

# Stroke

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April 2024

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### **1. The effects of low-intensity resistance training with blood flow restriction versus traditional resistance exercise on lower extremity muscle strength and motor function in ischemic stroke survivors: a randomized controlled trial**

**Authors:** Ahmed, Ishtiaq; Mustafaoglu, Rustem and Erhan, Belgin

**Publication Date:** 2024

**Journal:** Topics in Stroke Rehabilitation 31(4), pp. 418-429

**Abstract:** Blood flow restriction (BFR) training can temporarily reduce cortical GABA concentrations and increase the size of motor volleys to deafferented muscles, which can promote motor recovery in stroke survivors. To determine the effect of low-intensity resistance training with BFR (LIRT-BFR) on lower extremity muscle strength, balance, functional mobility, walking capacity, gait speed, anxiety, and depression in stroke survivors and to compare the results with high-intensity resistance training (HIRT). It was a two-arm, single-blinded, randomized controlled trial in which 32 ischemic stroke participants were randomly allocated to LIRT-BFR or HIRT group. The LIRT-BFR group received low load resistance training (40% of 1-Repetition Maximum (1-RM)) with BFR, whereas HIRT group received high load resistance training (80% of 1-RM). The 6-Minute Walk Test (6-MWT), five-time sit-to-stand test (5TSTST), Timed Up and Go (TUG) test, and Barthel index were the primary outcome measures. The secondary outcome measures included gait speed (m/s), stride length (cm), cadence (steps/min), and Hospital Anxiety and Depression. All the primary and secondary outcome measures were significantly improved in both groups ( $p < 0.05$ ). The LIRT-BFR group showed a slightly greater, but non-significant, improvement as compared to the HIRT group in terms of mean change observed in 6-MWT (81 m vs 62 m), 5TSTST (-5.27 vs -4.81), gait speed (0.19 vs 0.12), stride length (18 vs 13), and cadence (8 vs 6). No adverse event was reported. LIRT-BFR produced a significant improvement in muscle strength, balance, walking capacity, and anxiety and depression in ischemic stroke patients, and the improvement are comparable to HIRT. NCT05281679

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### **2. Readability of patient education material in stroke: a systematic literature review**

**Authors:** Ahn, Aaron B.; Kulhari, Sajal; Karimi, Amir; Sundararajan, Sophia and Sajatovic, Martha

**Publication Date:** 2024

**Journal:** Topics in Stroke Rehabilitation 31(4), pp. 345-360

**Abstract:** Stroke education materials are crucial for the recovery of stroke patients, but their effectiveness depends on their readability. The American Medical Association (AMA) recommends patient education materials be written at a sixth-grade level. Studies show existing paper and online materials exceed patients' reading levels and undermine their health literacy. Low health literacy among stroke patients is associated with worse health outcomes and decreased efficacy of stroke rehabilitation. We reviewed the readability of paper (i.e brochures, factsheets, posters) and online (i.e American Stroke Association, Google, Yahoo!) stroke patient education materials, reading level of stroke patients, accessibility of online health information, patients' perceptions on gaps in stroke information, and provided recommendations for improving readability. A PRISMA-guided systematic literature review was conducted using PUBMED, Google Scholar, and EbscoHost databases and "stroke", "readability of stroke patient education", and "stroke readability" search terms to discover English-language articles. A total of 12 articles were reviewed. SMOG scores for paper and online material ranged from 11.0 - 12.0 grade level and 7.8 - 13.95 grade level respectively. Reading level of stroke patients ranged from 3rd grade to 9th grade level or above. Accessibility of online stroke information was high. Structured patient interviews illustrated gaps in patient education materials and difficulty with comprehension. Paper and online patient education materials exceed the reading level of stroke patients and the AMA recommended 6th grade level. Due to limitations in readability, stroke patients are not being adequately educated about their condition.

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### **3. Effects of trunk exercises using virtual reality technology on trunk performance and**

## **impairment post stroke: a systematic review and meta-analysis**

**Authors:** Alhwoaimel, Norah A.;Alenazi, Aqeel M.;Alhowimel, Ahmad S.;Alqahtani, Bader A. and Alshehri, Mohammed M.

**Publication Date:** 2024

**Journal:** Topics in Stroke Rehabilitation 31(4), pp. 399-408

**Abstract:** To systematically explore the effects of trunk exercises using virtual reality technology compared to conventional exercises for trunk impairment in patients with subacute and chronic strokes. A comprehensive search of literature published from inception until December 2022 was conducted using PubMed, Cochrane Library, Web of Science, Scopus, IEEE, and the Physiotherapy Evidence Database (PEDro). The inclusion criteria encompassed all randomized controlled trials (RCT) published in the English language involving adults who had had strokes and the evaluation of the effectiveness of virtual reality -based trunk exercises in reducing trunk impairment post stroke as measured by the trunk control test (TCT) and/or the trunk impairment scale (TIS) compared to conventional trunk exercises. A total of 397 studies were retrieved, and six studies were included in the current analysis. A random-effects meta-analysis of six studies indicated that video games had a very large, significant effect (SMD = 1.11; 95%, P < 0.0001) on the delivery of trunk exercises to reduce trunk impairment post stroke at both the subacute and chronic stages. The study findings indicate that trunk exercises using virtual reality have a highly significant effect on reducing trunk impairment in patients with subacute and chronic stroke. Large RCTs are needed to study the effects of virtual reality trunk exercises on the acute, subacute, and chronic stages of stroke.

