



Comparative Efficacy of Mulligan's SNAG Technique and Maitland Mobilisation on Pain and Cervical Range of Motion in College Students With Non-Specific Upper Cervical Neck Pain

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Abstract

Background. Non-specific upper cervical neck pain is common among college students due to prolonged screen time, poor posture, and academic stress, impacting daily function and quality of life. Manual therapy techniques such as Mulligan's Sustained Natural Apophyseal Glides (SNAG) and Maitland mobilisation are frequently used to alleviate symptoms and improve cervical range of motion (ROM).

Aim. To evaluate and compare the effects of Mulligan's SNAG technique and Maitland mobilisation on pain and cervical range of motion in college students with upper cervical neck pain.

Methods. This experimental study involved 50 college students (aged 18–28 years) with non-specific upper cervical pain, randomly divided into two groups. Group A received Mulligan's SNAG with moist heat, and Group B received Maitland mobilisation with moist heat. Interventions were administered on alternate days for three weeks (nine sessions). Pain and cervical ROM were assessed pre- and post-intervention using the Numerical Pain Rating Scale (NPRS) and a universal goniometer.

Results. Intragroup analysis showed significant reductions in pain (Group A: mean NPRS score 6.40 to 3.16; Group B: mean NPRS 6.68 to 3.08; $p < 0.001$) and improvements in right and left cervical rotation ROM ($p < 0.001$). However, intergroup analysis showed no significant differences post intervention in pain or ROM ($p > 0.05$).

Conclusion: Both Mulligan's SNAG and Maitland mobilisation are equally effective in reducing pain and improving cervical ROM in college students with non-specific upper cervical pain.

Keywords: Mulligan's Sustained Natural Apophyseal Glides; Maitland mobilisation; manual therapy; non-specific neck pain

1. INTRODUCTION

Neck pain is a significant global health concern, contributing to widespread disability and affecting approximately 223 million people worldwide. It ranks among the top causes of years lived with disability, particularly in individuals aged 25 to 49 years (GBD 2021 Neck Pain Collaborators, 2024).



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Non-specific neck pain, characterised by discomfort without a clear pathological cause, is highly prevalent and often linked to ergonomic stressors, poor posture, prolonged screen use, and psychological factors such as anxiety or academic pressure, especially among college students (Núñez-Cabaleiro & Leirós-Rodríguez, 2022). Cervical pain commonly presents with stiffness, tenderness, and restricted mobility, frequently involving the upper cervical region (C1–C2), which plays a key role in neck rotation. Approximately 58% of cervical spine rotation occurs at this level, making it critical in functional neck movement (Barbosa-Silva et al., 2025).

Manual therapy is a cornerstone of conservative physiotherapy management for neck pain. Techniques such as Mulligan's Sustained Natural Apophyseal Glides (SNAG) and Maitland mobilisation are widely used to reduce pain and improve range of motion (ROM). SNAG combines sustained accessory glides with active movement, aiming to restore joint mechanics, while Maitland's graded mobilisations focus on oscillatory passive movements tailored to tissue irritability and resistance (Barbosa-Silva et al., 2025). Maitland mobilisation techniques are rooted in a systematic approach that utilises oscillatory movements to improve joint function and reduce pain. The techniques are categorised into five grades based on the intensity and range of motion involved. Grade I and II mobilisations are employed to manage pain by applying low-amplitude movements below the resistance barrier, while Grade III and IV movements are used to increase the range of motion by applying larger, more forceful movements within the joint's resistance (Cabezas-Yagüe et al., 2024).

This versatility allows Maitland mobilisation to be adapted to the irritability and tolerance levels of the patient, making it effective for managing acute to chronic neck pain (Barbosa-Silva et al., 2025). Importantly, Maitland's approach has been well-documented in clinical research for its ability to improve both pain management and mobility, with specific applications to the cervical spine, thereby making it a valuable technique in treating non-specific neck pain (Calero Cáceres et al., 2024). Although both techniques are independently supported by research, direct comparative studies targeting young adults with non-specific upper cervical pain are limited (Alansari et al., 2021). This study aims to evaluate and compare the effectiveness of Mulligan's SNAG and Maitland mobilisation in alleviating pain and enhancing cervical ROM in college students, offering practical insights for clinical decision-making and evidence-based physiotherapy practice.

