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Stroke

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December 2025

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Life after stroke: the hidden struggle for recovery

The Conversation; 2025.

Six months after a stroke, 64% of survivors still have problems carrying out usual activities, 47% report anxiety or depression and 62% struggle with mobility. This has been documented repeatedly in national datasets. The UK's Sentinel Stroke National Audit Programme found only 35.1% of eligible survivors received a six-month follow-up. Improving access to therapy, psychological care, vocational support and community services is central to giving stroke survivors the chance to rebuild.

Read online at https://theconversation.com/life-after-stroke-the-hidden-struggle-for-recovery-266041

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1. **The effect of mobilization on blood pressure for stroke survivors with moderate or severe injury: a rapid review**

Authors: Charlier, Felicity and Morgan, Prue

Publication Date: 2026

Journal: Topics in Stroke Rehabilitation 33(1), pp. 106–118

Abstract: Purpose: Severe stroke survivors respond to mobilization rehabilitation interventions with more varied outcomes than those with less severe stroke. They may face additional risks for impaired blood pressure regulation and extended vulnerability to blood pressure changes, potentially contributing to poor recovery outcomes. The primary aim of this rapid review was to identify and synthesize current evidence investigating the effects of mobilization on blood pressure, for stroke survivors in the acute and early stage of rehabilitation. The secondary aim was to identify potential risks associated with acute mobilization interventions, to inform clinical decisions and guide future research directions. Materials and methods: A comprehensive search strategy was conducted in five databases supplemented with scrutiny of published stroke guidelines. Inclusion criteria were: severe or moderate stroke injury; acute or early post-stroke (<90 days); mobilization intervention; and reporting blood pressure measures. Data was extracted, tabled, and synthesized using descriptive analysis. Results: Seven hundred and ten articles were identified, of which seven articles were included. Varied mobilization interventions were described including sitting (n = 4), backrest tilt (n = 1), standing (n = 2), tilt table with or without exercises (n = 2), and supine cycling (n = 1). Large blood pressure changes, most frequently hypotension, were found in a small number of participants, with increasing incidence for more vertical and passive mobilization activities. Blood pressure changes stabilized over time. Conclusions: Transient blood pressure changes frequently occurred with mobilization. Concerningly, large blood pressure changes occurred for some participants, increasing with verticality and passive nature of mobilization. Further research is needed, to guide optimal mobilization rehabilitation for acute severe stroke survivors.

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2. **Effect of an aerobic exercise program on cardiac remodeling and functional capacity in patients with stroke: CRONuS trial**

Authors: da Silva Rodrigues, Josiela Cristina;Luvizutto, Gustavo José;Mendes Pereira, Vitor;Dalle Molle da Costa, Rafael;Prudente, Robson Aparecido;da Silva, Taís Regina;Francisqueti Ferron, Fabiane Valentini;Ferreira da Silva Mazeto Pupo da Silveira, Caroline;Togneri Ferron, Artur Junio;Thomaz de Souza, Juli;Winckler, Fernanda Cristina;Thomé Franco, Estefânia Aparecida;Pinheiro Modolo, Gabriel;Cláudia de Oliveira Antunes, Letícia;Bazan, Rodrigo;Cuadrado Martin, Luis and Zanati Bazan, Silméia Garcia

Publication Date: 2026

Journal: Topics in Stroke Rehabilitation 33(1), pp. 1–15

Abstract: Background: Aerobic exercise training leads to cardiovascular changes and improves cardiovascular performance and functional capacity after a stroke. However, the effect of aerobic exercise on cardiac remodeling in patients with stroke has been poorly explored. This study aimed to investigate the effects of a physical exercise program on morphofunctional echocardiographic variables and the functional capacity of post-stroke patients. Methods: This randomized, controlled clinical trial included patients with stroke, categorized into the control group (CG), conventional physiotherapeutic care, and intervention group (IG). The IG underwent a cardiovascular rehabilitation program consisting of warm-up, aerobic exercise, and muscle cooling. Both conventional and test interventions lasted 45 min, three times a week for 16 weeks. The patients underwent transthoracic echocardiography, a 6-

minute walk test, neurological and nutritional evaluation, laboratory tests, and QoL assessment initially and at 16 weeks after the intervention. Results: The IG showed significant reduction in the following morphological echocardiographic variables compared to the CG after intervention: diastolic thicknesses of the posterior wall ($p = 0.0001$) and interventricular septum ($p = 0.004$), relative wall thickness ($p = 0.001$), left ventricular mass (LVM, $p < 0.001$), LVM index ($p < 0.0001$), and left atrial diameter ($p = 0.003$). Regarding systolic and diastolic functions, the IG showed a significant increase in LV ejection fraction ($p = 0.001$) and tricuspid ring systolic excursion ($p = 0.0002$), and a reduction in the left atrial volume index ($p = 0.001$) and E/E' ratio ($p = 0.01$) compared to the CG. In addition, the IG showed an increase in the distance covered compared to the CG after the intervention ($p = 0.04$). Conclusions: The cardiovascular rehabilitation program improved the cardiac morphological and functional parameters and had a positive impact on the functional capacity of patients with chronic ischemic stroke. Trial registration: REBEC, RBR-4wk4b3. Registered on 19 September 2016.

