

THE UNIVERSITY OF  
**SYDNEY**

# Strategies to increase amount and intensity of repetitive sit-to-stand training after stroke: insights from the REPS trial

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**Health**  
Northern Sydney  
Local Health District

# Background



Scan me



# Randomised Controlled Trial

## Primary aim:

To investigate if intensive sit-to-stand training in addition to usual care improves sit-to-stand ability in people who are unable to stand up independently after stroke?

## Secondary aim:

To investigate the feasibility of providing large amounts of repetitive sit-to-stand training to people early after stroke.

Allocation concealment

Assessor blinding

Intention to treat

# Eligibility criteria

## Inclusion criteria

- First time stroke or any other ABI
- Less than 6 months
- Basic communication skills
- Stroke has affected ability to stand up

## Exclusion Criteria

- Severe contractures or NWB
- Medically unwell
- Less than 2 weeks

# Method

2 Sydney hospitals

**RANDOMISED**  
n = 30

**EXPERIMENTAL** n = 15

Strategies:

- **Physiotherapy gym  $\geq$  3 hours per day**
- **Semi-supervised practice**
- **Therapy on weekend days**
- **Exercise diary**
- **Structured training for carers/family**
- **Individualised after-hours exercise program**

**CONTROL**  
n = 15

**Week 2**

**BLINDED ASSESSMENT**

# Exercise diary

Participant No: \_\_\_\_\_

## Standing up and sitting down



### Aim

To improve your ability to stand up or sit down.

### Instructions

Position yourself sitting with your feet underneath your knees and your heels as far back as possible but still touching the floor.

Cross your arms over your chest or place your hands on your thighs. Try not to use the armrests to push up.

Repeat as many times as you can tolerate

Practice standing up and sitting down.

Ensure that your shoulders move forward symmetrically while you move between sitting and standing, and your weight is borne equally through both legs.

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Wk 1	18/10	19/10	20/10	21/10	22/10	23/10	24/10
	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
Wk 2	25/10	26/10	27/10	28/10	29/10	30/10	31/10

# Outcome measures

## Primary

- ***Clinicians' impressions of sit-to-stand change***

## Secondary

- Sit-to-stand ability
- Composite strength of key muscles of the affected lower limb
- Gross lower limb extension strength
- Goal Attainment Scale
- Ranking of change in ability to move from sitting to standing
- ***A survey of participants and carers - barriers to performing extra practice after-hours***

# Results

30 participants

## Clinicians' impressions of sit-to-stand change

mean between-group difference (95% CI) = 1.57/15 points (0.02 to 3.11)

## Amount of time in physiotherapy sessions - mean (SD)

- Experimental 32 hrs (7)
- Control 16 hrs (2)

## Sit-to-stand repetitions - mean (SD)

- Experimental 1327 (741)
- Control 358 (244)

No serious adverse events!