2. METHODS

Study design and participants

This experimental study with a pre–post design included 50 out of 72 participants diagnosed with non-specific upper cervical neck pain, who were randomly allocated into two groups using computer-generated randomisation (Figure 1). The study was conducted in the Physiotherapy Outpatient Department (OPD) of Mahatma Gandhi Hospital, Jaipur, affiliated with Mahatma Gandhi University of Medical Sciences and Technology, Jaipur. Ethical approval for the study was granted by the Institutional Ethics Committee of Mahatma Gandhi University of Medical Sciences and Technology, Jaipur (Approval No. /MGMC&H/IEC/JPR/2023/1784).

Participants were college students aged 18–28 years who presented with neck pain lasting more than two weeks, reduced cervical rotation (≥ 8 – 10°), and a Numeric Pain Rating Scale (NPRS) score of 2 or higher. The *inclusion criteria* required that all participants had engaged in sedentary or static postural activities, such as prolonged sitting during study, computer use, or attending lectures for at least six hours per day and five days per week over the previous month. Additionally, participants were required to be free from any concurrent physiotherapy treatments, able to follow verbal instructions, and willing to participate in the study.

Exclusion criteria included the presence of other cervical orthopaedic conditions, a history of cervical or shoulder surgery, neurological disorders, metabolic or vascular diseases, tumours, congenital deformities, hypersensitive skin, or concurrent physiotherapy interventions.

