An online rehabilitation programme to support exercise engagement and function in people with SCI following discharge into the community: a feasibility study

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Background

- Physical Activity (PA) is important to maintain function and health & well-being benefits[1]
- Estimated that 50% of people with SCI do not engage in PA[2-4]
- Lack of PA = ↑ anxiety, depression, adipose tissue[5]
- Challenges in opportunities for exercise in the community and many barriers to access
- Transition period from hospital to home is challenging[6]
- Staff perception that physical function declines post discharge
- Online resources may help support people with SCI

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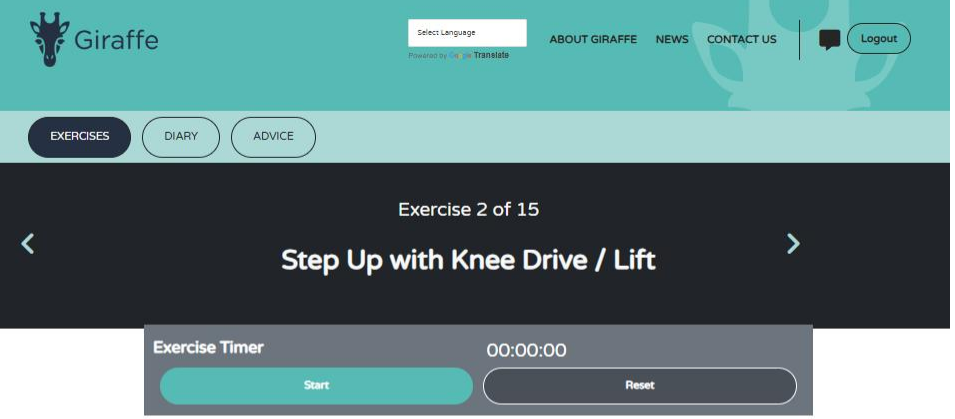

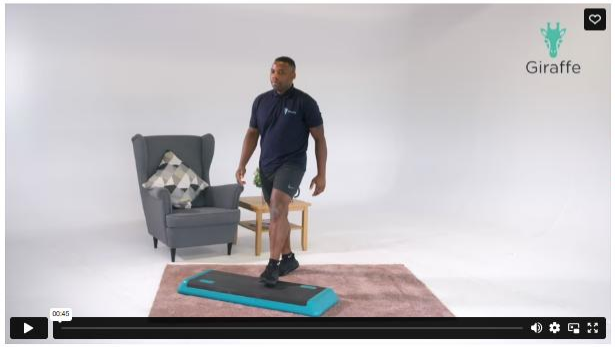

Instructions

- Stand with a step, such as the bottom step of a staircase, in front of you.
- Step on to the step with one foot and lift your other leg to bring your knee in line with your hip
- Maintain your balance and then lower your leg back down to the starting position
- Repeat as instructed

Therapist Note

Repeat for 2 mins

Giraffe

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Rheumatology
INTERNATIONAL

OBSERVATIONAL RESEARCH

Online physiotherapy for people with axial spondyloarthritis: quantitative and qualitative data from a cohort study

L. Paul[1] · M. T. McDonald[1] · A. McConnachie[2] · S. Siebert[3] · E. H. Coulter[1]

Article

CLINICAL REHABILITATION

Clinical Rehabilitation
2019, Vol. 33(3) 473–484

DOI: 10.1177/0269215518817080
journals.sagepub.com/home/cre
SAGE

Web-based physiotherapy for people affected by multiple sclerosis: a single blind, randomized controlled feasibility study

Lorna Paul[1], Linda Renfrew[2], Jennifer Freeman[3], Heather Murray[4], Belinda Weller[5], Paul Mattison[3], Alex McConnachie[4], Robert Heggie[6], Olivia Wu[6] and Elaine H Coulter[1]

Article

CLINICAL REHABILITATION

Clinical Rehabilitation
2014, Vol. 28(9) 924–935

DOI: 10.1177/0269215514527995
cre.sagepub.com
SAGE

Web-based physiotherapy for people moderately affected with Multiple Sclerosis; quantitative and qualitative data from a randomized, controlled pilot study

Lorna Paul[1], Elaine H Coulter[1], Linda Miller[2], Angus McFadyen[3], Joe Dorfman[4] and Paul George G Mattison[2]

Giraffe

ORIGINAL ARTICLE

The effectiveness and satisfaction of web-based physiotherapy in people with spinal cord injury: a pilot randomised controlled trial