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## **4. Sex Disparities in Stroke Hospitalizations among Patients on Hemodialysis**

**Authors:** Ali, Zafar;Chan, Wan-Chi;Ellerbeck, Edward;Mustafa, Reem;Vindhya, Mohinder R. and Gupta, Kamal

**Publication Date:** 2024

**Journal:** Journal of the American College of Cardiology (JACC) 83(13), pp. 2268

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## **5. Video parameters for action observation training in stroke rehabilitation: a scoping review**

**Authors:** Biswas, Arunima;Rao, Prajna D.;Madhavan, Sangeetha;Natarajan, Manikandan and Solomon, John M.

**Publication Date:** 2024

**Journal:** Disability & Rehabilitation 46(7), pp. 1256-1265

**Abstract:** Action observation training (AOT) is a therapeutic approach used in stroke rehabilitation. Videos form the core of AOT, and knowledge of constituent parameters is essential to make the intervention robust and generalizable. Currently, there is a dearth of available information on video parameters to be used for AOT. Our purpose was to identify and describe the parameters that constitute AOT videos for stroke rehabilitation. Electronic databases like PubMed, CINAHL, Scopus, Web of Science, ProQuest, and Ovid SP from inception to date according to PRISMA-ScR guidelines. Title, abstract, and full-text screening were done independently by two authors, with a third author for conflict resolution. Data on video parameters like length, quality, perspective, speed, screen size and distance, sound, and control videos were extracted. Seventy studies were included in this review. The most-reported parameters were video length (85.71%) and perspective of view (62.85%). Movement speed (7.14%) and sound (8.57%) were the least reported. Static landscapes or geometrical patterns were found suitable as control videos. Most video parameters except for length and perspective of view remain underreported in AOT protocols. Future studies with better descriptions of video parameters are required for comprehensive AOT interventions and result generalisation. Videos shorter than 5 min

may be preferred during action observation training (AOT) intervention in post-stroke. Egocentric view may be better for upper limb dexterity function and allocentric view for gross actions like walking. Choice of video disseminating device depends on its dimension as well as observer distance. Movement speed, video sound, and quality must be considered to obtain more comprehensive AOT videos

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## 6. A Systematic Review and Meta-Analysis of the Effect of Intensive Blood Pressure Control on Nonfatal Stroke

**Authors:** Bussa, Rahul;Nudy, Matthew;Ahmed, Mohammad;Bussa, Jatin;Sturts, Adam;Filippone, Edward;Naccarelli, Gerald V. and Foy, Andrew J.

**Publication Date:** 2024

**Journal:** Journal of the American College of Cardiology (JACC) 83(13), pp. 1839

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## 7. Effects of home-based exercise interventions on post-stroke depression: A systematic review and network meta-analysis