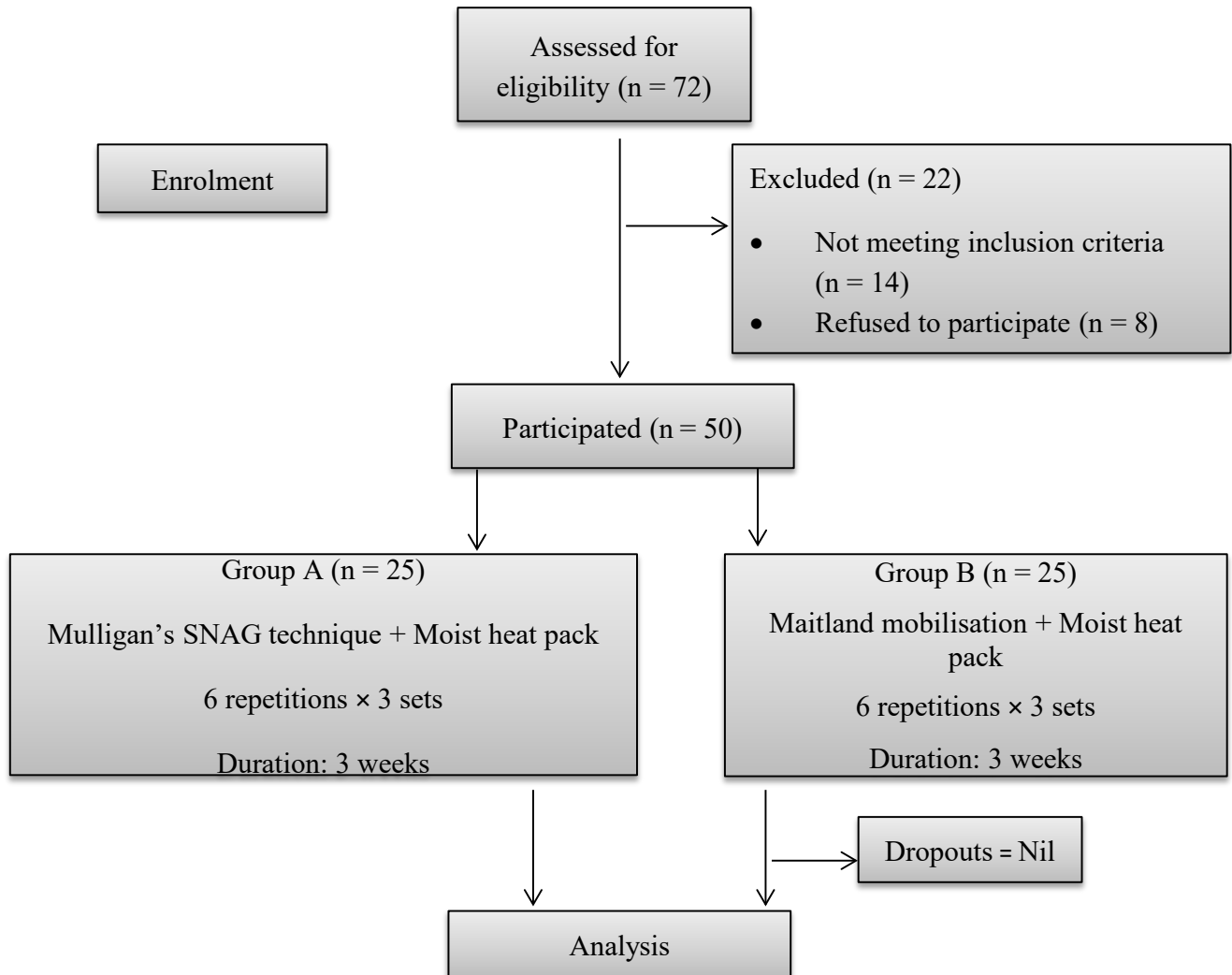


Figure 1. Flow chart illustrating the recruitment process, randomisation, and allocation of participants

Baseline characteristics of the study participants are presented in Table 1. Both groups were comparable at baseline, with no statistically significant differences observed in demographic or anthropometric variables ($p > 0.05$ for all parameters).

Table 1. Baseline characteristics of participants in both groups

Variable	Group A (Mulligan's SNAG) (n = 25)	Group B (Maitland mobilisation) (n = 25)	p-value
Age (years)	22.84 ± 2.60	23.08 ± 2.45	0.73
Gender (M/F)	11 / 14	13 / 12	0.56
Height (cm)	165.72 ± 7.14	166.32 ± 7.46	0.79
Weight (kg)	62.88 ± 6.21	63.56 ± 5.99	0.72

Variable	Group A (Mulligan's SNAG) (n = 25)	Group B (Maitland mobilisation) (n = 25)	p-value
BMI (kg/m ²)	22.85 ± 2.31	22.95 ± 2.16	0.89

Note: BMI – body mass index; values are presented as mean ± SD (standard deviation).

Variables

The independent variables in this study were the Mulligan's SNAG technique, which combines passive joint mobilisation with active movement, and Maitland mobilisation (Grades II and III), which utilises passive oscillatory movements to alleviate pain and enhance joint mobility. The dependent variables were pain intensity and cervical range of motion (ROM).

Outcome measures

Pain intensity was assessed using the Numeric Pain Rating Scale (NPRS), which ranges from 0 (no pain) to 10 (worst pain imaginable). Participants rated their current pain, the worst pain experienced during the past week, and the worst pain during the past month. Assessments were conducted twice: once at baseline before the intervention and again immediately after completing all treatment sessions. Pain was not measured before each individual session but only at these two time points to evaluate the overall effect of the intervention over the three-week period.

Cervical rotation range of motion was measured using a universal goniometer. Participants were seated with their backs supported and feet flat on the floor, facing forwards. The head was initially positioned in a neutral alignment. The examiner instructed participants to actively rotate their heads to the right and left to the maximum comfortable range without pain. Each movement was performed three times, and the mean value was recorded to ensure measurement accuracy. Assessments were conducted twice: once before the intervention period and once after completing all treatment sessions to evaluate the efficacy of the intervention (Apti et al., 2023).

Initial assessments of cervical ROM and pain intensity were conducted on day one. Post-intervention data were gathered after three weeks of treatment.

Interventions

Both groups received nine treatment sessions, three times per week, over a three-week period.

In Group A, participants underwent 10 minutes of moist heat therapy followed by Mulligan's SNAG technique, consisting of sustained posterior-anterior glides combined with active neck movements. This technique was performed in six repetitions per set, with three sets per session.

Group B followed a similar protocol but instead received Maitland mobilisation, which involved passive oscillatory movements, progressing from Grade II to Grade III glides. These glides were applied at 60 Hz, with 2–3 oscillations per second, each lasting 60 seconds per repetition.

