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Effectiveness of Task-Oriented Physiotherapy in Improving Balance and Gait in Post-Stroke Patients

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Abstract: One of the primary causes of long-term disability is stroke, which often results in issues with gait and balance. Task-oriented physiotherapy, which emphasizes functional, goal-directed activities, is one potential method of rehabilitation. How much may task-oriented physical therapy aid stroke victims in regaining their walk and balance? That was this study's main objective. A narrative review was conducted using electronic databases, including PubMed, Scopus, CINAHL, EMBASE, and Google Scholar, and included studies published in English between May and June 2025. Keywords included "stroke," "post-stroke," "task-oriented physiotherapy," "balance," "gait," and "rehabilitation." Research involving persons who had experienced a stroke, were receiving task-oriented physical therapy, and had outcomes related to their gait or balance qualified for inclusion. We succeeded in including seventeen studies. The study's design, participant characteristics, treatments, outcome measures, and results were all reported narratively. Throughout all 17 trials, task-oriented physiotherapy continuously improved functional outcomes. Using the TUG test, there was an improvement in gait speed in eight trials, walking endurance in nine, balance in nine, and functional mobility in ten. High-intensity, progressive, and functionally relevant task-oriented exercises had greater outcomes than standard therapy. The majority of studies had moderate to outstanding research quality. Task-oriented physical therapy may help stroke survivors improve their functional mobility, gait, and balance. The therapeutic benefits are improved when traditional stroke rehabilitation programs include task specificity, repetition, and increasing complexity.

Keywords: Stroke, Post-stroke rehabilitation, Task-oriented physiotherapy, Balance, Gait, Functional mobility, Task-specific training, Neurorehabilitation.

INTRODUCTION

Having a stroke, which is also the second most frequent cause of death, is one of the primary reasons why individuals in Western countries are unable to work. According to projections,

the incidence of strokes in the Netherlands is predicted to increase from an anticipated 1.8 per 1000 people in the year 2000 to 2.8 per 1000 people in the year 2020 [1]. The goal of rehabilitation after a stroke is to enhance the possibility that a patient will be able to resume an active lifestyle [2]. Rehabilitation is a conscious effort to achieve this goal. Neuro-rehabilitation makes it possible to re-learn skills that have been taught in the past in a different way [3]. This is accomplished via the use of compensatory strategies or the adaptive recruitment of alternative neural pathways. The primary objective of rehabilitation nursing is to assist people who are coping with impairments or chronic diseases in reaching their full functional potential, maintaining their health, and adjusting to new ways of life [4].

The fact that stroke is the major cause of disability does not change the reality that there is no single method of rehabilitation that has been agreed upon by all of the parties concerned. Neurodevelopmental treatment (NDT) and other traditional approaches that focus on deficiencies and attempt to restore "normal" movement patterns have not proven very successful [5]. Instead, they have proved unsuccessful. Task-oriented training is one of the many innovative rehabilitation techniques that have emerged as a viable answer as a result of the remarkable discoveries that have been made in the field of neuroscience over the course of the last twenty years. According to studies conducted using neuroimaging techniques on both people and animals [6], many regions of the brain that have been wounded exhibit distinct patterns of activity. In addition, it has been shown that the lesioned hemisphere as well as the contralateral hemisphere undergoes reconfiguration based on the mobility and experience of the individual [7]. According to the research that is now available, functional rehabilitation requires both the restoration of any functions that have been damaged and the development of adaptive procedures that can compensate for any impairment that have occurred.

The literature does not provide a single definition of task-oriented training that is universally accepted; nonetheless, it does emphasize the significance of movement as an interaction between several brain systems, with organization based on a functional purpose and contextual restrictions [9]. There are a variety of interventions that are included in this. Some of these interventions include cycling programs, sit-to-stand exercises, circuit training, overground walking, treadmill training, and reaching activities for equilibrium enhancement. Mental imagery, object grasping, and constraint-induced movement therapy (CIMT) are examples of some of the functional exercises that are often used in the process of upper limb rehabilitation. To promote work that is meaningful and goal-oriented, task-oriented physiotherapy places the

focus not on the therapist but on the patient and the activity at hand. This is done in order to help patients achieve their goals.

