



# EFFECT OF FLEXIBILITY EXERCISE IMPROVING POSTURAL STABILITY & GAIT AMONG IDIOPATHIC PARKINSON PATIENTS

Mukim Ahamed, Dr. Kayinat Hassan, (Prof.) Dr. Jasmine Anandabai

1. PG Student
2. Professor
3. Dean & Principle

JYOTIRAO PHULE SUBHARTI COLLEGE OF PHYSIOTHERAPY MEERUT

## ABSTRACT

### OBJECTIVES

The objectives of this study were to find the Effect of flexibility Training in improving Postural Stability and Gait among patients with idiopathic Parkinson diseases.

**STUDY DESIGN:** Pre-test , Post- test experimental study design.

**PARTICIPANTS :** Thirty subjects of age between 55 -75 year with Idiopathic Parkinson disease were include in this study.

**INTERVENTION:** Subject Pre-test assessment have been taken in the first day of treatment and all the participants treated with flexibility training for one hour per session, 3 sessions per week for the study duration of about 6 weeks. The post-test assessment was taken at the end of 6 week.

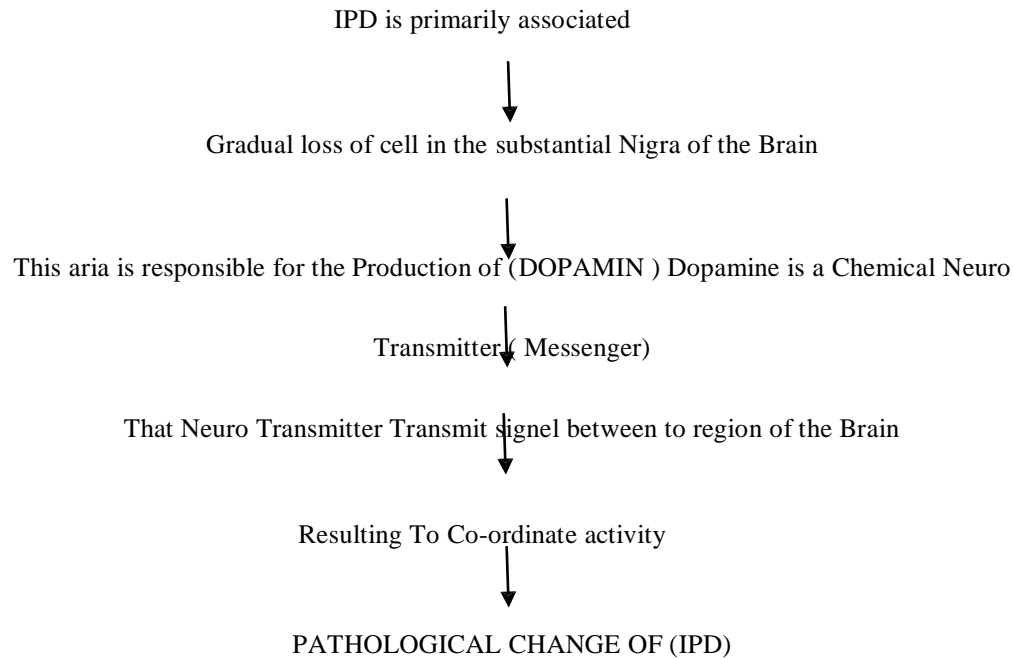
**OUTCOME MEASURE :** Postural instability was assessed with Nutt Unexpected Retropulsive Test. Gait was assessed with 10 Meter Walk Test

**RESULTS:** After 6 weeks of treatment patient showed significant improvement in postural stability and Gait.

## INTRODUCTION

Idiopathic Parkinson disease (IPD) its a Degenerative disorder of the (CNS) mainly affected the motor system most common seen in over the age.

## PATHOPHYSIOLOGY OF (IPD)



Mainly pathological change include

- Neuro inflammation
- Degeneration of Dopaminergic Neuron
- Accumulated of misfolded single Protein

The motor signs of (IPD) as a result of reduction in level of dopamine in Basal ganglia .

There is Degeneration of Dopamine neuron in mid brain resulting in development Parkinson disease.

The main Electrophysiological changes seen in (IPD) are the

- altered discharge rate.
- Increase Burst firing rate .
- Altered sensory/motor processing in basal ganglia
- Thalamus & cortex -Resulting in Alteration in planning & Execution of Movement.

POSTURAL INSTABILITY:- People with (IPD) Demonstrated a loss of trunk flexibility & Trunk righting capability & can have difficulty in maintaining the position of the Center of Mass over the Base of support.

### BALANCE & GAIT DISTURBANCE

(IPD) is Neuro degenerative disease characterized by tremor , rigidity , Brady/Kinesis & Postural instability.

