

Feasibility of aerobic exercise training in acute stroke

Nik Kudiersky – Researcher & PhD Candidate



**Sheffield
Hallam
University**

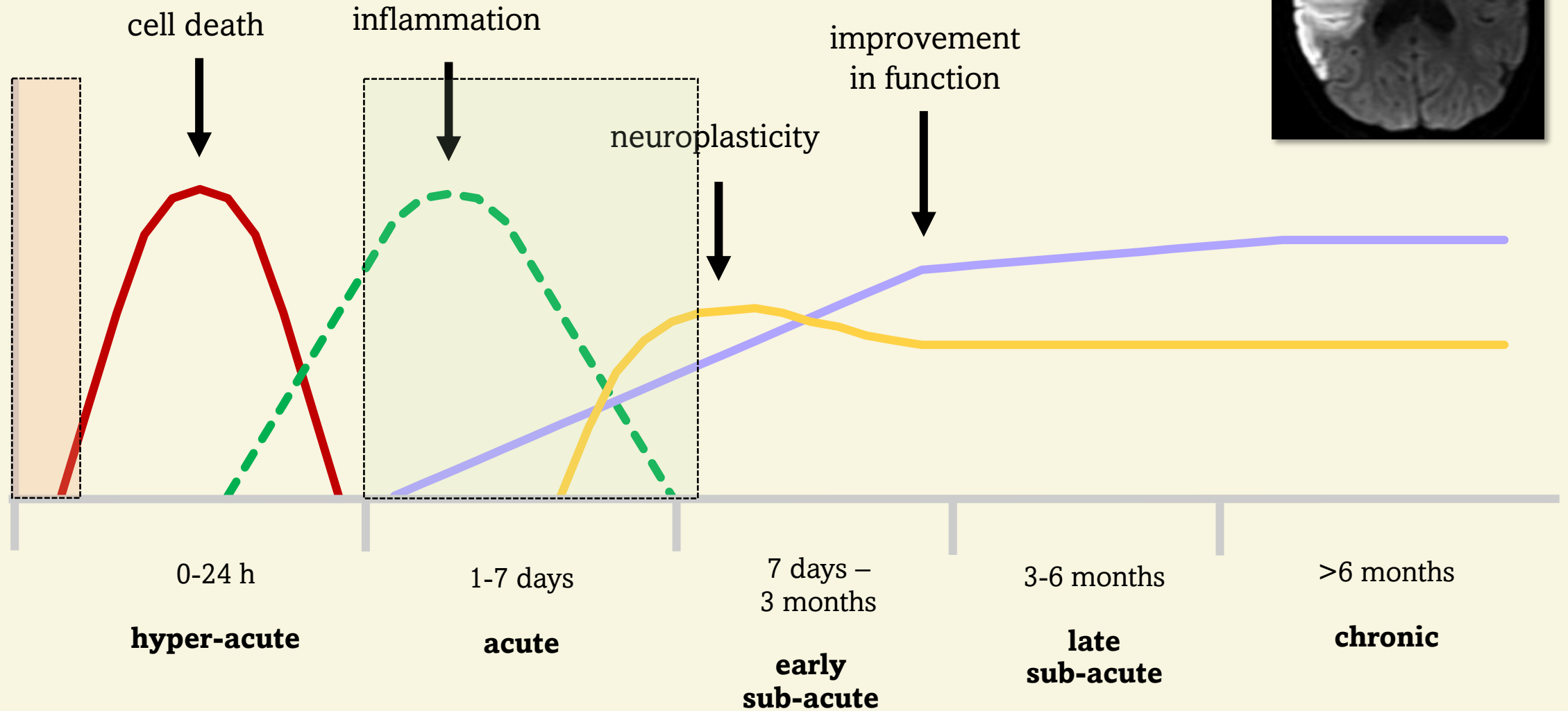
Advanced
Wellbeing
Research Centre



Sheffield Teaching Hospitals
NHS Foundation Trust

Stroke recovery trajectory

Treatment window



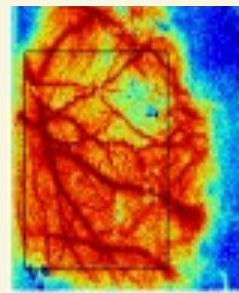


Control

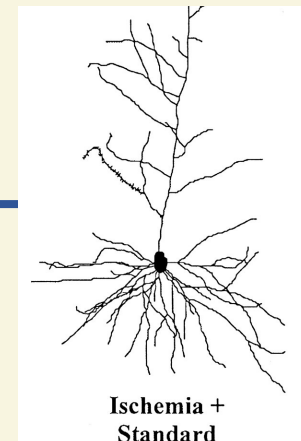
Lesion size



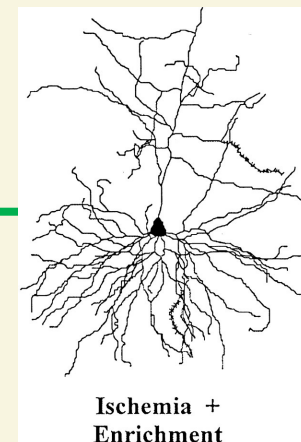