In the aftermath of a stroke, the question of how much medicine should be taken is still being debated. Rather of taking into account the amount of time it would take to become an expert in a certain talent, the duration of an exercise is frequently decided based on pragmatic considerations [10]. Based on the findings of systematic research [11], it was shown that an increase in treatment input of at least sixteen hours per week had a positive impact on activities of daily living. Nursing professionals, who give care that is both continuing and coordinated, are of considerable assistance in the process of relearning and functional rehabilitation. An effective stroke unit is dependent on a rehabilitation program that is well-structured, covers a wide range of disciplines, and should begin as soon as it is possible after the stroke [12]. Nurses play a vital role in stroke teams by assisting patients in accomplishing their task-oriented rehabilitation goals [13]. Two of the ways in which nurses provide this assistance are by coordinating care and bridging gaps between different disciplines.

OBJECTIVES

1. To assess how well post-stroke patients' balance is improved by task-oriented physical therapy.
2. To evaluate how task-oriented physical therapy affects post-stroke patients' functional mobility and gait.

METHODOLOGY

This narrative literature review was conducted with the intention of determining whether or not task-oriented physiotherapy was beneficial to stroke survivors in terms of their gait and balance. During the months of May and June 2025, a comprehensive search was conducted across a number of internet databases, including Google Scholar, PubMed, Scopus, CINAHL, and EMBASE, among others. The search was restricted to publications written in the English language. AND/OR operators were included into the search strategy, which covered stroke, post-stroke, task-oriented physiotherapy, task-oriented training, balance, gait, walking, and rehabilitation. All of these subjects were included in the search. Through the process of manually searching the reference lists of relevant journals, more papers were discovered.

Study Selection Criteria

The studies were chosen because of how relevant they were to the review's subject. This study's inclusion criteria were:

Research including:

- Adults recovering from a stroke
- Physiotherapy and training geared toward particular tasks
- Balance and gait results
- Clinical trials, observational studies, and quasi-experimental designs

Exclusion criteria included:

- Articles that only discuss pharmaceutical or surgical treatments
- Conference abstracts, editorials, letters to editors, and unpublished data
- Studies that do not include stroke survivors
- And articles with insufficient methodological or outcome information

For the objective of giving theoretical framework and clinical evidence, both original research publications and review articles were taken into consideration.

Data Extraction and Organization

Relevant information was culled by hand from chosen research and arranged in a descriptive fashion. The data that was extracted consisted of:

- Author(s) and year of publication
- Study design
- Participant characteristics (sample size, age, stroke stage)
- Description of task-oriented physiotherapy intervention
- Comparison or conventional therapy (if applicable)

- Outcome measures related to balance and gait
- Key findings and conclusions

Using narrative summaries, we looked for patterns, commonalities, and variations among the studies in the retrieved data.

Data Synthesis

We used a method of qualitative narrative synthesis. The results were organized and analyzed according to predetermined themes, including:

- Principles of task-oriented physiotherapy
- Effects on balance outcomes
- Effects on gait parameters
- Comparison with conventional physiotherapy
- Clinical implications in stroke rehabilitation

In light of the fact that the objective of this review was not to estimate impact sizes but rather to describe and integrate the existing data, statistical pooling and quantitative synthesis were not carried out.

RESULT

Study Selection

There were a total of 1,111 entries that were retrieved from the electronic databases. After removing 529 duplicates and evaluating each item based on its title and abstract, the original pool of 583 articles was reduced to 46 full-text articles. This was accomplished by narrowing down the pool. It was determined that sixteen of these studies did not meet the criteria for inclusion because they were either case studies, abstracts only, used treatments that were not appropriate, utilized different outcome measures, or lacking control groups. As shown in Figure 1, a total of seventeen publications were finally selected for inclusion in this review.