Moist Heat Pack (MHP): The target tissue temperature range was maintained within the therapeutic window, and a hydrocollator-based moist heat pack was applied for 10 minutes to promote muscle relaxation, enhance range of motion, and facilitate pain reduction as preparatory conditioning before mobilisation. Skin inspection was performed before and after each treatment session. Precautions were taken for at-risk populations, and any adverse events (e.g. erythema, burns) were managed promptly. All deviations and criteria for session termination were documented accordingly.

Statistical analysis

Normal distribution of continuous variables was assessed using the Shapiro–Wilk test prior to parametric analyses. Paired *t*-tests were employed for within-group pre- and post-intervention comparisons. All tests used a significance level of 0.05. The collected data were analysed using the paired *t*-test

to determine the significant difference between pre- and post-test values for the experimental groups. Further, the unpaired *t*-test was applied to assess the difference between the groups. *Effect size*: To quantify the magnitude of treatment effects, effect sizes (Cohen's *d*) were calculated for primary outcome measures, including pain intensity and cervical ROM. Cohen's *d* was computed as the mean difference between pre- and post-treatment scores divided by the pooled standard deviation. Effect sizes were interpreted according to standard thresholds (small = 0.2, medium = 0.5, large = 0.8).

3. RESULTS

Table 2 presents the pre- and post-intervention comparisons of pain intensity and cervical range of motion (ROM) for both treatment groups. Group A received Mulligan's SNAG technique, while Group B underwent Maitland mobilisation. Both groups demonstrated statistically significant improvements in all outcome measures ($p < 0.001$), indicating that each intervention effectively reduced pain and enhanced cervical rotation ROM.

For pain intensity (NPRS), Group A showed a mean reduction of 3.24 points (Cohen's $d = 2.44$), whereas Group B exhibited a slightly greater mean reduction of 3.60 points (Cohen's $d = 2.22$). Both effect sizes are considered large, reflecting substantial treatment efficacy in alleviating neck pain.

Regarding cervical rotation, Group A improved by 14.44° to the right and 13.64° to the left, while Group B improved by 12.68° to the right and 14.88° to the left. All changes were statistically significant ($p < 0.001$) and associated with large effect sizes (Cohen's *d* ranging from 1.73 to 2.12), indicating clinically meaningful gains in neck mobility.

Overall, both Mulligan's SNAG and Maitland mobilisation techniques produced significant and large improvements in pain reduction and cervical ROM. Although Group B showed slightly greater improvement in left cervical rotation and pain reduction, the between-group differences were minimal, suggesting that both manual therapy approaches are highly effective and comparable in managing mechanical neck pain.

Table 2. Pre- and post-intervention pain scores and cervical range of motion for both groups

Outcome measure	Group	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	Mean difference	Effect size (Cohen's <i>d</i>)	p-value
Pain score (NPRS)	A	6.40 $\pm$ 3.16	3.16 $\pm$ 0.91	3.24	2.44	<0.001
	B	6.68 $\pm$ 3.08	3.08 $\pm$ 0.94	3.60	2.22	<0.001
Right cervical rotation ($^\circ$)	A	69.16 $\pm$ 8.43	83.60 $\pm$ 8.43	14.44	1.89	<0.001
	B	70.88 $\pm$ 8.19	83.56 $\pm$ 8.19	12.68	1.73	<0.001
Left cervical rotation ($^\circ$)	A	66.84 $\pm$ 8.49	80.48 $\pm$ 8.49	13.64	1.81	<0.001
	B	63.96 $\pm$ 6.89	78.84 $\pm$ 6.89	14.88	2.12	<0.001

Note: NPRS: Numeric Pain Rating Scale; SD – standard deviation.

4. DISCUSSION

This study aimed to compare the effects of Mulligan's Sustained Natural Apophyseal Glides (SNAG) technique and Maitland mobilisation on pain reduction and cervical range of motion (ROM) in college students with non-specific upper cervical neck pain. The results indicate that both Mulligan's SNAG and Maitland mobilisation significantly reduced pain and improved cervical ROM in young

adults with non-specific upper cervical neck pain. While both groups experienced clinically meaningful improvements, understanding the mechanisms underlying these effects provides important insights.