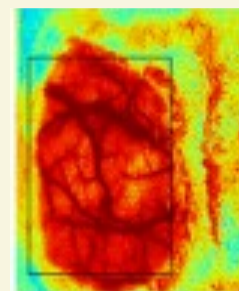
Perfusion



Neuroplasticity



Aerobic exercise



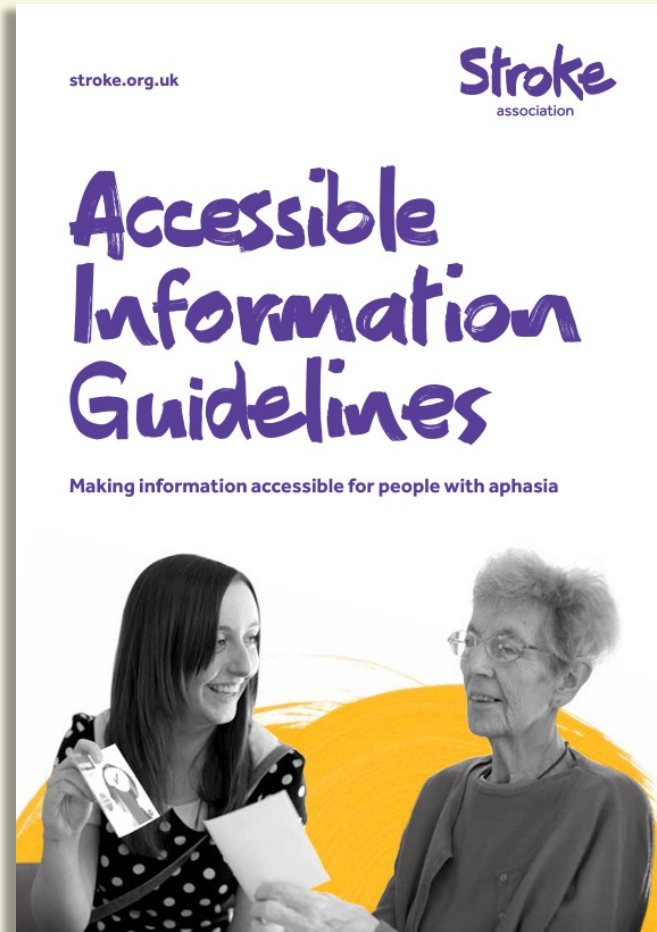


A clipboard with a brown border and a silver clip at the top, containing the text 'Eligibility Criteria'.

Eligibility Criteria

- ≥ 18 years old
- 2-7 days post-ischaemic stroke
- Medically stable
- No exercise contraindications
- Able to mobilise at least one leg
- Able to provide informed consent