**Authors:** Chen, Rong;Guo, Yijia;Kuang, Yashi and Zhang, Qi

**Publication Date:** 2024

**Journal:** International Journal of Nursing Studies 152, pp. N.PAG

**Abstract:** Post-stroke depression (PSD) is a common and persistent mental disorder that negatively impacts stroke outcomes. Exercise-based interventions have been shown to be an effective non-pharmacological treatment for improving depression in patients with mild stroke, but no reviews have yet synthesized the effects of home-based exercise on PSD. The purpose of this systematic review and network meta-analysis was to synthesize the available evidence to compare the effectiveness of different types of home-based exercise programs on PSD and identify the optimal home-based exercise modality to inform clinical decision-making for the treatment of PSD. PubMed, Embase, the Cochrane Library, CINAHL, and PsycINFO were systematically searched from their inception dates to March 7, 2023. We searched for randomized controlled trials (RCTs) of home-based exercise for PSD in adults aged 18 years and older. Only scores of depression retrieved directly post-treatment were included as the primary endpoint for the analysis. Version 2 of the Cochrane risk-of-bias tool for randomized trials (RoB-2) was used to assess the quality of included studies. We conducted traditional pairwise meta-analysis for direct comparisons using Review Manager 5.4.1, followed by network meta-analysis using Stata 15.1 for both the network evidence plot and analysis. The surface under the cumulative ranking curve (SUCRA) was used to estimate the intervention hierarchy. The protocol was registered with PROSPERO under registration number CRD42022363784. A total of 517 participants from nine RCTs were included. Based on the ranking probabilities, mind–body exercise was the most effective way in improving PSD (SUCRA: 90.4 %, Hedges' g: – 0.59, 95 % confidence interval CI]: – 1.16 to – 0.02), followed by flexibility/neuro-motor skills training (SUCRA: 42.9 %, Hedges' g: – 0.10, 95 % CI: – 0.70 to 0.49), and aerobic exercise (SUCRA: 39.3 %, Hedges' g: – 0.07, 95 % CI: – 0.81 to 0.67). We performed a subgroup analysis of mind–body exercise. In mind–body exercise interventions, Tai Chi was the most effective way to improve PSD (SUCRA: 99.4 %, Hedges' g: – 0.94, 95 % CI: – 1.28 to – 0.61). Our network meta-analysis that provides evidence with very low certainty indicates potential benefits of home-based exercise for alleviating PSD, with mind–body exercises, notably Tai Chi, showing promise as an effective treatment. However, further rigorous studies are needed to solidify these findings. Specifically, multicenter RCTs comparing specific exercises to no intervention are crucial, assessing not only efficacy but also dose, reach, fidelity, and long-term effects for real-world optimization.

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## 8. ICU admission Braden score independently predicts delirium in critically ill patients with ischemic stroke

**Authors:** Cheng, Hongtao;Ling, Yitong;Li, Qiugui;Tang, Yonglan;Li, Xinya;Liang, Xin;Huang, Xiaxuan;Su, Ling and Lyu, Jun

**Publication Date:** 2024

**Journal:** Intensive & Critical Care Nursing 82, pp. N.PAG

**Abstract:** Delirium is a common and severe complication in intensive care unit (ICU) patients with acute ischemic stroke, exacerbating cognitive and physical impairments. It prolongs hospitalization, increases healthcare costs, and raises mortality risk. Early prediction is crucial because it facilitates prompt interventions that could possibly reverse or alleviate the detrimental consequences of delirium. Braden scores, traditionally used to assess pressure injury risk, could also signal frailty, providing an early warning of delirium and aiding in prompt and effective patient management. To examine the association between the Braden score and delirium. A retrospective analysis of adult ischemic stroke patients in the ICU of a tertiary academic medical center in Boston from 2008 to 2019 was performed. Braden scores were obtained on admission for each patient. Delirium, the primary study outcome, was assessed using the Confusion Assessment Method for Intensive Care Unit and a review of nursing notes. The association between Braden score and delirium was determined using Cox proportional hazards modeling, with hazard ratios (HR) and 95% confidence intervals (CI) calculated. The study included 3,680 patients with a median age of 72 years, of whom 1,798 were women (48.9 %). The median Braden score at ICU admission was 15 (interquartile range 13–17). After adjustment for demographics, laboratory tests, severity of illness, and comorbidities, the Braden score was inversely associated with the risk of delirium (adjusted HR: 0.94, 95 % CI: 0.92–0.96,  $P < 0.001$ ). The Braden score may serve as a convenient and simple screening tool to identify the risk of delirium in ICU patients with ischemic stroke. The use of the Braden score as a predictor of delirium in ischemic stroke patients in the ICU allows early identification of high-risk patients. This facilitates timely intervention, thereby improving patient outcomes and potentially reducing healthcare costs.

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## 9. Preferences of people with post-stroke aphasia for aphasia research videos: An international project

**Authors:** Finch, Emma;Pierce, John E.;Pais, Analisa M.;Dow-Richards, Carol;Reed, Allie;Charalambous, Marina;Matos, Maria Assunção;Wallace, Sarah J. and Breitenstein, Caterina

**Publication Date:** 2024

**Journal:** Aphasiology 38(4), pp. 758-769

**Abstract:** Most aphasia research is published in international, peer-reviewed journals in a format that is inaccessible for people with aphasia (PWA). Video presents an ideal format for disseminating information to PWA in an accessible digital format. No research has explored the preferred format for aphasia research videos from the perspectives of PWA. To explore the format preferences of PWA for aphasia-accessible research videos. The study involved three stages; all used a semi-structured focus group design. Stage 1 ( $n = 16$  PWA) developed the topic guide. PWA shared opinions about which questions they considered important for Stage 2 interview questions. Stage 2 gathered the votes of PWA ( $n=40$ ) using these questions. Stage 3 ( $n = 6$  PWA) reviewed the voting results of Stage 2 and collected opinions from PWA about an example video that adhered to the identified preferences. Data analysis for all stages used descriptive statistics (e.g., counts) and qualitative content analysis. We identified 11 consumer-informed preferences for aphasia-accessible research videos: 1-Speak with normal rate; 2-Tailor video duration to content: 5-10 minutes was most acceptable; 3-Include researcher photos; 4-Use written keywords; 5-Use a mix of images; 6-Include a PWA; 7-No preference for deciding topic; 8-Avoid background music; 9-Provide a summary at the end; 10-Translate into other languages; and 11-Link to resources. These preferences should guide the development of aphasia-accessible research videos, assisting researchers to bridge the evidence-knowledge gap in the aphasia community. Further research is required, including with non-English participants and family members of PWA.

