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GUIDELINES

Rehabilitation after stroke: summary of NICE guidance

Katharina Dworzynski,¹ Gill Ritchie,¹ Elisabetta Fenu,¹ Keith MacDermott,² E Diane Playford,³ on behalf of the Guideline Development Group

¹National Clinical Guideline Centre, Royal College of Physicians of London, London NW1 4LE, UK

²9 Kilburn Road, York YO10 4DF, UK

³UCL Institute of Neurology, London WC1N 1PJ, UK

Correspondence to: K Dworzynski Katharina.Dworzynski@rcplondon.ac.uk

Cite this as: *BMJ* 2013;346:f3615
doi: 10.1136/bmj.f3615

This is one of a series of *BMJ* summaries of new guidelines based on the best available evidence; they highlight important recommendations for clinical practice, especially where uncertainty or controversy exists.

Further information about the guidance, a list of members of the Guideline Development Group, and the supporting evidence statements are in the full version on bmj.com.

Each year, about 150 000 people in the UK have a first or recurrent stroke.¹ Despite UK health policies that place a great emphasis on reducing stroke (such as the National Stroke Strategy²) and improvements in mortality and morbidity, guidance is needed on access to and provision of effective rehabilitation services to maximise quality of life after stroke. This article summarises the most recent recommendations from the National Institute for Health and Care Excellence (NICE) on long term rehabilitation after stroke.³

Recommendations

NICE recommendations are based on systematic reviews of the best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations can be based on the Guideline Development Group's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are in the full version of this article on bmj.com.

Organising rehabilitation and care for people with stroke

Rehabilitation may take place in a variety of settings—in hospital, in outpatient clinics, in the community, and in individuals' own homes.

- People with disability after stroke should receive rehabilitation in a dedicated stroke inpatient unit and subsequently from a specialist stroke team within the community.
- The core stroke rehabilitation team should comprise the following professionals with expertise in stroke rehabilitation: consultant physician, nurse, physiotherapist, occupational therapist, speech and language therapist, clinical psychologist, rehabilitation assistant, and social worker.
- Offer early supported discharge to people with stroke who are able to transfer from bed to chair independently or with assistance if a safe and secure environment can be provided.

Planning and delivering stroke rehabilitation

To ensure the safety of the person with stroke while maintaining a patient centred approach, key processes need to be in place. These processes include assessment on admission to the rehabilitation service, individualised goal setting, and patient centred care planning.

- Ensure that goal setting meetings during stroke rehabilitation
 - Are timetabled into the working week
 - Involve the person with stroke and, where appropriate, the person's family or carer in the discussion.
- Offer initially at least 45 minutes of each relevant stroke rehabilitation therapy for a minimum of five

days a week to people who are able to participate, and where functional goals can be achieved. If more rehabilitation is needed at a later stage, tailor the intensity to the person's needs at that time.

- If people with stroke are unable to participate in 45 minutes of rehabilitation therapy, ensure that therapy is still offered five days a week for a shorter time at an intensity that allows them to participate actively.

Emotional functioning

Many people who have had a stroke experience distress that affects their ability to benefit from rehabilitation and prevents them from engaging in daily activities. Psychological therapies that are tailored to individual needs and circumstances (including web based approaches) may help the individuals and their families or carers with post-stroke emotional disorders and relationship issues.

- Assess emotional functioning in the context of cognitive difficulties in people after stroke. Any intervention chosen should take into consideration the type or complexity of the person's neuropsychological presentation and relevant personal history.

Cognitive functioning

After stroke, many people experience difficulties in attention, concentration, memory, perception, and other areas of cognition.

- Screen all people after stroke for cognitive deficits. When a cognitive deficit is identified, carry out a detailed assessment using tools that are valid, reliable, and responsive before designing a treatment programme.
- Use interventions for memory and cognitive functions after stroke that focus on the relevant functional tasks, taking into account the underlying impairment. Interventions can include
 - Increasing awareness of the memory deficit
 - Enhancing learning by means of errorless learning and elaborative techniques (making associations, use of mnemonics, internal strategies related to encoding information such as “preview, question, read, state, test”)
 - External aids (such as diaries, lists, calendars, and alarms)
 - Environmental strategies (routines and environmental prompts).

