

# Exercise programs provided outside of therapy time in the inpatient stroke rehabilitation setting: A literature review

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## Introduction

- Inpatients undergoing stroke rehabilitation (SR) spend 75% to 95% of their time sedentary in part due to balance and mobility limitations
- Group exercise programs during non-therapy time, or supplementary programs, could promote exercise participation and social interaction
- Objective: To synthesize the literature on the characteristics and outcomes of supplementary programs delivered in the inpatient SR setting and highlight gaps in their implementation

## Methods

- Design:** Literature review
- Eligibility:** 1) Peer-reviewed studies; 2) included participants with stroke; 3) evaluated an exercise program run during non-therapy time in the inpatient SR setting
- Data sources:** Medline, Embase, CINAHL, and Scopus
- Data extraction and synthesis:** TIDieR checklist used to identify program features, participant characteristics, and study outcomes

## Results

**Table 1.** Characteristics of supplementary exercise programs in the inpatient SR setting

Author Year	Sample (size, mean age, sex/gender)	Exercise Type	Mode of Delivery	Frequency & Duration	Exercise Tailored?	Fidelity / Adherence Assessed?
Harris 2009	n=103 69 yrs Sex: 59M/44F	Strengthening of arm and hand, range of motion, fine motor skills	Patient-directed	4 weeks 6 days/week 1h/day	Yes	No
Meyer 2001	n=18 65 yrs Gender: 5M/13W	UE exercise, complex ADL tasks, LE strength, reconditioning	Group + individual Supervised by PT/OT	4 weeks Group: 5d/week, 1h/day Individual: 1h/week	Yes	Yes
Swank 2020	n=73 61 yrs Sex: 39M/34F	UE and LE activities	Patient-directed	LOS 2x/day 30min/session	Yes	Yes
Tyson 2015	n=94 64 yrs Sex: 60M/34F	UE: fingers, wrist, elbow movements, reaching LE: ankle, knee, hip movements	Patient-directed	4 weeks 30min max/day	Yes	Yes
Mao 2015	n=24 60 yrs Sex: 5M/19F	Walking training	Individual Supervised by PT	3 weeks 5d/week 30min/day	Yes	Yes
Stock 2008	n=12 46 yrs Gender: 7M/5W	Leg function: strength, coordination, speed, range of motion	Group Supervised by PT/OT	2 weeks 5d/week 6h/day	Yes	No
Talaty 2023	n=30 58 yrs Gender: 22M/5W	Walking training	Individual Supervised by PT	LOS 4x max/week 45min/session	Yes	Yes

**Abbreviations:** M, male (sex) man (gender); F, female (sex) woman (gender); UE, upper extremity; LE, lower extremity; ADL, activities of daily living; PT, physical therapist; OT, occupational therapist; LOS, length of stay.

\*All studies included adults with stroke in inpatient SR setting.

**Table 2.** Study outcomes of supplementary exercise programs in the inpatient SR setting

Author Year	Physical Function	Cognition	Safety	Feasibility	Cost
Harris 2009	✓		✓	✓	✓
Meyer 2001	✓		✓	✓	
Swank 2020	✓	✓		✓	
Tyson 2015	✓				
Mao 2015	✓		✓		
Stock 2008	✓			✓	✓
Talaty 2023	✓		✓	✓	

## Conclusion & Next Steps

- Limitations of existing studies: small sample size, lack of follow-up assessment, varying LOS in inpatient unit affected exercise dose, low adherence in patient-led programs
- No studies have evaluated a non-therapist-led, group exercise program targeting mobility during non-therapy time in the inpatient SR setting
- A volunteer-led, video-based program might be a feasible option to increase activity engagement and health of patients