

A Study on the Effectiveness of Brandt-Daroff Exercise on Benign Paroxysmal Positional Vertigo Patients

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Tel: +917092804022**Citation:** Srinivasan G (2020) A Study on the Effectiveness of Brandt-Daroff Exercise on Benign Paroxysmal Positional Vertigo Patients. J Physiother Res Vol.4 No.6:6

Abstract

Introduction: Benign Paroxysmal Positional Vertigo (BPPV) is the most common of all the causes of vertigo. Patients with benign paroxysmal positional vertigo (BPPV) often experience instability. Decreased postural control contributes to functional limitation in people with vestibular disorders.

Aim: The aim of study is to find out the effectiveness of the Brandt-Daroff exercise on vertigo (Benign paroxysmal positional vertigo) patients.

Objectives:

1. To evaluate the effectiveness of Brandt-Daroff exercise in improving the functional activities by using ABC scale
2. To evaluate the effectiveness of Brandt-Daroff exercise in improving the balance by using Berg Balance scale

Methodology: pre and Post experimental study was conducted to find the effectiveness of Brandt-Daroff exercises in improving balance and functional ability in BPPV patients, 10 subjects with age 45-60 of both sexes were selected. Data collection: By using berg balance scale and ABC scale.

Results: Mean score of ABC scale with pre score of 33.24 and post score 88.6 and shows a significant difference of 55.36 and berg balance scale pre score 29.1 and post score 49.1 with a significant difference of score 20.

Conclusion: The study concludes that Brand-Daroff exercise is effective in patients with benign paroxysmal positional vertigo.

Keywords: BPPV; Vertigo; ABC scale; Berg balance scale

Received: August 30, 2020; **Accepted:** October 21, 2020; **Published:** October 28, 2020

Introduction

Vertigo is a whirling, spinning sensation that may be linked to a range of condition. Benign Paroxysmal Positional Vertigo (BPPV) is the most common of all the causes of vertigo (a false sense of rotational movement). Benign paroxysmal positional vertigo causes brief episodes of mild to intense dizziness. It is usually triggered by specific changes in the position of the head. This might occur when the head is tip up or down, when lying down or when turning over or sit up in the bed.

Patients with benign paroxysmal positional vertigo (BPPV) often experience instability. Decreased postural control contributes to functional limitation in people with vestibular disorders. Impaired

balance is also related to the increase in falls, fractures and other fall-related injuries. It is therefore clear that the balance impairment and functional limitation in patients with BPPV needs to be considered and manage [1].

Although BPPV can occur following head trauma or surgery, stapes surgery, it is most often idiopathic in nature. BPPV typically involves a single semicircular canal, usually posterior, but may involve both posterior and lateral canals in the same ear. The attacks last fewer than 30 seconds but may last minutes. In most cases the condition revolves spontaneously within a few weeks or months after onset, in some cases, however symptoms may become protracted. The path physiology of BPPV is the mechanism of Canalolithiasis, a condition that involves the presence of free-

floating particulate matter within the posterior semicircular canal of the vestibular labyrinth, causing vertigo.

The approach used in the treatment of patients with BPPV is dislodging and breaking up the particle (crystals). The primary aim of dislodging and breaking the particle, such as Brandt-Daroff exercise is to treat the underlying pathology causing symptoms (dizziness and lightheadedness) [2-5].

Brandt-Daroff exercises involves a series of movements in which a patient undergoes a set of five repetitions of movements each lasting for 30 seconds for about ten minutes.

Aim and Objectives

The aim of study is to find out the effectiveness of the Brandt-Daroff exercise on vertigo (Benign paroxysmal positional vertigo) patients.

1. To evaluate the effectiveness of Brandt-Daroff exercise in improving the functional activities by using ABC scale
2. To evaluate the effectiveness of Brandt-Daroff exercise in improving the balance by using Berg Balance scale

Materials and Methods

Materials

- Couch.
- Pillow.
- Foot stool.
- Activities-specific balance confidence (ABC) scale.
- Berg balance scale.
- A ruler.
- 2 standard chairs (one with arm rests, one without).
- Scoring material.
- Stopwatch.

Methods

Study design: Pre and post experimental study design.

Study setting: The study is conducted in outpatient department of Thanthai Roever College of Physiotherapy, Perambalur under the supervision of concerned authority.

Sampling method: Purposive sampling method.

Sample size: A total number of 10 patients.

Study duration: The study was conducted for a period of 3 months.

Inclusion criteria:

Sex: Both sexes.

Age: Between 45-60 years.

People with vertigo-Benign paroxysmal positional vertigo (BPPV).

Exclusion criteria:

- Below 45 years.

- Other vestibular conditions.

Parameters

The Activities-specific Balance Confidence (ABC) Scale* For each of the following activities, please indicate your level of confidence in doing the activity without losing your balance or becoming unsteady from choosing one of the percentage points on the scale from 0% to 100% If you do not currently do the activity in question, try and imagine how confident you would be if you had to do the activity. If you normally use a walking aid to do the activity or hold onto someone, rate your confidence as if you were using these supports [6-8] (Table 1).