Accessible information

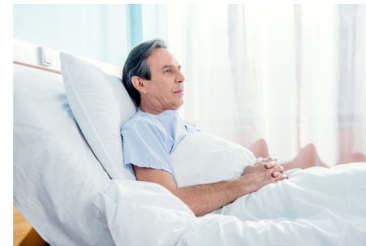


Introduction

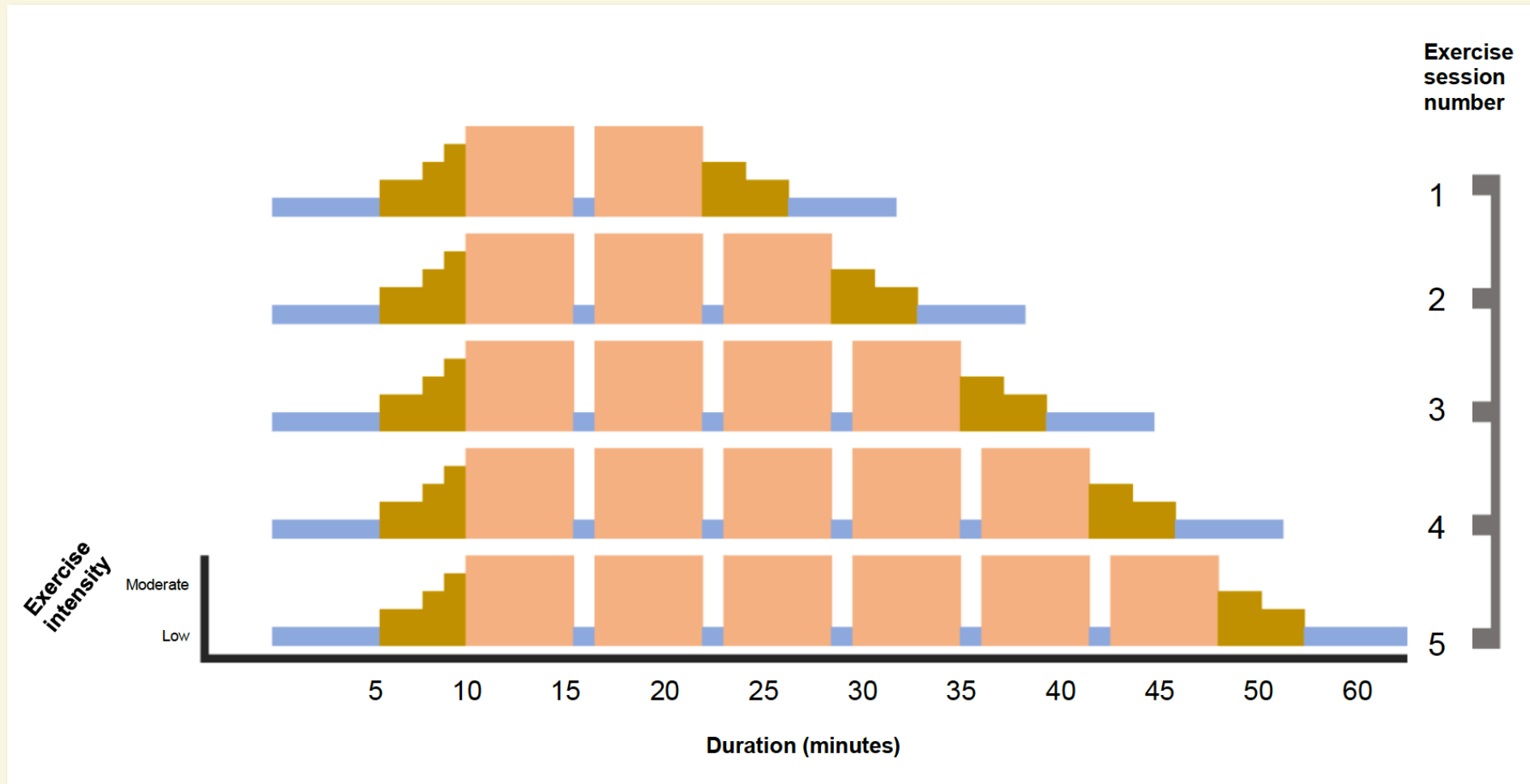
You are **invited** to **take part** in a **research** study.



You might be asked to **exercise**.

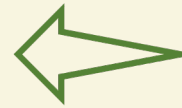
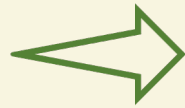


Exercise programme



Exercise intensity

Rating	Perceived Exertion
6	No exertion
7	Extremely light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Extremely hard
20	Maximal exertion



Feasibility outcomes

Recruitment

Safety

Acceptability

Intervention
fidelity

Interaction with
current practice

Data collection

Recruitment

30 participants enrolled in 13 months

2.3 participants per month



	Control (n=15)	Intervention (n=15)
Age (years)	80.7 ± 11	64.4 ± 17
Male : Female	10:5	10:5
NIHSS (0-42)	7.7 ±5.1	9.3 ±6.8
Able to walk unassisted	5/15 (33%)	2/15 (13%)

