



CANADIAN
Stroke
BEST PRACTICE
RECOMMENDATIONS

CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

Transitions of Care Following Stroke Evidence Tables *Community Reintegration Following Stroke*

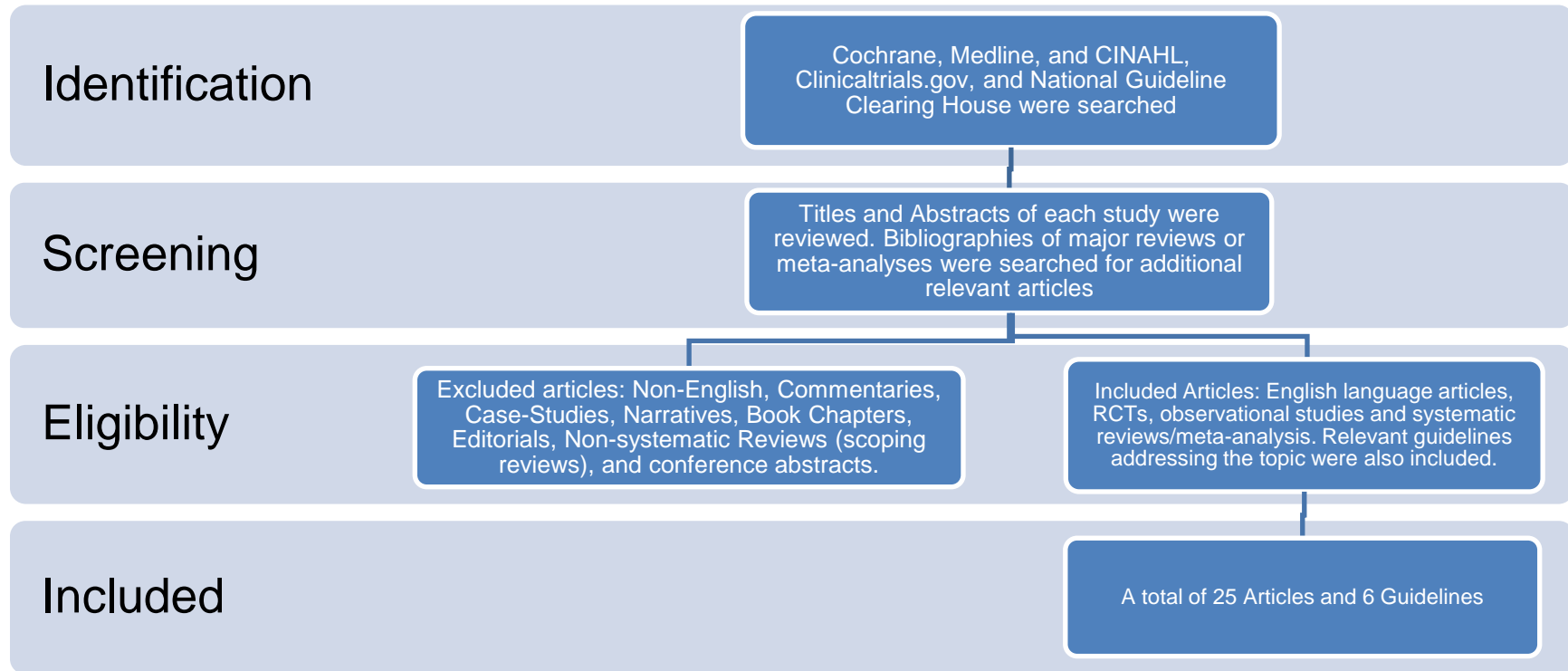
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Transitions of Care Following Stroke Writing Group*

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April 2016

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Search Strategy



Cochrane, Medline, and CINAHL, Clinicaltrials.gov, and National Guideline Clearing House were search using medical subject. Titles and abstract of each article were reviewed for relevance. 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 25 articles and 6 guidelines were included and were separated into separate categories designed to answer specific questions.

Published Guidelines

Guideline	Recommendations
<p>Classen S, Monahan M, Auten B, et al. Evidence-based review of interventions for medically at-risk older drivers. <i>Am J Occup Ther</i> 2014;68:e107-e114</p>	<p>For clients with stroke, we recommend a graded simulator intervention (A) and multimodal training in traffic theory knowledge and on-road interventions (B); we make no recommendation for or against Dynavision, Useful Field of View, or visual-perceptual interventions (I). For clients with visual deficits, we recommend educational intervention (A) and bioptic training (B); we make no recommendation for or against prism lenses (I).</p> <p>(A=strongly recommend the intervention; B=recommend intervention is provided routinely; C= weak evidence that the intervention can improve outcomes; D=recommend not to provide the intervention; I=5 insufficient evidence to recommend for or against the intervention).</p>
<p>Intercollegiate Stroke Working Party. National clinical guideline for stroke, 4th edition. National Institute for Health and Clinical Excellence London: Royal College of Physicians, 2012.</p>	<p>Driving Before they leave hospital (or the specialist outpatient clinic if not admitted), every person who has had a stroke or transient ischaemic attack should be asked whether they drive or wish to drive. The person or team responsible for any stroke patient who wishes to drive should:</p> <ul style="list-style-type: none"> • ask about and identify any absolute bars to driving • consider the patient's capacity to drive safely • discuss driving and give advice to the patient • document the findings and conclusions, inform the GP and give a written record to the patient. <p>The person or team responsible for any patient who wishes to drive should consult current guidance from the Driver and Vehicle Licensing Agency (DVLA) for full details of driving regulations before giving advice: www.dft.gov.uk/dvla/medical/ataglance.aspx. Road Sign Recognition and Compass Card tests from the Stroke Driver's Screening Assessment and Trail Making Test B should be used to identify which patients should be referred for on-road screening and evaluation.</p> <p>Work & Leisure Every person should be asked about the work and/or leisure activities they undertook before their stroke. Patients who wish to return to work (paid or unpaid employment) should: have their work requirements established with their employer (provided the patient agrees)</p> <ul style="list-style-type: none"> • be assessed cognitively, linguistically and practically to establish their potential • be advised on the most suitable time and way to return to work, if this is practical • be referred to a specialist in employment for people with disability if extra assistance or advice is needed (a disability employment advisor, in England) • be referred to a specialist vocational rehabilitation team if the disability employment advisor is unable to provide the necessary rehabilitation. <p>Patients who wish to return to or take up a leisure activity should have their cognitive and practical skills assessed, and should be given advice and help in pursuing their activity if appropriate.</p> <p>Sexual Dysfunction Every patient should be asked, soon after discharge and at their 6-months and annual reviews, whether they have any concerns about their sexual functioning. Partners should additionally be given an opportunity to raise any problems they</p>

