CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

Rehabilitation, Recovery and Community Participation Following Stroke

Part Three: *Optimizing Activity and Community Participation following Stroke*

Evidence Tables

Leisure & Social Participation

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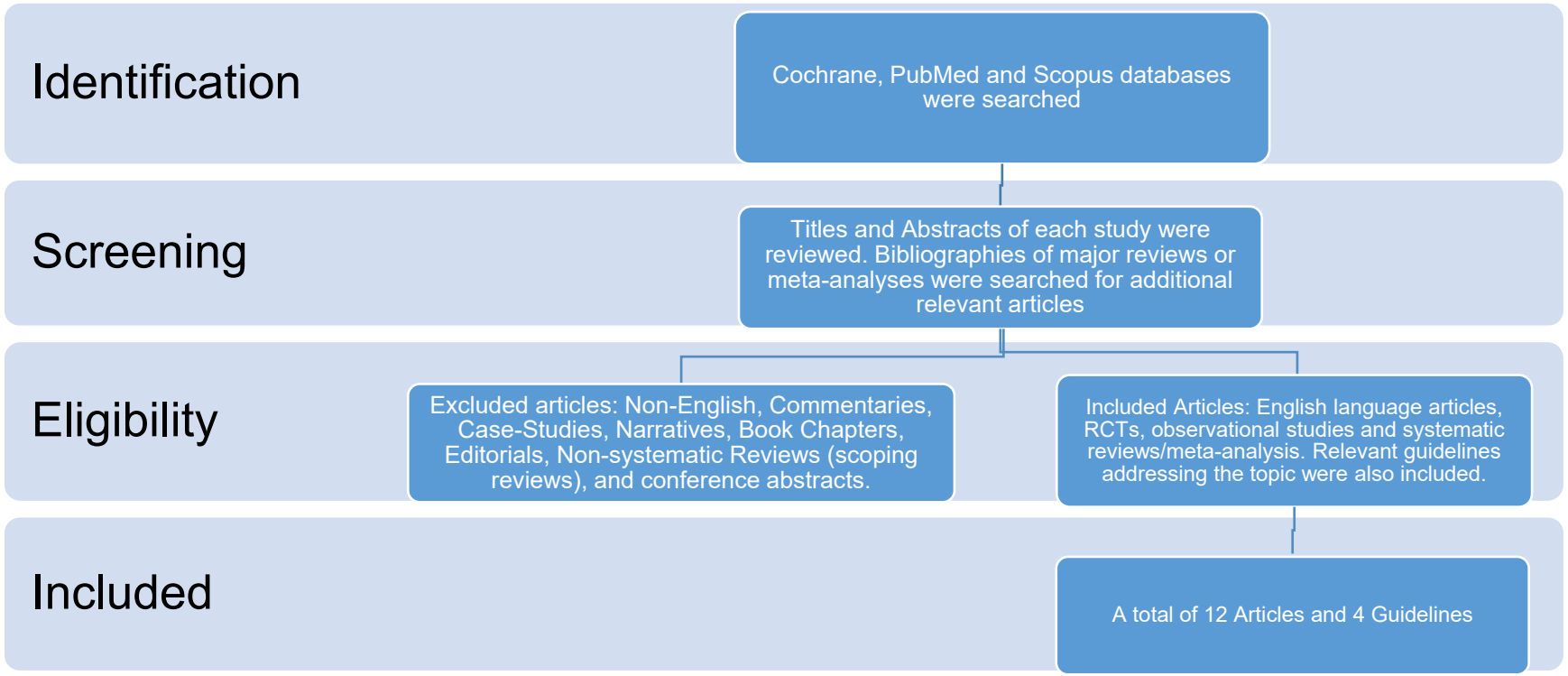
Search Strategy



Cochrane, PuMmed and Scopus databases were searched using terms such as: Stroke AND Leisure Activities OR Recreation OR Leisure). Bibliographies were reviewed to find additional relevant articles. Articles were excluded if they were: non-English, commentaries, case-studies, narrative, book chapters, editorials, non-systematic review, or conference abstracts. Additional searches for relevant best practice guidelines were completed and included in a separate section of the review. A total of 12 articles and4 guidelines were included and were separated into categories designed to answer specific questions.