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3. **Impaired motor control during post-stroke walking: A systematic review and meta-analysis of muscle synergies across different phases of recovery**

Authors: Defour, Arne;Dominici, Nadia;Swinnen, Eva;Cambier, Dirk;Van Cleemput, Gitte and Van Bladel, Anke

Publication Date: 2026

Journal: Gait & Posture 124, pp. N.PAG

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4. **Astrocytes: Therapeutic targets for stroke**

Authors: Li, Jingxiu;Gao, Keyuan;Wang, Lili;Wang, Jiayue;Qin, Mian;Wang, Xinrui;Lian, Kai;Li, Chao;Gao, Shan'e and Sun, Chenxi

Publication Date: 2026

Journal: Neural Regeneration Research 21(3), pp. 1074–1088

Abstract: Stroke is the leading cause of mortality globally, ultimately leading to severe, lifelong neurological impairments. Patients often suffer from a secondary cascade of damage, including neuroinflammation, cytotoxicity, oxidative stress, and mitochondrial dysfunction. Regrettably, there is a paucity of clinically available therapeutics to address these issues. Emerging evidence underscores the pivotal roles of astrocytes, the most abundant glial cells in the brain, throughout the various stages of ischemic stroke. In this comprehensive review, we initially provide an overview of the fundamental physiological functions of astrocytes in the brain, emphasizing their critical role in modulating neuronal homeostasis, synaptic activity, and blood-brain barrier integrity. We then delve into the growing body of evidence that highlights the functional diversity and heterogeneity of astrocytes in the context of ischemic stroke. Their well-established contributions to energy provision, metabolic regulation, and neurotransmitter homeostasis, as well as their emerging roles in mitochondrial recovery, neuroinflammation regulation, and oxidative stress modulation following ischemic injury, are discussed in detail. We also explore the cellular and molecular mechanisms underpinning these functions, with particular emphasis on recently identified targets within astrocytes that offer promising

prospects for therapeutic intervention. In the final section of this review, we offer a detailed overview of the current therapeutic strategies targeting astrocytes in the treatment of ischemic stroke. These astrocyte-targeting strategies are categorized into traditional small-molecule drugs, microRNAs (miRNAs), stem cell-based therapies, cellular reprogramming, hydrogels, and extracellular vesicles. By summarizing the current understanding of astrocyte functions and therapeutic targeting approaches, we aim to highlight the critical roles of astrocytes during and after stroke, particularly in the pathophysiological development in ischemic stroke. We also emphasize promising avenues for novel, astrocyte-targeted therapeutics that could become clinically available options, ultimately improving outcomes for patients with stroke.

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5. **Machine-learning-based prognostic models for independence in toilet-related activities in patients with subacute stroke: a retrospective study**

Authors: Miyazaki, Yuta;Kawakami, Michiyuki;Kondo, Kunitsugu;Hirabe, Akiko;Kamimoto, Takayuki;Akimoto, Tomonori;Hijikata, Nanako;Tsujikawa, Masahiro;Honaga, Kaoru;Suzuki, Kanjiro and Tsuji, Tetsuya

Publication Date: 2026

Journal: Topics in Stroke Rehabilitation 33(1), pp. 50–59

Abstract: Background: Independence in toilet-related activities critically shapes discharge planning and caregiver burden after stroke. Reliable early-stage prediction models could therefore aid individualized rehabilitation. Objective: To compare the predictive performance of logistic regression (LR) and five machine learning algorithms – decision tree (DT), support vector machine (SVM), artificial neural network (ANN), k-nearest neighbors (KNN), and ensemble learning (EL) – for toilet-related independence at discharge. Methods: We retrospectively analyzed subacute stroke survivors admitted to Tokyo Bay Rehabilitation Hospital from March 2015 to September 2019. Independence was defined as a score ≥ 6 on four Functional Independence Measure (FIM) subitems (toileting, bladder management, bowel management, toilet transfers). Participants' characteristics and FIM subitems were entered as predictors. LR and five machine-learning algorithms were trained with five-fold cross-validation. Model performances were evaluated by the area under the receiver-operating-characteristic curve (AUC). Results: Of 824 participants (mean age 70.9 years), 453 (55%) were independent at discharge. In validation data, SVM (AUC = 0.9223) achieved, followed by LR (0.9202), ANN (0.9201), KNN (0.9072), EL (0.8961), and DT (0.8394). On test data, SVM and LR maintained AUCs of 0.9101 and 0.9078, whereas ANN declined to 0.8922. EL (0.9021) and KNN (0.9020) remained stable; DT (0.7864) performed the lowest. In LR, FIM-Bed to chair transfer was the strongest positive predictor, and age was the strongest negative predictor. Conclusions: SVM provided the highest accuracy with minimal overlearning. LR offered similar performance and greater interpretability, supporting its clinical use. These models could provide valuable information in stroke rehabilitation.

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6. **Artificial intelligence imaging decision support for acute stroke treatment in England: a prospective observational study**

Authors: Nagaratnam, Kiruba;Neuhaus, Ain A.;Fensome, Lauren;Epton, Matthew;Marriott,

Tracey;Woodhead, Zoe;Fernandez, Claire;Papadakis, Michalis;Gerry, Stephen;Lowe, Deb;Hargroves, David;Mallon, Dermot H.;Simister, Rob;Bhogal, Pervinder;Spooner, Oliver;Kane, Ingrid;Mathieson, Phil;Mukonoweshuro, William;James, Martin;Ford, Gary A., et al