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## 10. Tenecteplase versus alteplase for the treatment of acute ischemic stroke: a meta-analysis of randomized controlled trials

**Authors:** Huang, Jian;Zheng, Hui;Zhu, Xianfeng;Zhang, Kai and Ping, Xiaofeng

**Publication Date:** 2024

**Journal:** Annals of Medicine 56(1), pp. 2320285

**Abstract:** Objectives: Tenecteplase, a modified variant of alteplase with greater fibrin specificity and longer plasma half-life, may have better efficacy and safety than alteplase in patients with acute ischemic stroke (AIS). We aimed to compare the benefits and risks of tenecteplase versus alteplase in the treatment of AIS.; Methods: Electronic databases were searched up to 10 February 2023 for randomized controlled trials evaluating the effect of tenecteplase versus alteplase in the treatment of AIS. The primary outcome was functional outcome at 90 days, and secondary outcomes including the symptomatic intracranial haemorrhage (SICH), and major neurological improvement. Subgroup analysis was performed based on the different dosage of tenecteplase.; Results: Ten studies with a total of 5123 patients were analysed in this meta-analysis. Overall, no significant difference between tenecteplase and alteplase was observed for functional outcome at 90 days (excellent: OR 1.08, 95%CI 0.93-1.26, I<sup>2</sup> = 26%; good: OR 1.04, 95%CI 0.83-1.30, I<sup>2</sup> = 56%; poor: OR 0.95, 95%CI 0.75-1.21, I<sup>2</sup> = 31%), SICH (OR 1.12, 95%CI 0.79-1.59, I<sup>2</sup> = 0%), and early major neurological improvement (OR 1.26, 95%CI 0.80-1.96, I<sup>2</sup> = 65%). The subgroup analysis suggested that the 0.25 mg/kg dose of tenecteplase had potentially greater efficacy and lower symptomatic intracerebral haemorrhage risk compared with 0.25 mg/kg dose tenecteplase.; Conclusions: Among AIS patients, there was no significant difference on clinical outcomes between tenecteplase and alteplase. Subgroup analysis demonstrated that 0.25 mg/kg doses of tenecteplase were more beneficial than 0.4 mg/kg doses of tenecteplase. Further studies are required to identify the optimal dosage of tenecteplase.

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## 11. Gamified exercise for the distal upper extremity in people with post-stroke hemiparesis: feasibility study on subjective perspectives during daily continuous training

**Authors:** Ito, Kazuki;Uehara, Shintaro;Yuasa, Akiko;Ushizawa, Kazuki;Tanabe, Shigeo and Otaka, Yohei

**Publication Date:** 2024

**Journal:** Annals of Medicine 56(1), pp. 2306905

**Abstract:** Introduction: Dose (number of repetitions) has been suggested as a key element in the effectiveness of rehabilitation exercises to promote motor recovery of the hemiparetic upper limb. However, rehabilitation exercises tend to be monotonous and require significant motivation to continue, making it difficult to increase the exercise dose. To address this issue, gamification technology has been implemented in exercises to promote self-engagement for people with hemiparesis in continuing monotonous repetitive movements. This study aimed to investigate how subjective perspectives, specifically enjoyability, motivation to continue, and expectancy of effectiveness, change through continuous daily exercise using a developed gamified exercise system.; Materials and Method: Ten people with stroke suffering upper limb dysfunction underwent daily gamified exercise for seven days. The gamified exercise consisted of an electromyography (EMG)-controlled operating system that enabled users to play virtual games using repetitive finger movements. The participants performed conventional self-exercise on the same day as the control exercise, and rated their subjective perspectives on both exercises on a numerical rating scale on each exercise day.; Results: Ratings for enjoyability and motivation to continue consistently showed significantly higher scores for the gamified exercise than for conventional self-exercise on all exercise days. A similar trend was observed in the ratings for the expectancy of effectiveness. No changes over time were found in any of the ratings throughout the exercise period.; Conclusions: Exercise using the developed EMG-controlled gamified system may have the potential to maintain motivation and enjoyment in people with stroke to continue

monotonous repetitive finger movements.