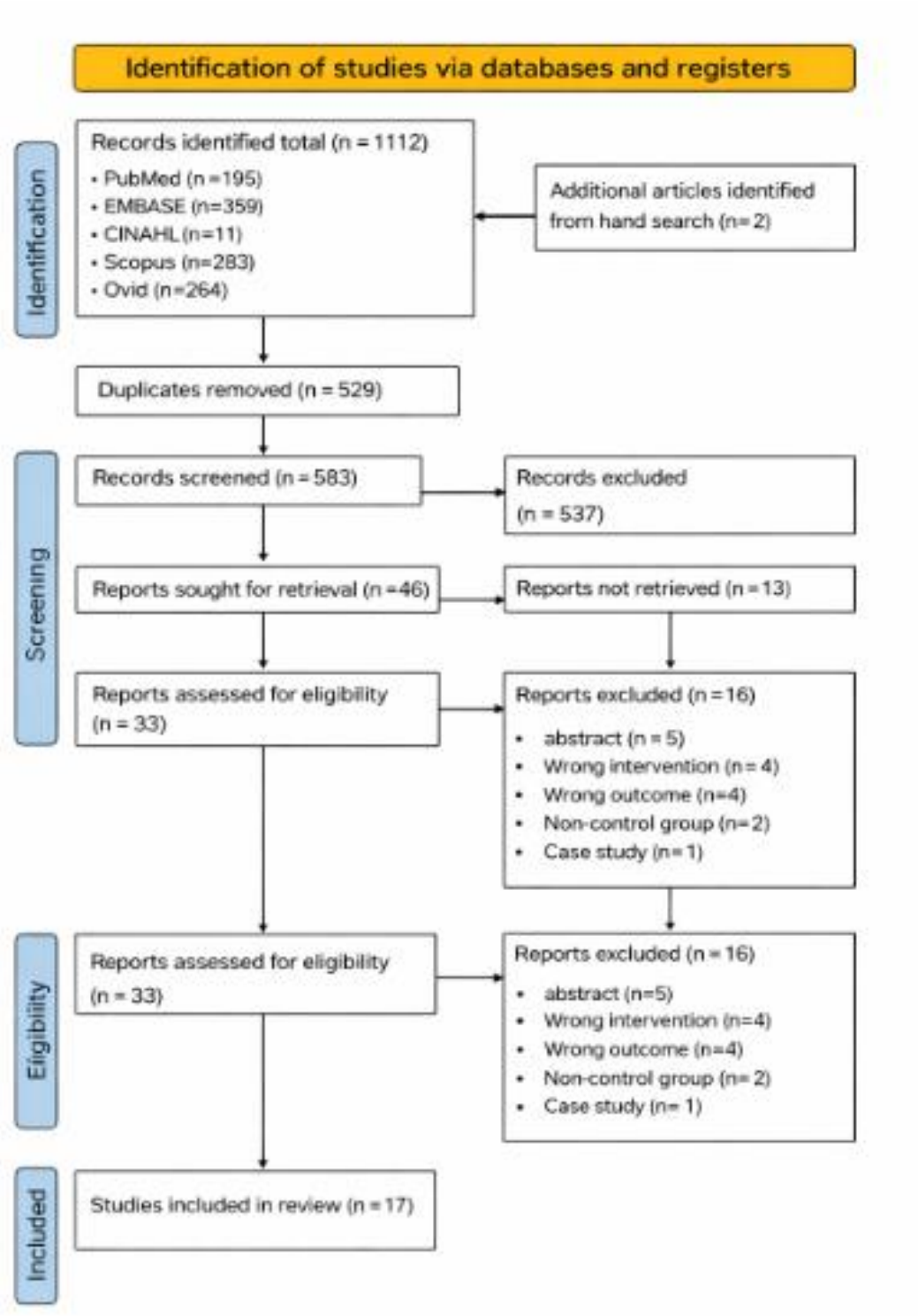

Figure 1. PRISMA Flow Diagram

Table 1. General Characteristics of Included Studies

Study (Year)	Age (Mean ± SD)	Sample Size (M/F)	Stroke Phase	Intervention	Control	Outcome Measures	References
Gao et al., 2024	67.9 ± 7.0 / 65.5 ± 6.4	53/53	Subacute	Task-Oriented Biomechanical Perception & Balance Training	Conventional Rehab	BBS, FMA	[14]
Ali et al., 2020	60.81 ± 5.0	11/11	Subacute	Group Task-Specific Training	Individual Task-Specific Training	BBS, TUG, 10MWT	[15]
Kim et al., 2016	50 ± 9.3 / 54 ± 7.1	15/15	Chronic	Group Task-Oriented Circuit Training	Individual Task-Oriented Circuit Training	BBS, TUG, 6MWT	[16]
Cha & Oh, 2016	60 ± 3.2 / 58.6 ± 4.1	10/10	Chronic	Task-Oriented Exercise Program with Mirror	Task-Oriented Exercise Program	BBS, TUG	[17]
Kuberan et al., 2017	58.8 ± 9.1 / 60.1 ± 7.6	13/13	Chronic	Task-Oriented Training with Sensory Input	Conventional Physiotherapy	TUG	[18]
Kwon et al., 2015	50.7 ± 15.2 / 47.1 ± 18.6	20/20	Chronic	Task-Oriented Treadmill Walking Training	Conventional Treadmill Training	TUG, 6MWT	[19]
Tsaih et al., 2018	48.6 ± 12.6	24/23	Chronic	Variable- and Constant-	Upper Extremity	Gait Speed,	[20]

	/ 55.5 ± 12.4			Practice EMGBFB + PT	Exercise + PT	TUG, 6MWT	
Knox et al., 2018	51 ± 15 / 48 ± 14	51/48	Subacute	Task Intervention	Stroke Management	Gait Speed, BBS, TUG, 6MWT	[21]
