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COMPLEX PHYSICAL REHABILITATION IN POST-STROKE PATIENTS

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Stroke remains a leading cause of long-term disability worldwide, presenting significant medical, social, and economic challenges. Despite advances in acute stroke management, many survivors experience persistent functional impairments that severely limit independence in activities of daily living (ADL) and reduce overall quality of life. Common consequences include motor deficits, impaired balance, muscle weakness, and reduced endurance. Consequently, restoring functional independence is a primary objective of post-stroke neurorehabilitation.

Modern rehabilitation prioritizes functional outcomes over isolated improvements in muscle strength or joint mobility. Functional recovery focuses on a patient's ability to safely and independently perform meaningful daily tasks, supporting long-term social reintegration.

Post-stroke rehabilitation is a dynamic, individualized process. Neurological deficits are often compounded by secondary complications, such as impaired postural control and fear of movement, which negatively affect patient motivation and adherence to therapy. Evidence-based physiotherapy, focusing on task-oriented training, motor relearning, and neuroplasticity, plays a central role in addressing these complex impairments. Clinical case studies provide valuable insights into the practical implementation of these principles, fostering clinical reasoning and facilitating the translation of theory into everyday practice.

The aim of this work was to analyze the effects of complex physiotherapy on functional independence in patients after stroke through a series of four clinical case studies.

The study was conducted in an inpatient neurological rehabilitation department and included four post-stroke patients differing in age, sex, stroke type, and neurological severity. Each

patient participated in an individualized complex physiotherapy program tailored to their initial functional status and rehabilitation goals.

Therapy design focused on restoring mobility, safety, and independence in ADLs rather than isolated motor parameters. Interventions were based on motor learning and neuroplasticity principles, including facilitation of physiological movement patterns, postural control training, balance and coordination exercises, gait training, and functional task-oriented therapy (e.g., transfers and self-care activities).

Therapeutic complexity and intensity were gradually adjusted based on continuous functional assessment, patient tolerance, and safety to promote optimal motor learning without excessive fatigue. Interdisciplinary collaboration with medical and nursing staff supported therapy planning. Functional outcomes were quantitatively evaluated at the beginning and end of the rehabilitation period using the Functional Independence Measure (FIM). This was supplemented by qualitative clinical observations of motor performance, postural stability, and gait quality.

All four patients demonstrated increased functional independence following the physiotherapy intervention, as evidenced by improved FIM scores. The most pronounced advancements occurred in motor domains, specifically in self-care, locomotion, and transitional movements (e.g., sit-to-stand and bed-to-chair transfers).

Qualitative clinical observations corroborated the quantitative FIM findings. Patients exhibited greater movement efficiency, increased confidence, enhanced safety awareness, and improved adaptability to daily challenges. Gait patterns became more stable and coordinated. These functional gains reflect meaningful improvements in motor control and balance strategies rather than isolated strength increases. While the degree of recovery varied based on initial neurological severity, all cases demonstrated positive functional trends.

This case series confirms that complex, individualized physiotherapy based on continuous assessment and task-oriented training significantly improves functional independence and motor performance in post-stroke patients. The Functional Independence Measure (FIM) proved to be a practical and informative tool for

monitoring and documenting clinical progress. Although the small sample size limits statistical generalization, detailed analysis of individual trajectories provides valuable insights into real-world physiotherapy practice, underscoring the importance of comprehensive, patient-specific care in everyday clinical settings.

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IMMUNOREGULATORY INDEX CD4+/CD8+ IN PERSONS AGE 18-20 UNDER MARTIAL LAW

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The immunoregulatory index CD4+/CD8+ is an important indicator of the integrative activity of the immune system. A change in this ratio in favor of cells with the CD8+ phenotype is considered one of the characteristics of the immune risk phenotype (IMP), as a manifestation of immune aging of the body [1]. We observed such an effect in students who came to study from territories contaminated with radionuclides as a result of the Chornobyl accident, especially during the period of increased emotional stress caused by the examination session [2]. At this time, students, like the rest of the population of Ukraine, are experiencing chronic stress due to a full-scale war and martial law factors.

We analyzed the indicators of peripheral blood T-lymphocytes with CD4+ and CD8+ phenotypes in 2nd-3rd year students in 2024 and 2025. Peripheral blood was collected by professional doctors at the Cherkasy Central District Hospital. The subjects gave their consent to participate in the research and to publish the results. The relative number of lymphocytes was determined on the basis of a blood smear stained according to Pappenheim. Immunophenotyping was performed using erythrocyte diagnostic agents to identify lymphocyte subpopulations (GRANUM, Ukraine).

It was found that in individuals aged 18-20 years, who studied in various specialties of Bohdan Khmelnytsky National University of Cherkasy, there were cases of the relative number of lymphocytes exceeding both the upper and lower limits of reference values. At the