Swallowing

Dysphagia (difficulty swallowing) is common after stroke, occurring in up to 67% of stroke patients.

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Previous articles in this series

- ▶ Assessment and initial management of feverish illness in children younger than 5 years: summary of updated NICE guidance (*BMJ* 2013;346:f2866)
- ▶ Recognition, assessment and treatment of social anxiety disorder: summary of NICE guidance (*BMJ* 2013;346:f2541)
- ▶ Long term follow-up of survivors of childhood cancer: summary of updated SIGN guidance (*BMJ* 2013;346:f1190)
- ▶ Recognition, intervention, and management of antisocial behaviour and conduct disorders in children and young people: summary of NICE-SCIE guidance (*BMJ* 2013;346:f1298)
- ▶ Fertility (update): summary of NICE guidance (*BMJ* 2013;346:f650)

- Offer swallowing therapy at least three times a week to people with dysphagia after stroke who are able to participate while they continue to make functional gains. Swallowing therapy could include compensatory strategies, exercises, and postural advice.

Communication

To aid rehabilitation of people who have aphasia and other communication disorders after stroke:

- Refer people with suspected communication difficulties after stroke to a speech and language therapist for detailed analysis of speech and language impairments and assessment of their impact.
- Provide appropriate information, education, and training to the multidisciplinary stroke team to enable them to support and communicate effectively with the person with communication difficulties. This support may include
 - Minimising environmental barriers to communication (for example, make sure signage is clear and background noise is minimised)
 - Making sure that all written information (including that relating to medical conditions and treatment) is adapted for people with aphasia after stroke. This should include, for example, appointment letters, rehabilitation timetables, and menus
 - Training in communication skills (such as slowing down, not interrupting, using communication props, gestures, drawing) to the conversation partners of people with aphasia.

Movement

Weakness limits a person's ability to move the body, including changing body position, transferring from one place to another, walking, and using arms for functional tasks such as washing and dressing.

- Offer people repetitive task training after stroke on a range of tasks for upper limb weakness (such as reaching, grasping, pointing, moving, and manipulating objects in functional tasks) and lower limb weakness (such as sit-to-stand transfers, walking, and using stairs).
- Do not routinely offer wrist and hand splints to people with upper limb weakness after stroke.
- Offer walking training (such as treadmill exercise) for people with stroke who are able to walk, with or without assistance, to help them build endurance and move more quickly.

Self care

Patients will need support to ensure they can care for themselves.

- Occupational therapists with core skills and training in the analysis and management of activities of daily living should therefore regularly monitor and treat the person who has had a stroke. Treatment should continue until the person is stable or able to progress independently.

- People after stroke are assessed for their equipment needs and whether their family or carers need training to use the equipment.

Return to work

The UK's stroke strategy³ highlighted the need for people who have had a stroke and their carers to be enabled to participate in paid, supported, and voluntary employment.

- Potential problems with returning to work should be identified as soon as possible after the person's stroke, reviewed regularly, and managed actively. Active management should include
 - Identifying the job's physical, cognitive, communication, and psychological demands (for example, multitasking by answering emails and telephone calls in a busy office)
 - Identifying any impairments on work performance (such as physical limitations, anxiety, and fatigue affecting attendance, and cognitive impairments affecting multitasking and communication difficulties)
 - Tailoring an intervention to the individual's difficulties in the work setting (for example, teaching strategies to support multitasking or improve memory, teaching the use of voice activated software for people with difficulty typing, and delivery of work simulations)
 - Educating about the Equality Act 2010⁴ and support available (such as the "Access to Work" scheme)
 - Workplace visits and liaison with employers to establish reasonable accommodations, such as provision of equipment and graded return to work.