Manual therapy techniques such as Mulligan's SNAG and Maitland mobilisation are believed to act through biomechanical, neurophysiological, and biopsychosocial mechanisms. The sustained accessory glides utilised in Mulligan's SNAG may restore normal joint arthrokinematics and reduce joint hypomobility, thereby decreasing abnormal stress on joint capsules and surrounding soft tissues, contributing to pain reduction (Li et al., 2022; Raghav et al., 2016). Neurophysiologically, these manual therapies may stimulate mechanoreceptors in joint capsules and surrounding muscles, activating endogenous pain inhibitory pathways through gate control mechanisms and descending modulatory systems (Vigotsky & Bruhns, 2015). Such sensory input may also normalise aberrant proprioceptive signalling, enhance neuromuscular control, and reduce maladaptive guarding or muscle spasm (Aman et al., 2015), ultimately supporting improved cervical mobility as reflected in increased cervical rotation ROM.

Maitland mobilisation involves graded oscillatory movements tailored to patient irritability, which may achieve sustained pain reduction through repeated mechanoreceptor stimulation and enhanced synovial fluid dynamics, facilitating joint nutrition and lubrication (Shabbir et al., 2021). Both interventions may additionally provide psychological benefits by reducing fear of movement and enhancing confidence, further improving functional outcomes (Rao et al., 2018).

These findings are consistent with previous research demonstrating the efficacy of manual therapy in reducing neck pain and improving mobility in young adult and collegiate populations (Thomas et al., 2020). The comparable effectiveness observed aligns with literature suggesting that diverse manual therapy techniques can produce similar benefits, likely due to shared underlying neurophysiological and biomechanical mechanisms (Xu & Ling, 2025). Some studies suggest that Mulligan's SNAG combined with active movement may yield slightly superior outcomes compared with passive mobilisation alone, emphasising the value of active patient engagement (Paquin et al., 2021). The absence of statistically significant differences between groups in this study may be attributable to limited sample size and relatively short intervention duration.

The lack of significant intergroup differences supports the notion that either technique can be selected based on practitioner expertise and patient preference. Additionally, participant-specific factors such as posture, ergonomic habits, and psychosocial stressors, which are common in collegiate populations, may influence treatment response and warrant focused assessment in future studies (Bezzina et al., 2023). Recognising these mechanisms underscores the role of manual therapy as part of a multimodal approach, integrating manual techniques with posture correction, exercise, and ergonomic education to optimise long-term outcomes. Future studies should investigate long-term sustainability, incorporate functional outcome measures, and explore combined protocols emphasising active patient participation.

5. CONCLUSIONS

The present study concludes that both Mulligan's SNAG and Maitland mobilisation techniques were found to be equally effective in reducing pain and improving cervical range of motion in individuals with non-specific upper cervical neck pain. The addition of moist heat therapy enhanced these outcomes. These findings support the use of either manual therapy technique as part of a comprehensive physiotherapy approach for managing cervical spine dysfunction.

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supervision, M.T.; project administration, M.T. and S.A. All authors have read and agreed with the published version of the manuscript.

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Informed Consent Statement: Informed consent was obtained from all participants prior to their inclusion in the study. The trial was prospectively registered with the Clinical Trials Registry of India (CTRI), maintained by the Indian Council of Medical Research (ICMR) and linked to the World Health Organization International Clinical Trials Registry Platform (WHO-ICTRP), under registration number CTRI/2024/09/073626.

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Conflict of Interest: The authors declare no conflicts of interest.

