HEART & STROKE FOUNDATION | CANADIAN Stroke BEST PRACTICE RECOMMENDATIONS

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Stroke Rehabilitation Evidence Tables

Resumption of Life Roles and Activities following Stroke

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on Behalf of the Canadian Stroke Best Practice Recommendations
STROKE REHABILITATION Writing Group

December 2015

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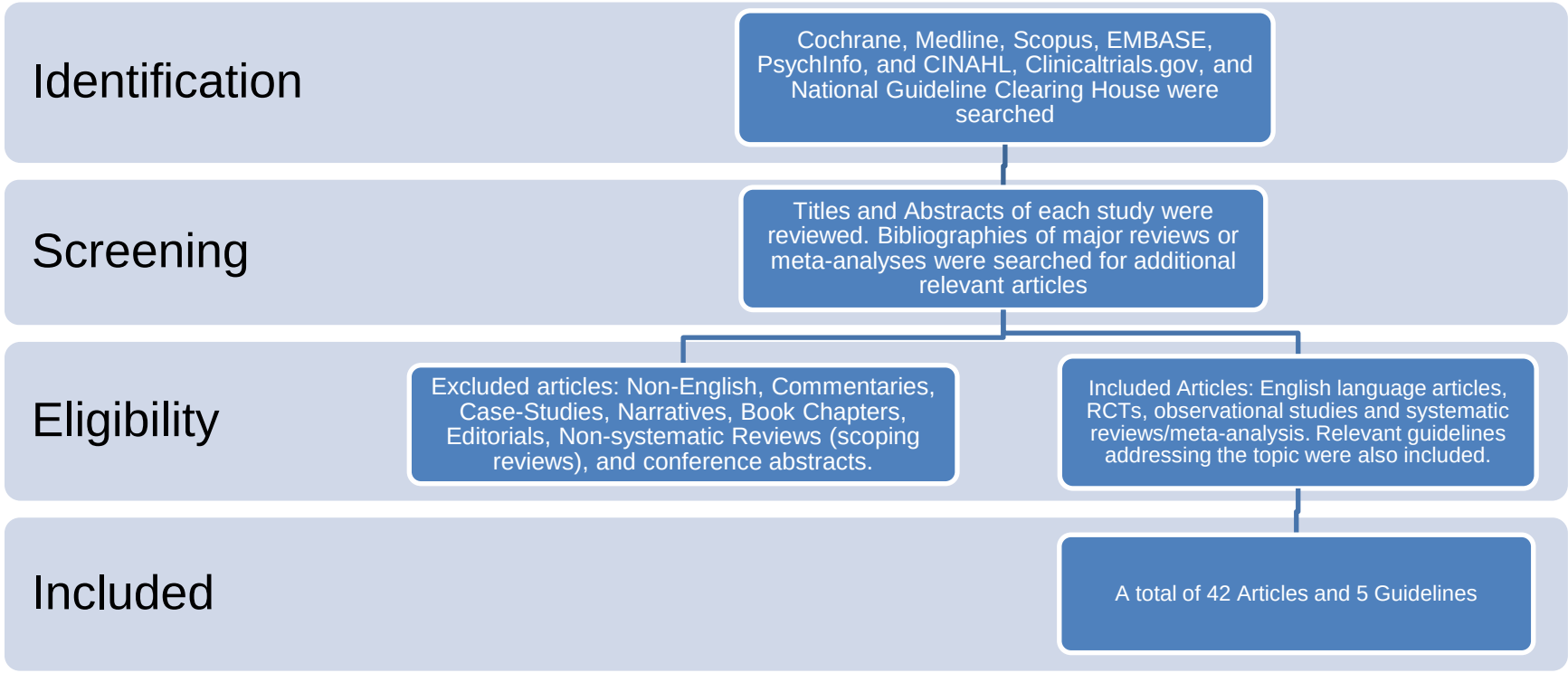
Search Strategy



Cochrane, Medline, Embase, Scopus, CINAHL, Psychinfo, Clinicaltrials.gov, and National Guideline Clearing House were searched using the keywords: (stroke OR CVD OR cerebrovascular disease) AND (rehabilitation OR intervention OR therapy) AND (Return to Driving OR Driving OR Drive OR Return to Vocation OR return to work OR work OR vocation OR volunteering OR Sexuality OR Sexual Dysfunction OR Sexual Function OR Leisure Activities OR Recreation OR Leisure). The same databases were searched to identify paediatric related evidence using additional keywords: "(pediatric OR pediatrics OR paediatric OR paediatrics OR youth OR child OR children OR young)." 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 42 articles and 5 guidelines were included and were separated into separate categories designed to answer specific questions.

Published Guidelines

Guideline	Recommendations
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.	**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) **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. 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). 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. **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.

Guideline	Recommendations
	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
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	**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) **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] **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 concerns, social support, sexuality, and sleep. (No level of evidence) **Leisure Activity** ***(Section 7.8 Recreational and leisure Activity)*** 1. Recommend that leisure activities should be identified and encouraged and the patient enabled to participate in these activities. [I] 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

Guideline	Recommendations
Clinical Guidelines for Stroke Management 2010. Melbourne (Australia): National Stroke Foundation; 2010 Sep. p. 81-82; 97-98.	**Return to Driving** 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) 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) **Return to Work** 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) **Sexuality** ***(Section 8.5: Sexuality)*** a. Stroke survivors and their partners should be offered: - 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 **Leisure** ***(Section 8.3 Leisure)*** Targeted occupational therapy programs can be used to increase participation in leisure activities. (Grade A)
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	**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) **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.

Guideline	Recommendations
	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. **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.
Steinke et al. European Heart Journal (2013) 34, 3217–3235, ESC Position Paper. Sexual counselling for individuals with cardiovascular disease and their partners. A Consensus Document From the American Heart Association and the ESC Council on Cardiovascular Nursing and Allied Professions (CCNAP).	**Sexuality** All stroke survivors and their partners should be asked about intimacy and sexual function at the time of the stroke, and then at regular intervals during follow-up after their stroke (Class I; Level of Evidence B). Sexual activity is reasonable for patients after stroke (Class IIa; Level of Evidence B).