Guideline	Recommendations
	<p>may have. Any patient who has a limitation on sexual functioning and who wants further help should:</p> <ul style="list-style-type: none"> • be assessed for treatable causes • be reassured that sexual activity is not contraindicated after stroke and is extremely unlikely to precipitate a further stroke • if suffering from erectile dysfunction, be assessed for the use of sildenafil or an equivalent drug • avoid the use of sildenafil or equivalent drug for 3 months after stroke and until blood pressure is controlled • be referred to a person with expertise in psychosexual problems if the problems remain unresolved.
<p>Scottish Intercollegiate Guidelines Network (SIGN). Management of patients with stroke: rehabilitation, prevention and management of complications, and discharge planning. A national clinical guideline. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network (SIGN); 2010 June.</p>	<p>Return to Driving (Section 5.6: Moving on After Stroke) Good Practice Points: - Patients with stroke should be advised that they must not drive for at least one month after their stroke. - Patients with residual activity limitations at one month must inform the DVLA (particularly if there are visual problems, motor weakness or cognitive deficits) and can only resume driving if their physician/GP agrees, or after formal assessment. - When assessing whether a patient has made a satisfactory recovery, clinicians should be vigilant to possible executive function impairment. If there is doubt about a patient's ability to drive, patients should be referred to the local disabled drivers' assessment Centre (details available from the DVLA). (Evidence Level D)</p> <p>Returning to work (Section 5.6: Moving on After Stroke) Good Practice Points: - Early in the rehabilitation pathway patients should be asked about vocational activities and liaison initiated with employers. Once work requirements are established patients should have appropriate assessments made of their ability to meet the needs of their current or potential employment. - NHS boards should consider providing a specific local expert therapist to provide advice to rehabilitation teams including signposting to relevant statutory services such as Disability Employment Advisors at Job Centres, organisations specifically providing opportunities for people with disabilities, eg Momentum, or voluntary services who can provide help and support, eg CHSS, Stroke Association, Disability Alliance (see section 7.3). - People wishing to return to work should have access to advice on benefits, employment and legal rights and referral to social work if appropriate. - Employers should be encouraged to provide skills retraining and flexible work opportunities to people returning to work after a stroke.</p> <p>Good Practice Point: (Section 2.3 Transfer from hospital to home) - NHS boards should consider providing a specific local expert therapist to provide advice to rehabilitation teams including signposting to relevant statutory services such as Disability Employment Advisors at Job Centres, organisations specifically providing opportunities for people with disabilities, eg Momentum, or voluntary services who can provide help and support, eg CHSS, Stroke Association, Disability Alliance (see section 7.3).</p>

Guideline	Recommendations
	<p>Good Practice Point: (Section 4.4.2) - Stroke patients should have a full assessment of their cognitive strengths and weaknesses when undergoing rehabilitation or when returning to cognitively demanding activities such as driving or work.</p> <p>Sexuality Good Practice Point: Healthcare professionals should provide advice and information to patients and partners about sexuality and sex after stroke on an individualised basis.</p> <p>Leisure Activity (Section 6.5: The Role of the Occupational Therapist) - Assessment: assessing skills for the performance of self-care (eg washing, dressing, feeding), domestic (eg shopping, cooking, cleaning), work and leisure occupations (Section 7.4: Provision of information (community)) - Advise patients and carers of how they can access CHSS stroke services, Exercise after Stroke, day centres and other stroke or leisure clubs</p>
<p>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; 2010. p.p.70-72</p>	<p>Return to Driving 1. Recommend all patients be given a clinical assessment of their physical, cognitive, and behavioral functions to determine their readiness to resume driving. In individual cases, where concerns are identified by the family or medical staff, the patient should be required to pass the state road test as administered by the licensing department. Each medical facility should be familiar with their state laws regarding driving after a stroke. [I] 2. Consider referring patients with residual deficits to adaptive driving instruction programs to minimize the deficits, eliminate safety concerns, and optimize the chances that the patient will be able to pass the state driving test. [I] (Working Group Consensus. Level of Evidence – 3, Quality of Evidence – Poor, Strength of Recommendation – I)</p> <p>Return to Work 1. Recommend that all patients, if interested and their condition permits, be evaluated for the potential of returning to work. [C] 2. Recommend that all patients who were previously employed, be referred to vocational counseling for assistance in returning to work. [C] 3. Recommend that all patients who are considering a return to work, but who may have psychosocial barriers (e.g. motivation, emotional, and psychological concerns) be referred for supportive services, such as vocational counseling or psychological services. [C]</p> <p>Sexuality (Section 7.11 Sexual Function) - Sexual issues should be discussed during rehabilitation and addressed again after transition to the community when the post-stroke patient and partner are ready (No level of evidence) (Section 4.6 Assessment of Emotional and Behavioral State) - Brief, continual assessments of psychological adjustment should be conducted to quickly identify when new problems occur. These assessments should also include ongoing monitoring of suicidal ideation and substance abuse. Other psychological factors deserving attention include: level of insight, level of self-efficacy/locus of control, loss of identity</p>

