

Non-governmental Organization
International Center of Scientific Research



PROCEEDINGS OF THE
XI INTERNATIONAL SCIENTIFIC
AND THEORETICAL CONFERENCE

SCIENTIFIC FORUM:
THEORY AND PRACTICE
OF RESEARCH

13.03.2026

SAN FRANCISCO
USA

SCIENTIA
COLLECTION OF SCIENTIFIC PAPERS

SECTION 22.**PSYCHOLOGY AND PSYCHIATRY**

- САМООЦІНКА ОСОБИСТОСТІ ЯК ПСИХОЛОГІЧНИЙ ЧИННИК ПРИЙНЯТТЯ
ЖИТТЄВИХ РІШЕНЬ
Апельт Г.В., Баранова А.Л.328
- ЖИТТЄСТІЙКІСТЬ І СУБ'ЄКТИВНИЙ УСПІХ МОБІЛІЗОВАНИХ ВІЙСЬКОВИХ У
КОНТЕКСТІ БОЙОВОГО ДОСВІДУ
Хоменко А.А.331

SECTION 23.**MEDICAL SCIENCES AND PUBLIC HEALTH**

- KINESIOLOGICAL APPROACH TO PHYSICAL THERAPY IN POSTOPERATIVE
REHABILITATION OF PATIENTS WITH FIBULA FRACTURE AND ANKLE JOINT
DYSFUNCTION: A THREE-YEAR OBSERVATION (2023–2026)
Oreshko K.V., Kryvonis Y.S.335
- PROGRESSION OF DESTRUCTIVE CHANGES IN THE ALVEOLAR PROCESS IN
SOMATIC PATIENTS DURING ORTHOPEDIC TREATMENT USING DENTAL
IMPLANTS
Ruzimbetov K.B.338
- ПОРІВНЯННЯ МЕТОДІВ ВИСОКОЕФЕКТИВНОЇ РІДИННОЇ ХРОМАТОГРАФІЇ
ТА ТАНДЕМНОЇ МАС-СПЕКТРОМЕТРІЇ У ДІАГНОСТИЦІ ПОРУШЕНЬ ОБМІНУ
ТИРОЗИНУ
Недайхліб Л.С., Шугайова В.С.340
- УЛЬТРАЗВУКОВЕ СКАНУВАННЯ У ДІАГНОСТИЦІ ХРОНІЧНИХ УРЕТРИТІВ У
ЖІНОК
Росіхін В.В., Бухмін О.В., Бухмін О.О., Левченко Є.Д.343
- ВІСЬ МІКРОБІОМУ ПОРОЖНИНИ РОТА ТА НИЖНІХ ДИХАЛЬНИХ ШЛЯХІВ У
ДІТЕЙ, ХВОРИХ НА БРОНХІТИ І ПНЕВМОНІЇ
Соловйова А.Г., Ткаченко М.В., Коваленко Н.І., Смородський В.О.347
- ПЕРСОНАЛІЗОВАНИЙ МЕНЕДЖМЕНТ ЖІНОК З МЕНОПАУЗАЛЬНИМИ
ПОРУШЕННЯМИ
Сюсюка В.Г., Сергієнко М.Ю., Деміденко О.В., Онопченко С.П., Колокот Н.Г. ...350

SECTION 24.**PHYSICAL CULTURE, SPORTS AND PHYSICAL THERAPY**

- СПОРТИВНІ ІГРИ ЯК ЗАСІБ ВДОСКОНАЛЕННЯ КООРДИНАЦІЙНИХ
ЗДІБНОСТЕЙ ЗДОБУВАЧІВ ВИЩИХ НАВЧАЛЬНИХ ЗАКЛАДІВ
Топчієва Г.О.356

SECTION 23.