Evidence Tables

Return to Driving Screening Assessment

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Devos et al. 2011 **Belgium** **Systematic Review and Meta-analysis**	N/A	30 Studies – case series, cohort, RCT's etc. (1,919 participants) included in systematic review. 27 Studies – case series, cohort, RCT's etc. were included in the meta-analysis. Inclusion criteria: had to include a pass/fail outcome for driving.	A review of all studies that assess the determinants of fitness to drive using a pass or fail outcome from an on-road assessment to identify office-based measures of fitness to drive.	Effect size associated with the determinants of driving ability, physical, visual, and cognitive (perceptual, attention, memory and executive and higher order planning) function between participants who pass or fail an on-road driving assessment.	5 cognitive measures met the criteria for a large and significant effect in their ability to predict on-road performance: (positive effect size indicates that the pass group performed better than the fail group). 1. Cube Copy (ES 1.54 (SD 0.77-2.32), p<0.0001) 2. Road Sign Recognition (ES 1.22 (SD 1.01-1.44), p<0.0001). Cutoff score of 8.5 out of 12, Predictive accuracy of 76%, Sensitivity of 84% and Specificity of 54%. 3. Compass ((ES 1.06 (SD 0.74-1.39), p<0.0001). 4. Stroke Drivers Screening Assessment (SDSA) (ES 1.03 (SD 0.61-1.46), p<0.0001). Cutoff score of 25 out of 32, Predictive accuracy of 75%, Sensitivity of 85% and Specificity of 54%. 5. Trail Making Test part B (TMT B) (ES 0.81 (SD 0.48-1.15), p<0.0001). Cutoff score of 90 seconds, Predictive accuracy of 65%, Sensitivity of 80% and Specificity of 62%. No off-road tests were found to determine crash risk at follow-up.
Barco et al. 2014 **United States** **Observational**	N/A	72 patients with stroke (mean age 59.3 ± 13 years; 54% male; average of 42.7 years driving experience) Inclusion criteria: >10 years driving experience Exclusion criteria: presence of impairments (e.g. depression, language deficit's etc.) or medication that limit the	A series of off-road tests were used to predict on-road performance. All outcomes were assessed the same day at an outpatient driving assessment centre.	**Dependent variable:** On-Road Test (Washington University Road test - Pass or fail) **Predictive variables:** Vision testing, cognition testing (Short Blessed Test, Clock Drawing Test, Snellgrove Maze Task (SMT), Trail Making test Part A & B, Digit span forward and backward test, UFOV, Driving Health Inventory), motor testing	Participants who failed the road test were significantly older (p=0.005), less educated (p=0.003), had more driving experience (p=0.009), were a greater time post-stroke (p=0.028), higher visual acuity scores (p=0.029), lower grip strength (p=0.018), longer brake reaction time (p=0.04), and higher scores on the nine hole peg test (left p=0.027; right p=0.038). The trail-making test A, SMT, NIHSS total score and visual acuity was selected to use in the predictive model for on-road driving performance. SMT and Trail making test A resulted in the greatest receiver operating curve score (area

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		ability to participate in driving.		(muscle testing, range of motion, rapid pace walk, nine hole peg test, braking response time monitor).	under curve = 0.87): False +ve rate = 0.07 Precision = 0.77 Accuracy = 0.74 Likelihood ratio = +6.0 (95% CI 1.7 to 21.1)
Aslaken et al. 2013 **Norway** **Retrospective Cohort Study**	N/A	78 patients with stroke (n=55) or TBI (n=23) were included (83% male) Inclusion Criteria: confirmed diagnosis of stroke or TBI Exclusion Criteria: significant medical, visual, communication or motor impairments; previous assessment for driving ability.	A series of off-road tests were used to predict on-road performance. On-road testing was completed within 1-3 days of the off-road testing.	**Dependent variable:** National Traffic Safety Administration of Norway evaluation criteria (pass or fail). **Predictive variables:** demographics, diagnostic and neuropsychological variables (Wechsler Adult Intelligence Scale (WAIS-III), Picture completion, block design, wechsler memory scale, visual memory span forward/backward, halstead-reitan neuropsychological battery. Trail making test A and B, grooved pegboard, Wisconsin card sorting test, behavioral inattention test, and California computerized assessment package.)	Tests predictive of on-road test assessment included simple reaction time (F=15.27; p<0.001), trail making test part A (F=15.73; p<0.001), and pegboard dominant hand (F=10.06; p=0.002). Following logistic regression analysis, an increase in simple reaction time, Trail Making Test A, and pegboard dominant hand scores result in lower odds of passing the on-road driving assessment (OR=0.99, p=0.002; OR=0.97, p=0.022; OR=0.984; p=0.029 respectively). Negative predictive value: 77% Positive predictive value: 88% AUC SRT: 0.78; cut off score=395ms (sensitivity of 0.77; specificity 0.77) AUC Trail Making Test: 0.81; cut off score 46s (sensitivity of 0.85; specificity 0.72) AUC Pegboard: 0.73; cut off score 97.5s (sensitivity 0.82; specificity 0.18).
Aufman et al. 2013 **United States** **Retrospective Cohort Study**	N/A	198 patients who received inpatient rehabilitation after stroke (mean age 61 years; 54% male). Inclusion criteria: primary diagnosis of stroke.	Patients were classified as having either returned to driving (n=48), not returned to driving (n=108), or were not driving before their stroke (n=42). Predictors of returning to driving were identified and entered into a model for predicting a return to driving.	**Dependent variable:** "Have you returned to driving?" **Predictor variables:** demographics, details of stroke, physical and cognitive functioning (motricity index. Action research arm test, berg balance scale, mesulam cancellation test, Catherine bergego scale-clinician portion, woodcock-Johnson numbers reversed. Spatial relations, retrieval fluency tests, Boston naming test, FIM cognitive, walking and	79% of patients were driving before their stroke; 31% of those patients returned to driving at 6 months following their stroke. Marital status, type of stroke, NIHSS score, Motricity index (lower extremity), berg balance scale, and FIM cognitive, walking, and upper extremity dressing scores were predictive of return to driving (p=0.028, p=0.059, p<0.001, p<0.001, p<0.001, p<0.001, p=0.001, p<0.001 respectively). The final model included FIM cognition (OR=1.15; 95% CI 1.07-1.25) and Motricity index for the lower extremity (OR=1.03; 95% CI 1.01-1.05). R^2= 0.302 AUC = 0.789 (95% CI 0.713-0.866) Accuracy = 74.8%