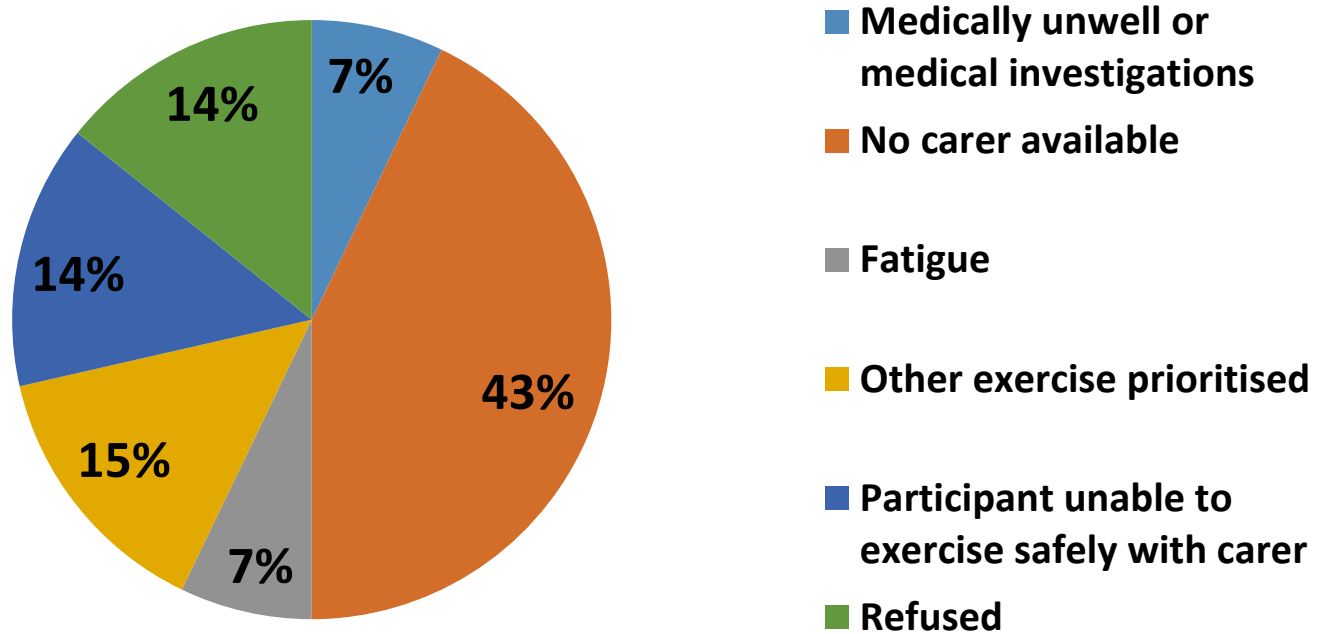
# Results

**Exercise after-hours (n=15)**

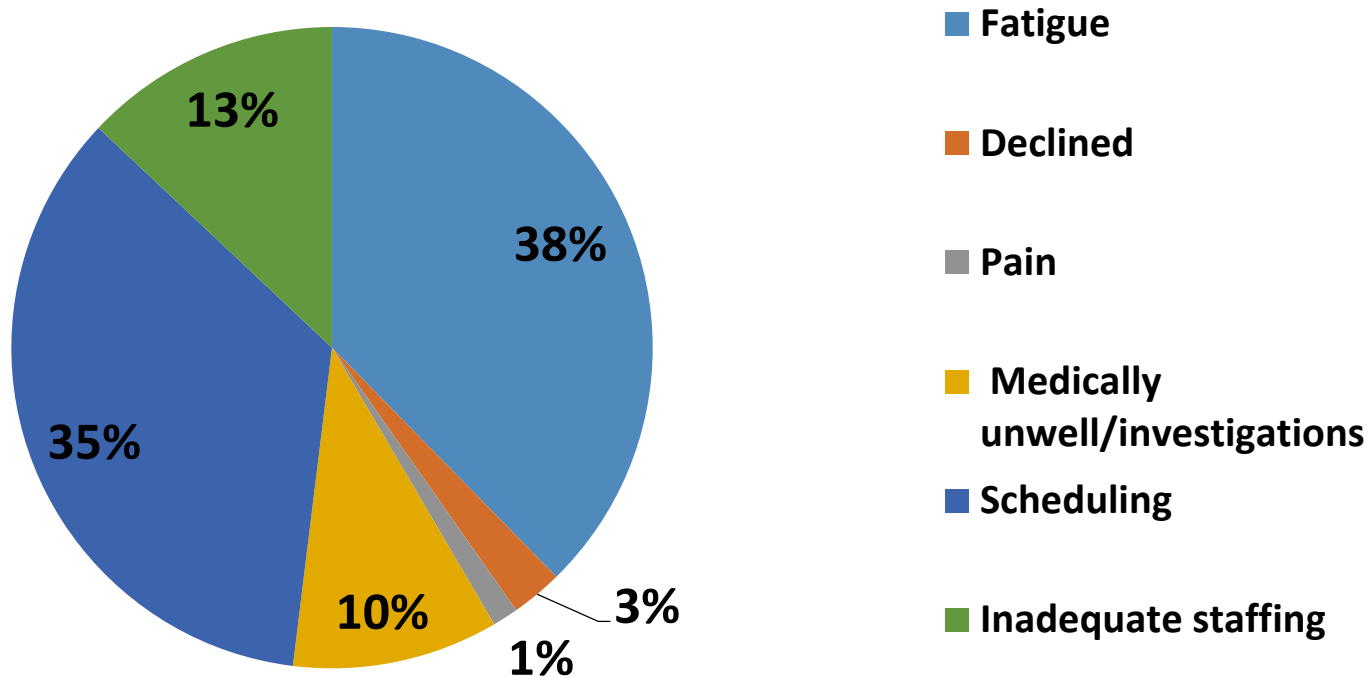
median (IQR)