Guideline	Recommendations
	<p>concerns, social support, sexuality, and sleep. (No level of evidence)</p> <p>Leisure Activity (Section 7.8 Recreational and leisure Activity)</p> <ol style="list-style-type: none"> 1. Recommend that leisure activities should be identified and encouraged and the patient enabled to participate in these activities. [!] 2. Therapy for individuals with stroke should include the development of problem solving skills for overcoming the barriers to engagement in physical activity and leisure pursuits. 3. Individuals with stroke and their caregivers should be provided with a list of resources for engaging in aerobic and leisure activities in the community prior to discharge
<p>Clinical Guidelines for Stroke Management 2010. Melbourne (Australia): National Stroke Foundation; 2010 Sep. p. 81-82; 97-98.</p>	<p>Return to Driving</p> <ol style="list-style-type: none"> 1. All patients admitted to hospital should be asked if they intend to drive again. (GPP) 2. Any patient who does wish to drive should be given information about driving after stroke and be assessed for fitness to return to driving using the national guidelines (Assessing Fitness To Drive) and relevant state guidelines. Patients should be informed that they are required to report their condition to the relevant driver licence authority and notify their car insurance company before returning to driving. (GPP) 3. Stroke survivors should not return to driving for at least one month post event. A follow-up assessment (normally undertaken by a GP or specialist) should be conducted prior to driving to assess suitability. Patients with TIA should be instructed not to drive for two weeks. (GPP) 4. If a person is deemed medically fit but is required to undertake further testing, they should be referred for an occupational therapy driving assessment. Relevant health professionals should discuss the results of the test and provide a written record of the decision to the patient as well as informing the GP. (GPP) <p>Activities of Daily Living: “People faced with difficulties in community transport and mobility should set individualized goals and undertake tailored strategies such as…….help to resume driving…….” (Grade B)</p> <p>Return to Work</p> <p>Stroke survivors who wish to work should be offered assessment (i.e. to establish their cognitive, language and physically abilities relative to their work demands), assistance to resume or take up work or referral to a supported employment service. (GPP)</p> <p>Sexuality (Section 8.5: Sexuality)</p> <ol style="list-style-type: none"> a. Stroke survivors and their partners should be offered: <ul style="list-style-type: none"> - the opportunity to discuss issues relating to sexuality with an appropriate health professional (GPP) - written information addressing issues relating to sexuality post stroke (GPP) b. any interventions should address psychosocial aspects as well as physical function <p>Leisure (Section 8.3 Leisure)</p> <p>Targeted occupational therapy programs can be used to increase participation in leisure activities. (Grade A)</p>

Guideline	Recommendations
<p>Duncan PW, Zorowitz R, Bates B, Choi JY, Glasberg JJ, Graham GD, Katz RC, Lamberty K, Reker D. Management of adult stroke rehabilitation care: a clinical practice guideline. Stroke, 2005;36:e117 -125</p>	<p>Return to Driving 1. Recommend that all patients be given a clinical assessment of their physical, cognitive, and behavioral functions to determine their readiness to resume driving. In individual cases, where concerns are identified by the family or medical staff, the patient should be required to pass the state road test as administered by the licensing department. Each medical facility should be familiar with their state laws with regard to driving after a stroke. (I) 2. Recommend that medical staff consider referring patients with residual deficits to adaptive driving instruction programs to minimize the deficits, eliminate safety concerns, and ensure that patients will be able to pass the state's driving test. (I)</p> <p>Return to Work (Evidence Level C) 1. Recommend that all patients, if their condition permits, be encouraged to be evaluated for the potential of returning to work. 2. Recommend that all patients who were previously employed be referred to vocational counseling for assistance in returning to work. 3. Recommend that all patients who are considering a return to work but who may have psychosocial barriers (eg, motivation, emotional, and psychological concerns) be referred for supportive services, such as vocational counseling or psychological services.</p> <p>Sexuality Recommend that sexual issues be discussed during rehabilitation and addressed again after transition to the community when the post stroke patient and partner are ready.</p> <p>Leisure Activity (Section: Is the patient ready for community living) Recommend that leisure activities be identified and encouraged and that the patient be enabled to participate in these activities.</p>

Evidence Tables

Leisure Activities

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
<p>Harrington et al. 2010</p> <p>UK</p> <p>RCT</p>	<p>CA: <input checked="" type="checkbox"/></p> <p>Blinding: Patient <input checked="" type="checkbox"/> Therapist <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/></p> <p>ITT: <input checked="" type="checkbox"/></p>	<p>243 participants who had returned to living in the community for at least 3 months following an acute stroke and 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)</p>	<p>Participants were randomized to a standard care (n=119) or an intervention group (n=124).</p> <p>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.</p>	<p>Primary outcomes: Subjective Index of Physical and Social Outcome (SIPSO), Frenchay Activities Index(FAI), Rivermead Mobility Index (RMI)</p> <p>Secondary outcomes: Carer Strain Index, Functional Reach, Timed Up and Go, WHOQoL-Bref and Hospital Anxiety & Depression Scale</p> <p>Assessments were conducted at baseline, 9 weeks, 6 months and one year (postal survey)</p>	<p>61% of participants attended ≥12/16 sessions.</p> <p>Median baseline total SIPSO scores were significantly lower in the intervention group (13 vs. 10, p=0.004).</p> <p>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.</p> <p>There were no significant between group differences on either the FAI or RMI at any of the assessment points.</p> <p>There was significantly greater improvement in the median psychological domain of the WHOQoL-Bref score at 6 month associated with the intervention group (p=0.01). There were no significant between group differences on any of the other secondary outcomes.</p> <p>Drop-outs and losses to follow-up at 1 year: n=69.</p>