Published Guidelines

Guideline	Recommendations
National Clinical Guideline for Stroke for the UK and Ireland. London: Intercollegiate Stroke Working Party; 2023 May 4. **Available at:** www.strokeguideline.org. **(selected)**	**5.28 Recommendations (Social integration and participation)** A As part of their self-management plan, people with stroke should be supported to identify social and leisure activities that they wish to participate in, taking into account their cognitive and practical skills. Healthcare professionals should: – advise the person with stroke and their family/carers about the benefits of participating in social and leisure activities; – identify and help them to overcome any barriers to participation (e.g. low self-confidence or lack of transport). B People with stroke should be provided with information and referral to statutory and voluntary community organisations that can support the person in social participation.
Management of Stroke Rehabilitation Working Group. VA/DoD clinical practice guideline for the management of stroke rehabilitation. Washington (DC): Veterans Health Administration, Department of Defense; Version 5.0 – 2024. **Available at:** https://www.healthquality.va.gov/guidelines/Rehab/stroke/	None
Clinical Guidelines for Stroke Management 2022. Melbourne (Australia): National Stroke Foundation. Part 8: Community Participation & Long-term Care	**Leisure** Weak Recommendation For stroke survivors, targeted occupational therapy programs including leisure therapy may be used to increase participation in leisure activities.
Winstein CJ, Stein J, Arena R, Bates B, Cherney LR, Cramer SC et al; on behalf of the American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, and Council on Quality of Care and Outcomes Research. **Guidelines for adult stroke rehabilitation and recovery: a guideline for healthcare professionals from the American Heart Association/American Stroke Association.** ***Stroke* 2016;47:e98–e169**	**Recreational and Leisure Activity** - It is reasonable to promote engagement in leisure and recreational pursuits, particularly through the provision of information on the importance of maintaining an active and healthy lifestyle. (Class IIa. Level B evidence) - It is reasonable to foster the development of self-management skills for problem solving for overcoming barriers to engagement in active activities. (Class IIa. Level B evidence) - It is reasonable to start education and self-management skill development about leisure/recreation activities during and in conjunction with in-patient rehabilitation. (Class IIa. Level B evidence)

Evidence Tables

Leisure Activities

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Harrison et al. 2022 **UK** **Qualitative study**	NA	2,000 patients who were recruited as an inpatient (stroke) or at a first post-stroke/TIA clinic appointment, with a pre-stroke modified Rankin Scale (mRS) score of ≤3. Median age was 73 years, 58.3% were men.	Participants completed a questionnaire at baseline and 6 months post event, which included two open-text questions regarding perceived barriers and facilitators to engaging in leisure activities	**Primary outcome:** Not applicable	**Barriers** to re-engagement included: i) Physical and cognitive impairments, such as fatigue, mobility limitations, and communication difficulties. ii) Psychological challenges, including low confidence, anxiety, and fear of failure. iii) Environmental and social constraints, like inaccessible venues, lack of transport, and reduced social support. **Facilitators** included: i) Supportive networks, particularly encouragement from family, friends, and peers. ii) Adaptation and goal setting, where individuals adjusted expectations and used assistive tools or modified activities to fit their new capabilities. iii) Structured community services and rehabilitation programs that emphasized gradual return to activities.
Lee et al. 2019 **USA** **Systematic review**	In 4/8 trials assessing a leisure intervention, there was no risk of selection bias. All trials were at risk of	17 studies including persons with stroke evaluating interventions addressing community participation and assessing at least one of 3 outcomes of interest. Mean age ranged from 46-73 years. Sex breakdown within individual studies was not reported. The mean time since stroke ranged from 80 days-7 years.	Narrative synthesis of results. Among the included trials, 8 focused on leisure activities. 7 trials were based in the community, with one provided in hospital. Interventions included individually	**Primary outcome:** participation, depression, and health-related quality of life (HR QoL)	*Participation outcomes* In 6/8 trials, participation outcomes were assessed. In one trial, the intervention group showed significantly greater improvement in time spent on active activities, number of leisure activities, and satisfaction with leisure, at completion (8-12 weeks). In the remaining trials, there were no significant differences between groups.

