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Kinesio Taping in the Comprehensive Treatment of Post-Stroke Facial Paresis in the Early Recovery Period

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Abstract

Background: Ischemic stroke is a leading cause of disability worldwide, with facial paresis being a common neurological complication affecting 45–70% of patients. This condition significantly impairs facial motor function, communication, and quality of life. The early recovery period is characterized by enhanced neuroplasticity, making it a critical window for rehabilitation. Kinesio taping has emerged as a potential adjunctive method for sensorimotor stimulation, although its clinical effectiveness in post-stroke facial paresis requires further evidence.

Aim: To evaluate the effectiveness of kinesio taping as part of a comprehensive rehabilitation program in improving facial motor function in patients with post-stroke facial paresis during the early recovery period.

Materials and Methods: A prospective randomized controlled trial was conducted involving 40 patients with post-stroke facial paresis. Participants were randomly assigned to a control group (standard neurorehabilitation) and a main group (standard therapy plus kinesio taping). Baseline characteristics were comparable between groups ($p>0.05$). Outcomes were assessed using the House–Brackmann scale, Sunnybrook Facial Grading System (SFGS), and Facial Disability Index (FDI), along with morphometric analysis of standardized facial

photographs. Statistical analysis included Mann–Whitney U test, Wilcoxon signed-rank test, and Spearman correlation, with significance set at $p<0.05$.

Results: The main group demonstrated significantly greater improvements compared to the control group. SFGS scores increased by 94.6% in the main group versus 44.7% in controls ($p=0.003$). House–Brackmann grading improved by approximately two levels in the main group compared to one level in controls ($p=0.01$). FDI physical and socio-emotional components improved significantly in the main group (+80% and +77%, respectively) compared to the control group (+38% and +33%), with intergroup differences ($p=0.004$ and $p=0.002$). Morphometric analysis showed greater reduction in facial asymmetry in the main group (up to −59% vs −33%). Significant correlations were found between clinical and objective measures ($r_s=0.71$; $p<0.001$). The effect size was large (Cohen's $d\approx0.8–0.9$).

Conclusions: Kinesio taping significantly enhances functional recovery in post-stroke facial paresis and can be considered an effective evidence-based adjunct in neurorehabilitation.

Key words: ischemic stroke; facial paresis; kinesio taping; neurorehabilitation; early recovery period; facial motor function; Sunnybrook Facial Grading System; House–Brackmann scale; Facial Disability Index; sensorimotor stimulation; facial asymmetry; quality of life.

Ischemic stroke remains one of the leading causes of disability among the adult population, and among its neurological complications, facial paresis occupies a special place [1, 2]. This condition develops as a result of damage to the corticonuclear pathways of the facial nerve and is characterized by impaired facial expression, facial asymmetry, dysarthria, dysphagia, and a significant decline in patients' quality of life [3, 4]. According to clinical observations, the incidence of facial paresis after stroke reaches 45–70%, and in a considerable proportion of patients, the deficit persists for a prolonged period, necessitating the improvement of rehabilitation approaches [5]. The early recovery period after stroke is characterized by maximal activation of neuroplastic processes, including reorganization of cortical motor areas, which determines the critical importance of timely and pathogenetically grounded interventions [6, 7]. In this context, adjunctive methods of sensorimotor stimulation, particularly kinesio taping, are of particular interest, although their effectiveness in post-stroke facial paresis still requires further evidence-based validation.

The aim of the study was to improve the recovery of facial motor function in patients with post-stroke facial paresis during the early recovery period by incorporating kinesio taping into the standard rehabilitation program.

Material & Methods. The study was designed as a prospective randomized controlled clinical trial with parallel groups and included 40 patients with post-stroke facial paresis. Patients were randomly assigned into two groups of 20 individuals each: a control group receiving standard neurorehabilitation and a main group in which kinesio taping of facial muscles was additionally applied. The groups were statistically comparable in terms of age (median 58 years, interquartile range 52–64 years), sex distribution, severity of neurological deficit according to the NIH Stroke Scale (6–9 points), and level of functional independence assessed by the modified Rankin Scale (2–3 points), with no significant differences at baseline ($p>0.05$), confirming sample homogeneity.

