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IMPACT OF REHABILITATION PROGRAM ON MOTOR ACTIVITY OF PATIENTS WITH DEMENTIA

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Abstract. The effect of a personalized rehabilitation program using physical therapy on gait and balance in patients with dementia was considered. Dementia is a progressive neurodegenerative syndrome characterized by impaired cognitive functions, behavioral changes, and a decrease in the ability to independently perform daily activities. Physical therapy, as a component of a multidisciplinary approach, helps to increase functional independence, prevents the development of complications, and improves the quality of life of such patients.

A comprehensive approach to the therapy and rehabilitation of patients with dementia allows for the highest possible quality of life, as well as significantly reducing the psychological and socio-economic burden for the patient, his environment, and society as a whole. According to scientifically confirmed data, a significant improvement in the quality of life of patients with dementia can be observed only 3–6 months after the start of rehabilitation measures.

Purpose of the research. To analyze the effectiveness of a personalized physical therapy program on gait and balance indicators in patients with dementia.

Materials and methods of the research. The study involved 20 people aged 60–86 years (72.75 ± 7.1) who were diagnosed with dementia. The Berg balance test, Tinetti test, and dynamic gait index (DGI) were used to assess effectiveness.

The physical therapy program for patients with dementia has a traditional structure: assessment of the patient's condition before starting an individual program; indicative exercise plans for different weeks with the possibility of adaptation depending on the patient's condition - in a gentle or gentle-training mode.

Results. Positive dynamics were found: the Berg balance test scores increased from 28.16 ± 9.7 to 33.47 ± 10.15 ($p < 0.001$), the Tinetti test scores increased from 17.8 ± 5.17 to 21.1 ± 3.79 ($p < 0.001$), and the dynamic walking index increased from 11.95 ± 7.39 to 15.1 ± 7.07 ($p = 0.001$).

The rehabilitation program used in the study was aimed at improving gait, balance, and functional mobility, which is key to preventing falls and maintaining maximum patient autonomy. According to the results of the Berg balance test, after the course of therapy, the average scores increased from 28.16 to 33.47 points, which is statistically significant ($p < 0.001$). Although clinically significant improvement (≥ 8 points) was recorded in only 15% of participants, even a modest increase in this indicator has important functional significance, as it contributes to a decrease in the risk of falls and an increase in the level of independence in daily activities.

Analysis according to the Tinetti test also showed positive dynamics: the number of patients with a high risk of falling decreased from 50% to 10%, while the proportion of people with a low risk increased from 5% to 20%. This confirms that regular physical activity helps to improve the perception of one's own balance and increases confidence in performing daily activities.

Conclusions. The results of the study confirm that personalized physical therapy programs contribute to improving gait, balance and general functional activity in patients with dementia. They are an effective tool in reducing the risk of falls, maintaining mobility and improving quality of life. Promising areas of further research include long-term follow-up of patients, studying the effects of combined programs, and developing optimal rehabilitation models taking into account the stage of dementia and individual needs.

Keywords: dementia, physical therapy, balance, gait, Tinetti Test, Berg Balance Scale, motor activity.

Introduction. Diseases resulting from brain damage and create a significant economic burden on society and have a diverse genesis, clinical manifestations and course the health care system. They cause serious difficulties for

the patients themselves, as well as constant emotional stress and exhaustion for their loved ones [2].

A syndrome that manifests itself in the impairment of thinking, behavior and the ability to perform daily activities is called dementia. It is a progressive and mostly irreversible clinical syndrome accompanied by a significant impairment of cognitive functions. Although many people with dementia retain positive personality traits, over time, as the disease progresses, they face increasing difficulties in performing familiar activities. Such changes cause a significant emotional, physical and financial burden not only on patients but also on their families, and also pose a serious challenge to health care and social support systems [12].

Worldwide, approximately 50 million people are living with dementia, and approximately 10 million new cases are diagnosed each year. It is estimated that between 5 and 8% of people aged 60 years and older have dementia. The number of people with the disorder is projected to increase to approximately 82 million by 2030 and to 152 million by 2050 [7].