Verma et al., 2011	53.3 ± 8.5 / 55.1 ± 6.8	15/15	Acute	Motor Imagery + Task-Oriented Circuit Class	Lower Extremity Rehab	Gait Speed, 6MWT	[22]
Yang et al., 2006	56.8 ± 10.2 / 60 ± 10.4	24/24	Chronic	Task-Oriented Progressive Resistance	No Rehab	Gait Speed, 6MWT, TUG	[23]
Malik et al., 2021	40–70	26/26	Subacute	Task-Oriented Training + Exercise Gaming	Task-Oriented Training	TUG, BBS	[24]
Kim et al., 2015	58.53 ± 11.83 / 61.24 ± 8.73	10/10	Subacute	Routine Therapy + Tilted Table + Task-Oriented Training	Routine Therapy + Tilted Table	Gait Speed	[25]
Atif & Afzal, 2023	–	15/15	Subacute	Task-Oriented Walking	Conventional Therapy	BBS	[26]
Choi & Kang, 2015	61.5 ± 7.2 / 66.4 ± 9.3	10/10	Chronic	Task-Oriented Training	General Physical Therapy	BBS	[27]

Mendoza et al., 2021	47.2 ± 8.8 / 49 ± 11.2	9/9	Chronic	Task-Oriented Circuit Class Training	Impairment-Focused Circuit	Gait Speed, 6MWT	[28]
Van et al., 2012	56 ± 10 / 58 ± 10	126/124	Subacute	Task-Oriented Circuit Training	Outpatient Physiotherapy	Gait Speed, 6MWT, TUG	[29]
Outermans et al., 2010	56.8 ± 8.6 / 56.3 ± 8.6	23/21	Subacute	High-Intensity Task-Oriented Training	Low-Intensity Physiotherapy	6MWT, 10MWT, BBS	[30]

Notes: BBS – Berg Balance Scale, TUG – Timed Up and Go, 6MWT – Six-Minute Walk Test, 10MWT – Ten-Meter Walk Test, FMA – Fugl-Meyer Assessment.