EH Coulter[1], AN McLean[2], JP Hasler[2], DB Allan[2], A McFadyen[3] and L Paul[1]

Study design: A pilot randomised controlled trial.
Objectives: The aims of this study were to evaluate the effectiveness and participant satisfaction of web-based physiotherapy in people with spinal cord injury (SCI).
Setting: Community patients of a national spinal injury unit in a university teaching hospital, Scotland, UK.
Methods: Twenty-four participants were recruited and randomised to receive 8 weeks of web-based physiotherapy (intervention), twice per week, or usual care (control). Individual exercise programmes were prescribed based on participants' abilities. The intervention was delivered via a website (www.webbasedphysio.com) and monitored and progressed remotely by the physiotherapist.
Results: Participants logged on to the website an average of 1.4 ± 0.8 times per week. Between-group differences, although not significant, were more pronounced for the 6-min walk test. Participants were positive about using web-based physiotherapy and stated that they would be happy to use it again and would recommend it to others. Overall, it was rated as either good or excellent.
Conclusions: Web-based physiotherapy was feasible and acceptable for people with SCI. Participants achieved good compliance with the intervention and rated the programme highly and beneficial for health and well-being at various states after injury. The results of this study warrant further work with a more homogeneous sample.
Sponsorship: This study was funded by the Queen Elizabeth National Spinal Injuries Unit, Glasgow, UK.
Spinal Cord (2017) **55**, 383–389; doi:10.1038/sc.2016.125; published online 6 September 2016

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SOCIAL ENTERPRISE SCOTLAND

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Aim

To explore the feasibility and effectiveness of an online rehabilitation programme on exercise adherence and function in people with SCI during the transition from hospital to home

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Methods

- Mixed methods, feasibility cohort study

Inclusion Criteria

- Over 18 years old
- SCI < 1 year ago
- In-patient at QENSIU with d/c within next 4 weeks
- Medically stable to engage in PA
- Mobility: manual wheelchair user
  walking with/without aids
- Access to the internet
- Interested in remaining active after d/c

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Outcomes

Recruitment
Retention
Adherence
Acceptability

6 Minute Wheelchair Test (or)
6 Minute Walk Test
WISCI II
SCIM III SR
Muscle Strength (dynamometer)
WHOQoL-Bref
PASIPD
Telephone Interviews with sub-sample

Baseline	Post d/c	Mid-way	Post-Intervention
2 weeks pre-d/c	2 weeks post d/c	6 weeks	12 weeks
In person	Remote	In person	Remote