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	performance bias. The risk of attrition bias was low in 3 trials. All trials were free of reporting bias.		tailored OT sessions, home leisure program, community-based group leisure education program, group yoga, exercise and leisure program and an aerobic training program. In most trials, the interventions were provided for 30-60 minutes once weekly. The duration ranged from 8 weeks to 12 months.		*Depression* In 7/8 trials, depression was assessed. In one trial, at completion (8-12 weeks), the intervention group showed significantly greater improvement in Center for Epidemiologic Studies Depression Scale scores. *HR QoL* In 5/8 trials, HR QoL was assessed. In one trial, at completion (10 weeks), the intervention group showed significantly greater improvement in Sickness Impact Profile-Short Version, physical subscore and total scores. In another trial, at 10 weeks, the intervention group had significantly greater improvement in Stroke Impact Scale (memory domain). In the remaining trials, there were no significant differences between groups. In 4 trials, all 3 outcomes were assessed.
Barclay et al. 2015 **Canada** **Cochrane review**	All trials were at high risk of bias for failure to blind participants/ personnel; 4 trials were at high risk of attrition bias; all trials were at low or unclear risk of selection bias, detection bias and reporting	5 trials (n=266), including adults recovering from stroke, who were living in the community, or were undergoing inpatient rehabilitation	Treatment contrasts included interventions to improve community ambulation vs. usual or no treatment. Programmes consisted of walking practice in a variety of settings and environments in the community (n=3), or an indoor activity that mimicked community walking (including virtual reality or mental imagery, n=2).	**Primary outcome:** Measures of participation (e.g., Nottingham Leisure Questionnaire, Subjective Index of Physical and Social Outcomes) **Secondary outcomes:** Measures of activity (e.g., gait speed), balance self-efficacy, health-related QoL	2 trials evaluated a participation-level outcome. The difference between groups was not statistically significant (SMD= 0.08, 95% CI -0.20 to 0.35, p=0.59; 198 participants). Mean duration of follow-up was 8 months. Interventions were not associated with significant differences in activity level measures of walking: Community walk test MD= -6.35, 95% CI -21.59 to 8.88, p=0.41. Results from 2 trials (45 participants) included, mean duration of follow-up was 0.5 months; Walking Ability Questionnaire MD=0.53, 95% CI -5.59 to 6.66, p=0.86. Results from 2 trials (45 participants) included.

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	bias.				There were no significant differences between groups in gait speed, or the 6-minute walk test. There were no significant differences between groups for self-efficacy. Outcomes for other secondary outcomes were not reported.
Dorstyn et al. 2014 **Australia** **Systematic review**	NA	8 RCTs (n=615) including adults who participated in some form of group or individual intervention of leisure therapy following stroke that was delivered face-to-face and provided by a trained therapist.	All trials examined a community-based intervention focusing on leisure therapy, leisure therapy + physical activity or leisure education. Control groups were standard care or no intervention. A mean of 17 sessions were provided (mean duration 73 minutes each) for a mean of 23 weeks. Compliance was 88% across trials.	**Primary outcome:** Effect size (Cohen's *d*)	All trials included participants within the first 12 months post stroke. 500 participants (81%) were diagnosed with a mild or moderate stroke involving a unilateral cerebral lesion. Significant effects (i.e., *d*>0.4) were noted at the end of the intervention for the outcomes of: Quality of Life (single trial, *d*=2.1, n=14); mood (depression, single trial, *d*=0.41, n=62); leisure activity (4 trials, *d* ranging from 0.81-1.23, n ranging from 44-62). A negative effect size (*d*= -0.51) was noted for the outcome of mobility and independence in a single trial (n=99).
Kim et al. 2014 **South Korea** **RCT**	CA: ☑ Blinding: Patient ☒ Assessor☒ ITT: ☒	26 participants with hemiparesis following stroke > 6 months previously, with a gait speed of <0.8 m/sec, and who could ambulate 10 metres independently without an assistive device. Mean age was 50.5 years, 59% were men. Mean duration since stroke was 7.7 months.	Participants were randomized to a community walking training program (CWTP), which included walking in the real environment over uneven ground with obstacles for 30 minutes per day + standard rehabilitation vs. standard rehabilitation only (60 min/day, 5 /week, for 4 weeks.	**Primary outcomes:** Walking function (10-m walk test, 6-MWT, Community Walk Test), Stroke Impact Scale Assessments were conducted before and after the intervention period.	22 patients completed the program and assessments. Participants in the CWTP group achieved significantly greater improvement in all measures compared with the control group. 10-m walk test: 0.19 vs. 0.7 m/s, p<0.05 6MWT: 65.2 vs. 18.0 m, p<0.05 Community Walk Test: -13.5 vs. -2.9 minutes, p<0.05 SIS: 12.5 vs. 4.3, p<0.05.
Harrington et al. 2010	CA: ☑ Blinding:	243 participants who had returned to living in the community for at least 3 months following an acute stroke and	Participants were randomized to a standard care (n=119) or an	**Primary outcomes:** Subjective Index of Physical and Social	61% of participants attended ≥12/16 sessions.