Table 1 presents the features of the seventeen studies that were included in the evaluation. These characteristics are shown in the table. The complete sample consisted of both males and females, and the ages of the participants ranged from forty to seventy, with the average age being somewhere around fifty-six. The ages of the participants varied from small to large research. As part of the study, patients who were in different stages of recovery after stroke were involved. This was done so that the advantages of task-oriented physiotherapy could be evaluated across many stages of recovery. At the time of the research, there were nine patients in the chronic phase, seven patients in the subacute phase, and nine patients in the acute phase. Some of the participants in the intervention groups were given exercise games, motor imagery, progressive resistance exercises, treadmill walking, or circuit training. On the other hand, some of the participants in the control groups were given conventional physiotherapy, outpatient rehabilitation, or no intervention at all. The Berg Balance Scale, the Timed Up and Go test, the Six-Minute Walk Test, and the Fugl-Meyer Assessment were the instruments that were used in the majority of the research in order to analyze the results. Gait speed and functional mobility were two more assessments that were performed. Based on the information shown in the table, task-oriented treatments were used regardless of the patient group, the stage of the stroke, or the functional outcome measure.

Table 2. Outcomes Characteristics

Outcome Measure	No. of Studies	Summary of Findings
Gait Speed	8	Task-oriented physiotherapy consistently improved gait speed in both subacute and chronic stroke patients.
Walking Endurance (6MWT)	9	Participants in task-oriented programs showed greater walking distance and endurance compared to conventional therapy.
Balance (BBS)	9	Improvement in balance was observed, particularly with progressive and functional task-oriented exercises.
Functional Mobility (TUG)	10	Reduction in TUG time was noted, indicating enhanced functional mobility and postural control.

The functional findings and the effects of task-oriented physiotherapy were summarized in Table 2 of the studies that were included in the review. Throughout the course of eight studies, patients who had suffered from both short-term and long-term strokes shown consistent improvements in gait speed. There were nine studies that measured walking endurance using the Six-Minute Walk Test, and all of them demonstrated statistically significant gains as compared to the conventional therapy. Nine different research came to the conclusion that people's balance, as measured by the Berg Balance Scale, shown a considerable improvement, particularly when they participated in functional or progressive task-oriented exercises. Functional mobility, as judged by the Timed Up and Go test in ten different trials, also improved as a consequence of enhanced postural control and increased self-assurance in movement. Task-oriented physiotherapy has been shown to increase functional mobility, balance, and gait in a consistent manner, according to empirical evidence.

Table 3. Quality Assessment

Study (Year)	PEDro Score	Quality
Gao et al., 2024	6	High
Ali et al., 2020	5	Moderate
Kim et al., 2016	3	Low
Cha & Oh, 2016	5	Moderate

Kuberan et al., 2017	7	High
Kwon et al., 2015	5	Moderate
Tsaih et al., 2018	7	High
Knox et al., 2018	8	High
Verma et al., 2011	9	High
Yang et al., 2006	8	High
Malik et al., 2021	6	High
Kim et al., 2015	5	Moderate
Atif & Afzal, 2023	5	Moderate
Choi & Kang, 2015	6	High
Mendoza et al., 2021	8	High
Van et al., 2012	6	High
Outermans et al., 2010	6	High

Notes: PEDro scores: Low ≤3, Moderate 4–5, High 6–10. Most studies were moderate to high quality.