Analysis of the global prevalence of dementia shows that the burden of the disease is increasing in low- and middle-income countries. Factors contributing to the development of dementia include education level, socioeconomic status and limited health care resources [15].

The severity of dementia ranges from mild, when impairments are only beginning to affect daily functioning, to severe, when the person is completely dependent on others for basic life tasks [3]. Older age is one of the leading risk factors for dementia [9]. Physical activity not only contributes to the prevention of cognitive impairment, but also helps prevent the development of cardiovascular diseases [10].

Research rationale. A comprehensive approach to the treatment and rehabilitation of patients with dementia allows for the highest possible quality of life, as well as a significant reduction in the psychological and socio-economic burden on the patient, their environment, and society as a whole. According to scientifically proven data, a significant improvement in the quality of life of patients with dementia can be observed only 3–6 months after the start of rehabilitation measures [2].

The works of modern researchers in the field of dementia are mainly focused on the issues of early detection of cognitive impairment in the elderly [4, 5, 11], as well as the training of personnel caring for patients [8, 13, 14]. At the same time, the issue of the influence of personalized physical therapy programs on gait and balance indicators in patients with dementia remains insufficiently studied.

The aim of the study is to analyze the effectiveness of a personalized physical therapy program on gait and balance indicators in patients with dementia.

Materials and organization of the research. Testing and assessment were performed individually, taking into account the psychological and physical condition of each patient involved in the study.

20 people aged 60–86 years (72.75 ± 7.1) were involved in the study, including 12 women (60%) and 8 men

(40%), who were diagnosed with dementia. The study was performed in accordance with the principles of the Declaration of Helsinki. All patients or their guardians provided informed consent to participate in the study.

Gait and balance parameters were analyzed using the Berg balance test, the Tinetti test, and the Dynamic Gait Index (DGI).

The Berg balance test is a highly reliable tool for detecting balance disorders. When interpreting the results, it was taken into account that an increase of 8 points in the test parameters is necessary for a significant improvement. According to the results, one patient had a score of 0, while the results of the other participants ranged from 13 to 46 points ($X \pm m = 28.16 \pm 9.7$).

The Tinetti test (Performance-Oriented Mobility Assessment, POMA) was used to assess the balance and stability of patients during daily activities, as well as to determine the level of fear of falling. According to the recommendations, the lower the Tinetti test score, the higher the risk of falling: ≤ 18 — high risk; 19–23 — moderate risk; ≥ 24 — low risk.

The Dynamic Gait Index (DGI) was used to assess functional stability during walking and determine the risk of falling. The higher the score, the better the indicators of functional mobility and balance.

Mathematical statistical methods were used to statistically process the primary data and assess the reliability of the results. The MedStat program was used for analysis. The mean value (X) and its standard deviation (m) were determined. The Student's t-test was used to test the reliability of the results. The difference was considered statistically significant at $p < 0.05$.

Research results. The development of a rehabilitation program for patients with dementia is based on individual needs. Patients in the early stages undergo a course of therapy and rehabilitation on an outpatient basis, but require constant supervision by relatives. Impaired coordination limits the motor activity of patients, which complicates the course of concomitant diseases or worsens general well-being.

For patients with late stages of the disease, therapy and rehabilitation are carried out in specialized institutions, where they are under the 24-hour supervision of qualified specialists. Since such patients lose the ability to control their own actions, their stay at home can be dangerous for both themselves and family members.

During rehabilitation measures, the gradual deterioration of the patient's mental state is taken into account. Over time, awareness of the disease becomes more difficult, and the growing connection between geriatric depression and dementia is clearly visible. Quite often, patients deny the presence or severity of cognitive and functional disorders, despite obvious clinical manifestations. During the initial examination, the main indicators of motor function are analyzed, which allows assessing the general state of statics and locomotion.

Modern studies show that in people with dementia, structured classes with specially organized motor activity increase physical performance and functional activity in

everyday life. Physical activity has a positive effect on gait and balance indicators. A number of studies [6] are based on programs aimed at improving mobility, with an emphasis on walking training.

