

VETERANS HEALTH ADMINISTRATION

Outpatient Tai Chi: Effects on Veterans' Functional Outcomes

Presentation for: GRECC Webinar Series

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Learning Objectives

At the conclusion of this learning activity, participants will be able to:

1. Discuss Tai Chi and its benefits as a Whole Health initiative
2. Discuss the process of using the training of trainer (ToT) model to implement new programs
3. Discuss how Tai Chi impacts gait, balance, and functional outcomes



Funding Source

VA Office of Geriatric and Extended Care through Healthcare Transformational Initiatives (T-21) funds

Other Project Team Members

- Dennis H. Sullivan, MD
- Illeina Ferrier, Tai Chi Master Trainer
- Shelly Y. Lensing, MS
- Tanya Taylor, MNSc, APRN
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Whole Health

- Whole health is a holistic approach to delivering health care that has been adopted throughout the Veterans Health Administration (VHA).
- The Whole Health model focuses on empowering Veterans to take charge of their health and well-being.¹
- It provides Veterans with the knowledge and skills needed to be partners in their own healthcare journey.



Tai Chi

- Tai Chi is one alternative medicine modality promoted as part of the Whole Health movement that Veterans can practice as part of their own health promotion efforts.²
- Tai Chi was originally developed as an ancient Chinese martial art but has evolved over time with a focus on achieving inner peace and well-being.³
- It is a series of slow, relaxed, low-impact movements that combine breathing, meditation, and physical activity.³⁻⁵



Benefits of Tai Chi

Improved³⁻⁸:

- Osteoarthritis
- Pain
- Gait
- Balance
- Lower limb strength
- Quality of life
- Cognitive performance
- Sleep

Decreased:

- Hypertension
- Falls
- Fear of falling
- Depression
- Stress



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Tai Chi

- A promising, safe option for activity in older adults who typically have lower levels of activity, chronic health conditions, and physical limitations.
- Safe, effective exercise that is well-suited for most Veterans including the frail, home or chair-bound, and chronically ill.⁹⁻¹¹
- The intensity of the Tai Chi movements can be modified to meet the needs of the individual.¹⁰
- A recent systematic review of adverse outcomes of Tai Chi confirmed it is relatively safe with only minor (typically musculoskeletal) intervention-related adverse events being reported.¹²

Older Adults Gait and Balance

- Due to age- and disease-related changes in their musculoskeletal and nervous systems, older adults often develop gait and balance problems placing them at increased risk for falls.^{6,8}
- Exercise is recommended as a cost-effective method to mitigate some of these physiologic changes to improve gait and balance and potentially, reduce fall risk in at-risk older adults.^{5-6,13-14}
- Tai Chi significantly reduced the risk of falling at least once (risk ratio [RR] 0.80, 95% CI 0.72–0.88) and rate of falls (incidence rate ratio [IRR] 0.69, 95% CI 0.60–0.80) compared to control interventions.⁸



Increasing the availability of Tai Chi to veterans through a training of trainers course

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Abstract

Purpose: The purpose of this nurse-led project was to increase the number of interprofessional Tai Chi instructors for veterans through a 5-week (32 hours) training of trainers (ToT) course led by a Tai Chi master trainer.

Methods: This project was designed to evaluate the effectiveness of using the ToT



Project Purpose #1

The purpose of this nurse-led project was to increase the number of interprofessional Tai Chi instructors for Veterans through a 5-week (32 hours) training of trainers (ToT) course led by a Tai Chi Master Trainer.¹⁵



Training of Trainers (ToT) Model

- The implementation team wanted to develop Tai Chi instructors without adding more full-time employees (FTEs) using the ToT model.
- The ToT model is a rapid, cost effective way to introduce new training.¹⁶⁻¹⁷
- ToT model goals are to prepare new instructors to:
 - Present information effectively
 - Respond appropriately to questions
 - Lead activities that reinforce learning
 - Listen effectively
 - Make accurate observations
 - Help link the training to the participants own lives



Methods

- Procured Tai Chi Master Trainer
- Recruited current employees to train
- Obtained permission from supervisors and service chiefs
- Taught Tai Chi certification course
- Administered written exam and skills practicum

Analysis

- Descriptive statistics for demographics
- 2-phase course evaluation (immediately and 3 months)
- Numbers and locations of classes being taught
- Number of Veterans attending
- Barriers if not yet teaching



