

Physical fitness training after stroke: time to translate evidence into practice

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DECLARATION OF INTERESTS Dr Mead is the Assistant Editor of the JRCPE. Her employer, the University of Edinburgh, receives royalties and honoraria for licensing the exercise and fitness training course to Later Life Training; in the past year this has amounted to about £2,500, which has been used to support further research in this area. Dr van Wijck ran the “Exercise and Fitness Training after Stroke” course at Queen Margaret University until the last course in February 2010, for which she was paid consultancy fees.

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There have been major advances in the management of acute stroke in recent years and more and more people are surviving the acute event. This revolution in stroke care should be celebrated. Yet stroke remains the leading cause of adult disability, and for the many stroke survivors who do not make a full recovery, life will never be the same again. It is for this reason that ‘Life after Stroke’ is becoming an important focus of research, education and service development.

Many stroke survivors report that they receive excellent care while in hospital, but that after discharge, they feel ‘abandoned’.¹ A considerable proportion has to come to terms with a range of impairments and disabilities – reduced physical fitness being one of the key issues. Levels of physical activity after stroke are very low; this applies to ambulatory stroke survivors as well as those unable to walk.² Aerobic fitness, muscle strength and muscle power (all important components of physical fitness) are considerably reduced.³ Furthermore, these fitness impairments are associated with important functional limitations, for example the ability to get out of a chair,⁴ and present a risk for further stroke, cardiovascular disease and fall-related fractures.^{5,6}

There is a growing body of evidence that physical fitness after stroke can be improved. The Cochrane systematic review of physical fitness training after stroke (24 trials, 1,147 patients) has demonstrated that physical fitness training, including walking as a mode of aerobic exercise, improves aerobic fitness.³ Physical fitness training also leads to clinically and statistically significant improvements in walking endurance and comfortable walking speed, while it reduces dependence during walking.³ A recent update of this review (32 trials, 1,414 participants) confirmed these findings.⁷ This body of evidence forms the scientific basis of the recommendations in current policies and guidelines on exercise after stroke.

The National Stroke Strategy for England and Wales recommends that community services for stroke survivors need to be developed, including exercise classes.¹ The Coronary Heart Disease and Stroke Strategy for Scotland,⁸ the Scottish Intercollegiate Guidelines Network guidelines on stroke^{9,10} and the American Heart Association scientific statement on physical activity for stroke survivors¹¹ all recommend exercise training after stroke. Thus, the policy drivers for the development of exercise and fitness training after stroke are now firmly in place.

TRANSLATION INTO PRACTICE

How should these policies be translated into practice? Exercise-after-stroke services currently available in the UK generally provide exercise training after rehabilitation has ended, as has been the case for many of the randomised trials. Exercise training is commonly delivered in group format, generally in leisure centres, by exercise professionals qualified to deliver exercise to stroke survivors. In the UK, the only course for exercise professionals that has received professional endorsement from SkillsActive (the Sector Skills Council for Active Leisure, Learning and Well-Being) is the Exercise and Fitness Training after Stroke specialist instructor course developed by the University of Edinburgh and Queen Margaret University Edinburgh, and provided by Later Life Training (www.laterlifetraining.co.uk). This follows well-established exercise referral models that already exist for other patient groups who also have associated educational courses for specialist exercise instructors, such as those with coronary artery disease and those who have had falls.

Although there is already a lot of good work in the domain of exercise after stroke, our recent Scottish Government-funded survey of services in Scotland shows that provision (i.e. around one dedicated, stroke-

specific service for more than 7,000 stroke survivors) is well below requirements. Furthermore, service distribution is unequal, with considerable variation in content and delivery and many parts of the country not having any service.

What are the recommendations for developing community exercise after stroke services? Through best practice gleaned from our survey, evidence from clinical trials and examples from other disease conditions, best practice guidance has been developed and is downloadable from www.exerciseafterstroke.org.uk. This covers:

- Governance, including representation from leisure services within stroke networks.
- Referral systems into and out of exercise services, roles and responsibilities of the referring health professional and the exercise professional.
- Risk assessment and management to ensure safe and effective delivery of exercise.
- Exercise professional training and qualifications.
- Content of the exercise programme.
- Record keeping and evaluation.

To optimise the uptake and continued use of services, a number of barriers need to be addressed. When we scoped the provision of services in Scotland, transport for participants to and from the service was cited as an important barrier, as well as the cost to service providers, although trial evidence indicates that costs can be low.¹² Stroke survivors, healthcare professionals and those who commission new services may not be fully aware of the benefits of exercise after stroke. There may, in some areas, be a lack of suitably qualified exercise professionals, although this is changing with the UK roll-out of the Exercise and Fitness Training after Stroke

course. There are psychological barriers to stroke survivors taking exercise, including perceived poor health, lack of confidence and fatigue. We need to engage closely with stroke charities providing long-term support to stroke survivors, so that service provision meets the needs of service users.

Education in this emerging field is essential to ensure that stroke survivors receive the benefits of exercise and fitness training. Healthcare professionals involved in stroke care need to know about the benefits of exercise and fitness training and collaborate with exercise professionals to arrange appropriate and timely referrals.

Exercise after stroke is an exciting area for further research. There are still many questions to be answered. We do not know whether exercise after stroke reduces the risk of recurrent stroke (which seems highly plausible as exercise reduces the risk of a first-ever stroke), improves depression and fatigue (both very common post-stroke problems) or reduces disability and dependence after stroke. We do not know what the optimum timing, duration or best mode of exercise is. We do not know how best to deliver fitness training to immobile stroke survivors, and whether exercise might be of benefit in these dependent patients. In animal models of stroke, exercise reduces infarct size, perhaps by stimulating neurogenesis; whether this happens in humans is uncertain.

However, these knowledge gaps should not stop us from implementing the evidence we already have. Exercise-after-stroke services will improve the quality of life for stroke survivors. National clinical guidelines from the UK and US have given us a clear mandate.

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