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
<p>Huijbregts et al. 2008</p> <p>MOST (Moving on after stroke) And LWS (Living with stroke)</p> <p>Canada</p> <p>Prospective study</p>	<p>NA</p>	<p>23 participants (14 in MOST and 9 in LWS) an average of 24 months post stroke, with an average age of 71 years (MOST group) and 63 years (LWS group).</p>	<p>Participants were recruited by brochures, referrals, presentations etc. and were allowed to choose which of the two programs they wanted to attend.</p> <p>Participants in The first program (MOST) received 16 group sessions (2 times per week for 2 hours) and one final “booster session” after a 6 week gap. The 17 session topics include (Listed in Table 1 of Huijbregts et al 2008): why is self-management and exercise important, goal setting, how stroke affects you and prevention, relaxation, daily activities and responsibilities, recreation and having fun, how stroke affects how you think and feel, caregivers, community resources communication, interaction with health providers, alternative treatments, loving and caring, your doctor and your medications, nutrition sleep and pain, community living). One hour is devoted to one of the topics listed and</p>	<p>Outcomes: Mini-Mental State Exam (MMSE) at baseline, Reintegration to Normal living index (RNLI), Activity-specific balance scale (ABC), FIM, geriatric depression scale (GDS), Chedoke McMaster Stroke Assessment (CMSA) (activity inventory component)</p> <p>Assessments were conducted at baseline, at the end of the program and at 12 weeks after the program (all other assessments except MMSE were administered at the last two time points).</p>	<p>MOST vs. LWS groups: There were no statistically significant differences in outcomes between the two groups.</p> <p>Within MOST group: RNLI: Patients in the MOST group experienced statistically significant improvements in the RNLI score from baseline to 12 weeks after the program (F=3.43; P<0.05). ABC: Patients in the MOST group experienced statistically significant improvements in ABC scores from baseline to right after the program and from baseline to 12 weeks after the program (F=8.94; P<0.005). FIM: Patients in the MOST group experienced statistically significant improvements in FIM scores from baseline to right after the program (F=3.97; P<0.05). GDS: No statistically significant improvements in GDS scores in the MOST group. CMSA: No statistically significant improvements in CMSA scores in the MOST group.</p> <p>Within LWS group: Patients in the LWS group only experienced statistically significant gains in FIM scores (F=4.73; P<0.09)</p> <p>Overall the outcomes for the MOST and LWS groups did not differ significantly. However, the MOST group of patients experienced significant improvements in multiple outcome areas, while participants in the LWS group only experienced functional gains. For participants in the MOST program, a greater percentage of people attended the first hour of the session compared to the second hour (89% vs. 77%; P<0.001)</p>

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			<p>some time to work on goal setting and strategies for problem solving. The second hour is exercise.</p> <p>Participants in the second program, LWS, received 6 group sessions (1 time per week for 90 minutes). Session topics include 6 of the 8 listed in Table 1 of Huijbregts et al 2008: how a stroke happens, physical effects of stroke, communication, therapies and lifestyle changes, psychosocial effects, stroke and the younger person, issues in care giving, community).</p>		
<p>Desrosier et al. 2007</p> <p>Canada</p> <p>RCT</p>	<p>CA: <input checked="" type="checkbox"/></p> <p>Blinding: Patient <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/></p> <p>ITT: <input checked="" type="checkbox"/></p>	<p>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.</p>	<p>Participants were randomized to an intervention group (n=33) or the control (n=29) groups.</p> <p>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 significant leisure activities in their life.</p>	<p>Primary outcomes: General Well-Being Schedule, Center for Epidemiological Studies Depression Scale (CES-D), Stroke-Adapted Sickness Impact Profile (SA-SIP30).</p> <p>Leisure related outcomes: Participation in leisure (duration, number of activities) Leisure Satisfaction Scale and two sections of the Individualized Leisure Profile.</p> <p>Assessments were conducted before and after</p>	<p>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).</p> <p>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, 95% CI 1.3-12.6, p=0.02) but not on the satisfaction with use of spare time section (p=0.22).</p> <p>Participants in the intervention group experienced fewer depressive symptoms (MD= -7.2, 95% CI -</p>

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			Control group received home visits from a recreational therapist following the same schedule as the intervention group.	the intervention.	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	NA	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 a 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, 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).