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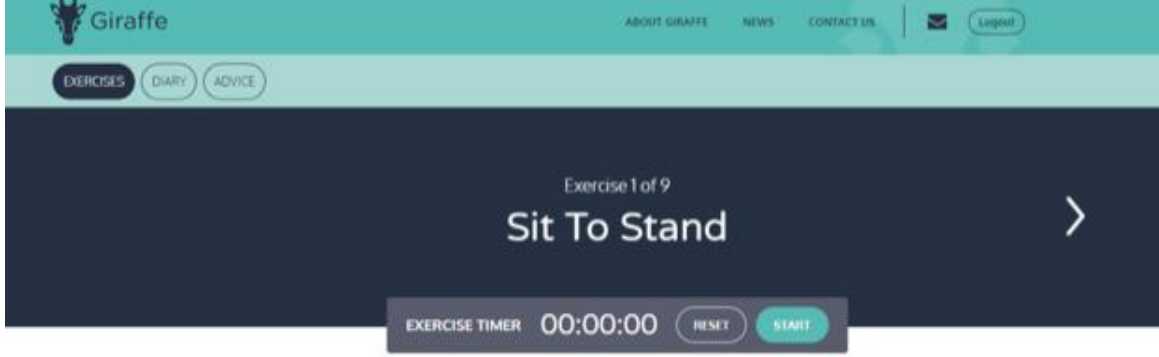
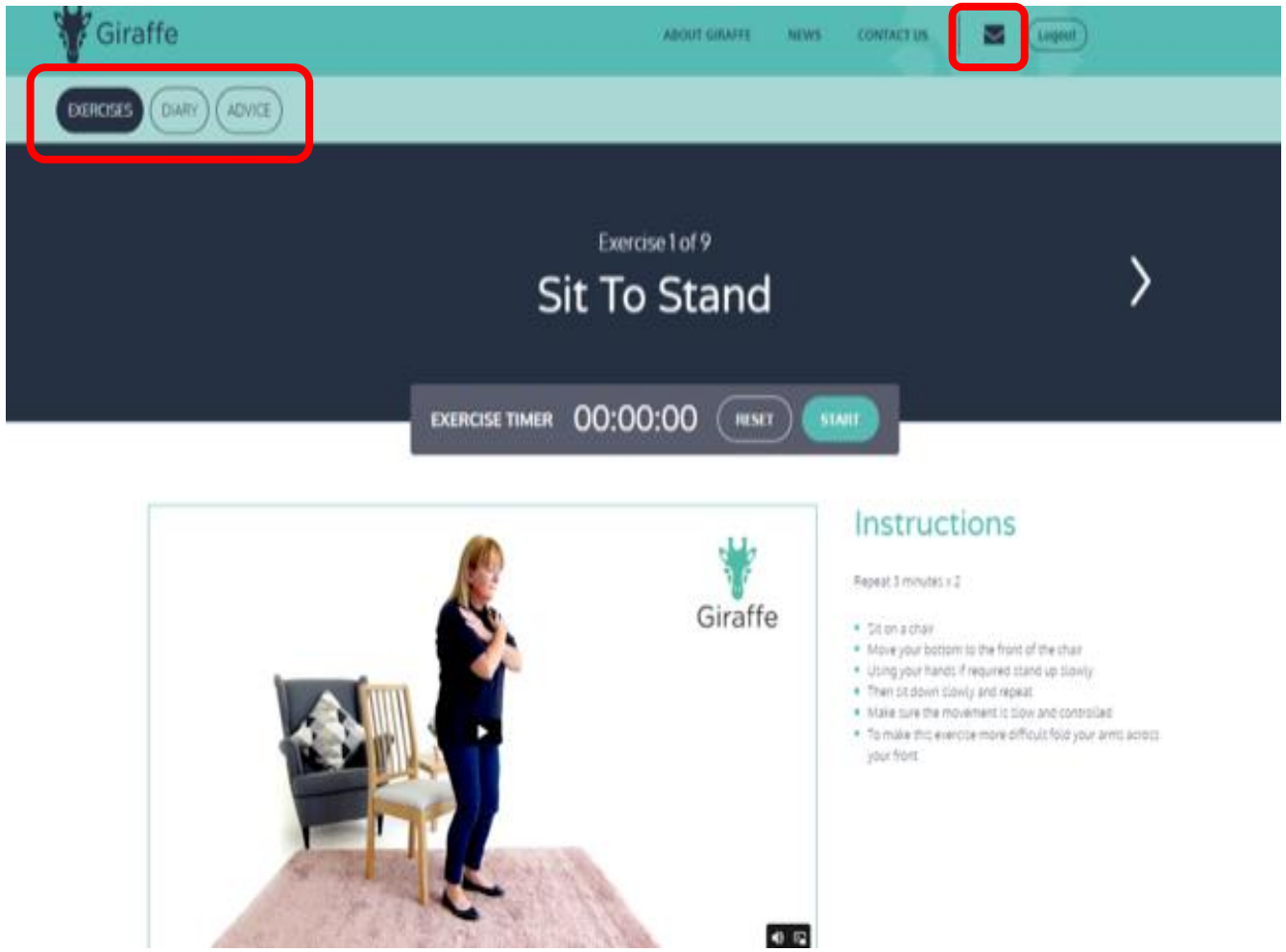
Intervention



- Individually prescribed exercise programme via Giraffe Online Rehabilitation Platform, www.giraffehealth.com
- Exercise prescription informed by SCI PA guidelines (aerobic 20mins, resistance 10reps, 3 sets x 2/wk – progressed) at moderate-vigorous intensity for 12 weeks
- Diary reviewed weekly and exercises progressed as appropriate with messages sent via in-built messaging system



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well done, I have added some new exercises to your programme. let me know how you get on!

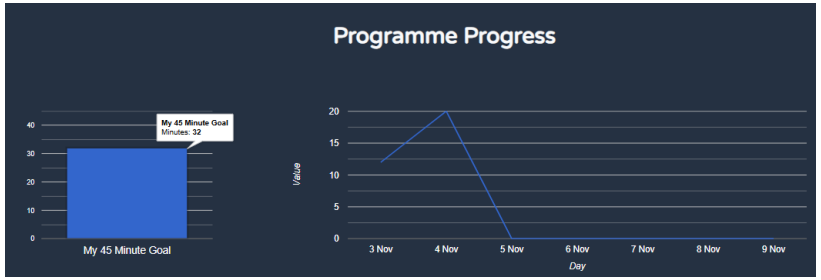
You 16 Oct 2025 08:59

wow I have almost met my activity goal for the week!