Therapeutic dosed walking is carried out on straight and inclined surfaces in the corridor or outdoors, as well as on stairs. It is aimed at increasing overall endurance. For patients with mild and moderate dementia, in addition to walking, swimming, dance exercises and active exercises in a "sitting" position are used. Physical activity lasts at least 30 minutes a day, five times a week. For patients with severe dementia, the exercise program includes changing the body position from sitting to standing, as well as short walking sessions over short distances.

The physical therapy program for patients with dementia has a traditional structure: assessment of the patient's condition before starting an individual program; indicative exercise plans for different weeks with the possibility of adaptation depending on the patient's condition - in a gentle or gentle-training mode. The task of physical therapy in a gentle mode is to adapt the body to a gradual increase in physical activity, strengthen the muscle corset and restore impaired functions in the presence of concomitant diseases [2].

The rehabilitation program involves regular monitoring of the patient's condition and correction of the individual plan in accordance with changes in his physical and mental state. Special attention is paid to increasing functional mobility, maintaining balance and preventing falls, which are key factors in maintaining the patient's independence in everyday life.

Structured and personalized physical exercises are aimed at stimulating motor activity, improving coordination, endurance and overall physical performance. To achieve the optimal effect, classes are conducted systematically, taking into account the patient's daily condition and gradually increasing the load.

Example of a weekly physical therapy program:

Day 1: Aerobic exercises (30 min), stretching exercises, balance and equilibrium exercises.

Day 2: Strength exercises.

Day 3: Walk in the fresh air, balance training.

Day 4: Exercises to improve coordination, light aerobic exercises.

Day 5: Breathing exercises.

Day 6: Strength training, flexibility exercises.

Day 7: Restorative exercises (swimming, walking).

Benefits of aerobic exercise for dementia patients:

- improved physical condition: reduced risk of cardiovascular disease, improved endurance.

-improved cognitive function: physical activity can help slow the progression of cognitive impairment, improve memory and attention.

-psychological well-being: exercise helps reduce anxiety, depression and improves mood

-reduced risk of falls: improved balance and coordination help prevent falls.

The program includes various types of aerobic exercises that are convenient for older and elderly patients:

a) Outdoor walking (the most accessible type of aerobic activity). Duration: start with 5-10-15 min. per day, gradually increasing the time to 30-45 min. The duration of continuous walking should start with 3 min. and gradually increase to 30 min. Frequency: 3-5 times a week. Intensity: easy to moderate pace. Patients should be able to communicate while walking. Objective: Improving cardiorespiratory function, balance, reducing stress and anxiety.

b) Exercise machines. Exercise machines: Exercise bikes or ellipticals. Duration: 10-15 min. per day, gradually increasing to 30 min. Frequency: 3 times a week. Intensity: easy pace with increasing intensity as the condition improves and adaptation occurs.

c) Swimming or hydrotherapy. Benefits: Swimming is low impact on joints and is effective for people with limited mobility. Time: 20-30 minutes. Frequency: 2-3 times a week.

The program should gradually increase the load. An indicative aerobic exercise program:

Week 1:

Day 1 (Monday): Walk outdoors - 10 minutes, easy pace.

Day 2 (Tuesday): Swim - 15 minutes.

Day 3 (Wednesday): Exercise bike - 10 minutes. at an easy level.

Day 4 (Thursday): Walk outdoors - 12 minutes.

Day 5 (Friday): Swim - 15 minutes.

Day 6 (Saturday): Walk outdoors - 15 minutes.

Day 7 (Sunday): Rest or light activity.

Increase in load on the 2nd week.

Day 1: Walk in the fresh air - 15 min.

Day 2: Swimming - 20 min.

Day 3: Exercise bike - 15 min.

Day 4: Walk in the fresh air - 20 min.

Day 5: Swimming - 20 min.

Day 6: Exercise bike - 15 min.

Day 7: Rest or light activity.