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
				upper extremity dressing scores.) Dependent variable was assessed 6 months after stroke.	
Akinwuntan et al. 2013 **United States** **Prospective Cohort Study**	N/A	31 participants (patients with stroke n=15; healthy individuals n=16) Inclusion criteria: first stroke, <1 year post stroke, licensed driver, sufficient driving frequency prior to stroke, no substantial cognitive impairment. Exclusion criteria: presence of other neurological conditions.	Participants with stroke, and healthy participants underwent non-simulator based assessments and a simulator based driving performance to determine the predictive validity of the assessments.	**Driving performance:** Systems technology Inc. driving simulator (pass or fail). **Predictor Variables:** The Stroke Driver Screening Assessment (SDSA) – consisting of Dot Cancellation (DC), Square Matrix Direction (SMD), Square Matrix Compass (SMC), and Road Sign Recognition (RSR).	46.67% of participants with stroke passed the driving simulation test; 93.75% of healthy participants passed the driving simulator test. Using the SDSA for predicting a pass/fail driving performance: Participants with stroke: 86.66% accurate Health participants: 87.50% accurate
Akinwuntan et al. 2007 **Belgium** **Prospective Study**	N/A	43 patients who were eligible to complete the standardized road test. Mean age: 55 years (±12 years). Inclusion criteria: drove prior to stroke, independently ambulant.	To use 3 of the 15 tests from a previous study to determine if they are sufficient to correctly predict a patient's outcome of a driving test (pass vs. fail).	**Fitness to drive:** decision of a patients fitness to drive determined by a team of assessors based on the 15 tests. **Assessment tools**: (short battery) Figure of Rey, visual Neglect, On-road test. **Predicted pass/fail:** determined based on pass/fail equations that create scores based on the 3 tests. If the Pass score is greater than the fail score, the individual is predicted to pass.	The short battery of tests – the Figure of Rey, Visual neglect and on-road test were effective in predicting pass/fail driving performance. Sensitivity = 77% Specificity = 92% Positive predictive accuracy = 87% Negative predictive accuracy = 86%
Soderstrom et al. 2006 **Sweden**	N/A	34 patients admitted to a stroke unit. Control subjects were recruited through a newspaper	All participants were administered the neuropsychological test battery on enrollment.	**Neuropsychological test battery:** divided attention/mental tracking (The trail making test part	Controls performed significantly better than stroke patients on the majority of the neuropsychological tests. There were no significant differences in on-road driving test outcomes between cases and

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Case-Control Study		advertisement. Mean age: 54.0 ± 8.8 years (range 28-67). Inclusion criteria: 25-67 years, pre-stroke driver, desire to return to driving. Exclusion criteria: history of psychiatric illness or certain medical conditions.	Within one month, an on-road test was completed. Participants (only cases) who failed the road-test were offered subsequent training (in class and in car) and then reevaluated. Cases and controls were matched by age, sex and driving experience.	B), speed of information processing (the reaction time test), psycho-motor speed (the finger tapping test), mental flexibility/problem solving (wisconsin card sorting test), spatial relationships and visual memory (rey complex figure test), divided attention/speed of information processing (the digit-symbol test). **Driving test:** pass or fail (evaluated according to maneuvering, attention, placement of the care on the road, speed adjustment and traffic behavior).	controls. **Predictive value of neuropsychological tests on driving test outcome:** No significant correlations were found between any of the tests and driving outcome. **Effect of training program:** 87% of people who received the additional training passed the road test. There were no significant differences in any of the neuropsychological test outcomes.

Return to Driving Interventions

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
George et al. 2014 **Australia** **Cochrane Review**	N/A	4 RCTs (n=245) assessing the effects of interventions to improve people's driving performance after stroke. Inclusion Criteria: RCTs, quasi-randomized trials, or cluster studies, involving patients >16 years, diagnosis of stroke.	All interventions targeted to improve driving performance after stroke. Interventions included driving simulators, attention or speed of processing training, physical interventions (targeting mobility, strength, and co-ordination), cognitive training (e.g. route finding), and training	**Primary outcome:** on-road assessment performance (pass or fail) **Secondary outcomes:** Visual functioning (e.g. UFOV), cognitive functioning (e.g. Trail Making Test Parts A and B), driving behaviors (Adelaide Driving Self-Efficacy Scale), other.	No meta-analysis was performed due to heterogeneity between studies. Akinwuntan et al. 2005 (Driving simulator): 5 weeks, 3x/week, 60min/session. Crotty et al. 2009 (Dynavision device): 6 weeks, 3x/week, 40min/session. Mazer et al. 2003 (Useful Field of View tool): Mean number of sessions 18, 2-4x/week, 30-60min/session.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		Exclusion criteria: studies with mixed patient populations.	regarding driving knowledge.		Mazer et al. 2005: (Driving simulator): 8 weeks, 2x/week, 60min/session. *__Note__: No studies found significant differences in on-road assessment performance between groups. There was variability in the secondary outcomes that were improved.
Classen et al. 2014 **United States** **Review**	N/A	6 studies (5 RCTs, 1 non-RCT) related to driving rehabilitation after stroke was included. Inclusion criteria: primary research studies. Exclusion criteria: qualitative studies.	All interventions targeted to improve driving performance by occupational therapists for older drivers who are medically at-risk (including after stroke) were included and given a level of evidence, strength of evidence, and Recommendation.	**Level of evidence:** I: Systematic reviews, meta-analysis, RCTs II: Two-group, non-randomized III: One-group, non-randomized IV: Descriptive studies V: Case reports, consensus **Strength of evidence:** High: Future studies unlikely to change conclusion. Moderate: Future studies could change the conclusion. Low: More information is needed. **Recommendation**: A: strongly recommend B: benefits outweigh harm C: weak evidence D: do not provide I: insufficient evidence	Task-specific training in a driving simulator: Level 1 evidence, Category A. Cognitive or visual attention training: insufficient evidence, Category C. Traffic theory knowledge tests and on-road training: Level 2 Evidence for individuals who failed a driving test, Category B.
Mazer et al. 2003 **USA** **RCT** **(Visual Information-processing training)**	CA: ☑ Blinding: Patient ☑ Assessor ☒ ITT: ☒	97 patients admitted to a rehabilitation hospital or referred to the driving evaluation. Mean age: 65.5 years (±11.4) for the experimental group; 66.5 years (±8.9) for the control group. Inclusion criteria: drove prior to stroke and had a desire to return to driving.	Patients were randomly allocated to either the experimental (20 session training program with the Useful Field of View (UFOV) software program; n=47) or control (20 session training program with commercially available software programs; n=50) groups.	**Primary outcome:** on-road driving evaluation (passed, failed, needed driving lessons). **Measures:** Visuoperceptual: Complex Reaction Timer, Motor-Free Visual Perception Test (MVPT), Single and Double Letter Cancellation Test, Money Road Map Test of Direction Sense, Trail Making Test Parts A and B, Bells test and Charron test.	No difference in posttest on-road driving evaluation between the experimental and control groups. (χ^2=0.38, *P*=0.536). No difference in visuoperception scores between experimental and control groups (*P*>0.05). No difference in visuoperception scores between experimental and control groups (*P*>0.05). Intervention group had a significantly better UFOV scores than control group (38% vs. 13% reduction) (no significance value reported).