Long term health and social support

To help people who have had a stroke to reintegrate into the community, encourage them to focus on life after stroke and help them to achieve their goals. This may include:

- Facilitating participation in community activities, such as shopping, civic engagement, sports and leisure pursuits, and visiting their place of worship and stroke support groups.
- Supporting their social roles (such as work, leisure, family, and sexual relationships).
- Providing information about transport and driving (including requirements of the Driver and Vehicle Licensing Agency (DVLA)).

Overcoming barriers

Information should be provided to the person who has had a stroke and the person's family or carer in an accessible format taking account of any cognitive, communication, and emotional difficulties.

Take into consideration the individual's personal history and background when planning rehabilitation programmes and provide equipment and adaptations, and support in how to use them, whatever the setting (including care homes). Prompt provision of documentation to the person and his or her family and all relevant health and social care professionals is a priority, to overcome current delays or lack of communication between agencies before discharge or transfer of care. Sufficient training given to the

multidisciplinary team, family, and carers on the particular needs of an individual with stroke and ways to support the person would also facilitate the rehabilitation processes since these needs are often poorly addressed.

Primary care clinicians are important, in the re-referral for assessment of people after stroke when necessary and in supporting continuing rehabilitation in the community. To achieve this, timely communication with these clinicians—such as the provision of documentation of agreed goals, plans for employment or return to work, and information about other programmes of ongoing rehabilitation—is important.

Contributors: KD, GR, EF, and EDP drafted the article. All authors revised it critically for important intellectual content and approved the final version to be published. All authors are guarantors for this article.

Competing interests: All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare: all authors were members of the Guideline Development Group for the NICE guideline. No author has financial relationships with any organisation that might have an interest in the submitted work. None of the authors has other relationships or activities that could appear to have influenced the submitted work.

Provenance and peer review: Commissioned; not externally peer reviewed.

- 1 Townsend N, Wickramasinghe K, Bhatnagar P, Smolina K, Nichols M, Leal J, et al. *Coronary heart disease statistics. 2012 edition*. British Heart Foundation, 2012.
- 2 Department of Health. National stroke strategy. (Report No 284536.) DoH, 2007.
- 3 National Institute for Health and Care Excellence. Stroke rehabilitation: long-term rehabilitation after stroke (clinical guideline CG162). 2013. <http://guidance.nice.org.uk/CG162>.
- 4 HM Government. Equality Act. 2010. www.legislation.gov.uk/ukpga/2010/15/contents.

UNCERTAINTIES PAGE

How should we manage fear of falling in older adults living in the community?

Steve W Parry,¹ Tracy Finch,² Vincent Deary³

¹Falls and Syncope Service and Institute for Ageing and Health, Royal Victoria Infirmary, Newcastle upon Tyne NE1 4LP, UK

²Institute of Health and Society, Northumbria University, Newcastle upon Tyne NE2 4AX, UK

³Department of Psychology, Northumbria University, Newcastle upon Tyne NE1 8ST, UK

Correspondence to: S W Parry steve.parry@nuth.nhs.uk; swparry@hotmail.com

Cite this as: *BMJ* 2013;346:f2933
doi: 10.1136/bmj.f2933

This is one of a series of occasional articles that highlight areas of practice where management lacks convincing supporting evidence. The series adviser is David Tovey, editor in chief, the *Cochrane Library*. This paper is based on a research priority identified and commissioned by the National Institute for Health Research's Health Technology Assessment programme on an important clinical uncertainty. To suggest a topic for this series, please email us at uncertainties@bmj.com.

Many older people have a variety of adverse psychosocial difficulties related to falling, including fear, anxiety, loss of confidence, and impaired perception of ability to walk safely without falling.^{1 2} The umbrella term for these problems is “fear of falling,” and this is found in around half of community dwelling older people who fall and in up to half of those who have never fallen.^{1 2} Consequences include avoidance of activity, social isolation, and increasing frailty and risk of further falls independent of physical impairment.^{2 3} Although fear of falling is both common and debilitating, understanding of its management is limited. Some evidence supports the use of physical therapies to improve the syndrome, and emerging evidence supports the use of psychological therapies, in particular cognitive behavioural therapy. However, as a recent systematic review and meta-analysis have shown,^{1 3} no definitive studies exist to guide routine practice in this area. Furthermore, data showing how such interventions could be translated from research to clinical settings are sparse; only one randomised controlled trial of a complex intervention in fear of falling has attempted such evaluation.⁴ Health economic data about intervention in this common clinical problem are not yet available.