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UK **RCT**	Patient ☒ Assessor☑ ITT: ☑	felt capable of participating in the program. Mean age was 70 years. Median baseline Barthel Index scores were 19 (control group and 18 (intervention group)	intervention group (n=124). The intervention was an 8-week (twice weekly) peer-volunteer facilitated exercise and education program, consisting of one hour of exercise (with qualified instructors) followed by a short break and 1 hour of interactive education, designed to be fun and non-didactic, encouraging group participation – these also included some goal-setting sessions, social sessions and unstructured group discussion times. Family members and carers were encouraged to attend and help in the exercise sessions. Control group participants received standard care + an information sheet about local groups.	Outcome (SIPSO), Frenchay Activities Index (FAI), Rivermead Mobility Index (RMI) **Secondary outcomes:** Carer Strain Index, Functional Reach, Timed Up and Go, WHOQoL-Bref and Hospital Anxiety & Depression Scale Assessments were conducted at baseline, 9 weeks, 6 months and one year (postal survey)	Median baseline total SIPSO scores were significantly lower in the intervention group (13 vs. 10, p=0.004). There was significantly greater improvement in median perceived SIPS (physical) scores at both 9 weeks (p=0.022) and 1-year (p=0.024) evaluations associated with the intervention group. There were no significant between group differences on either the FAI or RMI at any of the assessment points. There was significantly greater improvement in the median psychological domain of the WHOQol-Bref score at 6 months associated with the intervention group (p=0.01). There were no significant between group differences on any of the other secondary outcomes. Drop-outs and losses to follow-up at 1 year: n=69.
Desrosier et al. 2007 **Canada** **RCT**	CA: ☑ Blinding: Patient ☒ Assessor ☑ ITT: ☒	62 participants residing in the community individuals with history of stroke within the past 5 years who were experiencing some limitations in leisure participation or satisfaction patients Mean age was 70 years.	Participants were randomized to an intervention group (n=33) or the control (n=29) groups. Intervention involved 8-12, 60-minute, weekly education sessions. Completion of the program was identified when patients completed all 12 steps and were believed to have incorporated	**Primary outcomes:** General Well-Being Schedule, Center for Epidemiological Studies Depression Scale (CES-D), Stroke-Adapted Sickness Impact Profile (SA-SIP30). **Leisure related outcomes:** Participation in leisure (duration, number of	At the completion of the study, participants in the intervention group reported significantly more time spent in active leisure activities (MD=14.0 minutes, 95% CI 3.2-24.9, p=0.01) and involvement in a greater number of different activities (MD= 2.9, 95% CI 1.1-4.8, p=0.002). At the completion of the study, participants in the intervention group had gained significantly more points on the Leisure Satisfaction Scale (MD= 11.9, 95% CI 4.2-19.5, p=0.003) and in the satisfaction of leisure needs and expectations (MD=6.9,

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			significant leisure activities in their life. Control group received home visits from a recreational therapist following the same schedule as the intervention group.	activities) Leisure Satisfaction Scale and two sections of the Individualized Leisure Profile. Assessments were conducted before and after the intervention.	95% CI 1.3-12.6, p=0.02) but not on the satisfaction with use of spare time section (p=0.22). Participants in the intervention group experienced fewer depressive symptoms (MD= -7.2, 95% CI -12.5 to -1.9, p=0.01) but no changes in reported well-being or health related quality of life compared to the control group at the end of the intervention. Drop-outs and losses to follow-up: n=6
Walker et al. 2004 **UK** **Meta-analysis**	7 trials were assessed as being of high methodological quality	8 RCTs (n=1143) examining community-based occupational therapy interventions. Mean age was 74 years (range=58.5-75.5 years).	Interventions were targeted at improvement of ADL performance (n=5), leisure or ADL (n=2) and leisure (n=1). Participants in the control groups received routine care. The duration of the interventions ranged from 5 sessions to up to 5 months. Follow-up periods ranged from 4.5 months to 12 months.	**Primary outcome:** Nottingham Extended ADL (NEADL) at the end of the intervention. **Secondary outcomes:** NEADL at the end of the trial, Barthel Index (BI), Rivermead ADL, General Health Questionnaire (GHQ), Nottingham Leisure Questionnaire (NLQ).	Adjusting for age and baseline dependency, the pooled NEADL and NLQ scores for patients in the intervention group were significantly higher at the end of the intervention (WMD= 1.30 points, 95% CI 0.47-2.13 and WMD=1.51 points, 95% CI 0.24-2.79, respectively) and at the end of the trial ((WMD= 1.17 points, 95% CI 0.30-2.04 and WMD=1.80 points, 95% CI 0.41-3.21, respectively). The intervention was associated with decreased odds of a poor outcome in terms of ADL performance (OR=0.71, 95% CI 0.52-0.98), at the end of the intervention, but not at the end of the trial. The intervention was not associated with the odds of significant improvement in patient or carer GHQ. In subgroup analysis, participants in the intervention group leisure studies were associated with significant increases in NLQ scores Subgroup analysis by type of intervention: Leisure therapy trials: Significantly increased NLQ score (WMD=1.96 points,