1Stroke Example Patient 16 Oct 2025 08:45

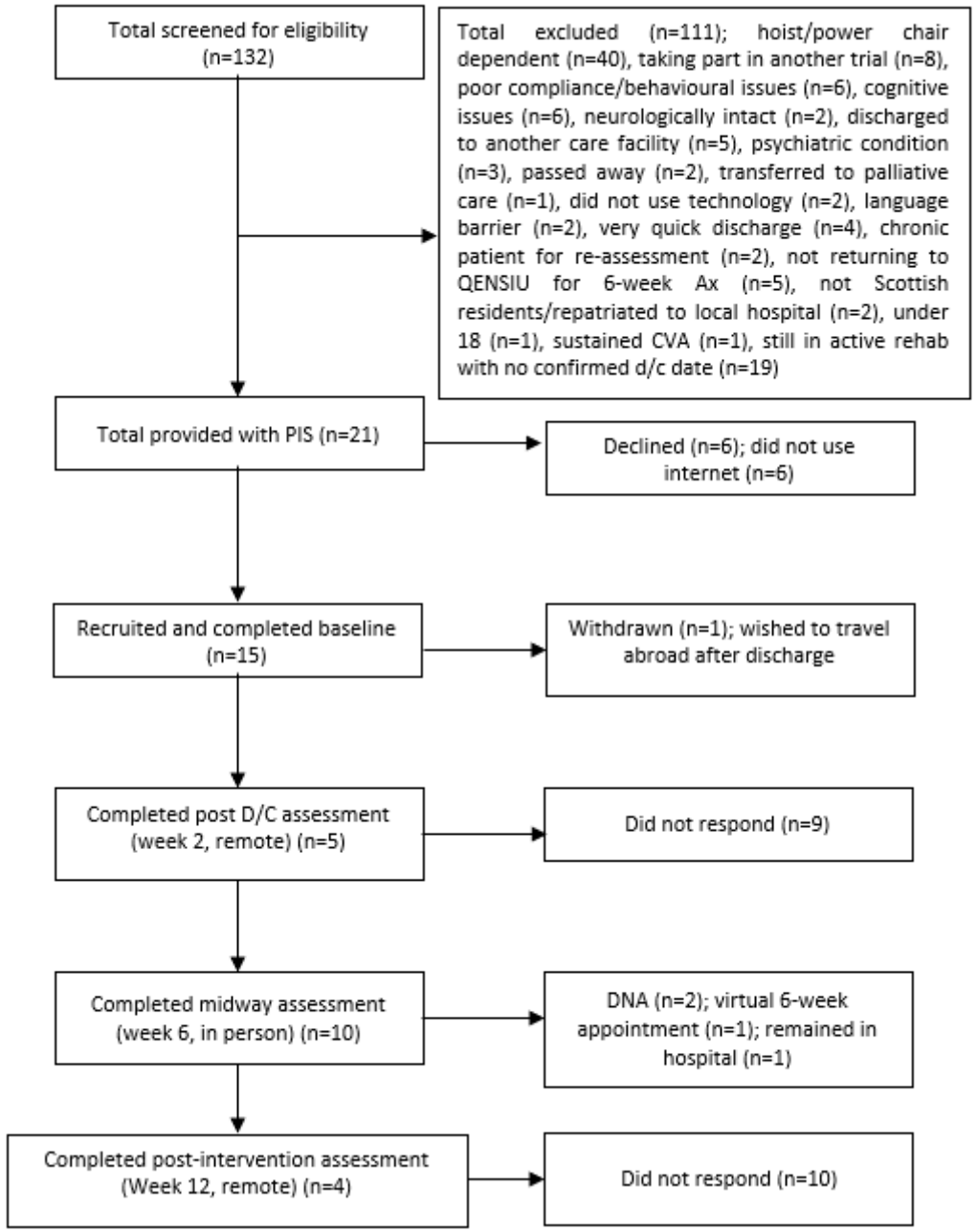
great, im doing so much better

1Stroke Example Patient 15 Oct 2025 15:40



Results

Feasibility	
Eligibility	84%
Recruitment	71%, 1/month
Retention	93% (n=1)