Berg Balance Scale

Name: _____

Date: _____

Location: _____

Rater: _____

Item Description Score (0-4), Total Score (Maximum = 56)

Technique

Brandt-Daroff Exercise

The Brandt-Daroff exercises are series movements that can dislodge and break up the crystals (in the ear), relieving symptoms of dizziness and lightheadedness [9,10].

Position of the patient: Initial upright sitting position.

Position of the therapist: Standing beside the patient.

Procedure:

- 1) Start in an upright seated position.
- 2) Move into lying position on one side with the nose pointed up at about 45 degree, angle for about 30 seconds.
- 3) Sit up for 30 seconds.
- 4) Repetition of the same steps on the other side.
- 5) A total number of five repetitions on each side.

Treatment time: 10 minutes with its five repetitions.

Total duration: 3 times a day for 2 weeks.

Data analysis and interpretation:

The table represents the mean values, mean difference between pre-test v/s post-test values of ABC Scale (Table 2).

The table represents the mean values, mean difference between pre-test v/s post-test values of ABC Scale (Table 3 and Figure 1).

The table represents the mean values, mean difference between pre-test v/s Post-test values of Berg Balance Scale (Tables 4 and 5) (Figure 2).

Table 1: Activities-specific Balance Confidence (ABC) Scale Range.

0%	10	20	30	40	50	60	70	80	90	100%
No Confidence						Completely Confident				

Table 2: Showing mean values and standard deviation for age, weight, height and BMI.

Case No	Pre test	Post test
1	36.25	91.87
2	35.62	87.91
3	40	95
4	45.62	96.87
5	25.62	85
6	15.62	71.25
7	24.37	83.25
8	38.75	94.37
9	46.87	98.12
10	23.75	82.37

Table 3: Measuring with ABC Scale for pre-test and post-test.

ABC Scale	Mean	Mean difference
Pre Test	33.24	55.36
Post Test	88.6	

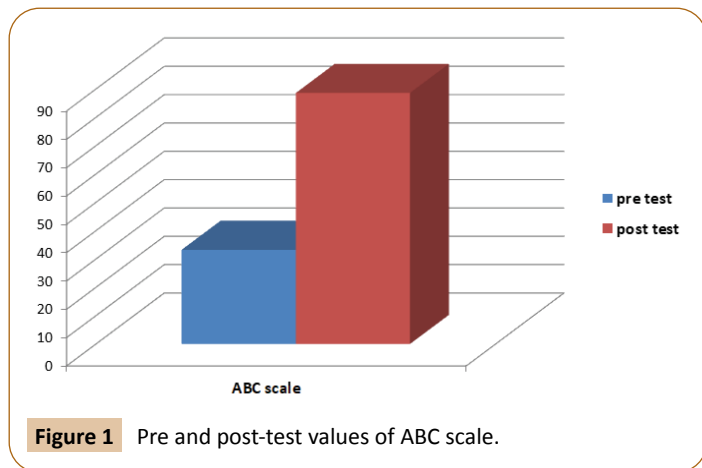


Table 4: Represents pre and post-test values by using berg balance scale.

Case No	Pre test	Post test
1	26	43
2	25	42
3	30	50
4	29	48
5	28	47
6	31	53
7	27	45
8	32	55
9	30	52
10	33	56

Discussion and Conclusion

The aim of the study is to find out the effectiveness of Brandt-Daroff exercise on patients with benign paroxysmal positional vertigo. 10 subjects are randomly selected for the study after due consideration of inclusion and exclusion criteria. ABC Scale for functional activity and Berg Balance Scale for balance are taken as parameters for measurement. Brandt-Daroff exercise is effective in treatment of patients with benign paroxysmal positional vertigo.

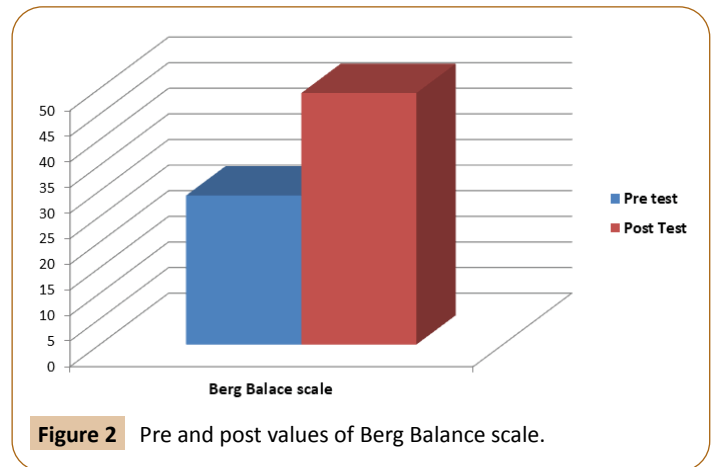


Table 5: Measuring with Berg balance scale for pre-test and post-test.

Berg Balance scale	Mean	Mean difference
Pre Test	29.1	20
Post Test	49.1	

The study concludes that Brand-Daroff exercise is effective in patients with benign paroxysmal positional vertigo.

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