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		Exclusion criteria: the presence of any condition listed by the Canadian Medical Association, significant vision problems or heart and/or seizure history.		TEA: Test of Everyday Attention. UFOV: processing speed, divided attention, selective attention.	
Akinwuntan et al. 2005 **USA** **RCT** **(Simulator-based program)**	CA: ☑ Blinding: Patient ☒ Assessor ☑ ITT: ☑	83 patients admitted to a rehabilitation hospital who were within 3 months post-stroke and had been driving prior to stroke. Mean age: 54 years (±12) for the experimental group; 54 years (±11) for the control group. Inclusion criteria: within 3 months post- first stroke, pre-stroke driver, <75 years. Exclusion criteria: history of epilepsy, or severe motor or sensory aphasia.	Patients were randomly allocated to the experimental group (15 hours of driving-related training spread over 5 weeks at 1 hour per day, three times a week; n=42) or control (standardized training by performing driving related cognitive tasks; n=41) group.	**Primary outcomes:** performance in the on-road test and decision of driving fitness at follow-up. **Other measures**: Visual (monocular and binocular vision acuity and the kinetic vision test) and neuropsychological evaluations (UFOV test and components of the Stroke Driver Screening Assessment (SDSA)).	No significant differences between experimental and control groups for visual and neuropsychological tests for pretraining, postraining, and the pre- post-training difference (P>0.05) except for pre- to post-training improvement in the road sign recognition test (t=-2.79; P=0.0007). Significant within group (for experimental and control groups) improvements in performance in kinetic vision and several neuropsychological tests (P<0.05). Significant difference between experimental and control groups at follow-up for on-road assessment. (Pass vs. Fail, χ^2=5.04, P=0.03). Drop outs and loss to follow-up: n=31.
Crotty et al. 2009 **Australia** **RCT** **(Visual Information-processing training)**	CA: ☑ Blinding: Patient ☒ Assessor ☑ ITT: ☑	37 participants from rehabilitation sites. Mean age: 65.6 (±13.1) years. Inclusion criteria: within 1 month post-stroke, wanted to return to driving, had minimum vision standards, drove before stroke and were recommended by physician to have a practical driving	Participants were randomly allocated to the intervention (Dynavision training 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).	No significant difference in the results of the on-road assessment between the control and intervention group (P=0.223). No significant differences between the control and intervention groups in the 3 secondary measures - Abilities in Response Time Measures, Visual Scanning Analyzer and ADSES. Drop outs and loss to follow-up: n=7.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		assessment. Exclusion criteria: insufficient peripheral vision, language abilities and requiring substantial driving modifications.			