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
<p>Parker et al. 2001 Trial of Occupational Therapy & Leisure (TOTAL) UK RCT</p>	<p>CA: <input checked="" type="checkbox"/></p> <p>Blinding: Patient <input checked="" type="checkbox"/> Therapist <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/></p> <p>ITT: <input checked="" type="checkbox"/></p>	<p>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.</p>	<p>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.</p>	<p>Primary outcome: General Health Questionnaire (GHQ), Nottingham Extended ADL (NEADL) Nottingham Leisure Questionnaire (NLQ)</p> <p>Secondary outcomes: International Stroke Trial outcome questions, Oxford Handicap Scale, Barthel Index, London Handicap Scale</p> <p>Assessments were conducted at baseline and by postal questionnaire at 6 months and 1 year</p>	<p>At 6 months there were no significant differences among groups.</p> <p>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</p> <p>At 12 months, 78% responded to follow-up questionnaire. There were no significant differences on any of the outcomes among groups.</p> <p>Losses to follow-up and drop-outs: n= 135</p>
<p>Drummond & Walker 1995 UK RCT</p>	<p>CA: <input checked="" type="checkbox"/></p> <p>Blinding: Patient <input checked="" type="checkbox"/> Therapist <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/></p> <p>ITT: <input checked="" type="checkbox"/></p>	<p>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).</p>	<p>Participants were randomized to a leisure therapy group (n=21), an ADL group (n=21) or a control group (n=23).</p> <p>Following discharge from hospital, those in the leisure therapy and ADL groups received conventional occupational 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</p>	<p>Primary outcomes: Total Leisure Score (TOTL), Total Leisure Activity score (TLA)</p> <p>Assessments were conducted at baselines, 3 and 6 months</p>	<p>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).</p> <p>The 6-month pattern of results was similar.</p> <p>The difference remained significant at both 3 and 6 months after controlling for the effect of age.</p> <p>Losses to follow-up and drop-outs: n=5</p>

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
			preferences and abilities. Participants in the control group received no additional services.		
Jongbloed & Morgan 1991 Canada RCT	CA: <input checked="" type="checkbox"/> Blinding: Patient <input checked="" type="checkbox"/> Therapist <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/> ITT: <input checked="" type="checkbox"/>	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 therapist, 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.

Sexuality

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Stein et al. 2013 USA Cross-sectional survey	NA	Of 268 patients included in a stroke rehabilitation research registry, 35 (14.2%) patients agreed to participate and completed the survey. Mean age was 55.1 years. The majority of patients (81.5%) were contacted two or more years post stroke.	Email or postal questionnaire used to collect data related to sexual dysfunction, fatigue, depression and ability to perform ADL.	Primary outcomes: Changes in Sexual Functioning Questionnaire short form (CSFQ-14), Fatigue Assessment Scale (FAS), Beck Depression Inventory, Barthel Index Additional questions: Related to patients' preferences regarding counseling and information	100% of men and 58% of women met the criteria for sexual dysfunction. Mean CSFQ-14 scores were 34.45±7.04 for men and 37.5±12.38 for women. 42% of respondents indicated their sexual functioning was worse following stroke, 42% indicated no change and 5% indicated sexual functioning was improved. 71% of respondents (both men and women) rated sexual issues as moderately important, important or very important.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
				<p>support for receiving information on sexuality post-stroke.</p>	<p>94% of respondents indicated that physical limitations impacted their sexual activity. 58.8% reported feeling less sexually desirable following stroke.</p> <p>75% of respondents wanted more information related to sexual dysfunction, while 15.2% indicated they had already received such information.</p> <p>60% of participants indicated a preference for physicians to provide information on sexual issues, while 45% preferred a nurse and 36.3%, a physical therapist. Printed materials and face-to-face discussion were preferred by 30% and 27% of respondents, respectively.</p> <p>26.5% of respondents indicated a preference for receiving information early during recovery (e.g. during rehabilitation or before discharge from hospital).</p>
<p>Carlsson et al. 2007</p> <p>Sweden</p> <p>Prospective study</p>	<p>NA</p>	<p>56 patients, <75 years admitted to a stroke unit following first-ever stroke, and their partners were recruited. Median age of patients and spouses were 60 and 59 years, respectively. Most patients had experienced mild stroke (median Barthel Index score at 1 week was 100).</p>	<p>Life satisfaction was assessed at 1 week and one year following stroke by both patients and spouses using the LiSat-9. The checklist contains items assessing: i) satisfaction with life as a whole, ii) health (1 item), closeness (3 items), iii) spare time (2 items) and provision (2 items).</p> <p>Scores were compared with an age-matched "norm group".</p>	<p>Primary outcome: Proportion of patients and spouses who were satisfied across the 5 LiSat-9 domains, at one year following stroke</p>	<p>Compared with the norm group, both patients and spouses were significantly less satisfied with life across many domains of the LiSat-9.</p> <p>Compared with the norm group, a greater percentage of patients indicated they were not satisfied with life: Life as a whole (39% vs. 77%, p<0.05), ability in self-care (71% vs. 93%, p<0.05), sex life (34% vs. 58%, p<0.05), leisure time (38% vs. 71%, p<0.05), and vocation (45% vs. 67%, p<0.05)</p> <p>Compared with the norm group, a greater percentage of spouses indicated they were not satisfied with life: Life as a whole (64% vs. 77%, p<0.05), closeness with partner (67% vs. 86%, p<0.05), sex life (41% vs. 58%, p<0.05) and leisure time (52% vs. 71%, p<0.05).</p> <p>The proportion of couples in which both partners</p>

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
					agreed they were satisfied was: leisure time 20%, sex life 25%, vocation/occupation 29%, life as a whole 30%, finances 47%, social contacts 48%, relationship with partner 60%, family life 66% and ability in self-care 66%.
Buzzelli et al. 1997 Italy Prospective study	NA	72 patients (57 men and 15 women) admitted to a single rehabilitation unit following first-ever stroke. Mean age was 64 years.	Patients and their partners were interviewed, separately at one month and one year following stroke, using a structured interview	Primary outcome: Rates of decline in sexual activity following stroke	At one year, 60 patients (83.3%) reported a decline in sexual activity, while 8 patients and their partners reported an increase in activity. No association was found between gender or side of lesion and decline in sexual activity. Duration of marriage was the only variable significantly predictive of weekly sexual performance. Age, education, disability and depression were not significant predictors. High levels of activity prior to the stroke event did not predict maintenance of sexual activity. Variables associated with disruption of sexual activity were: fear of relapse, belief that one must be healthy to have a sex life and partner who is "turned off" at the prospect of sexual activity with a "sick person".