Intervention safety



No adverse events associated with the intervention



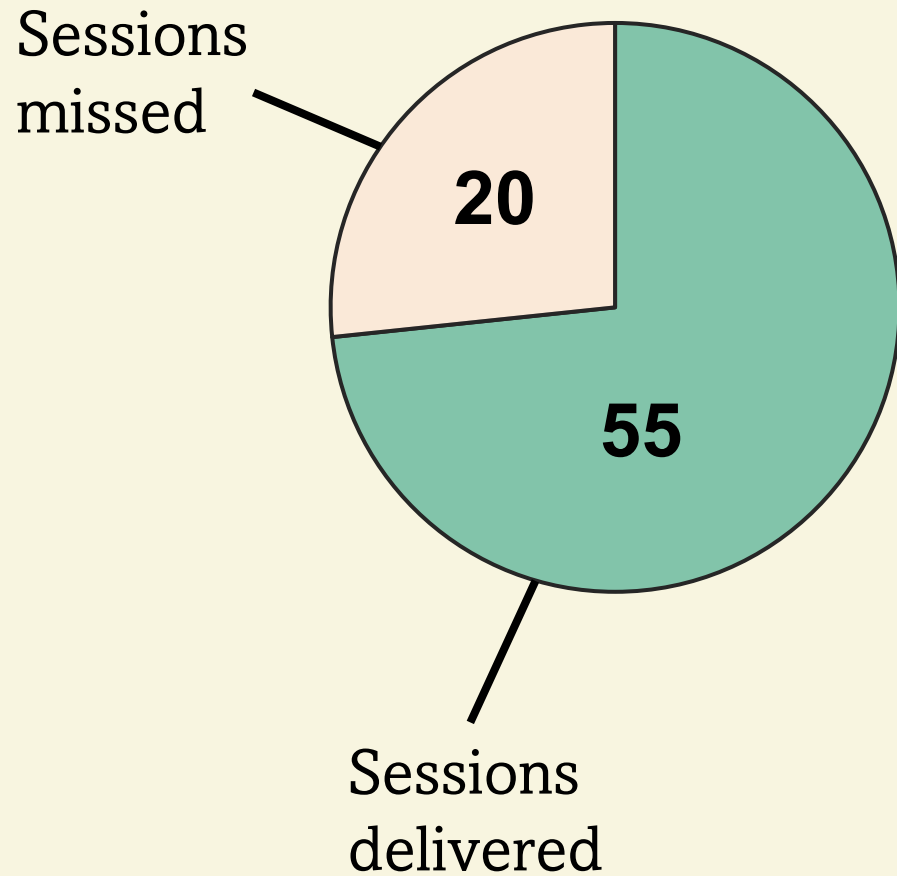
Acceptability

100%
said exercise bike
was comfortable



- “Sense of achievement”
- “Making progress”
- “Breaks up the boredom”
- “Felt mentally sharper afterwards”
- “Knackered!”
- “You just have to get on with it”
- “Something to look forward to”
- “Disappointed that there were only 5 sessions”
- “It might help other people”

Intervention fidelity



73% of planned sessions completed

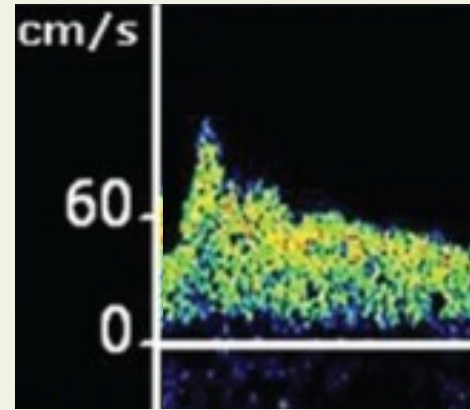
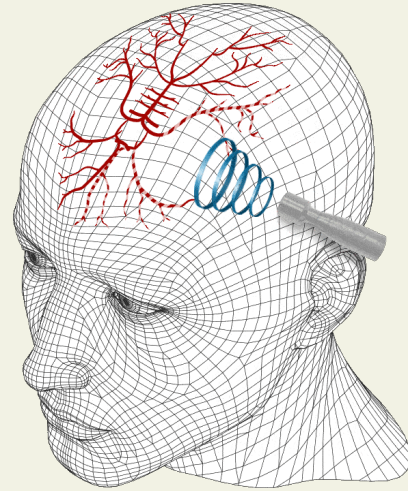
Reasons for non-completion

4 x early discharge (12 sessions)

1 x dropout (4 sessions)

1 x UTI; excluded (3 sessions)