Return to Work Post-Stroke

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Wozniak and Kitter 2002 **USA** **Review**	N/A	Literature assessing return to work after ischemic stroke.	Inclusion/Exclusion criteria not stated.	Review of key definitions, analytic strategy, factors associated with return to work.	9%-91% of patients return to work after stroke. Factors associated with return to work include: demographic factors (age, gender, race), medical comorbidities, stroke characteristics, physical deficits, cognitive deficits, disability measures, anatomical location and social factors.
Tanaka et al. 2014 **Japan** **Prospective Cohort Study**	N/A	351 patients admitted to acute care for stroke. Inclusion criteria: first stroke, working prior to stroke. Exclusion criteria: housewives and students.	Patient information was obtained from administrative data. The primary outcome was obtained at 18-months post-stroke, and was reported by patients at an outpatient clinic or via telephone.	**Primary outcome:** Return to work. Definition of work: Classified as part-time or full time formal, paid employment at 18 months post-stroke.	101 patients were lost to follow-up. 128/250 patients (51%) returned to work after stroke (within 574 days). Controlling for age, gender and Barthel index at admission to rehabilitation, the following were significant predictors of return to work within 18 months of stroke: job type (white collar vs. blue collar HR 1.5, 95% CI 1.1-2.2), presence of dysphagia (No vs. Yes, HR 3.0, 95% CI 1.5-5.9), attention dysfunction (No vs. Yes, HR 2.0, 95% CI 1.0-4.0), and walking ability (Independent vs. dependent, HR 3.1, 95% CI 1.4-7.1).
Busch et al. 2009 **UK** **Prospective, Population-based**	N/A	400 patients from the South London Stroke Register between 1995 and 2004 who were working (paid employment) before	Assess the frequency of the population that returns to work 1 year after stroke and the determinants of returning to work.	**Primary Outcome:** Patient self-report return to paid work 1 year after stroke. **Secondary Outcomes**: Disability (Barthel Index (BI))	**Return to work:** 35% had returned to paid work. Of those who had not returned to paid work: 45% reported unable to return to work due to ill health, 20% were retired, 3% were unemployed looking for work, 1% were carers and 31% did not specify.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Study		stroke, no upper age limit.	Determine if there is an association between returning to work and functional status at 1 year. Assessment points: Baseline and 1 year after stroke.	and social activity (Frenchay Activity Index (FAI)). Definition of work: paid employment right before stroke.	**Predictors of return to work:** (odds of returning to work) *Final multivariate model Decreased with increasing age (trend across age groups; p<0.001) Lower for female sex (OR 0.45; 95% CI 0.23 to 0.9; p<0.02) Lower for black ethnicity (OR 0.47; 95% CI 0.24 to 0.93; p<0.02) Lower odds with presence of Diabetes (OR 0.25; 95% CI 0.08-0.79; p<0.01) Lower odds with dependence at 1 week (OR 0.24; 95% CI 0.11-0.49; p<0.001) *Model adjusted for stroke subtype, Glasgow Coma Scale and hospital admission. Return to work was associated with a higher BI and FAI at 1 year (p<0.001).
Lindstrom et al. 2009 **Sweden** **Cross-Sectional Study**	N/A	855 patients who had worked before their stroke, aged 18-55 years, first stroke, within 8 months-2.5 years between July 2001 and December 2002.	Assess the factors associated with return to work using administrative data and a questionnaire sent to persons of the Swedish hospital-based national quality register. Assessment points: Variable. Questionnaire sent to patients in the register between July 2001 and December 2002 (patients are at various time points post stroke - up to 30 months.).	**Primary outcome:** Return to work (not stated). **Questionnaire**: Changes in work related conditions from pre to post stroke (e.g. importance of work, support to return to work, branch of work, feeling respected etc.). Definition of work: paid employment, regardless of number of hours.	**Return to work**: 65% returned to work within 2.5 years post stroke. **Factors associated with return to work:** (odds of returning to work) *Final multivariate model. Decreased with attendance at a rehabilitation ward unit for younger persons (OR 0.37; CI 0.19-0.75). Increased with the ability to run a shorter distance (100m) (OR 2.77; CI 1.50-5.12). Increased for patients who think it is important to work (OR 5.10; CI 3.35-7.74). Increased when patients have support to return to work (OR 5.10; CI 2.27-5.90). Increased when patients do not feel like a sense of burden to others (OR 3.33; CI 1.94-5.71). Increased for patients of higher socioeconomic status (OR 2.12; OR 1.39-3.24). *Age, gender, diabetes, time since stroke, cognitive function and haemorrhage not significant in multivariate model. Diabetes, stroke type and cognitive function were significant in the bivariate analysis.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Hackett et al. 2012 **Australia** **Prospective Observational Cohort Study**	N/A	Patients from Australian hospitals between October 2008 and June 2010, aged >17 and <65 years. Included participants with aphasia or cognitive impairment if a proxy was available.	Administration of telephone interviews to collect data on depression, anxiety, cognitive function, cognitive status, instrumental activities of daily living and fatigue. Hypothesis: Depression post-stroke would predict return to work. Assessment points: Baseline (28 days), 6 months and 12 months.	**Primary outcome**: returned to paid work at 1 year post stroke. Definition of work: any type of paid work within the month prior to stroke (> than 1 hour work).	**Return to work**: 75% returned to work. **Factors associated with return to work:** (odds of returning to work) *Final multivariate model. Increased in females without illness that restricted activity before stroke (OR 5.89; CI 1.21-28.70). Increased in males without illness that restricted activity before stroke (OR 6.40; CI 1.46 – 28.03). Increased in males with illness that restricted activity before stroke (OR 8.92; CI 1.39-57.02). Decreased with increasing age (OR 0.94; CI 0.90-0.98). Decreased with no health insurance (OR 0.40; CI 0.18-0.89). Increased with Independence in activities of daily living at 28 days (OR 10.23; CI 4.11-25.46). Depression post-stroke was not a significant predictor of return to work (OR 2.31, 95% CI 0.87-6.12).

Return to Work Interventions

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Baldwin and Brusco 2011 **Australia** **Systematic Review**	NA	6 retrospective single cohort studies (477 participants with stroke diagnosis).	Inclusion criteria included adults of working age, survived a stroke and participated in a vocational rehabilitation program (defined as medical, psychological, social, physical and/or occupational rehabilitation activities with the purpose to return to work); due to the heterogeneity of	**Primary outcome:** return to work rates.	Return to work rates varied from 12% to 49%. (there was variability in prestroke vocational status). No RCTs assessing vocational rehabilitation programs; study quality deserves attention. Vocational rehabilitation programs varied in the setting, professionals involved, duration of program and type of rehabilitation.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
			vocational rehabilitation programs, a meta-analysis was not completed.		