MEDICAL SCIENCES AND PUBLIC HEALTH

Oreshko Karolina Vitaliivna

Master's student at the Department of Traumatology and Orthopedics
Zaporizhzhia State Medical and Pharmaceutical University, Ukraine

Kryvonis Yehor Serhiiovych

PhD student at the Department of Traumatology and Orthopedics
Zaporizhzhia State Medical and Pharmaceutical University, Ukraine

Scientific Supervisor: Kozhemiaka Maksym Oleksandrovysh 

Candidate of Medical Sciences, Associate Professor at the Department
of Traumatology and Orthopedics

Zaporizhzhia State Medical and Pharmaceutical University, Ukraine

KINESIOLOGICAL APPROACH TO PHYSICAL THERAPY IN POSTOPERATIVE REHABILITATION OF PATIENTS WITH FIBULA FRACTURE AND ANKLE JOINT DYSFUNCTION: A THREE-YEAR OBSERVATION (2023–2026)

Introduction Fractures of the distal fibula are among the most common injuries to the ankle joint, accounting for about 9% of all fractures. The annual incidence is 74 per 100,000 population, with peaks among athletes, active individuals, and the elderly. After osteosynthesis, patients often face complications: pain, swelling, limited mobility, reduced muscle strength, impaired proprioception, and joint instability, which can last up to 12 months. Physical therapy is the first line of rehabilitation, but debates continue regarding the advantages of the kinesiological approach, which includes kinesiotaping, proprioceptive neuromuscular facilitation, functional training, and work with myofascial chains. Literature review indicates potential effectiveness in reducing pain, improving balance and stability, but lacks definitive data. The kinesiological approach promotes faster recovery of gait biomechanics, reduction of chronic instability risk, and better functional outcomes [1–3].

Aim of the Work. To develop and scientifically substantiate the effectiveness of a physical therapy program based on the kinesiological approach in patients after osteosynthesis of fibula fracture with ankle joint involvement. Materials and

Methods of Research. Included 48 patients with fibula fractures after ORIF (2023–2026), hospitalized in Zaporizhzhia. Groups: control (n=24, standard program) and main (n=24, with kinesiological approach). Distribution by years: main group — 8 (2023), 16 (2024), 24 (2025–2026); control — similarly. Ethics: consent, anonymization, committee approval.

Methods: literature analysis, clinical examination, goniometry, manual muscle testing, dynamometry, functional tests, VAS, edema assessment, pedagogical observation, mathematical statistics. Program: 12 weeks, phased (early, middle, late periods), with closed kinetic chain exercises, kinesiotaping, and proprioceptive training. Statistics: Statistica 13.0; mean \pm SD, Mann–Whitney U, χ^2 , Spearman's correlation ($p < 0.05$).

Inclusion/Exclusion Criteria: age 18–65 years, fracture, without concomitant complications. Classification: according to Danis-Weber and Lauge-Hansen.

Results. The advantage of the kinesiological approach was revealed. After 12 weeks in the control group: dorsiflexion — $13.5^\circ \pm 2.4^\circ$; plantar flexion — $40.2^\circ \pm 3.8^\circ$; inversion — $25.1^\circ \pm 3.5^\circ$; eversion — $15.8^\circ \pm 2.1^\circ$; VAS — 4.0 ± 0.8 points. In the main group: dorsiflexion — $17.6^\circ \pm 1.7^\circ$; plantar flexion — $47.0^\circ \pm 2.1^\circ$; inversion — $31.5^\circ \pm 1.6^\circ$; eversion — $18.8^\circ \pm 1.2^\circ$; VAS — 2.0 ± 0.7 points ($p < 0.05$). Dynamics: improvement in both groups ($p < 0.05$), but more pronounced in the main ($p < 0.01$ for pain and mobility). Functional deficit: control — 52.4%; main — 18.7% (χ^2 , $p < 0.01$). Average ISS similar (22.4 ± 8.1), recovery faster in the main. No complications recorded.

Discussion. The advantage of the kinesiological approach was revealed: faster reduction of pain, swelling, restoration of mobility, strength, and proprioception. Consistent with data on early loading and proprioceptive training [4,5]. Kinesiotaping improves stability [6]. Results confirm Cochrane evidence base [7]. Limitations: small sample, need for long-term observation. Prospects: implementation in rehabilitation protocols for optimizing outcomes [8,9]. The association emphasizes the role of myofascial chains in recovery [10].