The study of gait and balance indicators was carried out using the Berg balance test, which is one of the most common tools in clinical practice. At the beginning of the study, one patient had a score of 0. The results of the other participants ranged from 13 to 46 points ($X \pm m - 28.16 \pm 9.7$). At the end of the study, according to the data obtained among 19 people who underwent a rehabilitation course, the results ranged from 15 to 50 points ($X \pm m - 33.47 \pm 10.15$). The statistical significance for the average value of the samples was $p < 0.001$ (Table 1). Regarding clinical significance, only three patients (15%) had an increase of 8 points or more.

To determine the impact of an individual physical therapy program on the patient's subjective perception of the fear of falling, the state of their balance and stability in performing daily activities, the Tinetti test was used. At the beginning of the study, 10 patients (50%) had a high risk of falling; 9 patients (45%) had a moderate risk of falling, and one patient (5%) had a low risk of falling; $X \pm m - 17.8 \pm 5.17$. At the end of the study, according to the results

obtained, 2 patients (10%) had a high risk of falling; 14 patients (70%) had a moderate risk; 4 patients (20%) had a low risk of falling, $X \pm m - 21.1 \pm 3.79$. Changes in indi-

cators as a result of the implementation of the therapy and rehabilitation program are shown in (Fig. 1. and Table 1).

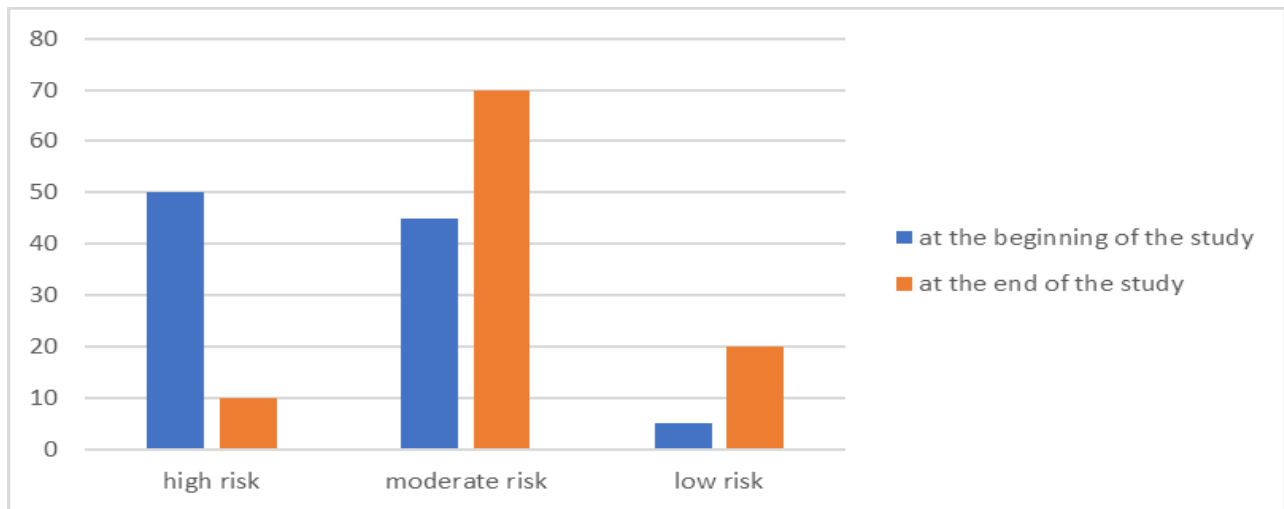


Fig. 1. Dynamics of patient distribution according to the results of the Tinetti test, (%).

Assessment of functional stability during walking and determination of the risk of falling was carried out by calculating the Dynamic Gait Index (DGI). During the initial examination, the following data were obtained: in 5 people (25%) - the number of points - 0; in four patients (20%) the gait index fluctuated within 10-15 points; in 11 people

(55%) - 16-20 points; $X \pm m - 11.95 \pm 7.39$. Repeated examination demonstrated results indicating the effectiveness of the rehabilitation program. In the vast majority of patients, the results of $X \pm m$ improved - 15.1 ± 7.07 , $p = 0.001$ (the dynamics are shown in Fig. 2 and Table 1.)