Sexuality Post-Stroke

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Bugnicourt et al. 2014 **France** **Prospective Cohort Study**	N/A	104 patients admitted to a hospital neurology department (mean age 48 years, 62% male) Inclusion criteria: <60 years Exclusion criteria: history of sexual disorders or severe impartments or disabilities.	Patients were mailed a questionnaire one year after stroke to assess sexual functioning.	**Primary outcome:** Measure of sexual functioning ("Since your stroke, have you suffered from sexual impairment or lack of sexual satisfaction?" **Secondary:** HADS, modified Rankin scale, and current medications. Assessment time point: 1 year after stroke	29% (30/104) of patients reported having experienced sexual dysfunction. Predictors of impaired sexual activity included: the presence of depression (OR 9.1, 95% CI 2.45-33.46, p=0.001) and use of ACE inhibitors (OR 6.0, 95% CI 2.11-17.28, p=0.001).
Stein et al. 2013 **USA** **Observational (Cross-Sectional)**	N/A	Sample came from a stroke rehabilitation research registry, consisting of patients who have had a stroke and who would be willing to participate in stroke rehabilitation research studies. Mean age: 55.1 years (range 33-88 years). Time since stroke: Two or more years for (81.5% of respondents). Response Rate: 38/268	Email or postal questionnaire sent to patients in the registry. Consisted of established outcome tools and study specific questions.	**Outcomes measured:** *(no primary outcomes stated). Sexual dysfunction (Changes in Sexual functioning questionnaire short form (CSFQ-14)), Fatigue (Fatigue Assessment Scale (FAS)), Depression (Beck Depression Inventory), Independence for ADL's (Barthel Index), Questions about a patients preferences regarding counseling and information support. **Additional questions:**	**Prevalence of sexual dysfunction**: 100% of men and 58% of women (CSFQ-14 mean scores of 34.45±7.04 and 37.5±12.38 respectively). **Sexual functioning**: Decreased as a result of stroke in 42% of participants. **Importance of sexual issues**: rated as moderately important, important or very important by 71% of participants. **Importance of information about sexual dysfunction**: 75% wanted more information; 15.2% had asked or received information. **Information provider:** 60% of participants preferred physicians to provide information on sexual issues.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		= 14.2%.		patient preferences for receiving information on sexuality post-stroke. Assessment point: upon enrollment.	**Medium of choice for information**: 30% preferred written material, 27% preferred face-to-face discussion. **Timing of information**: 26.5% of patients preferred to receive information early during recovery (during rehabilitation or before discharge from hospital).
Korpelainen et al. 1999 **Finland** **Observational (Cross-Sectional)**	N/A	192 patients and 94 spouses recruited from Stroke and Aphasia Federation inpatient adjustment courses in 1997. Mean age: 59.2 years (range 32-79 years). Time since stroke: Median = 23 months.	Questionnaire was completed by participants during the inpatient adjustment courses addressing pre and post-stroke sexuality.	**Main Outcomes:** Libido, coital frequency, sexual arousal (erectile and orgasmic ability and vaginal lubrication), sexual satisfaction. **Explanatory variables**: General attitude toward sexuality, fear of impotence, ability to discuss sexuality with the spouse, unwillingness to participate in sexual activity, disability (Rankin Scale), depression (Geriatric Depression Scale). Assessment point: upon enrollment.	**Decreased Libido:** Experienced by 57% of patients; 65% spouses. There was a greater odds of decreased libido if a patient believed that sexuality was unimportant or fairly important compared to extremely important (OR 21.9, 95% CI 4.1-118.3; OR 7.4, 95% CI 3.0-18.3), if there was a fear of impotence (OR 6.1, 95% CI 1.85-20.0), or if there was mild, or moderate or severe disability (OR 3.2, 95% CI 1.0-9.8; OR 4.2, 95% CI 1.4-12.8 respectively). **Decreased Coital Frequency**: Experienced by 45% of patients and 48% of spouses. There was a greater odds of decreased coital frequency if a patient believed sexuality was unimportant or fairly important compared to extremely important (OR 7.7, 95% CI 3.7-22.8; OR 9.2, 95% CI 3.7-22.8 respectively), if they could not discuss sexuality with spouse compared to being able to discuss sexuality with ease (OR 18.5, 95% CI 4.1-82.3), or if they were unwilling to participate in sexual activity (OR 5.4, 95% CI 1.6-17.6). **Decreased Satisfaction with Sexual Life**: Experienced by 49% of patients and 31% of spouses. There was a greater odds of dissatisfaction if the patient was unable to discuss sexuality compared to being able to discuss with ease (OR 6.8, 95% CI 6.8, 2.2-21.7), if a patient was unwilling to participate in sexual activity (OR 3.1, 95% CI 1.2-8.2), or if there was mild, or moderate or severe disability (OR5.0, 95% CI 1.5-16.1; OR 4.2, 95% CI 1.3-13.1). All main outcomes were statistically significantly

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
					associated with patient score on the Geriatric Depression Scale (Libido, coital frequency, sexual arousal (erectile and orgasmic ability and vaginal lubrication), sexual satisfaction) ($p<0.05$). Recommends sexual counseling for patients and spouses.
Cheung et al. 2002 **Hong Kong** **Observational (Cross-Sectional)**	N/A	106 patients with mild or no disability (Rankin score 0-3), more than 6 months since last stroke and no indication of depression. Recruited from a stroke clinic that accepts referrals from hospitals or day rehabilitation services. Mean Age: 56.2 years (±11.8). Response rate: 106/139 (76.3%). Time since stroke: Mean 20.4±13.8 months.	Questionnaire assessing pre and post stroke sexual functioning.	**Measures**: Libido, coital frequency, sexual arousal, ejaculation/orgasm, sexual satisfaction. **Other factors (Psychosocial variables)**: Importance of sexuality, fear of impotence, fear of recurrent stroke, belief that stroke will affect sexual functions, ability to discuss sexuality, willingness to participate in sexual activity. Assessment point: upon enrollment.	**Decrease in Libido:** Greater odds of decreased libido in patients over 50 years old (OR 3.3, 95% CI 1.1-9.6) and patients unwilling to participate in sexual activity (OR 9.1, 95% CI 3.5-23.8). **Decrease in Coital frequency:** Greater odds of decrease in coital frequency if married (OR 5.3, 95% CI 1.5-18.0) or if the belief that stroke effects sexual functions (OR 4.9, 95% CI 2.0-12.0). **Decrease in erection among men**: Greater odds of decreased erection in men if there is mild disability (OR 17.2, 95% CI 1.6-200), or if there is a history of hypertension (OR 6.0, 95% CI 1.7-20.8). **Decrease in ejaculation among men**: Greater odds of decrease in ejaculation in men if over 50 years old (OR 9.1, 95% CI 2.0-41.7) or if there is mild disability (OR 6.8, 95% CI 1.4-34.5). **Decrease in sexual satisfaction**: Greater odds of decrease in sexual satisfaction if there is a belief that stroke effects sexual functions (OR 3.9, 95% CI 1.1-13.2), or if the patient is unwilling to participate in sexual activity (OR 8.5, 95% CI 2.0-35.7).

