



Comparison of Community Based Tai Chi Program and Home Exercise Program on Improvement in Balance, Gait, and Fatigue in People with Multiple Sclerosis

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Background

- Multiple sclerosis (MS) a chronic, progressive autoimmune disorder affecting the CNS
- Common age of onset 20-50, also MS in pediatrics and Older onset MS
- Affects 2.3 million individuals worldwide
- Common symptoms:
 - Fatigue
 - Weakness
 - Visual disturbances
 - Dizziness
 - Sensory loss
 - Depression
 - Pain
 - Cognitive dysfunction
 - Balance deficit
 - Unsteady gait

Purpose

Compare student led Tai Chi program to student instructed home exercise program (HEP) and their effectiveness on improving balance and gait

Demographics	HEP	Tai Chi
Characteristics	N = 25	N = 25
Age (Mean+SD) Diff btw age group p = 0.049	53.6±8.11	57.4±7.55
Type of MS	RR/19; PP/2; SP/4	RR/20; PP /2; SP/3
Length of MS (Mean+SD) No difference P =0.11	20.96 ±10.5	17.4±9.48
Use of AD	56%	72%

Methods

- Participants: Tai Chi
 - 30 individuals recruited from DFW area
 - 25 completed study
- Participants HEP
 - 33 individuals recruited from DFW area
 - 25 completed the study
- Location:
 - MindSet Assisted Personal Training
 - TWU/Dallas campus/participant's home
- Pre and post-testing including:
 - Berg Balance Scale (BBS)
 - MiniBEST (MB)
 - Timed Up and Go (TUG)
 - Dynamic Gait Index (DGI)
 - Activity-specific Balance Confidence Scale (ABC)
 - Fatigue Severity Scale (FSS)

Interventions

- Tai Chi
 - 6-form, led by PT students
 - 2x/week for 6 weeks for 1 hour
- HEP
 - 7 balance exercises, taught by PT students
 - 3x/week for 8 weeks
 - Written and video instructions provided
 - Contacted by phone week 4-5 to allow participants to ask questions and monitor adherence

Results

Tai Chi Within Group Results						
	BBS	MiniBEST	TUG	DGI	ABC	FSS
P value	.000	.001	.000	.006	.017	.003

HEP Within Group Results						
	BBS	MiniBEST	TUG	DGI	ABC	FSS
P value	.016	.004	.039	.002	.000	.242

Between Group Improvement Results						
	BBS	MiniBEST	TUG	DGI	ABC	FSS
P value	.369	.937	.018	.875	.002	.137*

*FSS significant with parametric testing: p = 0.049

Discussion

- Both Tai Chi and HEP groups showed statistical significant improvements in balance
- HEP group improved significantly more on the ABC. This group was younger, less disabled, and were self motivated to perform the HEP
- Tai Chi group improved significantly more on the TUG, and Tai Chi class included standing and weight shifting activities
- The Tai Chi group improved more on the FSS (independent samples t-test). The class taught in a group format, where participants might receive psychological benefit from the group. The activity was more physically demanding which might lead to decreased perception of fatigue

Future Research

Continue the use of community based exercise programs in people with MS; next phase of the study will compare Tai Chi, HEP, to assisted personal training in people with MS.