Publication Date: 2026

Journal: The Lancet.Digital Health , pp. 100927

Abstract: Background: Endovascular thrombectomy is a standard of care for patients with large vessel occlusion stroke. Artificial intelligence (AI) imaging software is increasingly used to support identification and selection of patients with stroke for this treatment. We aimed to evaluate the effect of AI stroke imaging software on endovascular treatment in England.; Methods: This prospective observational study was undertaken with the use of data from stroke units in England's National Health Service (NHS). Data on all patients aged 16 years and older admitted to an NHS hospital with a primary diagnosis of stroke were collected through the national stroke audit registry (Sentinel Stroke National Audit Programme; SSNAP). Endovascular thrombectomy rates and interhospital transfer times were measured through SSNAP for all 107 NHS hospitals admitting patients with acute stroke in England from Jan 1, 2019, to Dec 31, 2023, before and after the systematic implementation of stroke AI software (Brainomix 360 Stroke) in 26 hospitals (six comprehensive stroke centres and 20 primary stroke centres; evaluation sites). Hospital-level data were collected for all hospitals, and patient-level data were collected at evaluation sites. The primary outcome was the proportion of patients with stroke receiving endovascular thrombectomy. Changes in endovascular treatment rates were compared for patients who were reviewed with the use of AI software for image interpretation versus those who were reviewed without AI software.; Findings: 452 952 patients with stroke were admitted to 107 hospitals in England between Jan 1, 2019, and Dec 31, 2023. Patient-level data were available for 71 017 patients with ischaemic stroke who were admitted to one of the 26 evaluation sites. For evaluation sites, the pre-implementation endovascular thrombectomy rate was 2·3% (376 of 15 969 patients) and the post-implementation rate was 4·6% (751 of 15 428 patients), a relative increase of 100%. For non-evaluation sites, the pre-implementation rate was 1·6% (1431 of 88 712 patients) and the post-implementation rate was 2·6% (2410 of 89 900 patients), a relative increase of 62·5% (odds ratio OR] for the interaction between site and time period 1·24 95% CI 1·08-1·43]; p=0·0026). At the patient level, use of AI stroke software was associated with an increased likelihood of endovascular thrombectomy (OR 1·57 95% CI 1·33-1·86]; p<0·0001) compared with patients for whom AI software was not used.; Interpretation: Stroke AI imaging software was associated with increased endovascular thrombectomy rates across the English NHS. These results support the routine use of AI imaging software in the management of patients with stroke.; Funding: AI in Health and Care Award from the Accelerated Access Collaborative within NHS England.

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7. **Canadian Stroke Best Practice Recommendations: Rehabilitation, Recovery and Community Participation Following Stroke. Part One: Stroke Rehabilitation Planning for Optimal Care Delivery, 7th Edition Update 2025**

Authors: Nelson, Michelle L. A.;Shi, Jing;Lindsay, M. P.;Salbach, Nancy M.;Yao, Jennifer K.;Timpson, Debbie;Ritsma, Benjamin R.;Auger, Louis-Pierre;Beaumont, Jenna;Bowes,

Rebecca;Chibane, Imane Samah;Courtice, Sarah J.;Delgado, Rhina;Dunlop, Melanie;Foley, Norine;Ghavami, Kimia;Guolla, Teresa;Kean, Deborah;MacFayden, Sandra and Masse, Jasmine

Publication Date: 2026

Journal: American Journal of Physical Medicine & Rehabilitation 105(1), pp. 59–75

Abstract: The Canadian Stroke Best Practice Recommendations 7th edition update of the Rehabilitation, Recovery and Community Participation module is presented in three parts. This publication, Part One of the series, reflects the growing and changing body of research evidence available to guide planning, ongoing screening and assessment, management, education, and support of individuals with stroke, their families, and caregivers. This module provides guidance for the planning and delivery of coordinated and seamless systems of care from acute stroke onset to return to community settings by an interdisciplinary team of healthcare providers with expertise in stroke. These recommendations were developed with active involvement of people with lived experience of stroke at all phases. These recommendations are intended to support the progress achieved during the initial recovery stages and enable individuals with stroke to resume life roles and leisure activities as best as possible, to achieve optimal recovery goals. Evidence for effective rehabilitation therapies and support for individuals with stroke and their families continues to emerge and gaps in knowledge should drive future research.

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8. **Adapting LIFE-H 3.1 to investigate the level of participation of community-dwelling survivors of stroke**

Authors: Ng, Shamay S. M.;Chen, Peiming;Chan, Yuk Lam;Chan, Yu Tung;Cheng, Hiu Tung;Lai, Cynthia Y. Y. and Liu, Tai Wa

Publication Date: 2026

Journal: Topics in Stroke Rehabilitation 33(1), pp. 39–49

Abstract: Background: The LIFE-H 3.1 is a measure that assesses person-perceived social participation and it has not been psychometrically examined in survivors of stroke. Objectives: To examine the psychometric properties of the LIFE-H 3.1, including its test – retest reliability, minimal detectable change (MDC) score, convergent and divergent validity, known-group validity, and the optimal cutoff score for distinguishing the level of participation between survivors of stroke and non-stroke older adults. Methods: Thirty-four survivors of stroke and 30 aged-matched non-stroke controls were recruited. The LIFE-H 3.1 and various health-related outcome measures were administered to the survivors of stroke in Day 1 to examine the correlations between them. Following a 7-day interval (Day 7), the LIFE-H 3.1 assessment was repeated in survivors of stroke to evaluate the test – retest reliability and establish the MDC. In non-stroke older adults (n = 30), LIFE-H 3.1 was administered on Day 1 only to examine the known-group validity to determine the cutoff score of LIFE-H 3.1 for distinguishing the level of participation between survivors of stroke and non-stroke older adults. Results: The overall LIFE-H 3.1 scale and its subscales demonstrated moderate-to-good test – retest reliability and significant associations with a functional mobility measure and a health-related quality of life

measure. We also established the MDC values of LIFE-H 3.1 and its subscales. Moreover, appropriate cutoff scores for person-perceived participation were established that gave LIFE-H3.1 the ability to distinguish between survivors of stroke and non-stroke older adults. Conclusion: LIFE-H 3.1 is a reliable and valid measure to evaluate the person-perceived social participation of survivors of stroke.

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9. **The course of anxiety symptoms in the 24 months after start of stroke rehabilitation and its relation with psychological care and unmet needs: an observational prospective cohort study**

Authors: Oosterveer, Daniëlla M.;Stokman-Meiland, Desi;de Rooij, Aleid;Arwert, Henk;Meesters, Jorit and Vliet Vlieland, Thea P. M.