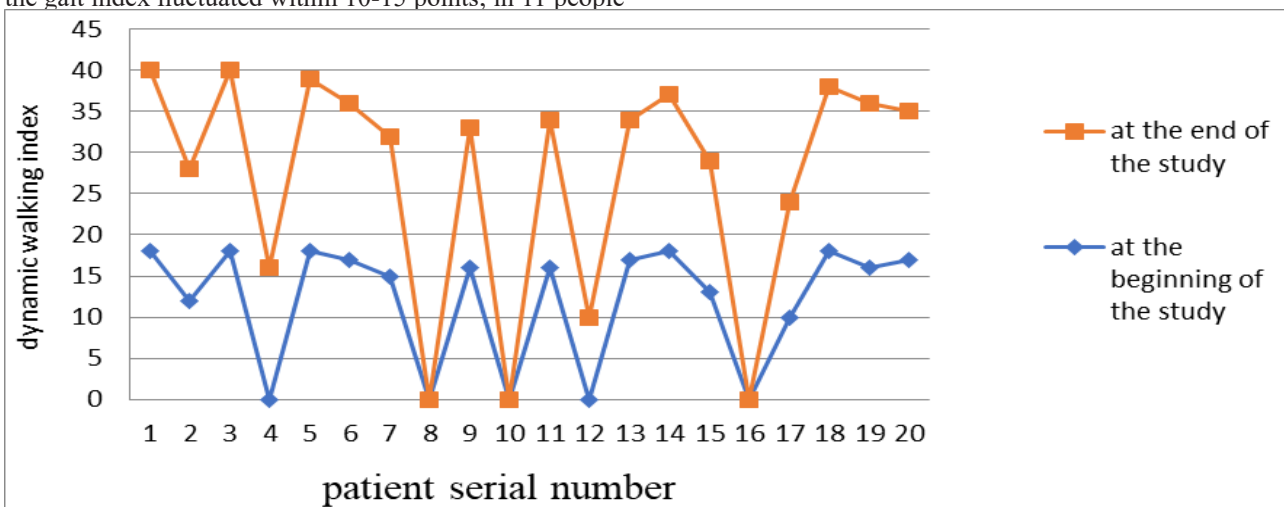


Fig. 2. Dynamics of individual indicators of the Dynamic Walking Index, (points).

Table 1

Effectiveness of the physical therapy program in terms of gait and balance indicators

Testing	At the beginning of the study	At the end of the study	p
Berg balance test	28,16±9,7	33,47±10,15	<0,001
Tinetti test	17,8±5,17	21,1±3,79	<0,001
Dynamic walking index	11,95±7,39	15,1±7,07	=0,001

If necessary, exercises are adapted for patients with dementia to avoid stress or disorientation. In particular,

simplification of exercises and increased recovery time are envisaged, as well as the use of assistive devices to ensure

safety. Contraindications to physical activity should be taken into account in patients with comorbidities, and the risk of fractures should be taken into account in patients with osteoporosis.

During classes, the duration of exercises, the pace of movements should be controlled (the patient should not overwork), and in case of pain, the intensity or volume of the load should be reduced.

Discussion of the results. The obtained results of the study confirm the relevance and effectiveness of personalized physical therapy programs for patients with dementia. Given the global forecasts for the rapid increase in the number of people with this disease, especially in low- and middle-income countries, the implementation of effective rehabilitation strategies is extremely important to reduce the medical and social burden. Dementia is characterized by a progressive decline in cognitive function, accompanied by a loss of the ability to independently perform daily activities, impaired balance and an increased risk of falls. This creates serious difficulties not only for the patients themselves, but also a significant emotional, physical and financial burden on their families and the healthcare system.

The rehabilitation program used in the study was aimed at improving gait, balance and functional mobility, which is key to preventing falls and maintaining maximum autonomy for patients. According to the results of the Berg balance test, after the course of therapy, the average indicators increased from 28.16 to 33.47 points, which is statistically significant ($p < 0.001$). Although clinically significant improvement (≥ 8 points) was recorded in only 15% of participants, even a moderate increase in this indicator has important functional significance, as it contributes to a decrease in the risk of falls and an increase in the level of independence in daily activities.