Sexuality Interventions

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Song et al. 2011 **Korea** **Non-randomized (non-equivalent control group pre-post test design)**	N/A	Hospital neurology department convenience sample, between 40-46 years, certain level of functioning (no cognitive impairment, >10 score on Barthel Index), living with a spouse, no previous stroke hospitalizations. Mean age: 57.89 ± 6.59 years. Response rate: NA Time since stroke: 1 month following discharge from hospital.	The intervention consisted of a 40-50 minute session covering 5 topics (information about expected changes in sexuality post-stroke, information on what a health sexual life is, counseling on common fears associated with post-stroke sexuality, tips to prevent post-stroke sexual dysfunction and a discussion of frequently asked questions about post-stroke sexuality), presented on the day before discharge from hospital to the patient and their spouse. Patients receiving the intervention were also given written information for future reference. The control group received the intervention after 1 month follow-up data was collected.	**Measurements**: Sexual knowledge (Sexual Beliefs and Information Questionnaire SBIQ – Korean version), sexual satisfaction (Derogatis Sexual Functioning Inventory – DSFI), frequency of sexual activity (modified version of the sexual frequency scale developed by McCabe and Taleporos). Assessment points: Data collection occurred on the day before discharge (before the intervention), and at a one-month follow up visit for both the intervention and control groups.	Hypothesis 1: No statistically significant increase in sexual knowledge between the control and experimental group (Z=-1.19, p=0.235). Hypothesis 2: Statistically significant increase in sexual satisfaction in the experimental vs. control group (Z=-2.29, p=0.02). Hypothesis 3: Statistically significant increase in frequency of sexual activity per month (Z=14.77, p<0.001) and sexual intercourse per month (Z=11.51, p=0.001). Patients receiving the intervention were more satisfied and more sexually active at 1 month following discharge from hospital. *use of convenience sample is of concern.

Leisure Activity Post-Stroke

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Nicholson et al. 2013 **United Kingdom**	N/A	6 articles (4 qualitative, 1 multi-method qualitative, 1 retrospective) including 174 participants with	All studies assessing the motivators and barriers to physical activity as perceived by patients	**Outcomes:** perceived barriers and motivators of physical activity.	**Perceived barriers:** Personal barriers (motivation, physical difficulties, knowledge and perceived access), environmental barriers (access to transportation, affordability), social policy barriers.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Systematic Review		stroke (mean age 54.2-70.5 years, 57% women) Inclusion criteria: patients >18 years, English language.	after stroke.		*Environmental barriers were most commonly cited. **Perceived motivators:** social aspects (meeting others, team effects of not wanting to disappoint other members), ability to carry out activities of daily living, possibility of returning to driving faster, opportunity to receive support from health care professionals.
Eriksson et al. 2012 **Sweden** **Prospective Longitudinal Study**	N/A	348 patients admitted to a stroke unit. 161 patients had a complete set of data. Mean age: 67 years (range 24-91 years). Inclusion criteria: stroke diagnosis. Exclusion criteria: None.	Assess the association between the number of occupational gaps and outcome measures (global life satisfaction, satisfaction with leisure, SIS participation and recovery, ADL functioning) using correlation analysis. Assessment time points: At baseline and 12 months after stroke.	**Outcome Measures**: Barthel Index, Katz ADL Index, extended version of the Katz ADL index, Occupational Gaps Questionnaire (includes 10 leisure activities), the Stroke Impact Scale and the LiSat-11.	**Prevalence of occupational gaps:** Mean number of gaps was 4 per person (median = 3), 87% reported at least one occupational gap. The greatest number of gaps (39%) was in the leisure domain; however, 31% of patients reported no gaps within the leisure domain. **Correlation between occupational gaps and outcomes:** Low correlation between number of gaps and global life satisfaction (r=-0.41), satisfaction in the leisure domain (r=0.46), total BI score at 12 months (r=-0.41); moderate correlation with stroke recovery (-0.5), ADL at 12 months (r=-0.5), and SIS participation (r=-0.56). No significant relationship found between occupational gaps and life satisfaction as hypothesized.
Boosman et al. 2011 **Netherlands** **Cross-Sectional Study**	N/A	165 patients admitted to rehabilitation centers that were part of a previous study (FuPro-Stroke). Mean age: 58.6 years (range 30-82 years). Inclusion criteria: no previous history of stroke, over 18 and one-sided supratentorial lesion. Exclusion criteria: presence of aphasia and disabling co-morbidity.	Assess level of life satisfaction according to level of social activity. Assess the ability of social participation to predict level of life satisfaction. Assessing how much variance in overall life satisfaction can be explained by the level of social participation (FAI). **Note**: Patients level of social activity was categorized as socially inactive, socially	**Outcome measures**: life satisfaction (Life Satisfaction questionnaire – LiSat-9), Level of social support (Social Support List – Interaction – SSL-12-I), ADL dependency (Barthel Index), cognitive functioning (MMSE), participation in social activities (frenchay activities index - FAI).	**Life satisfaction:** There were between group (social activity level) differences in total life satisfaction, satisfaction with life as a whole, and in the vocational, leisure, sexual life and self-care ability domains of life satisfaction. Individuals in the highly active group experienced greater scores than the inactive group on all domains except vocation where significant results were only seen between the moderately active and highly active groups. Individuals in the moderately active group scored higher than the inactive group in all domains except vocation and leisure. **Predicting life satisfaction**: Age, level of social support, ADL dependency and level of social activity contributed significantly to the final model. With age, living with a partner and cognitive

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
			moderately active and socially highly active based on the FAI. Assessment time point: 3 years post stroke.		functioning, the model explained 28% of the variance in life satisfaction; 6.9% of which was explained by level of social activity. **Predicting life satisfaction as a whole**: Level of social activity explained 5.2% of the variance in life as a whole.

