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# A Study on Tai Chi Exercises in Improving Dynamic Balance and Gait in Older Adults

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## Abstract

**Introduction:** Elderly people in the society faces plenty of physical and medical problems, which make them more at risk of deconditioning and confined to their home due to impaired mobility and frequent falls.**Aim:** Aim of the study is to create the awareness about Tai Chi exercises to the elderly people.**Objective:** To evaluate the effectiveness of Tai Chi exercises in improving speed by using the Timed up and Go Test (TUG Test). To evaluate the effectiveness of Tai Chi exercise in improving balance and gait by using the Tinetti Balance Assessment tool.**Materials and Methods:** Pre and Post experimental study was used to prove the effectiveness of Tai Chi exercises on improving balance and gait in older adults. 5 male subject ages above 60 yrs were purposefully selected. Data collected by using Time up & go test (TUG test) and Tinetti balance assessment tool.**Results:** The mean score of pre and post test showed a significant difference in TUG test as 3.6 and 14.6 respectively and Tinetti balance scale pre and post as 19 and 25.4 respectively, with t value of 7.49.**Conclusion:** The finding of the study revealed that Tai Chi exercises were effective in improving balance and gait in older adults.**Keywords:** Tai Chi exercises; TUG test; Balance and gait; Older adults

impaired mobility, falls, impaired cognition, incontinence, etc. Out of this, falls are common & complex geriatric syndrome. There are several causes of falls in the elderly like muscle weakness, dizziness, hypotension etc., and about 17% of falls in the elderly thanks to the loss of balance. It has been found that about 28-35 you look after community-dwelling older people above 64 years old fall every year and also the falling rates are higher in older women (40% then in older men 28%). Considering the numerous increases in lifetime of the population generally therapeutic interventions directed to the elderly those who provide prevention of falls will eventually result in improvement in quality of life of this a part of the population. The movement pattern of martial art is exclusive among other therapeutic interventions for people with balance impairments. The movement is slow but continuous, that the individual learns a way to move most effectively within the postures and forms. Tai Chi is 'posture' or 'form-oriented' so that the person learns to use his/her visual or kinaesthetic frame of reference throughout the movement. Therefore, the learner's behavior emerges from a self-organizing function of varied subsystems. It is additionally hypothesized that the martial art movement patterns facilitate specific breathing patterns, which successively trigger the autonomic system a nervous for self-adjustment, i.e., Homeostasis.

About one-third of the older population reports difficulty with balance or walking the numbers increase significantly after age 60. One-third of adults during these people and over half people over the age of 60 years fall every year. Men and girls are affected equally.

## Research Methodology

### Study design

Pre and post-experimental study.

### Study setting

The study is conducted in the outpatient department of Thanthai Roever College of Physiotherapy, Perambalur under

## Introduction

Elderly people within the society face plenty of physical & medical problems which make them more at risk of deconditioning & confined to their home and a few of them are

the supervision of concerned authority (Figures 1 and 2, Tables 1-4).

- **Sampling method:** Purposive sampling method.
- **Sampling size:** A total number of 5 subjects.
- **Study duration:** The study was conducted for a period of 2 months.

### Inclusion criteria

1. **Age:** Above 60 years.
2. **Gender:** Male.
3. Loss of dynamic balance.
4. Difficult in walking.

### Exclusion criteria

1. Any neurological condition.
2. Recent fractures.
3. Below 60 years.
4. Any deformities.
5. Female.

### Assessing tools

1. Time up and go (TUG Test) - Pre and Post-test evaluated [1-3]
2. Tinetti Balance and Gait scale- PRE and Post-test evaluated [4-7]

### Structured Tai Chi exercises

1. Warm up exercise.
2. Rise and fall.
3. Single hand circle.
4. Double hand circle.
5. Alternative hand circle.
6. Roll back and push.
7. Wind mill exercise.
8. Relaxation exercise {Touch the sky or Grand Tai Chi}