Results

- 15 interprofessional employees enrolled and completed the Tai Chi course and obtained certification¹⁶
- Most were white (67%) and female (67%) with a median age of 50 years
- Learner characteristics of the group
- Perceived barriers (immediately)
- Actual barriers (3 months)
- 10 instructors teaching and 2 assisting their peers
- More than 150 Veterans being taught



Interesting Note

New instructors listed their own perceived health benefits as:

- More relaxed (73%)
- Less stressed (71%)
- More connected to others (64%)
- Felt happier (57%)
- Felt more balanced in life (57%)
- Better sleep (43%)
- Increased strength (36%)
- Decreased blood pressure (7%)



Conclusions

Using the ToT Model is an effective way to rapidly increase the availability of Tai Chi to Veterans



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An outpatient Tai Chi program: Effects on veterans' functional outcomes

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Abstract

Purpose: To evaluate the effectiveness of an evidence-based 12-week Tai Chi course designed to improve balance and physical function in a population of older veterans.

Methods: Community dwelling veterans of all ages with gait and balance problems were invited to participate in the Tai Chi program. Participants completed the



Project Purpose #2

To evaluate the effectiveness of an evidenced-based 12-week Tai Chi course designed to improve gait, balance, and physical function in a population of older Veterans.¹⁸



Methods

- **Target population** – Veterans 55 years or older with perceived gait/balance issues
- **Recruitment** – primary care, geriatrics, PMRS, & Veterans
- **Intervention** – course introduction, baseline physical assessments, motivational interviewing and goal setting and attendance of course (2 classes/week for 12 weeks)
- **Instruments** – Berg Balance Scale, Timed Up and Go, Falls Efficacy Scale-International (initial and at 12 weeks), & Goals met/unmet
- **Statistics** – Nonparametric paired signed rank test

Instruments

Berg Balance Scale (BBS)-developed to measure balance in older adults.²⁰

- It is a 14-item scale with a total score of 0 to 56 with higher scores indicating better balance.

Timed Up and Go (TUG) test-a clinically useful screening tool to assist clinicians in identifying older adults at risk for falling.²¹⁻²²

- For the TUG, normative values range from 8.1 to 11.3 s for older adults.
- A faster TUG time indicates better functional performance, with a score of ≥ 13.5 s indicates an increased risk of falls in the community setting.

The Minimal Clinically Important Difference (MCID), which is the change associated with a detectable clinical improvement, was defined as 6.5 for the BBS and -1.4 s for the TUG.

Instruments

Falls Efficacy Scale-International (FES-I)-a 6-item questionnaire typically used to measure the level of concern about falling in independent community-dwelling older adults.²³

- The FES-I scores range from 16 to 64 and are categorized by fear of falling as 16–19 low, 20–27 moderate, and 28–64 high.



Motivational Interviewing (MI)

- MI is an evidenced-based approach for improving a person's motivation and commitment to behavior change.¹⁹
- MI was used by the Tai Chi project team to assist each participant in setting a personal (e.g., able to walk to mailbox) and measurable 12-week goal, such as regular attendance or practicing Tai Chi at home.



Results

- 22 completed the introductory class with 18 enrolling in the course
- 11 completed the post-course assessments
- Median number of classes attended was 18.5/24
- Goals - 9/11 met their personal goals (2 partially met)
- BBS – 9/11 had improvement with 3 showing a MCID
- TUG – 8/11 had improvement with 5 showing a MCID
- FES-I – had no significant change

Baseline Characteristics

	N=22
Age (years), median (IQR)	70.5 (65-72)
Male, n (%)	20 (91)
Race	
White	17 (77)
African-American	5 (23)
BBS, median (IQR)	50 (39-53)
BBS, n (%)	
10-45	9 (41)
46-49	0
50-56	13 (59)
TUG, median (IQR)	12.9 (9.8-18.6)
TUG, n (%)	
<8.1	0
8.1-11.3	9 (41)
>11.3	13 (59)
FES, median (IQR)	31.5 (20-44)