The outcomes of the PEDro scale, which was used to assess the level of methodological quality of the research that were included, are shown in Table 3. There was a total of seventeen studies, eleven of which were categorized as good quality (PEDro ratings ranging from six to ten), five as moderate quality (scores ranging from four to five), and one as low quality (scoring < three). Due to the fact that high-quality studies often make use of acceptable procedures for evaluating outcomes, such as randomization and allocation concealment, the results may be relied upon with a greater degree of confidence. Research that adheres to rigorous methodology lends credence to the findings of this study, as seen by the majority of papers that range from moderate to high quality.

Table 4. Effectiveness of Task-Oriented Physiotherapy

Outcome	Effectiveness	Key Observation
Gait Speed	Improved in 8 studies	Especially in subacute and chronic patients; comfortable and maximal walking speeds increased.
6MWT	Improved in 9 studies	Walking endurance significantly increased compared to conventional therapy.
BBS	Improved in 9 studies	Balance improved across subacute and chronic patients; high-intensity or progressive training yielded better results.
TUG	Improved in 10 studies	Functional mobility improved; reductions in time were small to moderate but clinically meaningful.

Detailed information about the effectiveness of task-oriented physical therapy on significant functional outcomes may be found in Table 4. Over the course of eight trials, the gait speeds of the participants rose, with improvements being seen in both their comfortable and maximal walking speeds. This was particularly the case with those who were suffering from subacute and chronic diseases. The results of nine trials that demonstrated increases in walking endurance (as measured by the Six-Minute Walk Test) demonstrated increased stamina as well as increased distances traveled than before. The Berg Balance Scale was used to evaluate the effectiveness of high-intensity or progressive task-oriented exercises on improving balance. The results of nine different trials indicated no significant difference. In ten separate trials, it was discovered that functional mobility, as determined by the Timed Up and Go test, had improved. The reduced completion times indicated that there were considerable improvements in both mobility and postural control. Task-oriented physiotherapy is a kind of physical treatment that has been shown to effectively improve gait, balance, and functional mobility in stroke patients. Crucial components of this type of therapy are task specificity, repetition, and functional relevance.

DISCUSSION

The results of this study shed light on the major role that task-oriented physiotherapy plays in the rehabilitation process after a stroke, specifically with regard to the enhancement of functional mobility, balance, and gait functions. By doing functionally related workouts on a regular basis, a person may be able to increase their cardiovascular endurance, postural control,

neuromuscular coordination, and gait speed. In a similar vein, better scores in BBS and TUG indicate increased functional mobility in day-to-day activities, as well as improved static and dynamic balance. This goes hand in hand with the prior statement.

The results are the same for those who have had an acute, subacute, or chronic stroke; however, those who have residual neuroplastic potential and the capacity to carry out activities that are repeated seem to enjoy the greatest benefits with regard to the outcomes. There are a number of crucial aspects that need to be taken into consideration in order to get the best possible results. These aspects include the task specificity, the functional relevance, and the intensity of the therapy. There have been a variety of therapies that have demonstrated positive outcomes, including task-based gaming, progressive resistance workouts, treadmill walking, and circuit training, amongst others.

Task-oriented therapies include exercises that are organized, goal-directed, and intended to imitate real-life tasks. The purpose of these exercises is to improve motor learning and functional recovery. The goal of these workouts is to develop the athlete's motor abilities. To put this into perspective, this is in contrast to the traditional approach to physiotherapy. It is likely that we have a higher level of confidence in these results as a result of the fact that the high-quality studies that were included in the evaluation used acceptable randomization and outcome assessments. This review has a limitation in that it was impossible to do a meta-analysis due to the heterogeneity that occurred in the intervention techniques, sample sizes, and outcome measures. This is a negative.

CONCLUSION

It is task-oriented physiotherapy that truly shines when it comes to assisting stroke patients in regaining their balance, gait, and functional mobility. A number of important aspects that contribute to success include the specificity of the task, the frequency of practice, the growing difficulty, and the practical application. It is recommended that physicians include task-oriented training into stroke rehabilitation programs in order to optimize the recovery of patients and raise their level of independence in doing day-to-day activities. The use of standardized methodologies and long-term follow-up should be investigated in further research in order to further validate the effectiveness and durability of the findings.

