

## The LAST Word on Coaching as a Stroke Intervention?

Katie Gallacher, PhD; Terence J. Quinn, MD

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The stroke research community can pride itself on the robust evidence base that now informs acute care and secondary prevention. Unfortunately, the same is not true for the longer-term, nonpharmacological management of stroke, where many aspects of care still remain evidence light. Focussing our attention on this latter part of the stroke journey must now be a research priority and we need new interventions for the life that continues after acute stroke.<sup>1</sup> There are encouraging signals around the efficacy of lifestyle interventions but ensuring uptake and adherence of potentially complex programs is challenging. The recent trend toward early discharge and increasing self-management of stroke has many benefits,<sup>2</sup> but this model of healthcare provision risks an increased burden of treatment demands.<sup>3</sup> Stroke survivors often report feeling overwhelmed by the treatments recommended by their healthcare providers.<sup>3</sup>

Into this complex milieu, one potential solution is the provision of regular tailored health coaching after a stroke. There is already evidence that participation in self-management programs including education and skills training can improve quality of life and self-efficacy after stroke.<sup>4</sup> In theory, a health coaching approach would build on this, enabling an individual to improve and manage their stroke recovery with access to person-centered practical help and support when needed. Much of our understanding of coaching comes from the world of sport and so using coaching to increase physical activity in stroke survivors would seem an intuitive approach.

The LAST study (Efficacy and Safety of Individualized Coaching After Stroke), reported in this month's *Stroke*, sought to describe the effect of individualized, regular coaching sessions to increase physical activity after stroke.<sup>5</sup> There is much to commend within the LAST study. The authors randomized 380 participants across 2 sites, a sample size based on a convincing power estimation. This is a large number compared with previous studies of longer-term stroke care. Outcome assessment was blinded and randomization was robust. The intervention arm received an intensive program of monthly coaching for 18 months primarily designed to increase physical activity. The control group received usual poststroke care. Notably and of relevance to the interpretation,

in the participating centers routine rehabilitation included 45 minutes of physiotherapy a week for up to 6 months. So, the control group received more long-term rehabilitation than would be standard in many countries. The team collected data on prespecified outcome measures that captured impairment, activity and participation, as well as collecting information on safety and adherence to coaching advice.

Thus, the methodology of the LAST study was appropriate, relevant, and less prone to bias than many previous studies in the stroke rehabilitation field. It is the interpretation of the results that is open to debate. The authors describe their results as promising. Is this a fair evaluation of the data? The primary outcome measure was the Motor Assessment Scale, a measure of physical impairment. The study was clearly neutral with regard to this outcome. Depressingly, both intervention and control group declined over the 18 month follow-up, a reminder that functional change after stroke continues well past the traditional study assessment time of 90 days. A variety of other outcome measures were described in the article, including reporting the individual items that comprise multi-item assessment scales. Although secondary outcome measures can provide useful information, one must be cautious in the interpretation of these data, particularly when not corrected for multiplicity of analyses. Across the many outcome measures reported, the majority were neutral and those few outcomes that reported between group differences are more likely to represent the play of chance than any real signal of treatment efficacy. There were statistically significant differences between the groups in measures of physical activity, but the magnitude of difference was modest. It is interesting that at 18 months the median values for vigorous and moderate activity were equivalent between groups.

The LAST trial underscores the need for high quality randomized controlled trials in rehabilitation, even when the intervention (coaching and exercise) seems intuitively sensible. There are various reasons why the study may have been neutral. Perhaps the dose of intervention was too small (although the data looking at compliance with exercise suggests that a more intensive intervention would not have been tolerated). Perhaps the population were too well to show an effect (although there was a reasonable range of comorbidity and the delivery of intensive exercise regime in a cohort of very severe strokes would be challenging). Perhaps the chosen primary outcome was inappropriate (although the fairly consistent neutral effect across all the secondary measures would suggest we are not missing a true treatment effect). The possibility that coaching to improve exercise after stroke simply does not work, is another plausible explanation that we need to consider.

In many respects, the LAST trial followed the framework recommended for the evaluation of complex interventions, albeit the term complex intervention was not used and there was no reference to the best practice guidance for this form of research.<sup>6</sup> When describing complex intervention trials, both

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From the Institute of Health and Well Being (K.G.) and Institute of Cardiovascular and Medical Sciences (T.J.Q.), University of Glasgow, United Kingdom.

Correspondence to Terence J. Quinn, Institute of Cardiovascular and Medical Sciences, University of Glasgow, New Lister Campus, Glasgow Royal Infirmary, Glasgow G4 0SF, United Kingdom. E-mail terry.quinn@glasgow.ac.uk

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positive and neutral, useful insights are gained through interviews with those involved in the study. Qualitative work with participants and coaches, looking at potential barriers and enablers in the LAST study could provide important information for future studies of coaching.

Will there be future studies, or is this trial a definitive negative study? The Ex-Stroke study also found no effect of a coaching style intervention to improve physical activity after stroke.<sup>7</sup> In this context, it would seem unlikely that a further large study looking at a similar coaching exercise regime in stroke would be attractive to funders. The authors conclude that they have demonstrated feasibility to progress to a large-scale vascular event-driven study. The infrequent number of vascular events seen in the LAST trial would suggest that a very large trial (of a potentially expensive intervention) would be required to have the power to show any convincing effect. In a landscape of limited research resource and so many other rehabilitation interventions that deserve assessment in randomized controlled trials it is questionable whether this study will ever happen.

There may still be a role for coaching in stroke and future research could address individualized coaching for supporting a broader stroke self-management approach. Such interventions would aim to support stroke survivors in the successful integration of treatment regimens and lifestyle changes. This trial should assess multimodal effects of coaching including vascular events and health-related outcomes such as activities of daily living, quality of life, and mood. With this information we may, at LAST, understand the value of coaching based interventions in stroke.

## Disclosures

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