Publication Date: 2026

Journal: Topics in Stroke Rehabilitation 33(1), pp. 29–38

Abstract: Background: Anxiety after stroke is common and has a negative impact on quality of life but might be underdiagnosed or undertreated. Objectives: To describe the course of anxiety symptoms post-stroke, and the relation with psychological care and unmet needs. Methods: In an observational prospective cohort study, patients with stroke completed the Hospital Anxiety and Depression Scale (HADS) at 3, 6, 12 and 24 months after the start of rehabilitation; 1 item about psychological care; and the Longer-Term Unmet Needs after Stroke. Chi-square and Kruskal–Wallis tests were used to compare patients within three different trajectories of anxiety symptoms based on the HADS anxiety subscale: no (all times <8), non-consistent (one to three times ≥8) or persistent anxiety symptoms (all times ≥8). Results: Six hundred and ninety patients were included (37.7% females, median age 62 years). At 3, 6, 12 and 24 months after baseline, 136/612 (22.2%), 129/586 (22.0%), 125/548 (22.8%), and 96/487 (19.7%) patients reported anxiety symptoms, respectively. There were 248/384 (64.6%) patients with no, 97/384 (25.3%) with non-consistent, and 39/348 (10.2%) with persistent anxiety symptoms. A minority of patients with non-consistent or persistent anxiety symptoms received psychological care. They had more unmet needs and more often an unmet need related to mood. Conclusion: The prevalence of post-stroke anxiety remains around 20%, and in 10.2% of patients persistent anxiety symptoms were found. Optimization of screening and treatment seems of value.

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10. **Who takes a recovery step? Predictors of step execution after tripping in individuals with stroke**

Authors: Osada, Yuji;Kobayashi, Yosuke;Osuka, Tomo and Yamamoto, Sumiko

Publication Date: 2026

Journal: Gait & Posture 124, pp. 110031

Abstract: Background: A recovery step is a crucial balance reaction that prevents falls in individuals with stroke. However, the characteristics of this response after tripping remain unclear, particularly regarding which limb is used for stepping and the factors associated with

whether a step is taken.; Research Question: This study aimed to identify the factors associated with whether a recovery step was taken following a trip to support the development of effective fall prevention strategies for individuals with stroke.; Methods: A large-scale motion capture database comprising 41,943 gait trials was analyzed to identify near-falls caused by paretic toe tripping in 42 patients with subacute stroke. Logistic regression analysis was conducted to examine the influence of physical function, walking-aid use, and near-fall velocity during tripping on step execution.; Results: Recovery steps were observed in 48 % of the participants, and 95 % of these steps were initiated with the non-paretic limb. The key factors associated with the occurrence of recovery steps included right-sided hemiparesis ($p = 0.085$), nonuse of a cane ($p = 0.028$), and higher fall velocity ($p = 0.007$). The full logistic regression model demonstrated good predictive ability, with an area under the curve of 0.850.; Conclusions: Individuals with stroke predominantly rely on the non-paretic limb for recovery stepping. The side of hemiparesis, cane use, and near-fall velocity were identified as key factors associated with step occurrence. These findings support the facilitation of recovery stepping through individualized training with rapid disturbances during independent walking in individuals with stroke.

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11. **Communication partner training (CPT) in Australian post-stroke aphasia services: a national survey investigating implementation barriers, facilitators and training needs**

Authors: Shrubsole, Kirstine;Wallace, Sarah J.;Isaksen, Jytte;Copland, David A. and Power, Emma

Publication Date: 2026

Journal: Topics in Stroke Rehabilitation 33(1), pp. 16–28

Abstract: Background: Communication Partner Training (CPT) is an intervention where multidisciplinary healthcare staff are trained to use supportive strategies to communicate with people with communication disabilities such as aphasia. CPT is an evidence-based recommendation in high-quality international stroke guidelines, but there are large evidence-practice gaps that need to be addressed. Objectives: This study explored a) current CPT practice, b) barriers and facilitators influencing CPT implementation, and c) preferences on ideal CPT. Methods: Australian stroke clinicians (speech pathologists: SLPs; the multidisciplinary team: MDT) working with people with aphasia across acute, rehabilitation and community settings completed an online cross-sectional survey based on the Theoretical Domains Framework. Data were analyzed using descriptive statistics, frequency distributions, total barriers scores and qualitative content analysis. Results: Final analyses included 206 surveys (105 SLPs 105; 101 MDT). Both groups (SLP 98%; MDT 71%) agreed CPT is beneficial to patients with aphasia. However, less than 20% of MDT respondents reported receiving CPT. While 87% of SLPs reported providing CPT, only 36% reported alignment with best practice. Key barriers included insufficient systems-level support, training opportunities and staff availability, and the MDT lacked knowledge and confidence in using communication strategies. Training preferences included flexible delivery, interactive approaches, and protected time. Conclusions: Current Australian CPT practice does not align with best practice guidelines and the stroke MDT have unmet training needs. Despite SLPs valuing interactive training with demonstration and practice, time constraints often reduce CPT to basic education. A targeted implementation strategy addressing key barriers is needed to

sustainably improve healthcare experience and communication outcomes.

