

# Feasibility and test-retest reliability of an online test of rhythm abilities in neurotypical adults and people with stroke

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## Introduction

- A person's rhythmic abilities may influence their response to music-based interventions such as rhythmic auditory stimulation
- We need a reliable measure to evaluate rhythm abilities that can be delivered in-person & online
- The Beat Alignment Test (BAT) is commonly used but test-retest reliability and feasibility of online delivery is unknown

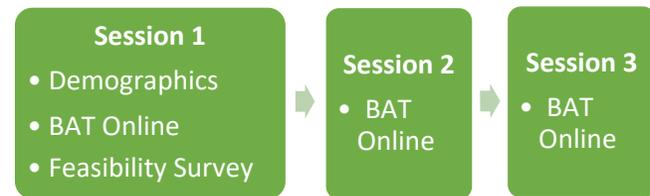
## Purpose

To determine the **feasibility of online delivery & test-retest reliability of the BAT** in adults with and without chronic stroke.

## Methods

**Study design:** complete the BAT online x3

- BAT Perception Task:** decide if tones overlaid on music are on or off the beat of music
- BAT Production Task:** tap to the beat of music



## Analysis:

- Feasibility:** measured based on 5 domains
- Test-Retest Reliability:** 2-way mixed effects intraclass correlation (ICC)

## Participant Demographics

	Neurotypical (NT)	Chronic Stroke
Sample size Consented (n)	35	23
Completed >1 session	32	16
Age		
18-39	23 (66%)	2 (9%)
40-59	7 (20%)	11 (48%)
60+	5 (14%)	9 (39%)
Female	22 (63%)	19 (83%)
Formal Music experience	19 (54%)	10 (44%)
Completed 3 Sessions	29 (83%)	14 (61%)

## BAT online is more feasible for neurotypical adults than people with stroke

Feasibility Domain	Feasibility Threshold Criterion	Neurotypical	Chronic Stroke
<b>Completion Rates</b>	75% completed all 3 sessions	83% (29/35)	61% (14/23)
<b>Technical Challenges</b>	< 25% report technical challenges	41% (13/32)	91% (21/23)
<b>Technical Issues Resolutions</b>	75% of technical challenges resolved	77% (10/13)	67% (14/21)
<b>User Experience</b>	All 7 items mean rating of at least 4/5	100% (7/7)	86% (6/7)
<b>BAT Duration</b>	75% rated BAT the "right length"	84% (27/32)	88% (14/16)

GREEN: feasibility criteria met, RED: feasibility criteria not met

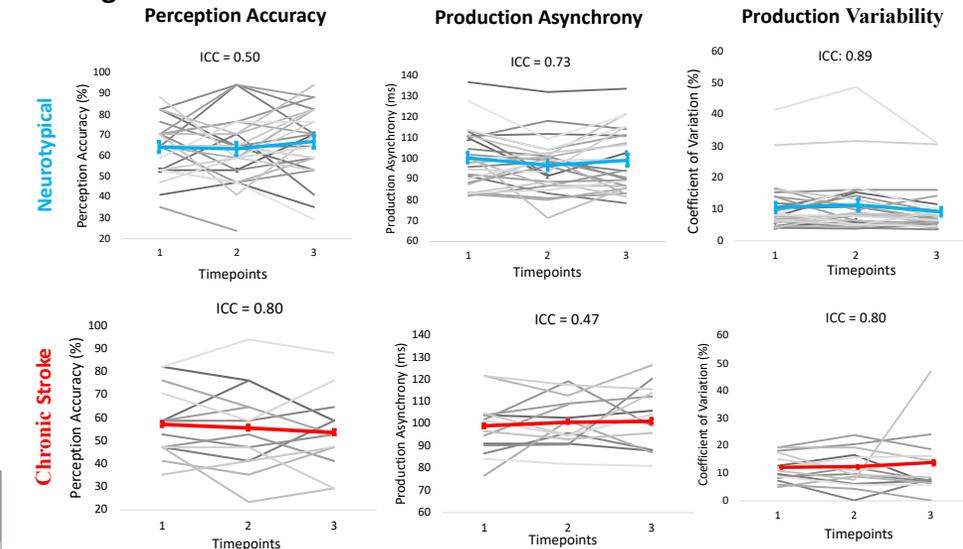
Note: Denominators for each domain varies based on how many participants each feasibility domain is applicable for

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## Results

### Poor-good test-retest reliability of both BAT perception & production among adults with and without stroke



Grey lines: individual participant; Blue/Red lines: group mean with error bars for variability  
ICC Interpretation: Poor (<0.50), moderate (0.5-0.75), good (0.75-0.9), excellent (> 0.9)

## Discussion

- Online BAT is less feasible for adults with stroke compared to neurotypical adults; unclear if this is due to stroke impairment or secondary factors such as age
- The observed poor-good test-retest reliability of BAT for both groups may be due online delivery rather than the test itself
- Future work should assess test-retest reliability of BAT when completed in person