

## Purpose

Gait impairments are common after stroke and can be present acutely and into the chronic phase post-injury. Gait impairment is often characterized by decreased step length and stance time on the affected leg, and decreased velocity, resulting in asymmetrical gait. The purpose of this study is to assess the effects of using tape as a visual cue to increase step length and improve symmetry.

## Method

**Participants:** Eleven patients in post acute rehabilitation who suffered ischemic stroke. (see Table 1)

**Therapists:** Physical therapists within a comprehensive brain injury rehab program.

**Methods:** Utilized GAITrite mat to assess characteristics of gait upon admission and every 4-6 weeks. The average of three passes on the GAITrite was taken. Baseline and post treatment gait data are presented

**Intervention:** The patient walked with an orthotic or assistive device when appropriate for a minimum of 20 minutes per day five days of the week. Tape on the floor was set at 18 inches, 22 inches, or 26 inches apart. The patient advanced to greater tape distance when proper gait mechanics were evident in conjunction with accuracy with step length.

## Sample Characteristics

PT#	Gender	Age	Acuity	Location
1	Male	56	Subacute	R CVA
2	Male	59	Chronic	L CVA
3	Female	63	Chronic	R CVA
4	Male	61	Subacute	L CVA
5	Male	38	Chronic	L CVA
6	Male	50	Subacute	L CVA
7	Female	46	Subacute	R CVA
8	Male	36	Subacute	R CVA
9	Female	53	Chronic	L CVA
10	Female	53	Subacute	L CVA
11	Male	52	Subacute	R CVA
Descriptive Statistics	64% Male	Mean age = 52 SD = 8	64% Subacute 36% Chronic	55% L CVA

## Results

Figure 1: Patient in the **chronic** phase

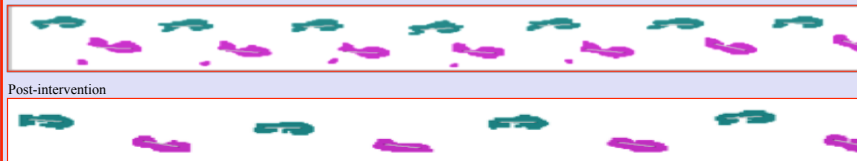
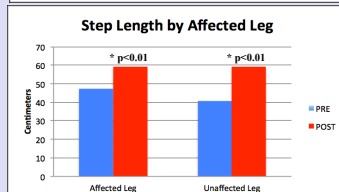
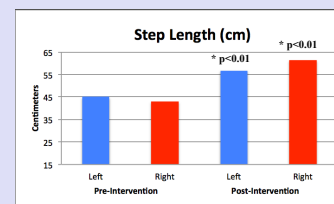
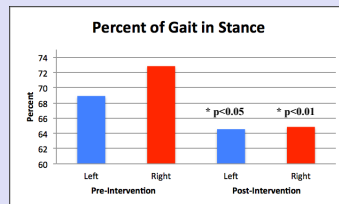
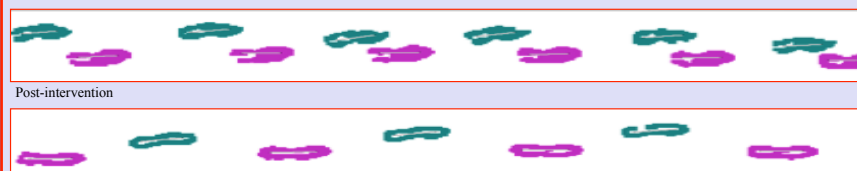


Figure 2: Patient in the **subacute** phase



	Pre-Intervention: Mean (SD)	Post-Intervention: Mean (SD)	p-value
Step Differential (cm)	10.81 (6.13)	5.78 (5.32)	0.02
Velocity (cm/sec)	60.25 (26.35)	93.39 (24.69)	0.00

Note. Paired samples t-tests were used.

The table to the left illustrates the means and standard deviations of key parameters.

## Conclusion

This study demonstrates tape walking can provide significant improvements in gait characteristics post ischemic stroke regardless of acuity of injury.

- Step length of unaffected lower extremity increases, suggesting improved strength and stance time on the affected lower extremity.
- Stance time (%) is reduced for both the unaffected and affected legs suggesting increased symmetry.
- Step differential is large on initial trial, and reduces by nearly half upon second assessment. Ideal is 1.0, meaning no difference from one step length to the other (another marker of symmetry).
- Velocity is indirectly improved as step length increased. Velocity improved from roughly 2 feet per second to 3 feet per second.

## Clinical Relevance

- Tape walking is a simple, inexpensive, and replicable treatment for asymmetrical gait after stroke
- Can be performed in the clinic and at the patient's home
- Addresses commonly seen gait impairments following stroke and can help improve spatial and temporal aspects of gait
- Could indirectly improve key aspects of functional mobility including: energy conservation, strength, reduced risk for falls, and quality of life.