Driving

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
<i>Assessing Fitness to Drive Following Stroke</i>					
Barco et al. 2014 USA Cross-sectional	NA	72 patients who had been driving for at least 10 years prior to stroke with a NIHSS score of 0-13. Mean age was 59 years. Mean time from	Development of a screening battery to predict on-road driving performance. Off-road candidate	Primary outcome: (modified) Washington University Road Test Participants were evaluated when the referring physician	45 participants passed the road test, 27 failed. A combination of the Snellgrove Maze Test and the Trail Making Test (part A) were the best predictors of passing the on-road test.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
study		stroke onset was 8.6 months	predictors included measures of vision, cognition and upper and lower-limb motor abilities	believed the patient was clinically stable and ready to participate in a driving examination	ROC AUC=0.87, positive likelihood ratio=6.0, 95% CI 1.7-21.1
Devos et al. 2011 Belgium Systematic Review and Meta-analysis	NA	30 studies (1,919 participants) that assessed fitness to drive in participants following a stroke using an on-road evaluation scored as pass or fail. The median time from stroke onset was 8.8 months. Mean age of participants ranged from 51.4 to 71 years	Effect sizes (ES) associated with the determinants of driving ability, were calculated and pooled. ES>0.8 were considered clinically significant. Potential candidate variables included socio-demographic, visual and cognitive (perceptual, attention, memory and executive and higher order planning) functions.	Primary outcome: Fitness to drive (pass/fail)	Fitness to drive was not influenced by age, side of lesion, time to driving examination, driving experience, comorbidity, gender, education, aphasia, motor function, or by visual, perceptual or attention and memory functions. Fitness to drive was influenced by 5 cognitive measures (Cube Copy, Road Sign Recognition, Compass, Stroke Drivers Screening Assessment (SDSA), and Trail Making Test part B (TMT B)). Effect sizes ranged from 0.81-1.54. Predictive accuracies ranged from 0.65-0.76 No off-road tests were found to determine crash risk at follow-up.
<i>Interventions to Improve Driving Skills Following stroke</i>					
George et al. 2014 USA Cochrane Review	NA	4 studies (n=245) including participants with all types of strokes, levels of severity and at all stages post stroke, examining interventions to improve driving skills. Mean time from stroke to recruitment ranged from an average of 53 days to 1.4 years. Mean ages were 54, 66, 67 and 68 years in the included studies.	Interventions examined included driving simulators (n=2) and skills development using the Dynavision device (n=1) and Useful Field of View training (n=1). Control conditions included no intervention (n=2), and active interventions to train perceptual and cognitive skills (n=2). Mean total dose of the interventions was 15 hours, with a mean duration of 7.5 weeks).	Primary outcome: Performance (pass/fail) during on-road assessment Secondary outcomes: Visual attention, reaction time, visual scanning, self-efficacy, executive reasoning ability, and tests of visual perception, functional measures, physical measures of mobility, strength and co-ordination, and death. Assessments were conducted post intervention and at 6 months	No pooled analyses were conducted due to heterogeneity. There was no significant difference in the mean on-road scores between groups at 6 months (MD=15.0, 95% CI -4.6 34.6, p=0.13). Results from a single trial included. Participants in the intervention group had significantly higher scores on road sign recognition test (MD=1.69, 95% CI 0.51-2.87, p=0.0051). Results from a single trial included.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
			Sessions lasted an average of 40-60 minutes each.		
Crotty & George 2009 Australia RCT	CA: <input checked="" type="checkbox"/> Blinding: Patient <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/> ITT: <input checked="" type="checkbox"/>	37 participants, recruited from 4 rehabilitation centres, who were drivers prior to stroke with no visual field impairments, binocular vision of minimum 6/12, and a minimum of 1 month post stroke. Mean age was 66 years. Median of 84 days from stroke onset.	Participants were randomly allocated to receive training with the Dynavision training system to train visuomotor abilities (3 sessions per week for 6 weeks; n=13) or control (waitlist for the 6 weeks; n=13) group.	Primary outcome: Assessment of on-road ability at 6 weeks. Secondary outcomes: Abilities in Response Time Measures, Visual Scanning Analyzer and Adelaide Driving Self-Efficacy Scale (ADSES).	There were no significant difference in the on-road assessment between groups (p=0.223). There were no significant differences between groups in any of the 3 secondary measures - Abilities in Response Time Measures, Visual Scanning Analyzer and ADSES. Drop outs and loss to follow-up: n=7.
Akinwuntan et al. 2005 Devos et al. 2010 (5-year follow-up) USA RCT	CA: <input checked="" type="checkbox"/> Blinding: Patient <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/> ITT: <input checked="" type="checkbox"/>	83 patients admitted to a rehabilitation hospital who were within 3 months of first-ever stroke and had been driving prior to stroke. Mean age was 54 years. Mean time since stroke was 53 days.	Patients were randomly allocated to receive driving simulator-based training in full-sized automatic gear transmission car (15 hours over 5 weeks at 1 hour per day, three times a week; n=42) or standardized training by performing driving related cognitive tasks (control condition, n=41).	Primary outcomes: Performance in the on-road test and decision of driving fitness at follow-up. Driving fitness was classified as “fit to drive”, “temporarily unfit to drive” or “unfit to drive” Other measures: Visual (monocular and binocular vision acuity and the kinetic vision test) and cognitive tests (UFOV test and components of the Stroke Driver Screening Assessment (SDSA)). Assessments were conducted at baseline and 6 months	There were no significant differences between groups for any of the visual or cognitive at baseline, post training or pre- post-training difference, except for significantly greater pre- to post-training improvement in the road sign recognition test among participants in the intervention group (p=0.0007). Participants in both groups demonstrated significant improvements from pre to post training assessments. Most subjects improved at least by one decision level. At follow-up, 73% of participants in the intervention group passed their on road assessment and could continue driving, compared to 42% of participants in the control group (p=0.03). Drop outs and loss to follow-up: n=31. 5-year outcomes More participants who had received simulator training were considered fit to drive at 5-years (60% vs. 48%, p=0.36). 44 patients completed all assessments. 85% of those driving at 6 months continued to drive at 5 years.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
					Among drivers, there was no increased risk of accident vs. pre-stroke; however, there was an increased risk of self-reported traffic tickets (RR=2.88)
Mazer et al. 2003 USA RCT	CA: <input checked="" type="checkbox"/> Blinding: Patient <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/> ITT: <input checked="" type="checkbox"/>	97 patients admitted to a rehabilitation hospital or referred to the driving evaluation who drove prior to stroke and had a desire to return to driving. Mean age was 66 years. Participants were within an average of 66-90 days post stroke.	Patients were randomly allocated to either the 20 training sessions using the Useful Field of Vision (UFOV) software tool, which followed a standard training protocol designed according to participant's pre-test evaluation (n=47) or using same touch screen as the intervention, but which included computer games that did not require the same aspects of speed of visual processing (n=50).	Primary outcome: On-road driving evaluation (passed, failed, needed driving lessons). Secondary outcomes: UFOV, complex reaction timer, Motor-Free Visual Perception Test, Single and Dot Cancellation Tests, Money Road Map Test of Direction Sense, Trail Making Tests Parts A and B, Bells test, Charron test, and Test of Everyday Attention Assessments were conducted at baseline and post intervention	Following the intervention, there was no significant between group difference in the proportion of participants who passed the on-road driving evaluation (39% vs. 32.6%, p=0.54). There were no significant differences between groups for any of the secondary outcomes. Drop outs and loss to follow-up: n=13.