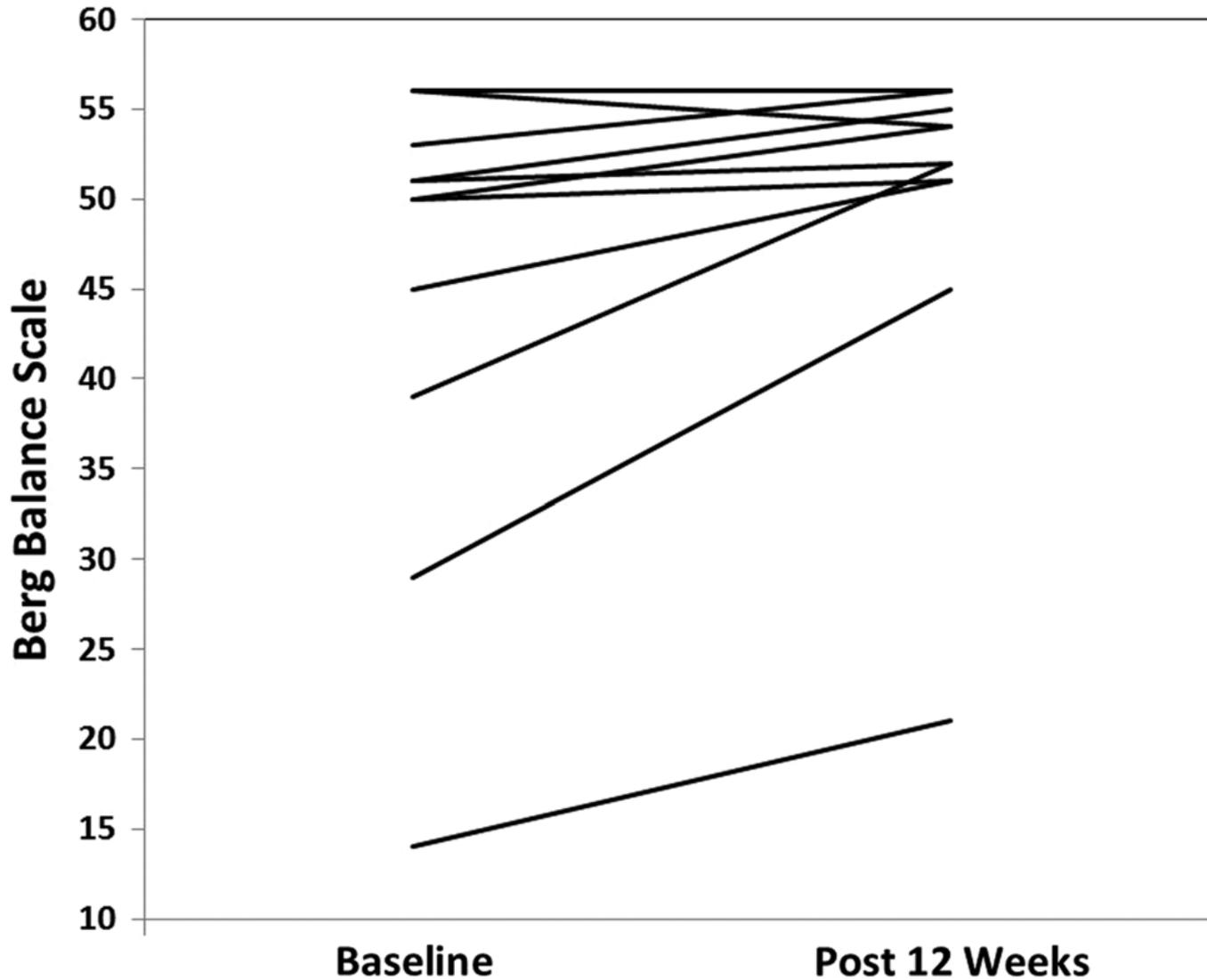


Change in Scores

	Median (IQR) Mean (SD)			P-value*
N=11	Baseline	Follow-Up	Change (FU-BL)	
BBS	50 (39-53) 44.9 (13.0)	52 (51-56) 49.9 (10.1)	4 (1 to 7) 5.0 (5.3)	0.004
TUG	12.4 (9.1-17.8) 14.8 (8.8)	11.0 (9.6-12.8) 12.9 (7.9)	-1.3 (-3.0 to 0.0) -1.9 (2.6)	0.022
FES-I	37 (19-51) 34.4 (15.3)	28 (20-44) 31.5 (13.2)	-1 (-7 to 4) -2.9 (8.3)	0.385



Berg Balance Scale



Conclusions

- Program can be established
- Beneficial to Veterans
- Potentially improves the BBS and TUG scores
- Potential barriers
- More work needed
- Future: Virtual technology





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Questions



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