The effectiveness of treatment was assessed using validated clinical instruments, including the House–Brackmann scale [8], the Sunnybrook Facial Grading System, [9] and the Facial Disability Index [10], as well as standardized photographic documentation followed by morphometric analysis. Statistical analysis was performed using nonparametric methods due to non-normal distribution of variables (Shapiro–Wilk test), including the Mann–Whitney U test for intergroup comparisons, the Wilcoxon signed-rank test for within-group dynamics, and Spearman's rank correlation coefficient for evaluating relationships, with a significance level set at $p<0.05$ [11].

Results. The results demonstrated that the inclusion of kinesio taping in the comprehensive rehabilitation program led to significantly greater improvements in clinical and functional outcomes compared to standard therapy. Specifically, the Sunnybrook Facial Grading System score in the control group increased from 38 (32; 44) to 55 (48; 62) points, corresponding to a 44.7% improvement ($p=0.012$), whereas in the main group it increased from 37 (31; 45) to 72 (65; 80) points, representing a 94.6% improvement ($p<0.001$). The intergroup difference after treatment was statistically significant ($p=0.003$), indicating the superiority of the proposed intervention. A similar trend was observed for the House–Brackmann scale, where the control group demonstrated an improvement of approximately one grade (from IV–V to III–IV), while the main group improved by approximately two grades (from IV–V to II–III), with statistical significance ($p=0.01$).

Analysis of the Facial Disability Index revealed significant improvements in both physical and socio-emotional components. The physical component in the control group increased from 42 (35; 50)% to 58 (50; 66)% ($\Delta=+38\%$, $p=0.018$), whereas in the main group

it increased from 41 (34; 49)% to 74 (68; 82)% (Δ=+80%, $p<0.001$), with a significant intergroup difference ($p=0.004$). The socio-emotional component increased from 45 (38; 52)% to 60 (52; 68)% (Δ=+33%, $p=0.021$) in the control group and from 44 (36; 51)% to 78 (70; 85)% (Δ=+77%, $p<0.001$) in the main group, with a significant intergroup difference ($p=0.002$). These findings indicate not only functional recovery but also a substantial improvement in quality of life and psychological well-being.

Morphometric analysis of standardized photographic data confirmed an objective reduction in facial asymmetry. The angle of mouth corner deviation decreased from 12.5° to 8.3° (Δ=−33%, $p=0.04$) in the control group and from 12.8° to 5.2° (Δ=−59%, $p<0.001$) in the main group. Nasolabial fold asymmetry decreased by 28% in the control group and by 61% in the main group ($p=0.006$). Correlation analysis revealed a significant positive relationship between the Sunnybrook score and the physical component of the Facial Disability Index ($r_s=0.71$, $p<0.001$), as well as a significant negative correlation between the Sunnybrook score and facial asymmetry ($r_s=-0.68$, $p<0.001$), confirming consistency between clinical and objective measures. The calculated effect size (Cohen's $d\approx0.8–0.9$) indicated a large clinical effect of the intervention.

The observed results can be explained by the complex influence of kinesio taping on sensorimotor integration. Stimulation of cutaneous mechanoreceptors enhances afferent input, modulating central motor control mechanisms and promoting cortical reorganization. Simultaneously, normalization of muscle tone occurs through facilitation of weakened muscles and inhibition of hyperactive ones, restoring physiological balance between the affected and unaffected sides. The biomechanical action of the tape optimizes the direction of muscular forces, improving coordination of facial movements and preventing pathological synkineses. Additionally, the psycho-emotional impact of reduced facial asymmetry contributes to improved self-esteem and motivation for rehabilitation. However, certain limitations should be acknowledged, including the relatively small sample size and the absence of long-term follow-up, which necessitate further randomized studies with larger cohorts and extended observation periods.

In conclusion, the incorporation of kinesio taping into the comprehensive rehabilitation program for patients with post-stroke facial paresis in the early recovery period results in significant improvements in clinical, functional, and objective outcomes of facial motor recovery. The findings, supported by statistically significant differences ($p<0.01$) and large effect sizes, indicate that kinesio taping can be considered an effective evidence-based adjunctive method in neurorehabilitation, contributing to the reduction of facial asymmetry,

normalization of muscle tone, and improvement in patients' quality of life after ischemic stroke.