References

- Alansari, S. M., Youssef, E. F., & Shanb, A. A. (2021). Efficacy of manual therapy on psychological status and pain in patients with neck pain: A randomized clinical trial. *Saudi Medical Journal*, 42(1), 82–90. <https://doi.org/10.15537/smj.2021.1.25589>
- Aman, J. E., Elangovan, N., Yeh, I.-L., & Konczak, J. (2015). The effectiveness of proprioceptive training for improving motor function: A systematic review. *Frontiers in Human Neuroscience*, 8, 1075. <https://doi.org/10.3389/fnhum.2014.01075>
- Apti, A., Kuru Çolak, T., & Akçay, B. (2023). Normative values for cervical and lumbar range of motion in healthy young adults. *Journal of Turkish Spinal Surgery*, 34(3), 113–117. <https://doi.org/10.4274/jtss.galenos.2023.33042>
- Barbosa-Silva, J., Luc, A., Sobral de Oliveira-Souza, A. I., Martins de Abreu, R., Cipriano, J., de Schaezen, M., Pitance, L., & Armijo-Olivo, S. (2025). The effectiveness of Mulligan's techniques in non-specific neck pain: A systematic review and meta-analysis. *Physiotherapy Research International*, 30(3), e70045. <https://doi.org/10.1002/pri.70045>
- Bezzina, A., Austin, E., Nguyen, H., & James, C. (2023). Workplace psychosocial factors and their association with musculoskeletal disorders: A systematic review of longitudinal studies. *Workplace Health & Safety*, 71(12), 578–588. <https://doi.org/10.1177/21650799231193578>
- Cabezas-Yagüe, E., Martínez-Pozas, O., Gozalo-Pascual, R., Blanco, E. M., Paños, R. L., Jiménez-Ortega, L., Cuenca-Záldivar, J. N., & Romero, E. A. S. (2024). Comparative effectiveness of Maitland Spinal Mobilization versus myofascial techniques on pain and symptom severity in women with Fibromyalgia syndrome: A quasi-randomized clinical trial with 3-month follow up. *Musculoskeletal Science and Practice*, 73, 103160. <https://doi.org/10.1016/j.msksp.2024.103160>
- Calero Cáceres, M. E., Molina Andrade, V. L., Peñafiel Luna, A. C., & Fernández Soto, G. F. (2024). Encouraging sustainable health in work environments: Maitland technique for cervicogenic headaches. *Ibero-American Journal of Education & Society Research*, 4(S), 239–246. <https://doi.org/10.56183/iberoeds.v4iS.698>

- GBD 2021 Neck Pain Collaborators. (2024). Global, regional, and national burden of neck pain, 1990–2020, and projections to 2050: A systematic analysis of the Global Burden of Disease Study 2021. *The Lancet Rheumatology*, 6(3), e142–e155. [https://doi.org/10.1016/s2665-9913\(23\)00321-1](https://doi.org/10.1016/s2665-9913(23)00321-1)
- Li, L.-L., Hu, X.-J., Di, Y.-H., & Jiao, W. (2022). Effectiveness of Maitland and Mulligan mobilization methods for adults with knee osteoarthritis: A systematic review and meta-analysis. *World Journal of Clinical Cases*, 10(3), 954. <https://doi.org/10.12998/wjcc.v10.i3.954>
- Núñez-Cabaleiro, P., & Leirós-Rodríguez, R. (2022). Effectiveness of manual therapy in the treatment of cervicogenic headache: A systematic review. *Headache: The Journal of Head and Face Pain*, 62(3), 271–283. <https://doi.org/10.1111/head.14278>
- Paquin, J.-P., Tousignant-Laflamme, Y., & Dumas, J.-P. (2021). Effects of SNAG mobilization combined with a self-SNAG home-exercise for the treatment of cervicogenic headache: A pilot study. *Journal of Manual & Manipulative Therapy*, 29(4), 244–254. <https://doi.org/10.1080/10669817.2020.1864960>
- Raghav, S., Pushp, S., Meena, R. K., & Singh, A (2016). A comparative study on the effect of Mulligan's technique (SNAG's) versus deep transverse friction massage on patient with mechanical neck pain. *Physiotherapy and Occupational Therapy Journal*, 9(3), 109–114. <http://doi.org/10.21088/potj.0974.5777.9316.5>
- Ramieri, A., Costanzo, G., & Miscusi, M. (2022). Functional anatomy and biomechanics of the cervical spine. *Cervical Spine: Minimally Invasive and Open Surgery*, 11–31. https://doi.org/10.1007/978-3-030-94829-0_2
- Rao, R. V., Balhithaya, G., Prabhu, A., & Kamath, A. (2018). Immediate effects of Maitland mobilization versus Mulligan mobilization with movement in osteoarthritis knee: A randomized crossover trial. *Journal of Bodywork and Movement Therapies*, 22(3), 572–579. <https://doi.org/10.1016/j.jbmt.2017.09.017>
- Shabbir, M., Arshad, N., Naz, A., & Saleem, N. (2021). Clinical outcomes of Maitland mobilization in patients with myofascial chronic neck pain: A randomized controlled trial. *Pakistan Journal of Medical Sciences*, 37(4), 1172. <https://doi.org/10.12669/pjms.37.4.4220>
- Thomas, J. S., Clark, B. C., Russ, D. W., France, C. R., Ploutz-Snyder, R., Corcos, D. M., & RELIEF Study Investigators. (2020). Effect of spinal manipulative and mobilization therapies in young adults with mild to moderate chronic low back pain: A randomized clinical trial. *JAMA Network Open*, 3(8), e2012589–e2012589. <https://doi.org/10.1001/jamanetworkopen.2020.12589>
- Vigotsky, A. D., & Bruhns, R. P. (2015). The role of descending modulation in manual therapy and its analgesic implications: A narrative review. *Pain Research and Treatment*, 2015(1), 292805. <https://doi.org/10.1155/2015/292805>
- Xu, X., & Ling, Y. (2025). Comparative safety and efficacy of manual therapy interventions for cervicogenic headache: A systematic review and network meta-analysis. *Frontiers in Neurology*, 16, 1566764. <https://doi.org/10.3389/fneur.2025.1566764>