Analysis according to the Tinetti test also showed positive dynamics: the number of patients with a high risk of falling decreased from 50% to 10%, while the proportion of people with a low risk increased from 5% to 20%. This confirms that regular physical activity helps to improve the perception of one's own balance and increase confidence in performing daily activities. Similar results were demonstrated by other authors, who confirm the positive effect of aerobic exercise and dosed walking on stability and coordination in elderly people.

Improvement in the dynamic walking index additionally indicates an increase in functional stability during movement, which is of direct importance for improving the quality of life of patients. A structured program that included dosed aerobic exercise, strength training, and bal-

ance training was effective even for people with moderate to severe dementia, provided that the pace and intensity of the classes were adapted.

It is important to emphasize that the effectiveness of rehabilitation measures largely depends on the individualization of the approach. Taking into account cognitive status, psychoemotional state, comorbidities, and social environment helps to avoid overload, confusion, and stress. Support from relatives and medical staff plays an important role in adhering to the exercise regimen.

A limitation of the study is the small sample size, which necessitates further studies involving a larger number of participants to confirm the results obtained.

Conclusions. The results of the study confirm that personalized physical therapy programs contribute to improving gait, balance, and overall functional activity in patients with dementia. They are an effective tool in reducing the risk of falls, maintaining mobility, and improving quality of life. Promising areas of further research include long-term follow-up of patients, studying the effects of combined programs, and developing optimal rehabilitation models taking into account the stage of dementia and individual needs.

Prospects for further research. It is planned to further study the impact of the physical therapy program on the cognitive functions of patients with dementia, study the possibilities of optimizing the duration and structure of rehabilitation programs, determine the long-term effect of the rehabilitation measures carried out, and develop interdisciplinary models of rehabilitation and support for people with dementia at different stages of the disease.

Conflict of interest. The authors declare that they have no conflict of interest regarding this study, including financial, personal, authorship, or other, which could affect the study and its results presented in this article

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Author contributions: B.I. Andriichuk a) conception and design; Y.O. Klimchuk c) provision of materials for the study; d) collection and synthesis of data; e) analysis and interpretation of results; V.V. Sak, f) writing of the manuscript; b) administrative support; N.Y. Strubitska g) editing of the manuscript;

All authors have read and agreed with the published version of the manuscript.

References:

1. Andriichuk O. Y., Sakharuk L. Y., Andriichuk B. I. Issues of depression and comorbidity in rehabilitation. *Acta balneologica*. 2022. Vol. 64, no. 6. P. 534–536. URL: <https://doi.org/10.36740/abal202206107>
2. Katynska S. V. Can health be considered a category of human rights. *Actual problems of native jurisprudence*. 2022. No. 1. P. 20–25. URL: <https://doi.org/10.32782/392236>
3. Bepalova, O. O., Liannoi, M. O., Lytvynenko, V. A., Buhaienko, T. V., & Tereshchenko, T. O. (2020). *Fizychna terapiia ta erhoterapiia dlia osib pokhyloho viku iz khvoroboiu Altsheimera* [Physical therapy and occupational therapy for elderly people with Alzheimer's disease]. *Sportyvna Medytsyna, Fizychna*