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## 12. The impact of stroke on spousal and family income: a difference-in-difference study from Swedish national registries

**Authors:** Labori, Frida;Persson, Josefine;Svensson, Mikael and Bonander, Carl

**Publication Date:** 2024

**Journal:** Topics in Stroke Rehabilitation 31(4), pp. 381-389

**Abstract:** To investigate the financial consequences in the overall population spouses of persons with stroke in Sweden as well as for subgroups based on spouses age, sex and modified Rankin Scale (mRS) of the person with stroke. The study population consists of spouses aged  $\leq 60$  during the year of their partner's stroke event. Each spouse was matched to four reference individuals. This longitudinal registry data covers spouses and a reference population between 2005 and 2016. We use difference-in-differences to estimate the impact on individual income from paid work, disposable individual income, and disposable family income. The primary analysis shows a small and statistically insignificant decrease on spouses' individual income from paid work and disposable individual income. In the subgroup analysis based on mRS, the largest effect is seen in mRS 4–5, where spouses' individual income from paid work and disposable individual income increases after their partner's stroke. Further, younger female spouses' individual income from paid work decreases by 1 614 EUR ( $p = 0.008$ ) on average. The financial consequences are small in the overall population of spouses. However, for some subgroups, younger women, and spouses of persons with stroke and mRS 4–5, the financial consequences are more prominent.

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## 13. Exploring the personal stroke and rehabilitation experiences of older adults with chronic stroke during the COVID-19 pandemic: a qualitative descriptive study

**Authors:** Lee, Nicole P.;Pearson, Erin S.;Sanzo, Paolo and Klarner, Taryn

**Publication Date:** 2024

**Journal:** International Journal of Qualitative Studies on Health and Well-Being 19(1), pp. 2331431

**Abstract:** Purpose: The purpose of this study was to explore the personal stroke and rehabilitation experiences of older adults with chronic stroke living in a mid-sized Northwestern Ontario city in Canada during the COVID-19 pandemic.; Methods: A qualitative descriptive approach with a constructivist worldview was used. In addition, a semi-structured interview guide was used to gather the participants' perspectives on their experiences throughout stroke recovery. Ten participants were interviewed, including six males and four females. The interviews were completed, transcribed, and analysed using inductive and deductive content analysis. Multiple steps were taken to enhance data trustworthiness.; Results: Six main themes and eight related subthemes emerged. These included: getting help is complex, the effects of stroke are multifaceted, losing rehabilitation services during the COVID-19 pandemic, overcoming hardships but not alone, "If you don't use it, you lost it": rehabilitative success is based on one's actions, and "look at me now": the importance of taking pride in one's successes.; Conclusions: One unique finding was that the participants used this study as an opportunity to teach and advocate for future stroke survivors which is not often seen in qualitative stroke rehabilitation research. Future stroke research should place emphasis on both the positive and negative experiences of this population.

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## 14. A scoping review of the use of creative activities in stroke rehabilitation

**Authors:** Liu, Shuang;Huang, XianYi;Liu, Yan;Yue, Jie;Li, Yu and Chen, Li

**Publication Date:** 2024

**Journal:** Clinical Rehabilitation 38(4), pp. 497-509

**Abstract:** Objective: Clarifying the distinctions between art-based creative activities in the domains of occupational therapy and art therapy in the context of stroke rehabilitation, while also describing the effects of art-based creative activities on stroke rehabilitation. Design: Scoping review. Data source: A systematic search was performed in nine databases (Web of Science, PubMed, EMBASE, Cochrane Library, CINAHL and four Chinese database) from their inception to December 2023. Review methods: The study included randomized and non-randomized controlled trials involving art-based creative activities, as well as qualitative research providing detailed intervention measures. The study focused on stroke patients, with primary outcomes related to patients' physiological recovery, psychological well-being, ADL, etc. Data extraction included information on intervention strategies and study results. Results: Seventeen studies were included, extracting six similarities and differences in creative activity between two domains. Creative activities were observed to have positive impacts on daily living activities, limb motor function, fine motor ability, and emotional well-being in stroke patients. Conclusion: Creative activities, whether in occupational therapy or art therapy, involve providing participants with tangible crafting materials for the creation of artistic works. Future stroke rehabilitation practices should tailor activities and intervention focus based on patients' rehabilitation needs, preferences, and cultural background. The current comprehensive analysis provides initial support for the potential positive role of creative activities in stroke rehabilitation, but further in-depth research is needed to confirm their effectiveness.

