). Such mechanisms are plausible, but they cannot be assumed in the absence of physiological measurement. Similarly, massage has shown benefits for delayed-onset soreness in meta-analysis (Guo et al., 2017), yet soreness, relaxation, and objective recovery are distinct outcomes.

Evidence in pencak silat is limited. Nopriansyah (2015) reported reduced post-training fatigue after sport massage in university pencak silat participants, while Lubis et al. (2023) described lower fatigue after effleurage and petrissage in pencak silat athletes. Little work has focused on perceived body relaxation among school athletes in the standardized artistic category. This study addressed that setting by comparing relaxation scores immediately before and after sport massage at SMKN 3 Selong.

METHOD

Design and Participants

The study used a quantitative one-group pretest–posttest design. It was conducted at SMKN 3 Selong in April–May 2026. The sample comprised all 10 male athletes in the standardized solo-artistic pencak silat extracurricular program who met the purposive criteria: regular participation, age 16–19 years, good health, and willingness to complete the study. Because there was no control group, observed change cannot be separated from expectancy, attention, repeated measurement, or natural post-exercise recovery.

Intervention



Sport massage was delivered using effleurage, petrissage, friction, tapotement, shaking, and vibration on muscle groups used during pencak silat training. The source manuscript did not report treatment duration, pressure, therapist qualifications, timing relative to exercise, or a reproducible sequence for each body region. These details should be added from the intervention log before submission because dose and technique influence both replication and interpretation.

Outcome Measure

Perceived body relaxation was assessed immediately before and after massage using a five-point Likert questionnaire. Scores were also classified as very uncomfortable, uncomfortable, neutral, comfortable, or very comfortable. The manuscript states that item validity was examined with item–total correlations and internal consistency with Cronbach's alpha, but it does not provide the number of items, score range, item content, validity coefficients, or alpha value. Consequently, the instrument should be described as a study-specific self-report measure until those psychometric results are supplied.

Statistical Analysis

Category frequencies were summarized descriptively. The paired pretest–posttest scores were analyzed with a paired-samples t test at $\alpha = .05$. For a paired test, the relevant normality assumption concerns the distribution of difference scores; separate Shapiro–Wilk tests of pretest and posttest scores do not establish this assumption. Levene's test is not required because the observations are paired rather than independent. Raw scores were unavailable, so confidence intervals and descriptive means could not be reconstructed. Cohen's d_z was calculated from the reported t statistic and sample size.

RESULTS

Before massage, four athletes reported discomfort, four were neutral, and two were comfortable. After massage, no athlete remained in either discomfort category; three were neutral, six were comfortable, and one was very comfortable (Table 1). Thus, the distribution shifted toward greater perceived relaxation.

Table 1.

Distribution of perceived body-relaxation categories

Category	Pretest, n (%)	Posttest, n (%)
Very uncomfortable	2 (20%)	0 (0%)
Uncomfortable	2 (20%)	0 (0%)
Neutral	4 (40%)	3 (30%)
Comfortable	2 (20%)	6 (60%)

Very comfortable	0 (0%)	1 (10%)
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The paired analysis reported a mean score change of 36.600 points in the direction of greater posttest relaxation. The difference was statistically significant, $t(9) = 4.119$, $p = .003$. The standardized paired effect was large, $d_z = 1.303$. Pretest and posttest means, standard deviations, and the confidence interval were not available in the source dataset and are therefore not reported (Table 2).

Table 2.

Paired analysis of perceived body relaxation

Comparison	n	Mean change	t (df)	p	Cohen's d_z
Pretest vs. posttest	10	36.600	4.119 (9)	.003	1.303

DISCUSSION

Perceived relaxation increased after sport massage: the four athletes initially classified as uncomfortable or very uncomfortable moved out of those categories, and seven of 10 athletes reported comfortable or very comfortable states afterward. The paired change was statistically significant and large relative to within-participant variability. The result supports an immediate subjective benefit, not proof of accelerated physiological recovery or improved pencak silat performance.

This interpretation agrees with higher-quality evidence. Davis et al. (2020) found that massage had little effect on objective sporting performance but modestly improved flexibility and soreness. Konrad et al. (2023) similarly reported that psychological and perceptual outcomes—including relaxation, mood, pain, fatigue, and perceived recovery—were more responsive than most motor-performance outcomes. Carvalho et al. (2023) found improved perceptions during swim training without changes in sprint or functional performance. The present questionnaire outcome therefore sits within the domain in which massage appears most consistently useful.

Combat-sport evidence points in the same direction but remains limited. Nopriansyah (2015) reported reduced feelings of fatigue after massage in pencak silat participants, and Lubis et al. (2023) found that effleurage and petrissage contributed to lower post-training fatigue. A recent randomized trial in mixed martial arts also reported improvements in perceived recovery and selected muscle outcomes after repeated massage compared with passive rest (Klich et al., 2025). Differences in sport, treatment dose, and outcome instruments prevent direct comparison, but the studies suggest that hands-on recovery may be acceptable and subjectively helpful in combat-sport settings.

The change may reflect tactile pressure, reduced perceived stiffness, focused rest, therapist attention, and autonomic modulation. Controlled physiological research has shown that moderate-pressure massage can shift heart-rate variability toward parasympathetic activity (Diego & Field, 2009), and post-exercise reflexology massage has produced similar autonomic findings (Lee et al., 2019). However, the current study did not measure heart rate variability, blood flow, lactate, creatine kinase, muscle stiffness, or soreness. Claims that the treatment increased circulation, removed metabolites, or accelerated neuromuscular recovery would therefore exceed the data.

The findings have a practical but bounded implication. Coaches may offer sport massage after demanding artistic-pencak-silat sessions when the goal is immediate comfort or relaxation, provided that athletes consent and treatment is delivered safely by a competent practitioner. Massage should remain optional and should not replace sleep, nutrition, hydration, workload management, or medical assessment. Athlete preference matters because expectancy and the interpersonal setting can influence self-reported outcomes.

The principal limitations are the small single-school sample, male-only participants, lack of a control or sham condition, and reliance on an incompletely documented questionnaire. The treatment protocol was not sufficiently detailed for replication, and the time between exercise, pretest, massage, and posttest was not reported. Repeated testing and expectancy could explain part of the change. Future research should randomize athletes to massage, quiet rest, and preferably an attention-matched comparison; preregister a primary outcome; use a validated recovery or relaxation scale; report adverse events and treatment fidelity; and combine subjective outcomes with heart-rate variability, muscle stiffness, soreness, and subsequent performance.

CONCLUSION

Perceived body relaxation was higher after sport massage among 10 male standardized solo-artistic pencak silat athletes at SMKN 3 Selong. The category distribution shifted toward comfort, and the paired difference was statistically significant with a large standardized change. These findings support sport massage as an optional method for immediate subjective relaxation. They do not establish physiological recovery or improved athletic performance, and controlled trials using validated measures are needed.

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