Mulligano SNAG technikos ir Maitlando mobilizacijos veiksmingumo palyginimas skausmo ir kaklo judesių amplitudės atžvilgiu studentams, turintiems nespecifinį viršutinės kaklo dalies skausmą

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Santrauka

Tyrimo pagrindimas. Nespecifinis viršutinės kaklo dalies skausmas yra dažnas reiškinys tarp studentų dėl praleidžiamo ilgo laiko prie ekrano, netinkamos laikysenos ir akademinio streso, o tai daro įtaką kasdieniam gyvenimui ir gyvenimo kokybei. Manualinės terapijos technikos, tokios kaip Mulligano SNAG technika ir Maitlando mobilizacija, dažnai naudojamos simptomams palengvinti ir kaklo judesių amplitudei pagerinti.

Tikslas. Įvertinti ir palyginti Mulligano SNAG technikos ir Maitlando mobilizacijos poveikį skausmui ir kaklo judesių amplitudei studentams, kenčiantiems nuo viršutinės kaklo dalies skausmo.

Metodai. Šiame eksperimentiniame tyrime dalyvavo 50 studentų (18–28 metų amžiaus), turinčių nespecifinius viršutinės kaklo dalies skausmus, kurie buvo atsitiktinai suskirstyti į dvi grupes. A grupei taikyta Mulligano SNAG technika su šildomąja pagalvėle, B grupei taikyta Maitlando mobilizacija su šildomąja pagalvėle. Intervencijos buvo atliekamos kas antrą dieną tris savaites (iš viso devynios procedūros). Skausmas ir kaklo judesių amplitudė vertinti prieš ir po intervencijos naudojant skaitmeninę skausmo vertinimo skalę (NPRS) ir universalų goniometrą.

Rezultatai. Rezultatų palyginimas grupėse parodė žymų skausmo sumažėjimą (A grupė: vidutinis NPRS balas sumažėjo nuo 6,40 iki 3,16; B grupė: vidutinis NPRS balas sumažėjo nuo 6,68 iki 3,08; $p < 0,001$) ir kaklo judesių į kairę ir į dešinę amplitudės pagerėjimą ($p < 0,001$). Tačiau tarp grupių po intervencijos nenustatyta reikšmingų skirtumų skausmo ar judesių amplitudės atžvilgiu ($p > 0,05$).

Išvados. Tiek Mulligano SNAG technika, tiek Maitlando mobilizacija buvo vienodai veiksmingos gerinant studentų kaklo judesių amplitudę ir mažinant nespecifinį viršutinės kaklo dalies skausmą.

Reikšminiai žodžiai: Mulligano SNAG technika; Maitlando mobilizacija; manualinė terapija; nespecifinis kaklo skausmas

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