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### 15. Acceptability of two mobile applications to support cross-sectoral, person-centred and empowering stroke rehabilitation - a process evaluation

**Authors:** Marwaa, Mille Nabsen; Guidetti, Susanne; Ytterberg, Charlotte and Kristensen, Hanne Kaae

**Publication Date:** 2024

**Journal:** Annals of Medicine 56(1), pp. 2302979

**Abstract:** Aim: To evaluate the acceptability of two co-designed mobile applications [Mit Sygehus a knowledge-based solution] and Genopræn.dk a self-training solution] to support a cross-sectoral, person-centred and empowering stroke rehabilitation.; Setting: The applications were implemented and tested throughout two stroke rehabilitation trajectories in Southern Denmark, comprising two acute, two sub-acute and two municipal stroke rehabilitation settings.; Methods, Participants and Analysis: A process evaluation focusing on acceptability was conducted. Individual and dyadic interviews were performed with ten stroke survivors (three women and seven men, aged 50-84) with moderate stroke and seven significant others (five women and two men, aged 50-78) post-rehabilitation. A constructivist Grounded Theory analysis was used to explore what, why, when, and how the apps worked or did not work throughout the stroke rehabilitation trajectory and if adaptations were needed.; Results: Participants found that Mit Sygehus provided adequate and sufficient knowledge and was easy to use, however, acceptability of Mit Sygehus declined throughout the rehabilitation process. Also, knowledge on 'return-to-work' and 're-gaining driver's license/permission to drive' needed to be developed. The content in Genopræn.dk was perceived as acceptable, through content being person-centred, motivating and meaningful. Genopræn.dk furthermore, supported the transfer between rehabilitation settings, provided a sense of progress throughout the rehabilitation process, facilitated positive habits regarding self-training, and relieved the burden on significant others. Genopræn.dk was perceived most acceptable in the sub-acute rehabilitation setting and declined when rehabilitation continued in the municipal setting.; Conclusion: Stroke survivors and their significant others found Mit Sygehus and Genopræn.dk acceptable to support cross-sectoral, person-centred and empowering stroke rehabilitation, however acceptability declined throughout the rehabilitation process. Further investigations are required to determine how cognitive rehabilitation can play a greater role in app-supported stroke rehabilitation and how the need for more long-term follow-up can be supported.

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### 16. Do social determinants influence post-stroke aphasia outcomes? A scoping review

**Authors:** O'Halloran, Robyn; Renton, Joanne; Harvey, Sam; McSween, Marie-Pier and Wallace, Sarah



J.

**Publication Date:** 2024

**Journal:** Disability & Rehabilitation 46(7), pp. 1274-1287

**Abstract:** To conduct a scoping review on five individual social determinants of health (SDOHs): gender, education, ethnicity, socioeconomic status, and social support, in relation to post-stroke aphasia outcomes. A comprehensive search across five databases was conducted in 2020 and updated in 2022. Twenty-five studies (3363 participants) met the inclusion criteria. Data on SDOHs and aphasia outcomes were extracted and analysed descriptively. Twenty studies provide information on SDOH and aphasia recovery outcomes. Five studies provide insights on SDOH and response to aphasia intervention. Research on SDOH and aphasia recovery has predominantly focussed solely on language outcomes (14 studies), with less research on the role of SDOH on activity, participation, and quality of life outcomes (6 studies). There is no evidence to support a role for gender or education on language outcomes in the first 3 months post stroke. SDOHs may influence aphasia outcomes at or beyond 12 months post onset. Research on SDOHs and aphasia outcomes is in its infancy. Given SDOHs are modifiable and operate over a lifetime, and aphasia is a chronic condition, there is a pressing need to understand the role of SDOHs on aphasia outcomes in the long term. Research on the role of Social Determinants of Health (SDoH) and aphasia outcomes is in its infancy. The role of SDoHs has been mainly investigated in relation to language outcomes. Little is known about the SDoHs on activity, participation, and quality of life outcomes. Rehabilitation professionals should consider the potential influence of individual SDoHs such as gender, education, socioeconomic status, ethnicity, and social support on a person's access to aphasia services and aphasia outcomes long term.

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### **17. Supporting post-stroke access to services and resources for individuals with low income: understanding usual care practices in acute care and rehabilitation settings**

**Authors:** Sauv -Schenk, Katrine;Duong, Patrick;Samonte-Brown, Samantha;Sheehy, Lisa;Trudelle, Martine and Savard, Jacinthe

**Publication Date:** 2024

**Journal:** Disability & Rehabilitation 46(7), pp. 1391-1399

**Abstract:** Following stroke, individuals who live in a low-income or are at risk of living in a low-income situation face challenges with timely access to social services and community resources. Understanding the usual care practices of stroke teams, specifically, how they support this access to services and resources, is an important first step in promoting the implementation of practice change. A qualitative multiple-case study of acute care, inpatient, and outpatient rehabilitation stroke teams in an urban area of Canada. Semi-structured interviews and questionnaires about the workplace context were conducted with 19 professionals (social workers, occupational therapists, physiotherapists, speech-language pathologists) at four sites. In their usual practice, stroke teams prioritized immediate care needs. The stroke team professionals did not address income or resources unless it directly affected discharge. Usual care was influenced by factors such as time constraints, lack of knowledge about services and resources, and social service system limitations. To better support post-stroke access to social services and resource for low-income individuals, a multidisciplinary approach, with actions beginning earlier on and extending throughout the continuum of care, is recommended, in addition to system-level advocacy. Access to social services and community resources for people with stroke and living in a low-income situation is not consistently addressed in acute care or rehabilitation settings. Supporting access to social services and community resources is influenced by the professionals' availability of time and resources, as well as knowledge about services and resources and the limitations of the social service system. Using a multidisciplinary approach, extending over the continuum of care from acute care to rehabilitation program may be a way forward to better support people with stroke and low income to access services and resources.