What is the evidence of the uncertainty?

We searched PubMed, Medline, CINAHL, Cochrane, and Embase online databases for studies related to interventions in fear of falling in community dwelling older adults to explore this question further.

Physical and falls risk factor interventions

Concerns about falling have a clear effect on gait patterns in older people. Laboratory studies of asymptomatic older people undergoing gait and balance studies on elevated walkways show disproportionately slow walk-

ing speeds and other dysfunctional gait adjustments,⁵ alongside abnormalities in postural balance compared with younger subjects.⁶ Such experimental data and the observation of higher risk of falls and increasing physical frailty in fear of falling suggest that physical and general interventions may help to ameliorate fear of falling.

In a systematic review of 19 randomised controlled trials that measured fear of falling as an outcome, of the 12 studies of higher methodological quality only three targeted fear of falling directly.¹ Overall, the review found that multifactorial programmes targeting falls in general, home based exercise interventions, balance training, and, in one study, hip protectors all improved fear of falling, although in the majority this was a secondary rather than a primary outcome measure.¹ These were mostly studies of ambulatory adults aged over 60, and the Falls Efficacy Scale was the most common measure of fear of falling. Only one randomised controlled study of a community based, physiotherapy led exercise intervention versus usual care in 165 over 65 year olds found no improvement in fear of falling.⁷ In the three randomised controlled trials in which fear of falling was specifically investigated, a multicomponent cognitive behavioural therapy approach (n= 434), a small group learning programme (n=310), and a Tai Chi intervention (n=49) all led to statistically significant (P<0.05) reductions in fear of falling in the treatment groups as measured by the Falls Efficacy Scale.⁸⁻¹⁰ However, in the trial of cognitive behavioural therapy this was only in a per protocol analysis.⁸

A later meta-analysis of nine studies examining Tai Chi in the management of fall prevention, fear of falling, and balance in older adults concluded that insufficient evidence existed to recommend such an intervention in this context.³ To confuse things further, a more recent small (176 participants in three intervention groups) randomised controlled study of intense Tai Chi with cognitive

RECOMMENDATIONS FOR FUTURE RESEARCH

Comprehensive psychosocial qualitative study examining the causative and maintaining factors for fear of falling, followed by a randomised controlled trial:

Population

Community dwelling older people with fear of falling

Interventions and comparisons

Randomised controlled trial of cognitive behavioural therapy, cognitive behavioural therapy with strength and balance training, strength and balance training alone, and usual care

Therapy to be delivered by staff not previously trained in cognitive behavioural therapy

Outcomes

Primary outcome: fear of falling as assessed by a widely validated cross cultural tool (such as the Falls Efficacy Scale International¹⁸)

Secondary outcomes: fall rates, gait, strength and balance related measures, quality of life Health economic and process evaluations

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(*BMJ* 2013;346:f134)

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(*BMJ* 2012;345:e6976)

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(*BMJ* 2012;345:e7907)

► Does mindfulness based cognitive therapy prevent relapse of depression?

(*BMJ* 2012;345:e7194)

► Should selective digestive decontamination be used in critically ill patients?

(*BMJ* 2012;345:e6697)

behavioural strategies versus Tai Chi alone and control groups showed a benefit. The Tai-Chi plus cognitive behavioural therapy group had a significant improvement in Falls Efficacy Scale scores compared with the other two groups.¹¹ So, although Tai Chi can help to prevent falls in older adults,¹² its role specifically in the management of fear of falling is less clear.