**55 repetitions (0 to 261)**

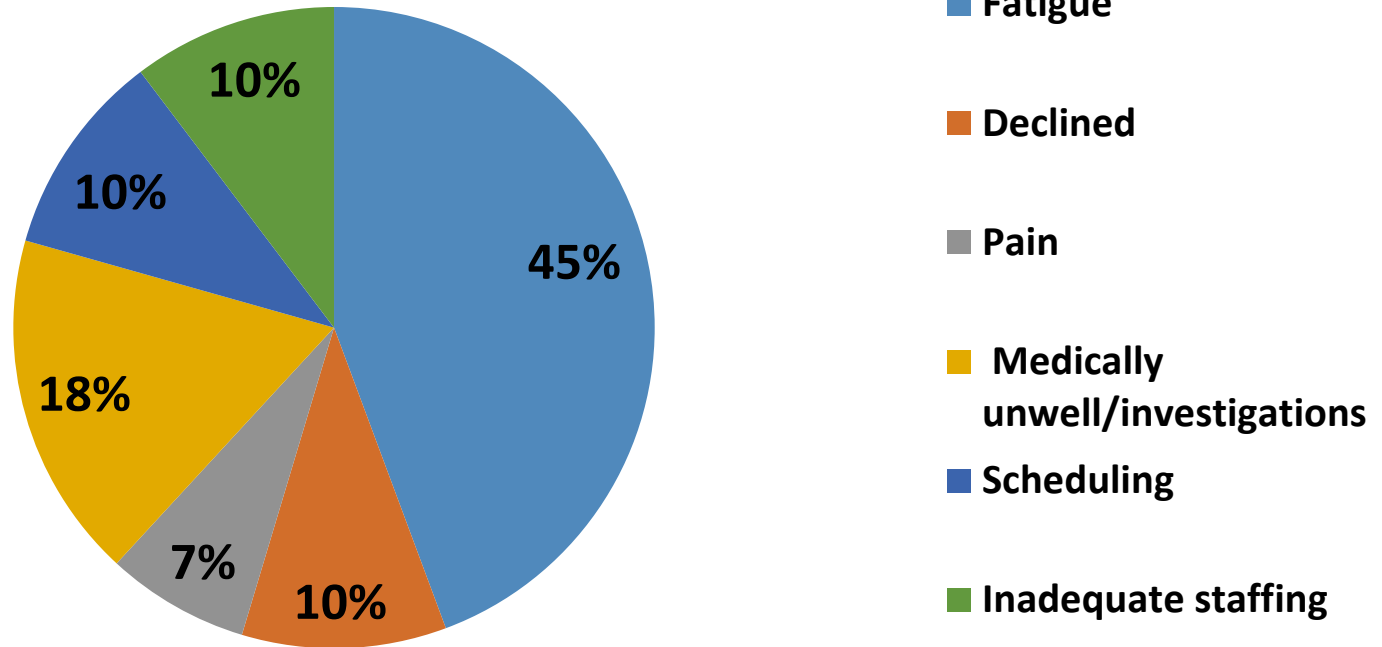
# Reasons for not completing exercise program after-hours (Experimental n=15)



## Reasons for not completing 2hrs PT (Control n=15)



# Reasons for not completing 3hrs PT (Experimental n=15)



# Conclusion

- Two weeks of intensive sit-to-stand training in addition to usual care improves sit-to-stand ability in people who are unable to stand up independently after stroke.
- Large amounts of repetitive sit-to-stand training is **well tolerated** in early stages of stroke recovery.
- Strategies to increase the amount of training are **effective**, but highly **dependent on availability of carers** to supervise practice **after-hours**.
- Amount of training during physiotherapy sessions is dependent on:
  - **Fatigue levels of patients**
  - **Thoughtful and adaptable scheduling**

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