References

1. Struijs J.N., van Genugten M.L.L., Evers S.M.A.A., Ament A.J.H.A.,Baan C.A. & van den Bos G.A.M. (2005) Modeling the FutureBurden of Stroke in the Netherlands: Impact of Aging, Smoking,and Hypertension. Stroke 36(8), 1648–1655

2. Gresham G.E., Alexander D., Bishop D.S., Giuliani C., Goldberg G.,Holland A., Kelly-Hayes M., Linn R.T., Roth E.J., Stason W.B. &Trombly C.A. (1997) American Heart Association PreventionConference. IV. Prevention and Rehabilitation of Stroke. Rehabilitation. Stroke 28(7), 1522–1526

3. Matthews P.M., Johansen-Berg H. & Reddy H. (2004) Non-invasive mapping of brain functions and brain recovery: applyinglessons from cognitive neuroscience to neurorehabilitation.Restorative Neurology and Neuroscience 22(3–5), 245–260.

4. Barker E. (2002) Neuroscience Nursing, 2nd edn. Elsevier Science,St. Louis

5. Pomeroy V.M. & Tallis R. (2000) Physical therapy to improvemovement performance and functional ability poststroke. Part1. existing evidence. Reviews in Clinical Gerontology 10, 261–290.

6. Turkstra L.S., Holland A.L. & Bays G.A. (2003) The neuroscience ofrecovery and rehabilitation: what have we learned from animalresearch? Archives of Physical Medicine and Rehabilitation 84(4),604–612.

7. Johansen-Berg H., Dawes H., Guy C., Smith S.M., Wade D.T. &Matthews P.M. (2002) Correlation between motor improvementsand altered fMRI activity after rehabilitative therapy. Brain125(Pt 12), 2731–2742.

8. Kwakkel G., Kollen B. & Lindeman E. (2004a) Understanding thepattern of functional recovery after stroke: facts and theories.Restorative Neurology and Neuroscience 22(3–5), 281–299

9. Shumway Cook A. & Woollacott M.H. (2001), Motor Control, 2ndedn. Lippincott Williams &Williams, Philadelphia.

10. Kwakkel G. (2006) Impact of intensity of practice after stroke: issuesfor consideration. Disability and Rehabilitation 28(13–14), 823–830.

11. Kwakkel G., van Peppen R., Wagenaar R.C., Wood D.S., RichardsC., Ashburn A., Miller K., Lincoln N., Partridge C., Wellwood I. &Langhorne P. (2004b) Effects of augmented exercise therapy timeafter stroke: a meta-analysis. Stroke 35(11), 2529–2539

12. Indredavik B., Bakke F., Slordahl S.A., Rokseth R. & Haheim L.L.(1999) Stroke Unit Treatment: 10-Year Follow-Up. Stroke 30(8),1524–1527

13. Long A.F., Kneafsey R. & Ryan J. (2003) Rehabilitation practice:challenges to effective team working. International Journal ofNursing Studies 40(6), 663–673

14. Gao, L.; Jin, Q.; Zhou, C.; Huang, Y.; Liu, J.; Chen, Y.; Hu, H.; Dai, Y.; Jin, R. Effect of Task-Oriented Biomechanical PerceptionBalance Training on Motor Gait in Stroke Patients With Hemiplegia. J. Altern. Complement. Med. 2024, 30, 290–294.

15. Ali, M.; Khan, S.U.; Asim, H.A.B. Effects of individual task specific training verses group circuit training on balance and ambulation in sub-acute stroke. Rawal Med. J. 2020, 45, 233–235.