Return to Work

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
<i>Rates and predictors of return to work</i>					
Wang et al. 2014 USA Review	NA	42 studies published from 1974-2011 that assessed factors associated with return to work following stroke	Factors found to be predictive of RTW were categorized according to the ICF framework	Primary outcome: Factors that were positively and negatively associated with RTW based on quantitative and qualitative data.	Demographic variables: younger age (<55 years) was positively associated with RTW. The associations between RTW and gender, race, ethnicity, education and marital status remain unclear. LOS may be a negative predictor of RTW, but may be confounded by stroke severity.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
					<p>Body structures: side and location of stroke have not been found to be good predictors of RTW.</p> <p>Body functions: stroke severity has been found to be the factor that is most strongly (negatively) associated with RTW.</p> <p>Activity participation: higher ADL function, the ability to walk and run and a good match between current capabilities and job tasks are positively associated with RTW.</p> <p>Psychosocial and personal factors: strong family support, stroke survivors who are realistic and flexible in their vocational goals, value work and are not fearful of failing are more likely to RTW. Depression is a negative factor for RTW.</p> <p>Environmental factors: the availability of vocational services, a flexible work environment and disability benefits were all positively associated with RTW.</p> <p>Job factors: white collar work, government employer and wages that exceed disability compensation levels are positive predictors of RTW.</p>
<p>Hackett et al. 2012</p> <p>Australia</p> <p>Prospective study</p>	<p>NA</p>	<p>441 patients, recruited from 20 hospitals, aged 18-64 years, who had sustained a stroke within the previous 28 days. Patients with aphasia or cognitive impairment were also eligible if a proxy was available. Mean age was 52 years.</p>	<p>Telephone interviews were conducted to collect data on depression, anxiety, cognitive function, cognitive status, instrumental activities of daily living and fatigue. Information on the details of paid work was also collected.</p> <p>A multivariable model was developed to predict</p>	<p>Primary outcome: Returned to paid work at 1 year post stroke.</p>	<p>At the time of the stroke, 218 (52%) and 53 (13%) participants were engaged in full-time and part-time work, respectively.</p> <p>By one-year post stroke, 202 (75%) persons had returned to work.</p> <p>Factors associated with increased odds of RTW work were: independence in activities of daily living at 28 days (OR=10.23, 95% CI 4.11-25.46), male and female without illness that restricted activity before stroke</p>

