

THE BARRIERS AND ENABLERS OF USING ELECTRICALLY ASSISTED BIKES (E-BIKES) BY STROKE SURVIVORS

Authors: Paul Boland Dr Louise Connell Dr Clare Thetford Dr Jessie Janssen
 Faculty of Health and Wellbeing Contact Email: pboland2@uclan.ac.uk

BACKGROUND

Electrically assisted bikes (e-bikes) are like conventional cycles except they are fitted with a battery and a motor that provides assistance when a person is pedalling. E-bikes been shown to be an alternative form of physical activity for sedentary individuals or those with physical limitations (1). Currently there is limited research on whether e-bikes are a feasible method of physical activity for stroke survivors and no research has been found within the context of stroke intervention design.

AIM

To explore the barriers and enablers of using e-bikes in the development of a stroke rehabilitation intervention.

METHOD

- 🚲 A mixed-methods case study design using semi-structured interviews and e-bike usage data.
- 🚲 Participants, who had the ability to walk with or without assistance were recruited from local stroke support groups.
- 🚲 Following GP approval, participants had the opportunity to loan an e-bike or an e-trike for up to 3 months.
- 🚲 Participants were interviewed pre and post loan to discover their perceptions and experiences of using an e-bike/e-trike.



Figure 1: The e-trike and its components

PARTICIPANTS

Case Study Characteristics (n=6)	Age (yrs)	72	64	63	56	65	55
	Time since stroke (months)	30	72	1	40	36	5
	Living alone or with a partner	Partner	Alone	Partner	Partner	Alone	Alone
E-bike information	Able to loan an e-bike (Y/N)	Y	N	Y	Y	N	N
	Type of e-bike	E-trike	-	E-bike	E-trike	-	-
	Adaptations	Brakes	-	None	Brakes & pedals	-	-

Table 1: Case study information. All participants were male. Only three went onto loan an e-bike.

FINDINGS

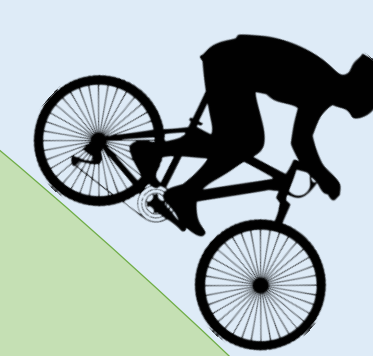
BARRIERS

- Physical Impairment to arms and legs
- Misconceptions about how the e-bike functions
- Storage
- Adaptations to pedals
- Road Safety
- Hot Weather
- Infrastructure
- Fear of bumping into things
- Lack of Confidence



ENABLERS

- Positive Effect on Fatigue
- Social Support from family
- Adaptations to brakes
- Fun Activity
- Good for Health



CONCLUSION

The stroke survivors identified several barriers and enablers to using the e-bike. The results of this study can be used as a starting point in the development of a rehabilitation intervention. Special consideration should be paid to addressing the barriers identified and behaviour change theorists (2) recommend that areas such as education, training, and restructuring of the environment could be important in mitigating these barriers and should be considered when developing an intervention.

REFERENCES

- 1) Louis, J., Brisswalter, J., Morio, C., Barla, C. and Temprado, J. (2012). The Electrically Assisted Bicycle: An Alternative Way to Promote Physical Activity. *American Journal of Physical Medicine & Rehabilitation*, 91(11), pp.931-940.
- 2) Michie, S., Atkins, L. and West, R. (2014). *The Behaviour Change Wheel: A Guide to Designing Interventions*. Silverback Publishing.

Paul Boland was funded by the National Institute for Health Research (NIHR) Applied Research Collaboration North West Coast (ARC NWC). The views expressed in this publication are those of the author(s) and not necessarily those of the NHS, the NIHR, or the Department of Health and Social Care.