

# Effectiveness of Dual Task Exercise to Improve Balance Walking Speed and Gait Pattern in Patient with CVA

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**Abstract:** To examine the effectiveness of dual task based exercise program on balance walking speed & gait pattern in subject with CVA, quasi experimental (non equivalent control group design) was conducted in selected hospitals. The dual task exercise significantly brought out improvement in the balance walking speed and gait pattern of patient with CVA.

**Keywords:** dual task exercise, balance walking, gait pattern, speed, CVA

## 1. Introduction

CVA is leading cause of serious long term disability in adults. CVA limits mobility over a long period of time by causing physical and functional disorders, Balance is disturbed following CVA with impairment in steadiness, symmetry and dynamic stability.<sup>1</sup> A dual task activity is two tasks that are carried out simultaneously, Cognitive and motor dual task training has proven more effective in improving dual task performance than single task training. The aim of the study is to determine the effects of cognitive dual task training & motor dual task training on balance in CVA patients.<sup>2</sup>

## 2. Literature Survey

Balance is ability to maintain center of mass within a proximal area and keep stable posture when moving the body. CVA limits mobility over a long period of time by causing physical and functional disorders. Balance is disturbed following CVA with impairment in steadiness, symmetry and dynamic stability. Following CVA patients loose functions of the motor, sensory and higher brain cognitive faculties to various degrees which lead to diminished balance.<sup>3</sup>

In 2010 approximately 17 million people had a stroke and 33 million people previously had a stroke and were still alive. Between 1990 and 2010 the number of strokes which occurred each year decreased by approximately 10% in the developed world and increased by 10% in the developing world.<sup>4</sup>

In 2013, stroke was the second most frequent cause of death after coronary artery disease, accounting for 6.4 million deaths (12% of the total). About 3.3 million deaths resulted from ischemic stroke while 3.2 million deaths resulted from hemorrhagic stroke. About half of people who have had a stroke live less than one year. Overall, two thirds of strokes occurred in those over 65 year's old.<sup>5</sup>

In the United States stroke is a leading cause of disability, and recently declined from the third leading to the fourth leading cause of death. Geographic disparities in stroke incidence have been observed, including the existence of a "stroke belt" in the southeastern United States, but causes of these disparities have not been explained.<sup>6</sup>

## Problem Definition

"A study to assess the effectiveness of dual task exercise to improve balance walking speed and gait pattern in patient with cerebro-vascular accident in selected hospital."

## 3. Methodology / Approach

### Research design

A Non equivalent control group pretest-post test design (quasi-experimental) design was chosen for the study.

In the present study a pre test was administered by means of TUG Test and MMSE depicted as P<sub>1</sub> and then Dual task exercise (DGI and Stroop test) was given depicted as X, a post test was conducted using the same TUG Test and MMSE depicted P<sub>2</sub>. The study design is depicted as –

Group	Pre Test	Dual task exercise	Post Test
Experimental group	P <sub>1</sub>	X	P <sub>2</sub>
Control group	P <sub>1</sub>	--	P <sub>2</sub>

### Research approach

This study was based on quantitative and evaluative approach.

### Setting of the study

The proposed study was undertaken at selected hospital. The investigator found the setting appropriate to conduct the study because of familiarity with the setting and convenient access.

### Population

• **Target population:** In this study the target population was patient with CVA

- **Accessible population:** The part of the target population that is available to the investigator, at the time of data collection.

#### Variable

- **Independent variable :** Dual task exercise
- **Dependent variable :** Improved balanced walking speed and gait pattern in patient with CVA

#### Sample

In this study samples were patient with CVA who were fulfilling the inclusion and exclusion criteria.

#### Sample size

The sample size consisted of sixty patient with CVA in selected hospital, who fulfilled the criteria laid down for the selection of the sample.

#### Sampling technique

The sampling technique used in this study was Non-probability purposive sampling method.

## 4. Results / Discussion

The finding of the study was discussed with reference to the objectives and with the findings of the other studies in this section. The present study was undertaken to assess the effectiveness of dual task exercise to improve balance walking speed and gait pattern in patient with cerebrovascular accident in selected hospital.

The P-value in control group and experimental group is less than the level of significance that is 0.05. This indicates that the gain in post test knowledge is significant. It proves the significance of dual task exercise to improve balance walking speed and gait pattern among the patient with CVA statistically

## 5. Conclusion

The dual task exercise significantly brought out improvement in the balance walking speed and gait pattern of patient with CVA. Analysis of data showed that there was significant difference between pre tests and post test knowledge score and there is no significant association between demographic variable.

## 6. Future Scope

The future scope of this study has implications for nursing services, nursing education, nursing administration, nursing research.

#### Nursing Services

Nurses working in the neurology centre or neurology intensive care unit can benefit from such researches, as it will provide more insight regarding the dual task exercise to improve balance walking speed and gait pattern of patient with CVA.

#### Nursing Education

The nursing education curriculum must include imparting knowledge about the use of various audio visual aids and teaching strategies such as preparation of such dual task exercise. The nursing teachers can use the result of the study as an informative illustration for the students.

#### Nursing Administration

The Nurse administrator can utilize this type of dual task exercise to enhance the knowledge of students and staff nurses. Nursing administration can depute nurses for various workshops, conferences, and special courses; and also in-service education programs can be arranged for the nursing staff.

#### Nursing research

Another research has been added to the Nursing literature. Very few studies have been done on a similar basis. The research design, findings and the tool can be used as avenues for further research.

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## Author Profile



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