Conclusions. The kinesiological approach is more effective than the standard program ($p < 0.01$), ensuring faster recovery of ankle joint function, reduction of pain (VAS 2.0 vs 4.0) and instability risk. Analysis of 48 patients: trend toward fuller restoration of range of motion (17.6° vs 13.5° for dorsiflexion). The kinesiological approach is a marker of effectiveness for stratification of rehabilitation. The association opens prospects for monitoring and implementation in clinical practice.

References:

1. Biz, C., Nicoletti, P., Tomasin, M., Bragazzi, N. L., Di Rubbo, G., & Ruggieri, P. (2022). Is Kinesio Taping Effective for Sport Performance and Ankle Function of Athletes with Chronic Ankle Instability (CAI)? A Systematic Review and Meta-Analysis. *Medicina*, 58(5), 620. <https://doi.org/10.3390/medicina58050620>
2. Keene, D. J., Williamson, E., Bruce, J., Willett, K., & Lamb, S. E. (2014). Early Ankle Movement Versus Immobilization in the Postoperative Management of Ankle Fracture in Adults: A Systematic Review and Meta-analysis. *Journal of Orthopaedic & Sports Physical Therapy*, 44(9), 690-C7. <https://doi.org/10.2519/jospt.2014.5294>
3. Krause, F., Wilke, J., Vogt, L., & Banzer, W. (2016). Intermuscular force transmission along myofascial chains: A systematic review. *Journal of Anatomy*, 228(6), 910–918. <https://doi.org/10.1111/joa.12464>
4. Lewis, S. R., Pritchard, M. W., Parker, R., Searle, H. K., Beckenkamp, P. R., Keene, D. J., Bretherton, C., & Lin, C.-W. C. (2024). Rehabilitation for ankle fractures in adults. *Cochrane Database of Systematic Reviews*, 2024(9). <https://doi.org/10.1002/14651858.CD005595.pub4>
5. Matthews, P. A., Scammell, B. E., Ali, A., Coughlin, T., Nightingale, J., Khan, T., & Ollivere, B. J. (2018). Early motion and directed exercise (EMADE) versus usual care post ankle fracture fixation: Study protocol for a pragmatic randomised controlled trial. *Trials*, 19(1), 304. <https://doi.org/10.1186/s13063-018-2691-7>
6. Painter, E. E., Deyle, G. D., Allen, C., Petersen, E. J., Croy, T., & Rivera, K. P. (2015). Manual Physical Therapy Following Immobilization for Stable Ankle Fracture: A Case Series. *Journal of Orthopaedic & Sports Physical Therapy*, 45(9), 665–674. <https://doi.org/10.2519/jospt.2015.5981>
7. Sharman, M. J., Cresswell, A. G., & Riek, S. (2006). Proprioceptive Neuromuscular Facilitation Stretching: Mechanisms and Clinical Implications. *Sports Medicine*, 36(11), 929–939. <https://doi.org/10.2165/00007256-200636110-00002>
8. Van Vehmendahl, R., Nelen, S. D., El Hankouri, M., Edwards, M. J. R., Pull Ter Gunne, A. F., & Smeeing, D. P. J. (2023). Effectiveness of Postoperative Physiotherapy Compared to Postoperative Instructions by Treating Specialist Only in Patients With an Ankle Fracture: A Systematic Review. *Foot & Ankle Orthopaedics*, 8(2), 24730114231173680. <https://doi.org/10.1177/24730114231173680>
9. Wang, Y., Gu, Y., Chen, J., Luo, W., He, W., Han, Z., & Tian, J. (2018). Kinesio taping is superior to other taping methods in ankle functional performance improvement: A systematic review and meta-analysis. *Clinical Rehabilitation*, 026921551878044. <https://doi.org/10.1177/0269215518780443>
10. Wilke, J., Krause, F., Vogt, L., & Banzer, W. (2016). What Is Evidence-Based About Myofascial Chains: A Systematic Review. *Archives of Physical Medicine and Rehabilitation*, 97(3), 454–461. <https://doi.org/10.1016/j.apmr.2015.07.023>