- na Terapii ta Erhoterapii, 2, 100–105. <https://doi.org/10.32782/smfte2020.2.12>
4. Blaha, O. S. (n.d.). *Tsikave pro khvorobu Altsheimera* [Interesting facts about Alzheimer's disease]. Retrieved October 20, 2025, from <https://www.uzhnu.edu.ua/uk/news/Alcgcikave.htm>
 5. Performance of the rowland universal dementia assessment scale for the detection of mild cognitive impairment and dementia in a diverse cohort of illiterate persons from rural communities in peru / N. Custodio et al. *Frontiers in neurology*. 2021. Vol. 12. URL: <https://doi.org/10.3389/fneur.2021.629325>
 6. Validation of the RUDAS for the Identification of Dementia in Illiterate and Low-Educated Older Adults in Lima, Peru / N. Custodio et al. *Frontiers in Neurology*. 2020. Vol. 11. URL: <https://doi.org/10.3389/fneur.2020.00374>
 7. Dediukhina, O., & Bilianskyi, O. (2015). *Osoblyvosti dementsii v osib pokhyloho viku ta zastosuvannia fizychnoi reabilitatsii* [Features of dementia in the elderly and application of physical rehabilitation]. *Sportyvna Nauka Ukrainy*, 3(67), 9–14. <https://doi.org/10.32782/snu.2015.3.67>
 8. *Dementsiia — odna z prychnyn invalidnosti osib litnoho viku* [Dementia — one of the causes of disability in the elderly]. (2029). *NeiroNews*, 8(109), 5–7. <https://doi.org/10.36740/NN202908109>
 9. 'Introducing a multicomponent staff training intervention to reduce antipsychotic medication: care home management pre and post intervention views of systemic impact, and preliminary RE-AIM evaluation' / A. Guzmán et al. *Evaluation and program planning*. 2023. P. 102399. URL: <https://doi.org/10.1016/j.evalprogplan.2023.102399>
 10. Khetsuriani, M. (2023). *Khvoroba Altsheimera. Rozvizaty rivniannia z bahatma nevidomymy* [Alzheimer's disease: Solving an equation with many unknowns]. Retrieved October 20, 2025, from <https://nauka.ua/article/hvoroba-alcgejmerna-rozvyazati-rivnyannya-z-bagatma-nevidomymi>
 11. Lavryniuk, V. Ye., Andriichuk, O. Ya., Pikaliuk, V. S., Hreida, N. B., & Andriichuk, Ya. I. (2023). *Fizychna aktyvnist u pervynni profylaktytsi kardiologichnykh zakhvoriuvan ta okremykh faktoriv sertsevo-sudynnoho ryzyku z pozytsii dokazovoi medytsyny* [Physical activity in primary prevention of cardiovascular diseases and specific risk factors from the standpoint of evidence-based medicine]. *Rehabilitation and Recreation*, 17, 92–101. <https://doi.org/10.32782/2522-1795.2023.17.10>
 12. Cognitive assessments in multicultural populations using the Rowland Universal Dementia Assessment Scale: a systematic review and meta-analysis / R. M. Naqvi et al. *Canadian medical association journal*. 2015. Vol. 187, no. 5. P. E169–E175. URL: <https://doi.org/10.1503/cmaj.140802>
 13. *Suchasni pidkhody do terapii dementsii: koly chas — na vahu zolota* [Modern approaches to dementia therapy: When time is worth its weight in gold]. (2025). *Ukrainian Medical Journal*. 2025. URL: <https://doi.org/10.32471/umj.1680-3051.265537>
 14. Dementia Care Mapping™ to reduce agitation in care home residents with dementia: the EPIC cluster RCT / C. A. Surr et al. *Health technology assessment*. 2020. Vol. 24, no. 16. P. 1–172. URL: <https://doi.org/10.3310/hta24160>
 15. Multicomponent staff training intervention to improve residential dementia care (procuida-demencia): a mixed-methods 2-arm cluster randomized controlled pilot and clinical outcomes study / S. Torres-Castro et al. *Journal of the american medical directors association*. 2022. Vol. 23, no. 3. P. 350–358.e5. URL: <https://doi.org/10.1016/j.jamda.2021.09.035>
 16. Zegarra-Valdivia, J., Pérez-Fernández, L., Casimiro-Arana, M., Arana-Nombera, H., Gallegos-Manayay, V. N., Del Rosario Oliva-Piscoya, M., Alamo-Medina, R., Abanto-Saldaña, E., Vásquez-Zuñe, N., Pérez, L. D., Gutierrez-Flores, D., Tantarico, L. L., Hernández, N., Cruz-Ordinola, M. C., Paredes-Manrique, C., Chino-Vilca, B., Espinoza, G., Cabrejo, J., Castro-Suarez, S., & Custodio, N. (2025). Prevalence and risk factors of mild cognitive impairment and dementia in northern Peru. *Frontiers in Public Health*, 13, 1567073. <https://doi.org/10.3389/fpubh.2025.1567073>