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12. **Increased Risk of Stroke in Constipation Patients: Systematic Review and Meta-analysis**

Authors: Suenghataiphorn, Thanathip;Yanpiset, Panat;Xanthavanij, Nutchapon;Srikulmontri, Thitiphan;Thiravetyan, Ben;Tribuddharat, Narisara;Prasitsumrit, Vitchapong;Danpanichkul, Pojsakorn;Sodsri, Tulaton;Kulthamrongsri, Narathorn and Wattanachayakul, Phuuwadith

Publication Date: 2026

Journal: Journal of Clinical Gastroenterology 60(1), pp. 54–60

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13. **Effectiveness of Telehealth-Based Exercise Interventions for Patients With Stroke: A Meta-Analysis of Randomised Controlled Trials**

Authors: Sun, Yize;Zhang, Saiya;Zhao, Tianrui;Sun, Chenglin;Li, Ping and Zhang, Lihua

Publication Date: 2026

Journal: Journal of Clinical Nursing (John Wiley & Sons, Inc.) 35(1), pp. 47–60

Abstract: Aim: To explore the effects of telehealth-based exercise interventions on balance, motor function, walking ability and activities of daily living (ADLs) in patients with stroke. Design: Meta-analysis of randomised controlled trials. Methods: This meta-analysis of randomised controlled trials was reported to follow the PRISMA statement and the Cochrane Handbook guidelines. The study employed either a fixed-effects model or a random-effects model according to the statistical heterogeneity observed. Data Sources: The literature search was performed in six databases including PubMed, Embase, the Cochrane Central Register of Controlled Trials, Web of Science, PsycINFO and CINAHL from inception to December 2023. Results: A total of 15 randomised controlled trials were included in this meta-analysis. Most of the studies were evaluated for some concerns. The quality of the evidence in this analysis ranged from low to moderate in terms of the outcome. Meta-analysis revealed that telehealth-based exercise interventions presented significant effects on walking ability, motor function and ADLs in patients with stroke. Nonetheless, the balance remained unaffected by statistical significance. Conclusion: Telehealth-based exercise interventions could effectively improve walking ability, motor function and ADLs in patients with stroke; however, the impact on balance was not significant. Telehealth-based exercise interventions are recommended for stroke survivors residing in remote areas or facing economic constraints. Implications for the Profession and Patient Care: This meta-analysis showed that telehealth-based exercise interventions could bring benefits to the rehabilitation of patients with stroke. Telehealth-based exercise interventions should be considered effective to better promote the rehabilitation of patients. Reporting Method: The study was reported in compliance with the PRISMA statement. Patient or Public Contribution: None. Trial Registration: PROSPERO (https://www.crd.york.ac.uk/PROSPERO): CRD42024501015

14. **Effectiveness of Multidisciplinary Transitional Care Interventions on Functional Status, Quality of Life and Readmission Rates in Stroke Patients: A Systematic Review and Meta-Analysis**

Authors: Tan, Syn Yin Jessica;Lee, Shihui Charlene;Rusli, Khairul Dzakirin Bin;Woo, Brigitte Fong Yeong;Ang, Seng Giap Marcus;Zhou, Wentao;Tam, Wai San Wilson and Liaw, Sok Ying

Publication Date: 2026

Journal: Journal of Clinical Nursing (John Wiley & Sons, Inc.) 35(1), pp. 85–98

Abstract: Aim: To evaluate the effectiveness of multidisciplinary transitional care interventions on functional status, quality of life and readmission rates of stroke patients. Design: Quantitative systematic review and meta-analysis. Methods: Studies with interventions to ease the hospital-to-home transition of stroke patients that were delivered by multidisciplinary teams consisting of registered healthcare professionals from at least two disciplines were included. Cochrane Risk of Bias tool was used for quality appraisal. Data Sources: Seven electronic databases (PubMed, Embase, Cochrane Library, Cumulative Index to Nursing and Allied Health Literature, PsycINFO, Scopus and Web of Science) were searched for randomised controlled trials delivering transitional care interventions to hospitalised stroke patients. Results: Thirty-one randomised controlled trials were included in the final review. The studies featured multidisciplinary teams of two to nine professionals, most commonly nurses, physicians and physiotherapists. Although multidisciplinary care improved functional status and quality of life scores, the impact on readmission rates was inconclusive. Meta-analysis revealed significant improvements in functional status when care involved physicians, care coordinators (often nurses) or had teams of more than two healthcare professionals. Significant improvement in quality of life was also reported when care involved physicians or in teams with more than two healthcare professionals. Conclusions: Multidisciplinary transitional care interventions show promise in improving functional status and quality of life after stroke. Their effectiveness depends on team composition and coordination, particularly the inclusion of physicians and care coordinators. Future research should address reporting gaps and evaluate broader strategies to reduce hospital readmissions. Implications for Profession and Patient Care: Impact (Addressing) What problem did the study address? ○The effectiveness of multidisciplinary transitional care interventions for stroke patients.○Evaluated the role of various healthcare professionals within these teams.What were the main findings? ○Multidisciplinary transitional care interventions significantly enhance stroke patients' functional status, especially within the first 3 months.○Teams with care coordinators (often nurses) and supportive physicians improve functional outcomes, with effective communication being crucial despite underreporting of specific practices.○Teams comprising of more than two health professionals can significantly improve stroke patients' functional status.Where and on whom will the research have an impact? ○Healthcare institutions and providers: The findings can guide healthcare institutions in developing and implementing effective transitional care services for stroke patients.○Stroke patients: Patients receiving multidisciplinary transitional care are likely to experience enhanced functional recovery and improved ability to perform daily activities.○Policymakers and researchers: The study highlights the need for more detailed reporting and research on communication practices within multidisciplinary teams and the importance of evaluating underreported outcomes like readmission rates. Reporting Method: Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) checklist.

15. **End-of-Life Symptoms After Stroke: A Mixed Methods Study**

Authors: Willert, Anna-Christin;Romba, Meghan;Khan, Sumayyah M.;Longstreth, William T. and Creutzfeldt, Claire J.