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					95% CI 0.27-3.66, favours intervention group), but no significant increase in NEADL score (WMD=0.95 points, 95% CI -0.30-2.20). ADL therapy trials: No significant increase in NLQ score (0.55 points, 95% CI -0.87-1.96), but a significant increase in NEADL score (WMD= 1.61 points; 95% CI, 0.72-2.49, favouring intervention group).
Parker et al. 2001 **UK** **RCT** ***Trial of Occupational Therapy & Leisure (TOTAL)***	CA: ☑ Blinding: Patient ☒ Assessor☑ ITT: ☑	465 patients recruited from 5 hospitals who attended an outpatient clinic within 6 months of stroke onset and were living in the community. The median age was 72 years.	Participants were randomized to a leisure therapy group (n=153), an ADL group (n=156) and a control group (n=157). The two treatment groups received home-based occupational therapy (OT) for up to 6 months with a minimum of 10, ≥30 minute sessions. The ADL group goals were improved independence in self-care task while leisure group goals were to improve leisure activity. The control group received no treatment.	**Primary outcome:** General Health Questionnaire (GHQ), Nottingham Extended ADL (NEADL) Nottingham Leisure Questionnaire (NLQ) **Secondary outcomes:** International Stroke Trial outcome questions, Oxford Handicap Scale, Barthel Index, London Handicap Scale Assessments were conducted at baseline and by postal questionnaire at 6 months and 1 year	At 6 months there were no significant differences among groups. Compared with the control group, the mean difference in scores associated with the leisure group were: GHQ -1.2 points, 95% CI -2.9-0.5 NLQ 0.7 points, 95% CI -1.1-2.5 NEADL 0.4 points, 95% CI -3.8-4.5 LHS 0.9 points, 95% CI -3.3-5.0 At 12 months, 78% responded to follow-up questionnaire. There were no significant differences on any of the outcomes among groups. Losses to follow-up and drop-outs: n= 135
Drummond & Walker 1995 **UK** **RCT**	CA: ☑ Blinding: Patient ☒ Assessor☑ ITT: ☒	65 patients who had been admitted to a single stroke unit who were discharged to the community following their inpatient stay. Mean ages were 59 years (leisure group) and 69 years (ADL, control groups).	Participants were randomized to a leisure therapy group (n=21), an ADL group (n=21) or a control group (n=23). Following discharge from hospital, those in the leisure therapy and ADL groups received conventional occupational	**Primary outcomes:** Total Leisure Score (TOTL), Total Leisure Activity score (TLA) Assessments were conducted at baselines, 3 and 6 months	At 3 months, TOTL and TLA scores among participants in the leisure therapy group were significantly higher (43.9 vs. 31.1 and 31.3, p<0.01 and 15.6 vs. 10.9 and 10.5, p<0.001). The 6-month pattern of results was similar. The difference remained significant at both 3 and 6 months after controlling for the effect of age.

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			therapy by a therapist for a minimum of 30 minutes a week for the first 3 months and then 30 minutes every 2 weeks for the next three months. The treatment program for participants in the leisure group were tailored to each person's preferences and abilities. Participants in the control group received no additional services.		Losses to follow-up and drop-outs: n=5
Jongbloed & Morgan 1991 **Canada** **RCT**	CA: ☒ Blinding: Patient ☒ Assessor☑ ITT: ☒	40 patients who had been discharged from 3 rehabilitation hospitals, who had sustained a stroke within the previous 15 months, who had a friend or relative who was willing to participate. Mean age was 69 years	Patients were randomized to receive 5 one-hour visits over 5 weeks from an occupational therapy, who assisted patients in resuming former leisure therapy, engaging in new activities or both, or the same number of visits by an OT who asked questions about leisure activity involvement throughout the life span (control group).	**Primary outcome:** 2 subscales of the Katz Adjustment Index-Level of Free-Time Activities and Level of Satisfaction with Free-Time Activities **Secondary outcomes:** MMSE, Barthel Index, Zung Depression Scale Assessments were conducted at baseline, 5 and 18 weeks.	There were no significant differences between groups in the number of times 26 activities were performed weekly at either 5 or 18 weeks, or in the mean change scores between groups. There were no significant differences between groups in the number of satisfied persons at either 5 or 18 weeks. For most of the 26 activities, the number of satisfied persons was high.

Abbreviations

CA: concealed allocation	CI: confidence interval	ITT: intention-to-treat
MD: mean difference	MMSE: Mini Mental State Examination	OR: odds ratio
WMD: weighted mean difference		

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