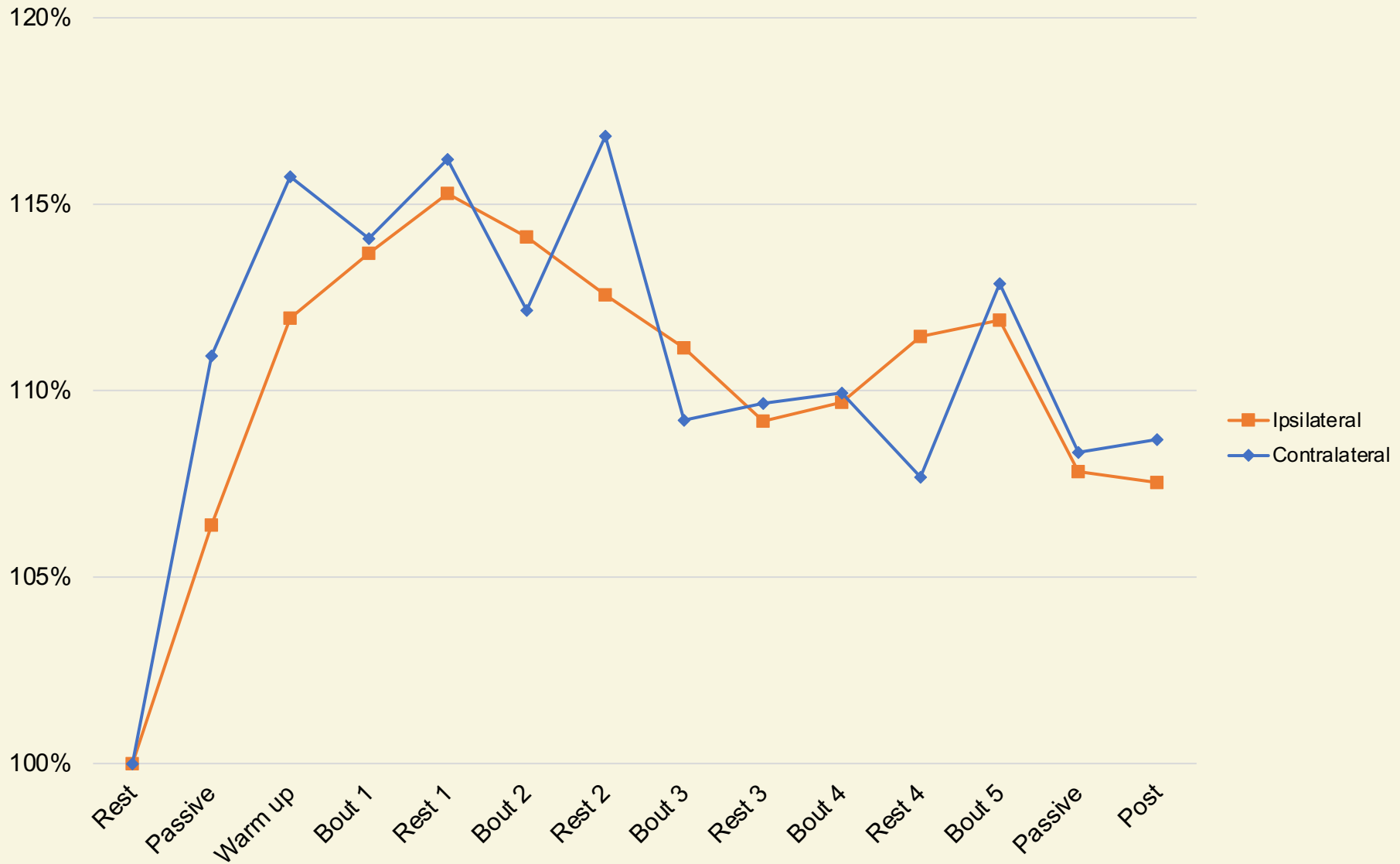
1 x fatigue (1 session)



Cerebral blood velocity

during aerobic exercise

% change in cerebral blood velocity



Summary



Aerobic exercise training in the acute phase of stroke is safe and acceptable.



People who are unable to walk unassisted can cycle at a moderate intensity for over 30 minutes.



Cerebral blood velocity increases by 10-15% during aerobic exercise.

Research questions

1. **Is this intervention feasible in other settings?**
2. **Can some participants cycle unsupervised?**
3. **How does aerobic exercise affect the injured brain?**
4. **What is the optimal dose of cycling exercise?**
5. **What is the cost effectiveness of the intervention?**



Acknowledgements



Dr Tom
Maden-Wilkinson



Dr Ali Ali



Dr Helen
Humphreys



Dr Rachel
Young



Dr Caroline
Dalton



Dr Simon
Nichols

Thank you for listening