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## 18. Combining specific task-oriented training with manual therapy to improve balance and mobility in patients after stroke: a mixed methods pilot randomised controlled trial

**Authors:** Traxler, Kristina;Baum, Eva;Klotz, Edith;Reindl, Markus;Schinabeck, Franz and Seebacher, Barbara

**Publication Date:** 2024

**Journal:** Disability & Rehabilitation 46(7), pp. 1318-1329

**Abstract:** In absence of existing studies, to describe changes in balance and mobility, following specific task-oriented training (TOT), its combination with talocrural manual therapy (MT-TOT) or no intervention, in chronic stroke patients. To explore the feasibility of a full-scale randomised controlled trial (RCT) based on criteria of recruitment, retention and adherence rates, adverse events, falls and acceptability of the intervention. Using an assessor-blinded pilot RCT, 36 stroke patients were allocated to either MT-TOT, TOT, or controls. Supervised interventions were performed 45 min, 2x/weekly, for 4 weeks, and home-based practice 20 min, 4x/weekly for 4 weeks. Qualitative interviews evaluated intervention acceptability. Outcomes of balance, mobility, ankle dorsiflexion range of motion (ROM), falls and health-related quality of life (HRQoL) were assessed at baseline, post-intervention and 4-week follow-up. Preliminary efficacy of MT-TOT and TOT was shown in improving balance (effect size 0.714), walking speed (0.683), mobility (0.265), dual-tasking mobility (0.595), falls (0.037), active and passive talocrural ROM (0.603; 0.751) and activities and social participation related HRQoL domains (0.332–0.784) in stroke patients. The feasibility of a larger RCT was confirmed. Specific MT-TOT and TOT appeared effective and are feasible in stroke patients. A larger RCT is needed to validate the results. Trial Registration: German Clinical Trials Register, DRKS00023068. Registered on 21.09.2020, A specific goal- and task-oriented training involving timed mobility and dynamic balance activities based on the demands of daily life, of high intensity and progressed in difficulty according to predefined criteria is feasible in patients after stroke. In this mixed methods pilot study patients indicated high acceptability of task-oriented training with and without ankle mobilisations, with their descriptions being in line with the Theoretical Framework of Acceptability. Specific task-oriented training and its combination with talocrural joint manual therapy improved balance, mobility, talocrural dorsiflexion range of motion and some domains of health-related quality of life in people after stroke.

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## 19. Impact of rehabilitation adherence and depressive symptoms on post-stroke self-care ability and quality of life: a longitudinal study

**Authors:** Wang, Jeng;Kuo, Wen-Yu;Chen, Min-Chi and Chen, Chen-Yin

**Publication Date:** 2024

**Journal:** Topics in Stroke Rehabilitation 31(4), pp. 361-371

**Abstract:** Good rehabilitation adherence leads to effective post-stroke recovery. However, some recovering patients experience post-stroke depressive symptoms, which can affect post-stroke health outcomes. Previous studies have not examined the effect of a combination of rehabilitation adherence and depressive symptoms on recovery after a stroke. This study explored the combined predictive influence of rehabilitation adherence and post-stroke depressive symptoms on self-care abilities and quality of life in patients with stroke. This prospective longitudinal study analyzed data from 75 stroke patients. We examined rehabilitation adherence (self-reported, five-point scale), post-stroke depressive symptoms (Taiwanese Depression Scale), self-care ability (Chinese versions of the Barthel Index and Lawton – Brody Instrumental Activities of Daily Living Scale), and post-stroke quality of life (World Health Organization Quality of Life-BREF). Patients were followed up for six months after inclusion. The influence of rehabilitation adherence and post-stroke depressive symptoms on post-stroke self-care abilities and quality of life was examined using generalized estimating equations. The sample's mean age was 60.85 ( $\pm 12.9$ ) years. Patients with perfect rehabilitation adherence had better self-care abilities and quality of life than those with imperfect rehabilitation adherence. Patients without post-stroke

depressive symptoms had a better quality of life than their counterparts. Patients with perfect rehabilitation adherence and no post-stroke depressive symptoms had better self-care abilities and quality of life than those with imperfect rehabilitation adherence and post-stroke depressive symptoms. Both depressive symptoms and rehabilitation adherence behavior impacted the rehabilitation effect among patients who are recovering from a stroke.