Results

Participants	**N=15**
Sex	12 male, 3 female
Age	43.1 ± 13.7 years (18-67 years)
SCI Level	C1 – L5, ASIA A-D
Mobility	Manual wheelchair (n=10) 4 wheeled walker (n=1) No aid (n=4)
LoS	188.5 ± 135 days
Dropout	N=1, C4 ASIA D, no aid
Adherence	25-75%
Adverse events	None

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Results

small (*d*=0.2), moderate (*d*=0.5)

Outcome	Baseline Mean [SD]	6 week Mean [SD]	Mean difference [SD]	95% CI	Effect size (Cohen's d)
WISCI	5.7 [6.9]	6.7 [8.1]	1.0 [1.93]	(-0.49, 2.49)	**0.51**
6MinWT (m)	113.5 [2.8]	195.85 [4.7]	64.00 [78.69]	(14.00, 114.00)	0.06
6MinWCT (m)	411.6 [127.1]	442.3 [108]	-30.66 [86.43]	(-110.59, 49.28)	**0.35**
SCIM III SR (max 100)	59.4 [12.4]	63.3 [17.6]	-3.89 [10.13]	(-11.68, 3.90)	**0.38**
PASIPD (max 199.5 MET hour/day)	32.6 [16.4]	29.5 [24.8]	3.17 [34.34]	(-23.23, 29.57)	0.09
WHO QoL Bref (max 100)	54.9 [13.7]	58.7 [17.2]	3.77 [24.15]	(-14.79, 22.33)	0.16

Results

small (*d*=0.2), moderate (*d*=0.5)

Outcome (Kgs)	Baseline Mean [SD]	6 week Mean [SD]	Mean difference	95% CI	Effect size (Cohen's d)
Shoulder Abductors	10.69 [4.72]	12.20 [3.90]	0.82 [4.08]	-1.35, 2.99	0.36
Elbow Flexors	12.06 [4.67]	14.02 [3.07]	1.18 [3.90]	-0.90, 3.36	0.53
Elbow Extensors	7.56 [4.21]	8.88 [2.19]	1.85 [3.69]	-0.11, 3.81	0.44
Wrist Extensors	5.36 [3.30]	5.33 [2.85]	0.43 [3.43]	-1.40, 2.26	0.01
Hip Flexors	12.14 [5.32]	11.80 [4.99	0.37 [2.51]	-2.27, 6.00	0.07
Knee Extensors	10.64 [3.43]	12.68 [5.32]	0.97 [3.46]	-2.66, 4.60	0.42

Results - Qualitative

Challenging discharge period

"One side of me was absolutely looking forward to it, great, but the other side of me was wondering how I would cope"

"It varies [adherence], like I've not done it in over a week now. This week and last week, every single day I've had an appointment somewhere or we have had to be somewhere"

Barriers to exercise

"I can't do it during the day when my wee girl is kicking about because she would get in the road and then by the time she's home from nursery and we have dinner and my husband is putting her up the stairs then there's housework to be done so by the time that is done, I am shattered"

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"I like the videos because I am a visual learner so I like to see but I also like that there is a wee explanation as well so I can read and then I can watch"

Positives of online rehab platform

"3-4 items have been added and changes that I needed. That was good"

"it [online delivery] definitely appeals to me more than a wee bit of paper…it has been a really useful resource for me"

Results - Qualitative

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Barriers to exercise

"I can't do it during the day when my wee girl is kicking about because she would get in the road and then by the time she's home from nursery and we have dinner and [illegible] stairs then there [illegible] time tha[illegible]

"Pressure relieving…[and] transfers, I am able to lift higher. So, that's improved"

Impact of the programme

"I like the videos because I am a visual learner so I like to see but I also like that there is a wee explanation as well so I can read and then I can watch"

"To be honest, I don't really bother too much with the diary. I know my exercises now so I can do them whenever I feel like it. I don't need to open Giraffe"

"I've improved loads on them [crutches]…I have drastically improved"

Positives of online rehab platform

"3-4 items have been added and changes that I needed. That was good"

"it [online delivery] definitely appeals to me more than a wee bit of paper…it has been a really useful resource for me"

Conclusion

- The intervention is feasible and acceptable
- Adherence (from exercise diaries) likely under-reported
- Trends towards improvement in strength, endurance and independence with small/moderate effect sizes
- Small, heterogeneous sample
- The immediate discharge period may be a challenging time for people with SCI with competing priorities – family life, home modifications, appointments
- Remote assessments were poorly completed
- Overall, results suggest online rehabilitation can be utilised to support exercise participation at home

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Any Questions: **Elaine.Coulter@gcu.ac.uk**

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Thank you




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