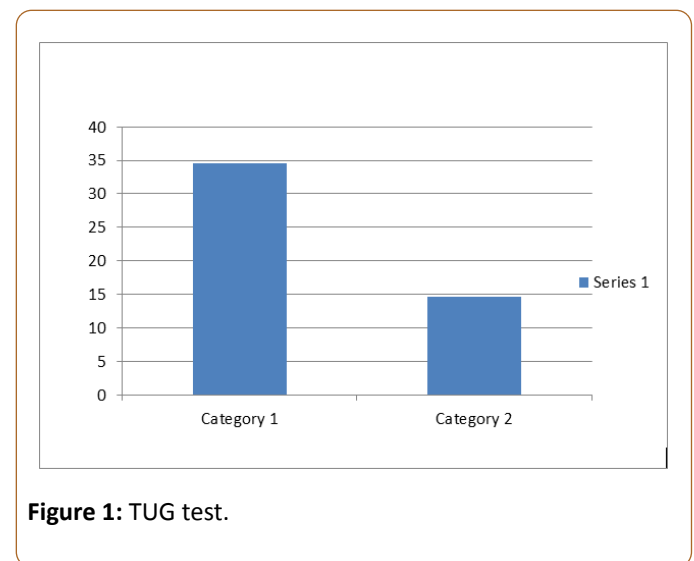
**Table 1:** Pretest and post-test values for the group by using TUG test.

S. No	Timed Get Up And Go [TUG] Test	
	Pre Test [Sec]	Post Test [Sec]
1	28	15
2	35	16
3	38	14

4	30	12
5	42	16

**Table 2:** Mean value of pre-test and post-test values by using TUG test.

Timed Get Up And Go [TUG] Test	Mean Value
Pre Test [Sec]	34.6
Post Test [Sec]	14.6



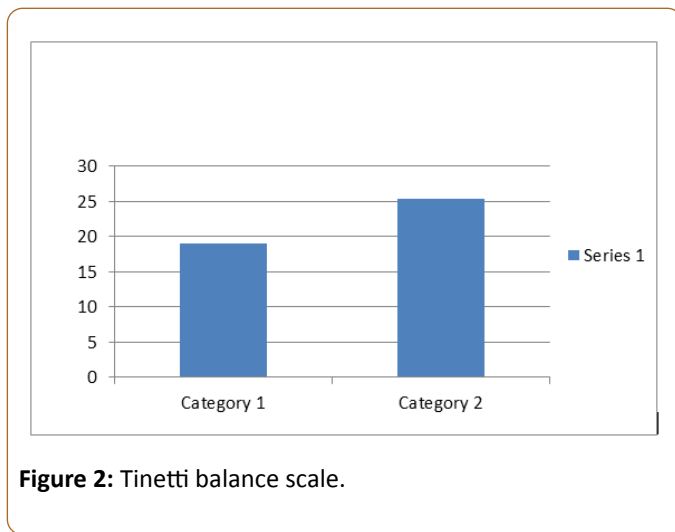
**Figure 1:** TUG test.

**Table 3:** Pretest and post-test values for the group by using Tinetti balance and gait scale.

S. No	Tinetti Balance And Gait Scale	
	Pre Test	Post Test
1	18	25
2	22	27
3	15	24
4	21	26
5	19	25

**Table 4:** Mean value of pre-test and post-test values by using Tinetti balance and gait scale.

Tinetti Balance And Gait Scale	Mean Value
Pre Test	19
Post Test	25.4



**Figure 2:** Tinetti balance scale.

## Results and Discussion

Result shows that the Tai chi exercise is effective in improving dynamic balance and gait in the older adult. It is observed that the pre and post-test show a significant difference in values before and after the treatment protocol [8-10].

The Tai chi exercise program improves balance and coordination. While practicing the level of that exercise increases weak after weak and consequently determines the dynamic balance improvement. However, our study shows evidence that tai chi exercises are more effective than other physical exercises interventions in the management of improving balance. Our result pointed out that the effects of the Tai chi method are only proven for older adults improving dynamic balance and quality of life. It suggests that Tai chi exercise program is more effective than minimal physical exercise intervention in improving dynamic balance and quality of life.

## Conclusion

The study concludes that the Tai chi exercise is effective in improving dynamic balance and gait in older adults.

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