Publication Date: 2026

Journal: Journal of Pain & Symptom Management 71(1), pp. 127–113

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16. **Electroacupuncture for the treatment of ischemic stroke: A preclinical meta-analysis and systematic review**

Authors: Yang, Guohui;Guan, Chong;Liu, Meixi;Lin, Yi;Xing, Ying;Feng, Yashuo;Li, Haozheng;Wu, Yi;Wang, Nianhong and Luo, Lu

Publication Date: 2026

Journal: Neural Regeneration Research 21(3), pp. 1191–1210

Abstract: Stroke remains a leading cause of death and disability worldwide, and electroacupuncture has a long history of use in stroke treatment. This meta-analysis and systematic review aimed to evaluate the efficacy of electroacupuncture and explore its potential mechanisms in animal models of ischemic stroke. The PubMed, EMBASE, Web of Science, CENTRAL, and CINAHL databases were comprehensively searched up to May 1, 2024. This review included articles on preclinical investigations of the efficacy and mechanisms of electroacupuncture in treating ischemic stroke. Data from 70 eligible studies were analyzed in Stata 18.0, using a random-effects model to calculate the standardized mean difference (Hedge's g). The risk of bias was assessed using RevMan 5.4 software, and the quality of evidence was rated according to the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system. Subgroup analyses were conducted to test the consistency of the results and sensitivity analyses were used to assess their robustness. The quality assessment revealed that most studies adequately handled incomplete data and selective reporting. However, several methodological limitations were identified: only 4 studies demonstrated a low risk of allocation concealment, 26 achieved a low risk of outcome assessment bias, and 9 had a high risk of randomization bias. Additionally, there was an unclear risk regarding participant blinding and other methodological aspects. The GRADE assessment rated 12 outcomes as moderate quality and 6 as low quality. The mechanisms of electroacupuncture treatment for ischemic stroke can be categorized as five primary pathways: (1) Electroacupuncture significantly reduced infarct volume and apoptotic cell death ($P < 0.01$) in ischemic stroke models; (2) electroacupuncture significantly decreased the levels of pro-inflammatory factors ($P < 0.01$) while increasing the levels of anti-inflammatory factors ($P = 0.02$); (3) electroacupuncture reduced the levels of oxidative stress indicators ($P < 0.01$) and enhanced the expression of antioxidant enzymes ($P < 0.01$); (4) electroacupuncture significantly promoted nerve regeneration ($P < 0.01$); and (5) electroacupuncture influenced blood flow remodeling ($P < 0.01$) and angiogenesis ($P < 0.01$). Subgroup analyses indicated that electroacupuncture was most effective in the transient middle cerebral artery occlusion model ($P < 0.01$) and in post-middle cerebral artery occlusion intervention ($P < 0.01$). Dispersive waves were found to outperform continuous waves with respect to neuroprotection

and anti-inflammatory effects (P < 0.01), while scalp acupoints demonstrated greater efficacy than body acupoints (P < 0.01). The heterogeneity among the included studies was minimal, and sensitivity analyses indicated stable results. Their methodological quality was generally satisfactory. In conclusion, electroacupuncture is effective in treating cerebral ischemia by modulating cell apoptosis, oxidative stress, inflammation, stroke-induced nerve regeneration, blood flow remodeling, and angiogenesis. The efficacy of electroacupuncture may be influenced by factors such as the middle cerebral artery occlusion model, the timing of intervention onset, waveform, and acupoint selection. Despite the moderate to low quality of evidence, these findings suggest that electroacupuncture has clinical potential for improving outcomes in ischemic stroke.

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17. **The mechanism of electroacupuncture treatment for post-stroke spasticity: A systematic review and Meta-analysis**

Authors: You, Lei;Hu, Mengwan;Li, Jingang;Tan, Jiahui;Guo, Fengmin and Kong, Ying

Publication Date: 2026

Journal: Behavioural Brain Research 497, pp. 115873

Abstract: Objective: This study assesses whether electroacupuncture (EA) is an effective treatment for post-stroke spasticity (PSS) and examines the mechanisms by which it modulates PSS. Clinical and mechanistic evidence are analyzed to clarify its therapeutic value and biological basis.; Methods: A literature search was conducted in databases including PubMed, Web of Science (WOS), Embase, Medline and SinoMed. The quality was evaluated by the Systematic Review Centre for Laboratory Animal Experimentation (SYRCLE) bias risk assessment tool and Collaborative Approach to Meta-analysis and Review of Animal Data from Experimental Studies (CAMARADES) checklist. Meta-analyses were performed using Stata 15.0 and Rstudio software.; Results: Twenty studies involving 388 animals were included, with quality scores ranging from 4 to 8 (mean: 6.1). Zea Longa and Modified Ashworth Scale (MAS) were selected as primary outcomes, while secondary outcomes included Bederson score, electrophysiological tracing, balance beam walking, cerebral water content, cerebral infarction degree, Interleukin-6 (IL-6), tumor necrosis factor-α (TNF-α), malondialdehyde (MDA), gamma-aminobutyric acid (GABA), glutamate (Glu), gamma-aminobutyric acid transaminase (GABA-T), glutamate decarboxylase 67 (GAD67), brain-derived neurotrophic factor (BDNF), tropomyosin receptor kinase B (TrkB), BDNF messenger RNA (BDNF mRNA), TrkB messenger RNA (TrkB mRNA), glutathione (GSH), solute carrier family 7 member 11 (SLC7A11), glutathione peroxidase 4 (GPX4), SLC7A11 messenger RNA (SLC7A11 mRNA), and GPX4 messenger RNA (GPX4 mRNA).Meta-analysis demonstrated significant improvements in primary outcomes: Zea Longa score MD = -1.05, 95 % CI (-1.30, -0.80), P < 0.001], MAS score: MD = -1.06, 95 % CI (-1.43, -0.69), P < 0.001]. EA therapy demonstrated significant efficacy in enhancing neurological recovery, alleviating limb spasticity, and improving postural balance. Furthermore, it effectively reduced cerebral infarct volume, mitigated cerebral edema severity, and modulated biochemical markers by decreasing serum levels of IL-6, TNF-α, MDA, Glu, and GABA-T (P < 0.05). Concurrently, therapeutic intervention upregulated multiple neuroprotective indicators including GSH, GABA, SLC7A11 mRNA, GPX4 (with its mRNA expression), GAD67, BDNF, TrkB (and its mRNA), along with enhancing GPX4 activity (P < 0.05). Heterogeneity analysis revealed publication bias in MAS

assessments, while heterogeneity in intervention protocols (waveform parameters, acupoint selection, or treatment duration) potentially contributed to elevated heterogeneity across other outcome measures.; Conclusion: EA modulates neurotransmitter levels and associated enzymatic, while concurrently suppressing microglia-mediated neuroinflammatory responses. This intervention mitigates oxidative stress byproducts, maintains tissue redox homeostasis, and enhances synaptic plasticity while promoting neuronal development. Collectively, our findings underscore EA's therapeutic potential in PSS management, necessitating further mechanistic investigations and optimization of clinical protocols.