Multicomponent interventions published since the 2007 systematic review have increased the uncertainty surrounding such interventions. A recent randomised controlled trial of three strength and balance exercise regimens versus usual care in 280 participants with fear of falling found no improvement in fall related psychological outcomes.¹³ A randomised controlled study of comprehensive personalised falls risk assessment and treatment compared with usual care in 392 older people similarly showed no improvement in fear of falling.¹⁴ The two larger studies we identified thus did not provide support for physical interventions in fear of falling.^{13 14}

Psychological interventions

The traditional conceptualisation of fear of falling's basis in avoidance of activity and deconditioning are likely to be simplistic,^{8 15} and the causes and maintenance of the condition are probably more multifactorial in origin and maintenance.¹⁶ Studies of cognitive behavioural therapy to target fear of falling provide some support of effectiveness. One such randomised controlled trial of cognitive behavioural therapy versus a social contact only control in 434 older adults, mentioned above,^{1 8} showed a significant effect on falls and fear of falling when treatment compliance was accounted for. This group cognitive behavioural therapy protocol was modified and trialled in a Dutch randomised controlled trial of the cognitive behavioural group intervention versus usual care in 540 older adults.¹⁵ At the 14 month follow-up, 24.5% of the intervention group reported substantial fear of falling as opposed to 41.7% of the control group, although the high attrition rates (30% v 20%) limit the generalisability of these data.¹⁵ The only other higher quality recent study involving cognitive behavioural therapy was in association with Tai Chi as described above, showing a significant effect on falls efficacy when combined with Tai Chi.¹¹ The relative effectiveness of group based and individual

based psychological interventions remains uncertain. A theoretical re-examination of models of fear of falling and a recent cohort study of 500 older adults both suggest that the fear of falling population is a complex and heterogeneous one, in which psychosocial and physiological interventions also need to be individualised.^{16 17} To date, none of the trials has taken this variation into account.

Is ongoing research likely to provide relevant evidence?

We are conducting a randomised controlled trial, the StRIDE (Strategies to incRease confidence, InDependence and Energy) study, of an individualised cognitive behavioural therapy treatment, delivered by trained healthcare assistant level staff, versus treatment as usual in 582 community dwelling adults with fear of falling as measured by the Falls Efficacy Scale International,¹⁸ our primary outcome measure. This study will also provide comprehensive process and health economic evaluations to guide practical implementation.¹⁹ We also searched the databases mentioned above and the US National Institutes for Health's ClinicalTrials.gov and ISRCTN databases for relevant studies. Ongoing randomised studies are trialling an individualised home based cognitive behavioural therapy programme versus no treatment in 140 elderly adults with fear of falling and an exposure therapy and cognitive restructuring approach versus an educational control in 40 adults with fear of falling.^{20 21} Both studies are using the Falls Efficacy Scale as a primary outcome measure. Another randomised controlled study is examining the potential for video game based exercise versus traditional exercise in 80 older adults, again using the Falls Efficacy Scale as a primary outcome.²² Finally, a nascent Cochrane review will provide a comprehensive overview of the evidence for exercise interventions in fear of falling.²³

What should we do in the light of the uncertainty?

Despite the many uncertainties surrounding fear of falling, little doubt exists that sustained strength and balance training in older adults improves falls risks in general, so prescription of this type of targeted exercise should be used in patients with fear of falling, particularly those who have already fallen.^{1 11 12 24} The efficacy of group cognitive behavioural therapy requires further investigation, and the efficacy of individual cognitive behavioural therapy is uncertain. Clinicians seeing older patients should in addition be mindful of potentially treatable anxiety and depression commonly seen in association with fear of falling.²

Contributors: All three authors did the literature search, jointly wrote and revised the article, and approved the final version for publication. SWP is the guarantor.

Competing interests: All three authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare: no support from any organisation for the submitted work; all three authors are investigators on the STRIDE study, which is funded by the National Institute for Health Research's Health Technology Assessment programme (grant 09/70/04); no other relationships or activities that could appear to have influenced the submitted work.

Provenance and peer review: Commissioned; externally peer reviewed.

References are in the version on bmj.com.

Accepted: 15 February 2013