References:

1. Muratova T, Khramtsov D, Stoyanov A, Vorokhta Y. Clinical epidemiology of ischemic stroke: global trends and regional differences. Georgian Med News. 2020 Feb;(299):83-86. PMID: 32242851.

2. Palaniappan LP, Allen NB, Almarzooq ZI, Anderson CAM, Arora P, Avery CL, Baker-Smith CM, Bansal N, Currie ME, Earlie RS, Fan W, Fetterman JL, Barone Gibbs B, Heard DG, Hiremath S, Hong H, Hyacinth HI, Ibeh C, Jiang T, Johansen MC, Kazi DS, Ko D, Kwan TW, Leppert MH, Li Y, Magnani JW, Martin KA, Martin SS, Michos ED, Mussolino ME, Ogungbe O, Parikh NI, Perez MV, Perman SM, Sarraju A, Shah NS, Springer MV, St-Onge MP, Thacker EL, Tierney S, Urbut SM, Van Spall HGC, Voeks JH, Whelton SP, Wong SS, Zhao J, Khan SS; American Heart Association Council on Epidemiology and Prevention Statistics Committee and Stroke Statistics Committee. 2026 Heart Disease and Stroke Statistics: A Report of US and Global Data From the American Heart Association. Circulation. 2026 Mar 3;153(9):e275-e906. doi: 10.1161/CIR.0000000000001412. Epub 2026 Jan 21. PMID: 41562125.

3. Lu Z, Eroglu HS, Naess H, Gittins M, Kishore AK, Smith CJ, Vail A, Mitchell C. Post-stroke facial palsy: Prevalence, recovery patterns within the first 7 days, risk factors, and effect of hyperacute treatments. Clin Rehabil. 2026 Mar;40(3):397-408. doi: 10.1177/02692155251391672. Epub 2025 Nov 4. PMID: 41186499; PMCID: PMC12920672.

4. Eroglu HS, Bowen A, Checketts M, Mitchell C. Managing Facial Palsy After Stroke: Results From an Online Survey of Health Professionals. Int J Lang Commun Disord. 2025 Sep-Oct;60(5):e70127. doi: 10.1111/1460-6984.70127. PMID: 40955872; PMCID: PMC12439456.

5. Vaughan A, Gardner D, Miles A, Copley A, Wenke R, Coulson S. A Systematic Review of Physical Rehabilitation of Facial Palsy. Front Neurol. 2020 Mar 31;11:222. doi: 10.3389/fneur.2020.00222. PMID: 32296385; PMCID: PMC7136559.

6. Liu Y, Yin JH, Lee JT, Peng GS, Yang FC. Early Rehabilitation after Acute Stroke:The Golden Recovery Period. Acta Neurol Taiwan. 2023 Mar 30;32(1):1-8. PMID: 34918304.

7. Cramer SC. Recovery After Stroke. Continuum (Minneap Minn). 2020 Apr;26(2):415-434. doi: 10.1212/CON.0000000000000838. PMID: 32224759.

8. Huang B, Zhou ZL, Wang LL, Zuo C, Lu Y, Chen Y. Electrical response grading versus House-Brackmann scale for evaluation of facial nerve injury after Bell's palsy: a comparative study. J Integr Med. 2014 Jul;12(4):367-71. doi: 10.1016/S2095-4964(14)60036-4. PMID: 25074886.

9. Kim SJ, Lee HY. Acute Peripheral Facial Palsy: Recent Guidelines and a Systematic Review of the Literature. J Korean Med Sci. 2020 Aug 3;35(30):e245. doi: 10.3346/jkms.2020.35.e245. PMID: 32743989; PMCID: PMC7402921.

10. Özden F, Tümtürk İ, Sarı Z. Psychometric properties of the Facial Disability Index in patients with facial palsy: a systematic review and meta-analysis. Neurol Sci. 2022 Jul;43(7):4157-4165. doi: 10.1007/s10072-022-06066-z. Epub 2022 Apr 13. PMID: 35415807.

11. Twisk JWR. *Basic principles of applied medical statistics: a practical guide*. 1st ed. Cham: Springer; 2025. 268 p. doi:10.1007/978-3-031-86278-6.