Leisure Activity Interventions

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Walker et al. 2004 **UK** **Meta-analysis**	N/A	8 RCTs were included with 1143 patients. All trials involved community occupational therapy interventions. 481 patients received ADL therapy; 174 patients received leisure therapy; 488 routine care. Mean age of participants: 71.4 (SD 10.5) years.	Assess changes in outcome measures after community occupational therapy interventions. Subgroup analysis by type of intervention (ADL, Leisure therapy). Assessment time points: after intervention and at the end of the trial.	**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).	The NEADL score for patients who received the OT community intervention was greater by 1.30 points (adjusted for age and baseline dependency) at the end of the intervention compared to usual care. Subgroup analysis by type of intervention: 1. Leisure therapy a. Increase in NLQ scores (WMD, 1.96 points, 95% CI 0.27-3.66) b. No significant increase in NEADL scores. 2. ADL therapy a. No significant increase in NLQ scores b. Increase in NEADL score (WMD 1.61 points; 95% CI, 0.72-2.49) *__Note__: Patients who were assessed for NEADL and NLQ through face-to-face interviews scored higher than those who assessed independently with postal questionnaire.
Desrosiers et al. 2007 **Canada** **RCT**	CA: ☑ Blinding: Patient ☒ Assessor ☑ ITT: ☒	62 patients were randomized to the intervention group (n=33) or the control group (n=29). Mean age: 70.0 years.	Intervention involved 8-12, 60 minute, weekly education sessions. Completion of the program was identified when patients completed all 12 steps and were	**Leisure related outcomes:** Participation in leisure (duration, number of activities) and satisfaction with leisure (Leisure Satisfaction Scale and two sections of the Individualized	**Participation in Leisure:** Patients in the experimental group reported more time in active activities (MD 14.0, 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) than the control group at the end of the intervention.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		Inclusion criteria: patients with a clinical diagnosis of stroke, admitted to rehabilitation or acute care in the previous 5 years and had to be experiencing some limitations in leisure participation or satisfaction. Exclusion criteria: cognitive and language comprehension problems and severe comorbidities.	believed to have incorporated significant leisure activities in their life. Control group received home visits from a recreational therapist following the same schedule as the intervention group. Assessment time points: baseline (before randomization) and after intervention.	Leisure Profile). **Primary outcomes:** Perceived well-being and distress (General Well-Being Schedule), depression (Center for Epidemiological Studies Depression Scale – CES-D), health related quality of life (Stroke-Adapted Sickness Impact Profile – SA-SIP30).	**Satisfaction with Leisure:** Patients reported increased satisfaction with leisure 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 on the individualized leisure profile scale (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) compared to the control group at the end of the intervention. **Depression, Well-Being, QOL**: Patients 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. *Leisure outcomes and depressive symptoms were improved for patients receiving weekly education and empowerment sessions.
Parker et al. 2001 **United Kingdom** **RCT**	CA: ☑ Blinding: Patient ☒ Assessor ☑ ITT: ☑	466 patients were randomized to either the leisure group (n=153), ADL group (n=156) or control group (n=157). Follow up data (at 12 months) was available for 331 (78%) of patients. Median age: 72 years in the leisure and control group; 71 years in the ADL group. Inclusion criteria: All patients attending an outpatient stroke clinic. Exclusion criteria: pre-stroke dementia, time since stroke greater than 6 months (only at one recruitment site), presence of	Intervention involved either ADL focused therapy (practicing ADL tasks such as self-care) or leisure focused therapy (practicing leisure tasks and any necessary ADL task needed to perform leisure goals). Both treatment groups consisted of no less than 10 sessions of at least 30 minutes by an Occupational Therapist for a duration of up to 6 months following enrollment. Control group received no occupational therapy from the trial. ***Note**: patients were eligible for rehabilitation	**Main Outcome Measures**: Mood (General Health Questionnaire - GHQ), Leisure activity (Nottingham Leisure Questionnaire - NLQ), ADL independence (Nottingham Extended ADL Scale – NEADL). **Other outcomes:** International Stroke Trial outcome questions, Oxford Handicap Scale, Barthel ADL Index, London Handicap Scale – LHS) and carer questionnaire (GHQ-12 and level of care provided).	No significant differences were found between treatment and control groups for any outcome measures at 6 months or 12 months. No significant results were found after adjusting for baseline characteristics or recruitment centre and composite prognostic measure (no definition of this measure).

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		comorbidities that influenced the patient's ability to tolerate interventions.	from other sources such as a day hospital. Assessment time points: 6 months and 12 months after randomization.		
Drummond and Walker 1996 **United Kingdom** **RCT**	CA: ☒ Blinding: Patient ☒ Assessor ☑ ITT: ☒	65 patients were randomly allocated to either the leisure treatment group (n=21), conventional treatment group (n=21) and or the control group (n=23). Mean age: 58.95 years in the leisure group, 70.10 years in the conventional group and 68.65 years in the control group. (H=1.74; P<0.01). Inclusion criteria: English speaking, no pre-stroke dementia, no comprehension problems. Exclusion criteria: Living in a nursing home.	Intervention involved either leisure rehabilitation (practicing transfers related to leisure pursuits, positioning, provision of equipment, and advice, liaison and referral to relevant agencies), conventional occupational therapy (transfers and dressing practices). Both treatments consisted of no less than weekly 30 minute sessions for the first 3 months after discharge and no less than biweekly 30 minute sessions for the next 3 months by an occupational therapist. Control group had no study related visits. *__Note__: control patients were eligible for other hospital/social services Assessment time points: at admission to the stroke unit and at 3 months and 6 months post-discharge.	**Outcomes**: Functional performance (Nottingham Extended ADL scale - EADL), psychological wellbeing (Nottingham Health Profile - NHP), depression (Wakefield Depression inventory – WDI).	**Functional performance**: patients in the leisure group experienced greater gains in the **mobility** domain compared to the conventional occupational therapy group at 3 months (P<0.01) and 6 months (P<0.01) and the control group at 3 months (P=0.04) and 6 months (P=0.02). Patients in the leisure group also experienced greater gains in the **leisure** domain compared to the occupational therapy group at 6 months (P<0.01) and the control group at 6 months (P<0.01). **Psychological wellbeing**: patients in the leisure group experienced greater gains in total psychological wellbeing compared to the conventional occupational therapy group (p=0.02) and the control group (p<0.01). Differences in total psychological wellbeing were not statistically significant at 6 months between control and treatment groups. Gains in the leisure group were specifically made in the energy and mobility domains at 3 months (p<0.01; p<0.01) compared to the conventional OT group and gains in the mobility domain at 6 months (p<0.01 compared to the conventional OT and P=0.04 compared to the control group). *__Note__: when controlling for age, all outcomes remained significant except for 3 month mobility outcome. The leisure group intervention experienced mobility, energy and leisure gains above that experienced by the conventional OT group or the control group.

Glossary
RCT= Randomized Controlled Trial
N/A = Not Applicable
CA = Concealed Allocation
ITT = Intention to treat
OR = Odds Ratio
SMD = Standardized Mean Difference
ES = Effect Size
CI = Confidence Interval
IQR = Interquartile Range

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