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## **20. Practice patterns, role and impact of advanced practice nurses in stroke care: A mixed-methods systematic review**

**Authors:** Woo, Brigitte Fong Yeong;Ng, Wai May;Tan, Il Fan and Zhou, Wentao

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**Abstract:** Aim(s): To undertake a systematic review of the practice patterns and roles of advanced practice nurses (APNs) in inpatient and outpatient stroke-care services; and to evaluate the impact of APN-led inpatient and outpatient stroke-care services on clinical and patient-reported outcomes. Design: A mixed-methods systematic review. Methods: A systematic search was conducted across six electronic databases for primary studies. Data were synthesised using a convergent integrated approach. Data Sources (Include Search Dates) \*for Reviews Only: A systematic search was conducted across PubMed, CINAHL, Cochrane Library, Embase, PsycInfo and ProQuest Dissertations & Theses Global, for primary studies published between the inception of the databases and 3 November 2022. Results: Findings based on the 18 included primary studies indicate that the APNs' roles have been implemented across the continuum of stroke care, including pre-intervention care, inpatient care and post-discharge care. Practicing at an advanced level, the APNs engaged in clinical, operational and educational undertakings across services and disciplines. Positive clinical and patient-reported outcomes have been attributed to their practice. Conclusion: The review highlights the critical role of APNs in improving stroke care, especially in the pre-intervention phase. Their clinical expertise, patient-centered approach and collaboration can transform stroke care. Integrating APNs into stroke care teams is essential for better management and outcomes in light of the increasing stroke burden. Implications for the profession and/or patient care: Healthcare institutions should integrate APNs to enhance pre-intervention stroke care, improve diagnostic accuracy and expedite treatment. APNs can prioritise patient-centric care, including assessments, coordination and education. Medication reconciliation, timely rehabilitation referrals and lifestyle modifications for secondary stroke prevention are crucial. Implementing advanced practice nursing frameworks ensures successful APN integration, leading to improved stroke care and better patient outcomes in response to the growing stroke burden. Impact (Addressing): What problem did the study address? Poor clarity of the role of advanced practice nurses among patients, physicians, healthcare professionals, health policymakers and nurses. What were the main findings? Advanced practice nurses practise across the continuum of stroke care, mainly in pre-intervention care which takes place before initiating treatment, inpatient care and post-discharge care. The implementation of the advanced practice nurse role in stroke care has contributed positively to clinical and patient-reported outcomes. Where and on whom will the research have an impact? Insights from the review are envisioned to inform healthcare policymakers and leaders in the implementation and evaluation of the APN role in stroke care. Reporting Method: Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines. Patient or Public Contribution: No Patient or Public Contribution. Trial and Protocol Registration: <https://figshare.com/ndownloader/files/41606781>; Registered on Open Science Framework [osf.io/dav8j](https://osf.io/dav8j).

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## **21. Is communication key in stroke rehabilitation and recovery? National linked stroke data study**

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**Abstract:** Information on the characteristics or long-term outcomes of people with communication support needs post-stroke is limited. We investigated associations between communication gains in rehabilitation and long-term outcomes (quality-of-life EuroQOL-ED-3 L], mortality) by post-stroke communication support need status. Retrospective cohort study using person-level linked data from the Australian Stroke Clinical Registry and the Australasian Rehabilitation Outcomes Centre (2014–2017). Communication support needs were assessed using the Functional Independence Measure™ comprehension and expression items recorded on admission indicated by scores one (total assistance) to five (standby prompting). Multivariable multilevel and Cox regression models were used to determine associations with long-term outcomes. Of 8,394 patients who received in-patient rehabilitation after stroke (42% female, median age 75.6 years), two-thirds had post-stroke communication support needs. Having aphasia (odds ratio OR] 4.34, 95% CI 3.67–5.14), being aged ≥65 years (OR 1.21, 95% CI 1.08–1.36), greater stroke severity (unable to walk on admission; OR 1.48, 95% CI 1.32–1.68) and previous stroke (OR 1.25, 95% CI 1.11–1.41) were associated with increased likelihoods of having communication support needs. One-point improvement in FIM™ expression was associated with reduced likelihood of self-reporting problems related to mobility (OR 0.85, 95% CI: 0.80–0.90), self-care (OR 0.79, 95% CI: 0.74–0.86) or usual activities (OR 0.84, 95% CI: 0.75–0.94) at 90–180 days. Patients with communication support needs had greater mortality rates within one-year post-stroke (adjusted hazard ratio 1.99, 95% CI: 1.65–2.39). Two-thirds of patients with stroke require communication support to participate in healthcare activities. Establishing communication-accessible stroke care environments is a priority.