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
			independent factors associated with RTW		<p>Factors associated with decreased odds of RTW work were: no health insurance (OR=0.40, 95% CI 0.18-0.89) and increasing age (OR=0.94, 95% CI 0.90-0.98)</p> <p>Depression post-stroke was not a significant predictor of return to work (OR=2.31, 95% CI 0.87-6.12).</p>
<p>Hannerz et al. 2011</p> <p>Denmark</p> <p>Prospective study</p>	NA	19,985 persons included in the Danish Occupational Hospitalization Register who were 20-57 years, had sustained a stroke (ischemic, SAH, ICH) and were gainfully employed in the year preceding hospitalization.	Independent predictors of gainful employment, two years following stroke were sought. Potential variables included, gender, age, diagnosis, calendar year, occupational class self-employment and type of municipality	Primary outcome: Return to work at 2 years post stroke	<p>62.1% of participants were employed 2 years post stroke.</p> <p>Factors associated with an increased odds of RTW were higher occupational class (compared with persons in elementary occupations).</p> <p>Factors associated with decreasing odds of RTW were: stroke type (SAH OR=0.79, 95% CI 0.7-0.88 and ICH OR=0.39, 95% CI 0.35 to 0.43, compared with cerebral infarction, the reference standard), female (OR=0.79, 95% CI 0.74-0.84) and age 50-57 years (OR=0.61, 95% CI 0.57-0.65, compared with <50 years) and being self-employed (OR=0.87, 95% CI 0.78-0.96).</p>
<p>Trygged et al. 2011</p> <p>Sweden</p> <p>Retrospective study</p>	NA	7,081 patients, aged 40-59 years who had been discharged from hospital following first-ever stroke (SAH, infarction, ICH) and who worked prior to stroke. Patients with ischemic heart disease were excluded.	The association between return to work (1-4 years post discharge) and income and education variables was examined controlling for age, sex, stroke subtype and length of stay.	Primary outcome: Return to work at 4 years post stroke	<p>4,867 (69%) persons returned to work.</p> <p>Independent predictors of RTW were higher levels of education (compulsory vs. University RR=1.13, 95% CI 1.04-1.22) and higher income (1st quartile vs. 4th RR=1.94, 95% CI 1.77-2.12). Compared with patients who had sustained an infarction, patients an SAH were more likely to RTW (RR=1.27, 95% CI 1.17-1.38).</p> <p>Increasing LOS was associated with a decreased likelihood of RTW (RR=0.82, 95% CI 0.80-0.85 per each 10-day increment).</p> <p>Across the different categories of stroke type (infarction, SAH and ICH) the odds of RTW were all significantly increased with increasing levels of education and income.</p>

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Saeki et al. 2010 Japan Prospective study	NA	325 patients recruited from 21 hospitals following first-ever stroke, aged 15-64 years, who were actively employed at the time of stroke. Mean age was 55.1 years.	<p>A multivariable model was developed to predict independent factors associated with RTW.</p> <p>Potential variables included age, gender, stroke subtype, occupation (white- or blue-collar), education level, marriage, previous alcohol consumption, hypertension, side and severity of hemiplegia, higher cortical dysfunctions (aphasia, agnosia, and apraxia), and ability to perform ADLs (evaluated by Barthel Index)</p>	Primary outcome: Return to work at 18 months post stroke	<p>138 persons (55%) had successfully returned to work at 18 months.</p> <p>Of the subjects who successfully returned to work, 50% returned to work within 100 days from stroke onset.</p> <p>Independent predictors of RTW were: male (OR=3.24, 95% CI 1.11-10.96), functional use of the affected hand (OR=4.66, 95% CI 1.40-19.53) and BI scores of 80-100 (OR=2.7, 95% CI 1.08-7.03)</p>
<i>Interventions to increase return to work</i>					
Ntsiea et al. 2014 South Africa RCT	CA: <input checked="" type="checkbox"/> Blinding: Patient <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/> ITT: <input checked="" type="checkbox"/>	80 participants aged 18-60 years who were employed at the time of stroke, were <8 weeks since stroke onset, with Barthel Index scores of ≥12. Mean age was 45 years. Mean duration from stroke onset was 4.6 weeks.	<p>Participants were randomized to a 6-week individualized workplace intervention program group (n=40) or a control group, which received usual care (n=40).</p> <p>The intervention program included an assessment component, designed to evaluate perception, visual discrimination, sequencing ability, numerical ability, reasoning and language ability, fine and gross motor coordination, eye hand coordination, measurement ability, and</p>	Primary outcome: Return to work rates at 3 and 6 months post stroke Secondary outcomes: Barthel Index (BI), Modified Rivermead Mobility Index, Montreal Cognitive Assessment (MoCA) and Stroke Specific QoL Scale	<p>At the time of stroke, 45% of participants were employed in white collar professions, and 55% in blue collar.</p> <p>At 3 months more persons in the intervention group had returned to work (27% vs. 12%, p=0.13). By 6 months, significantly more persons in the intervention group had returned to work (60% vs. 20%, p<0.001).</p> <p>Independent predictors of RTW were participation in the intervention (OR=5.2, 95% CI 1.8-15.0, p=0.002), 6-month BI score (OR=1.7, 95% CI 1.1-2.6, p=0.02), 6-month MoCA score (OR=1.3, 95% CI 1.1-1.6, p=0.02) and left hemiplegia (OR=4.4, 95% CI 1.5-12.5, p=0.005).</p> <p>Persons who returned to work had significantly higher mean SS QoL scores at 6 months compared with those who had not returned to work</p>

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
			<p>colour discrimination. It also included input from the employer or supervisor to discuss and develop a plan to overcome identified barriers.</p>		<p>(227.9 vs. 218.2, p=0.05). There was no significant difference in SS QoL scores between groups at 3 months.</p> <p>Drop-outs and losses to follow-up: n=8</p>
<p>Baldwin & Brusco 2011</p> <p>Australia</p> <p>Systematic Review</p>	<p>NA</p>	<p>6 retrospective studies (n=477) including adults of working age, which examined rehabilitation programs that included vocational training post stroke. Employment at the time of stroke was not an inclusion criterion.</p>	<p>Vocational rehabilitation program were defined as medical, psychological, social, physical and/or occupational rehabilitation activities with the purpose to return to work.</p> <p>Components included in at least one of the study's programs were: worksite and work trial assessments, vocational counselling, job placement services, graded RTW program, constraint-induced movement therapy.</p> <p>Vocational rehabilitation programs varied in the setting, professionals involved, duration of program and type of rehabilitation</p>	<p>Primary outcome: Return to work rates</p>	<p>Pre stroke vocation status was reported in 3 studies and ranged from 48% to 100%.</p> <p>Following completion of the program, RTW rates varied from 12% to 49%.</p>

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