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18. **Comparison of the effects of acupuncture and drug treatment for central post-stroke pain: A systematic review and network meta-analysis of randomized trials**

Authors: Zhang, Chun;Wu, Zhiping;Fan, Wenjing;Wei, Wei;Mutallip, Mihriya;Yang, Shuqun;Zhao, Wangyang;Sun, Yu and Chen, Xin

Publication Date: 2026

Journal: Behavioural Brain Research 499, pp. 115936

Abstract: Background and Purpose: Central post-stroke pain (CPSP), a chronic neuropathic pain syndrome severely impairing quality of life, has no established optimal therapy, though randomized controlled trials have evaluated the effects of drug therapy, acupuncture, and their combination.; Methods: The primary outcomes were pain scores and the number of adverse reactions. The primary analyses involved network plotting to illustrate the structure of the network with P-scores to encapsulate the ranking of interventions. Results were obtained through direct comparisons within studies and indirect comparisons across studies. The Cochrane tool (ROB 2.0) was utilized to evaluate risk of bias.; Results: Bayesian ranking identified Xingnao Kaiqiao acupuncture combined with pregabalin (82.47 %) as the most effective, followed by carbamazepine with gabapentin (80.9 %), Xingnao Kaiqiao acupuncture (79.31 %), Tiaoshen Zhitong acupuncture (72.69 %) and pregabalin (69.2 %). Based on direct and indirect evidence from the NMA, Xingnao Kaiqiao acupuncture combined with pregabalin showed the greatest efficacy compared to placebo (-2.68, 95 % CI: -5.29 to -0.14). Tiaoshen Zhitong acupuncture outperformed carbamazepine (-1.74, 95 % CI: -3.20 to -0.23) and placebo (-2.06, 95 % CI: -4.05 to -0.03), while pregabalin demonstrated superior analgesic effects compared to carbamazepine (-1.54, 95 % CI: -2.40 to -0.64), gabapentin (-1.49, 95 % CI: -2.45 to -0.51), and placebo (-1.86, 95 % CI: -3.21 to -0.53).; Conclusion: For CPSP treatment, Xingnao Kaiqiao acupuncture combined with pregabalin was most effective, followed by Xingnao Kaiqiao acupuncture, Tiaoshen Zhitong acupuncture, and pregabalin. Treatment strategies may vary regionally; however, combining Xingnao Kaiqiao acupuncture with pregabalin could represent the most effective approach, providing clinical recommendations.

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19. **Relationship between social determinants of health and stroke, and the moderating and mediating effect of depression**

Authors: Zhang, YongYing;Zhang, Bin;Zhuang, Honghua and Yin, Yushan

Publication Date: 2026

Journal: Journal of Affective Disorders 394, pp. 120469

Abstract: Competing Interests: Declaration of competing interest I have nothing to declare.; Background: Adverse social determinants of health (SDoH) and depression are risk factors for stroke, but whether depression mediates the link between SDoH and stroke remains unclarified. This study utilized NHANES data to characterize the link between SDoH and stroke, as well as the moderating and mediating roles of depression in this link.; Methods: This research analyzed NHANES data from 2005 to 2018. First, weighted logistic regression and subgroup analyses were implemented to study the link between SDoH and stroke. Weighted logistic regression and restricted cubic spline (RCS) analyses were utilized to discuss the potential nonlinear link between depression scores and stroke. The moderating and mediating effects of depressive factors on stroke occurrence were systematically examined.; Results: This paper enrolled 26,386 eligible participants, including 955 stroke patients. Compared with the low-SDoH burden group, the high-SDoH burden group exhibited a positive link with stroke (OR: 1.532, 95 % CI: 1.194-1.966). Participants with depression had a markedly higher stroke risk than participants without depression (OR: 1.832, 95 % CI: 1.393-2.410). RCS analysis revealed a marked nonlinear positive link between depression scores and stroke risk (p for nonlinear = 0.023). In the population without depression, SDoH was prominently associated with stroke. The mediating effect of depression with a mediation proportion of 11.15 % (p < 0.001).; Conclusion: A positive correlation exists between SDoH and stroke, with depression playing a moderating and mediating role. Depression and SDoH should be considered jointly when developing targeted stroke prevention intervention strategies. Future large-scale cohort studies and clinical trials are warranted for validation.

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20. **Sexuality after a stroke: co-designing and pilot testing an evidence-based knowledge translation intervention to improve rehabilitation services**

Authors: Auger, Louis-Pierre;Filiatrault, Johanne;Allegue, Dorra Rakia;Thomas, Aliki;Vachon, Brigitte;Morales, Ernesto;Zevnik, Andrea and Rochette, Annie