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ВПЛИВ ПРОГРАМИ РЕАБІЛІТАЦІЇ НА РУХОВУ АКТИВНІСТЬ ПАЦІЄНТІВ З ДЕМЕНЦІЄЮ

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Резюме. Розглянуто вплив персоналізованої програми реабілітації із застосуванням засобів фізичної терапії на показники ходи та рівноваги у пацієнтів із деменцією. Деменція – це прогресуючий нейродегенеративний синдром, що характеризується порушенням когнітивних функцій, поведінковими змінами та зниженням здатності до самостійного виконання повсякденних дій. Фізична терапія як складова мультидисциплінарного підходу сприяє підвищенню функціональної незалежності, запобігає розвитку ускладнень і покращує якість життя таких пацієнтів.

Комплексний підхід у терапії та реабілітації пацієнтів із деменцією дає змогу забезпечити максимально можливу якість життя, а також суттєво знизити психологічний і соціально-економічний тягар для хворого, його оточення та суспільства загалом. За науково підтвердженими даними, достовірно поліпшення якості життя пацієнтів із деменцією можна спостерігати лише через 3–6 місяців після початку реабілітаційних заходів.

Мета дослідження. Проаналізувати ефективність **персоналізованої програми фізичної терапії** щодо показників ходи та рівноваги у пацієнтів із деменцією.

Матеріали та методи дослідження. У дослідженні взяли участь 20 осіб віком 60–86 років ($72,75 \pm 7,1$), у яких було діагностовано деменцію. Для оцінки ефективності застосовували тест балансу Берга, тест Тінетті та динамічний індекс ходьби (DGI).

Програма фізичної терапії для пацієнтів із деменцією має традиційну структуру: оцінку стану пацієнта перед початком індивідуальної програми; орієнтовні плани вправ на різні тижні з можливістю адаптації залежно від стану хворого — у щадному або щадно-тренувальному режимі.

Результати. Виявлено позитивну динаміку: показники тесту балансу Берга зросли з $28,16 \pm 9,7$ до $33,47 \pm 10,15$ ($p < 0,001$), тесту Тінетті — з $17,8 \pm 5,17$ до $21,1 \pm 3,79$ ($p < 0,001$), а динамічного індексу ходьби — з $11,95 \pm 7,39$ до $15,1 \pm 7,07$ ($p = 0,001$).

Застосована в дослідженні програма реабілітації була спрямована на покращення показників ходи, рівноваги та функціональної мобільності, що має ключове значення для профілактики падінь і збереження максимальної автономності пацієнтів. Згідно з результатами тесту балансу Берга після курсу терапії середні показники зросли з 28,16 до 33,47 балів, що є статистично значущим ($p < 0,001$). Хоча клінічно значуще покращення (на ≥ 8 балів) було зафіксовано лише у 15 % учасників, навіть помірне підвищення цього показника має важливе функціональне значення, оскільки сприяє зниженню ризику падінь і підвищенню рівня самостійності в повсякденній діяльності.

Аналіз за тестом Тінетті також показав позитивну динаміку: кількість пацієнтів із високим ризиком падіння зменшилася з 50 % до 10 %, тоді як частка осіб із низьким ризиком зросла з 5 % до 20 %. Це підтверджує, що регулярна фізична активність сприяє покращенню сприйняття власної рівноваги та підвищенню впевненості у виконанні повсякденних дій.

Висновки. Результати дослідження підтверджують, що персоналізовані програми фізичної терапії сприяють покращенню показників ходи, рівноваги та загальної функціональної активності пацієнтів із деменцією. Вони є ефективним інструментом у зниженні ризику падінь, підтриманні мобільності та покращенні якості життя. Перспективними напрямками подальших досліджень є довготривале спостереження за пацієнтами, вивчення ефектів комбінованих програм та розробка оптимальних моделей реабілітації з урахуванням стадії деменції та індивідуальних потреб.

Ключові слова: деменція, фізична терапія, рівновага, хода, тест Тінетті, тест Берга, рухова активність.

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