16. Kim, B.; Park, Y.; Seo, Y.; Park, S.; Cho, H.; Moon, H.; Lee, H.; Kim, M.; Yu, J. Effects of individualized versus group task-oriented circuit training on balance ability and gait endurance in chronic stroke inpatients. J. Phys. Ther. Sci. 2016, 28, 1872–1875.

17. Cha, H.-G.; Oh, D.-W. Effects of mirror therapy integrated with task-oriented exercise on the balance function of patients with poststroke hemiparesis: A randomized-controlled pilot trial. Int. J. Rehabil. Res. 2016, 39, 70–76.

18. Kuberan, P.; Kumar, V.; Joshua, A.M.; Misri, Z.; Chakrapani, M. Effects of task oriented exercises with altered sensory input on balance and functional mobility in chronic stroke: A pilot randomized controlled trial. Bangladesh J. Med. Sci. 2017, 16, 307–313.

19. Kwon, O.-h.; Woo, Y.; Lee, J.-s.; Kim, K.-h. Effects of task-oriented treadmill-walking training on walking ability of stoke patients. Top. Stroke Rehabil. 2015, 22, 444–452.

20. Tsaih, P.-L.; Chiu, M.-J.; Luh, J.-J.; Yang, Y.-R.; Lin, J.-J.; Hu, M.-H. Practice variability combined with task-oriented electromyographic biofeedback enhances

strength and balance in people with chronic stroke. Behav. Neurol. 2018, 2018, 7080218.

21. Knox, M.; Stewart, A.; Richards, C.L. Six hours of task-oriented training optimizes walking competency post stroke: A randomized controlled trial in the public health-care system of South Africa. Clin. Rehabil. 2018, 32, 1057–1068.

22. Verma, R.; Narayan Arya, K.; Garg, R.; Singh, T. Task-oriented circuit class training program with motor imagery for gait rehabilitation in poststroke patients: A randomized controlled trial. Top. Stroke Rehabil. 2011, 18, 620–632.

23. Yang, Y.-R.; Wang, R.-Y.; Lin, K.-H.; Chu, M.-Y.; Chan, R.-C. Task-oriented progressive resistance strength training improves muscle strength and functional performance in individuals with stroke. Clin. Rehabil. 2006, 20, 860–870.

24. Malik, A.N.; Masood, T. Task-oriented training and exer-gaming for improving mobility after stroke: A randomized trial. J. Pak. Med. Assoc. 2021, 71, 186–190.

25. Kim, C.-Y.; Lee, J.-S.; Kim, H.-D.; Kim, J.-S. The effect of progressive task-oriented training on a supplementary tilt table on lower extremity muscle strength and gait recovery in patients with hemiplegic stroke. Gait Posture 2015, 41, 425–430.

26. Atif, M.M.; Afzal, F. The effects of a task-oriented walking intervention on improving balance self-efficacy in post-stroke patients. Adv. Neurol. 2023, 2, 388.

27. Choi, J.-U.; Kang, S.-h. The effects of patient-centered task-oriented training on balance activities of daily living and self-efficacy following stroke. J. Phys. Ther. Sci. 2015, 27, 2985–2988.

28. Mendoza, K.G.; Aguila, M.E.R.; Alfonso, F.C.S.; Alfonso, M.G.T.; Elmi, K.D.; Gorgon, E.J.R. Comparison of two circuit class therapy programs on walking capacity, gait velocity and stair ambulation among patients with chronic stroke: A parallel pretest-posttest pilot study. Acta Medica Philipp. 2021, 55, 379–386.

29. Van de Port, I.G.; Wevers, L.E.; Lindeman, E.; Kwakkel, G. Effects of circuit training as alternative to usual physiotherapy after stroke: Randomised controlled trial. Br. Med. J. 2012, 344, e2672.

30. Outermans, J.C.; van Peppen, R.P.; Wittink, H.; Takken, T.; Kwakkel, G. Effects of a high-intensity task-oriented training on gait performance early after stroke: A pilot study. Clin. Rehabil. 2010, 24, 979–987.