Publication Date: 2025

Journal: Disability & Rehabilitation 47(26), pp. 6898–6908

Abstract: Purpose: To co-design and pilot test a theory-driven knowledge translation (KT) intervention with various key stakeholders involved in stroke rehabilitation to improve the provision of sexual rehabilitation services. Methods: This study was conducted using qualitative methods for the co-design of the KT intervention, and a longitudinal quantitative design for its pilot implementation. The KT intervention was codesigned during five online workshops with individuals with stroke, partners, clinicians, managers and researchers. Data collection and analysis were based on the Theoretical Domains Framework. One inpatient stroke rehabilitation center implemented the KT intervention for 19 months. Monthly audits were conducted 6 months before and for each month of implementation of the KT intervention. Quantitative data were analyzed using descriptive statistics. Results: The codesign led to the development of a multifaceted KT intervention aiming to influence nine determinants of

behaviors. The pilot implementation of the KT intervention improved the proportion of patients who received sexuality-related services during their rehabilitation from 33% (5/15 patients; baseline) to 74% (113/152 patients), and at least 56% received education regarding sexuality. Conclusions: The pilot implementation of this evidence-based multifaceted KT intervention suggests the intervention is applicable and can influence the provision of guideline-concordant sexual rehabilitation services for stroke patients. IMPLICATIONS FOR REHABILITATION: An evidence-based multifaceted knowledge translation (KT) intervention was co-designed with stroke rehabilitation stakeholders: individuals with stroke, partners, clinicians and managers using the Intervention Mapping. The KT intervention includes 11 complementary components aiming to restructure the environment, to enable or to train clinicians from every discipline in providing evidence-based sexual rehabilitation services to individuals with stroke. Implementation of the KT intervention improved provision of sexual rehabilitation in an inpatient stroke rehabilitation center. The KT intervention holds promise in its potential to be adapted to other care settings and other health conditions.

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21. **An international, multi-perspective survey examining the poststroke impact and unmet needs following young stroke**

Authors: Cleary, Oisín;McBride, Orla;Davison, Jenny and Kennedy, Niamh C.

Publication Date: 2025

Journal: Disability & Rehabilitation 47(26), pp. 7001–7009

Abstract: Purpose: Research into young stroke survivors' unmet needs is limited, despite this cohort accounting for ~25% of the stroke population. Methods: This international survey acts as the first to explore the post-stroke impact and unmet needs across three key stakeholder groups: young stroke survivors, young stroke carers and healthcare professionals. Surveys were distributed via stroke organization newsletters and support groups. Survey questions consisted of existing validated outcome measures, closed and open-ended questions. Survey responses underwent ANOVA testing and regression modelling on validated measures: Stroke Impact Scale (SIS), Adult Carer Quality of Life questionnaire (AC-QoL) and Zarit Burden Interview (ZBI). Results: Survey data was collected from 316 young stroke survivors, 68 young stroke carers and 117 healthcare professionals. Young stroke survivors' mean (SD) SIS score was 67.15 (25.17) and carers reported AC-QoL scores and ZBI scores of 70.16 (21.10) and 30.47 (19.20) respectively, indicating mid-range quality of life and burden. Common themes that arose in qualitative accounts highlighted impacts and unmet needs in psychosocial, occupational and quality of life support. Conclusions: Participants reported a range of post-stroke impacts and unmet needs specific to a younger cohort. These should be considered when developing and providing services for young stroke survivors. IMPLICATIONS FOR REHABILITATION: In this study, common unmet needs have been identified for young stroke survivors across key stakeholders: survivors, carers, and healthcare professionals. Rehabilitation services should be mindful of the themes emerging from respondents, including emphasized return to work, caring responsibilities, and the psychosocial consequences of stroke at an early age in the treatment of young survivors. The impact and needs of younger stroke must be considered by current services and subsequently tailored to support cases of younger stroke.

22. **Effect of Cognitive Training on Sleeping Disorders in Stroke: A Randomized Controlled Trial**

Authors: Mahmoud, Lama Saad El-Din;Gomaa, Maged Aladrousy and Alshimy, Ahmed Magdy

Publication Date: 2025

Journal: American Journal of Physical Medicine & Rehabilitation 104(12), pp. 1100–1104
Abstract: Objective: The aim of the study was to investigate the effect of cognitive training on sleeping disorders in poststroke. Design: Forty stroke patients who suffered from sleep difficulties were split into two equal groups at random: the study group had cognitive training plus instructional sleep hygiene therapy for 4 wks, whereas the control group just received instructional sleep hygiene therapy for three sessions a week. The Mini-Mental State Examination, Pittsburgh Sleep Quality Index, and Epworth Sleeping Scale were used to evaluate the patients both before and after treatment. Results: The study demonstrated a statistically significant improvement impact in the study group compared to the control group on the Mini-Mental State Examination, Pittsburgh Sleep Quality Index, and Epworth Sleeping Scale ($P < 0.05$). Conclusions: After a stroke, cognitive training significantly improved the rehabilitation of sleep disturbances.

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23. **Use of Rapid Response Teams to Expedite Imaging and Treatment for Inpatients With Acute Stroke**

Authors: Siaron, Kathrina B.;Heineman, Theresa;Earnest, Julie;Otieno-Watta, Lillian;Pulliam, Cara;Sonier, Norma;Nairon, Emerson B.;Olson, DaiWai M.;Johnson, Mark and Cohen, Leah A.

Publication Date: 2025

Journal: AACN Advanced Critical Care 36(4), pp. 317–324

Abstract: In-hospital strokes carry high long-term morbidity and mortality rates, but treatment pathways for inpatient strokes are not as well studied as those for community-onset strokes. This single-center, retrospective study of in-hospital Code Strokes extracted data from a database maintained by stroke nurse coordinators at an urban academic institution (January 2017 to March 2023). The objective was to explore the benefits of a rapid response team–driven Code Stroke model. Of 900 Code Stroke activations, 836 were driven by the rapid response team and 64 were not driven by the rapid response team. Patients with codes activated by the rapid response team received imaging faster than did those with codes not activated by the rapid response team (mean SD] time, 15.7 13.7] minutes vs 23.2 23.1] minutes; P =.03). More Code Strokes were activated in the intensive care units and cardiovascular units than in other areas.

Sources Used:

A number of different databases and websites are used in the creation of this bulletin.

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