The Classical symptom of the Parkinson is

- Impaired balance
- Impaired Gait
- Postural instability

The Typical Gait pattern

- Will be slow Gait
- Shortened Stride
- Lack of Heel Strick Toe Off
- Loss of arm & Trunk movement During Gait
- Time Spent on the double limb

Support of the Stance phase of Gait Cycle

## DATA PRESENTATION AND ANALYSIS

### 5.1 TABULAR PRESENTATION

Table: 5.1: Paired 't' test value for Nutt Unexpected Retropulsive test

<b>postural Stability</b>		Pre - Test	Post -Test
	Mean + SD	1.875	0.75
	Mean difference	1.125	
	Calculated 't' Value	3.814	
	P value and level of significance	P<0.05 and significant	

The table 't' value at the level of 5% significance and for 7 degrees of freedom is 1.895 and the calculated 't' value is 3.184. As the calculated value is greater than the table 't' value , the null hypothesis is rejected.

Table: 5.2: Paired 't' test value for 10 Meter Walk Test -

	Pre - Test	Post -Test
Mean + SD	21.31	23.75
Mean difference	2.44	
Calculated 't' Value	5.143	
P value and level of significance	P<0.05 and significant	

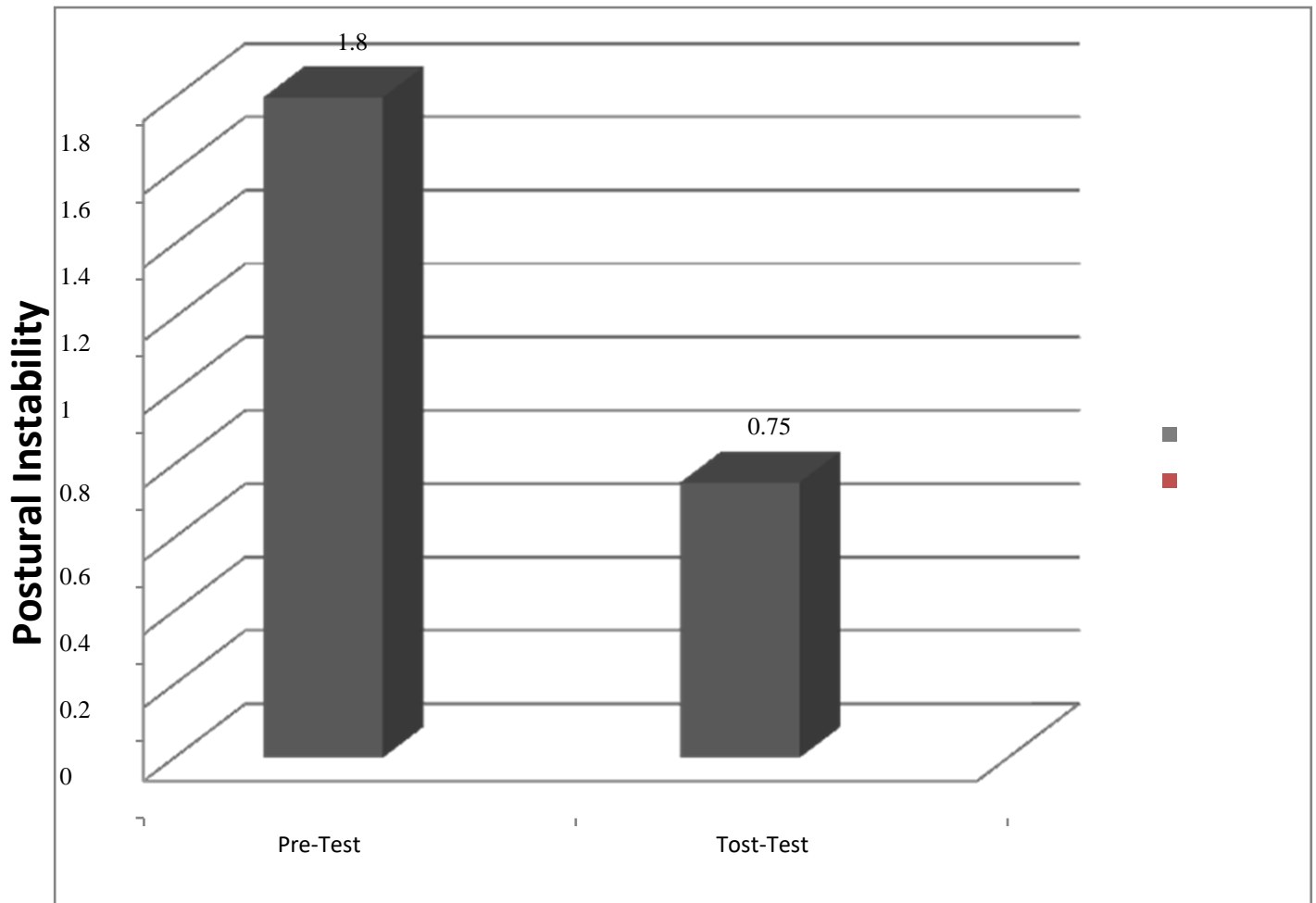
**GAIT**

The table 't' value at the level of 5% significance and for 7 degrees of freedom is 1.895 and the calculated 't' value is 5.134. As the calculated value is greater than the table 't' value , the null hypothesis is rejected.

### GRAPHICAL REPRESENTATION

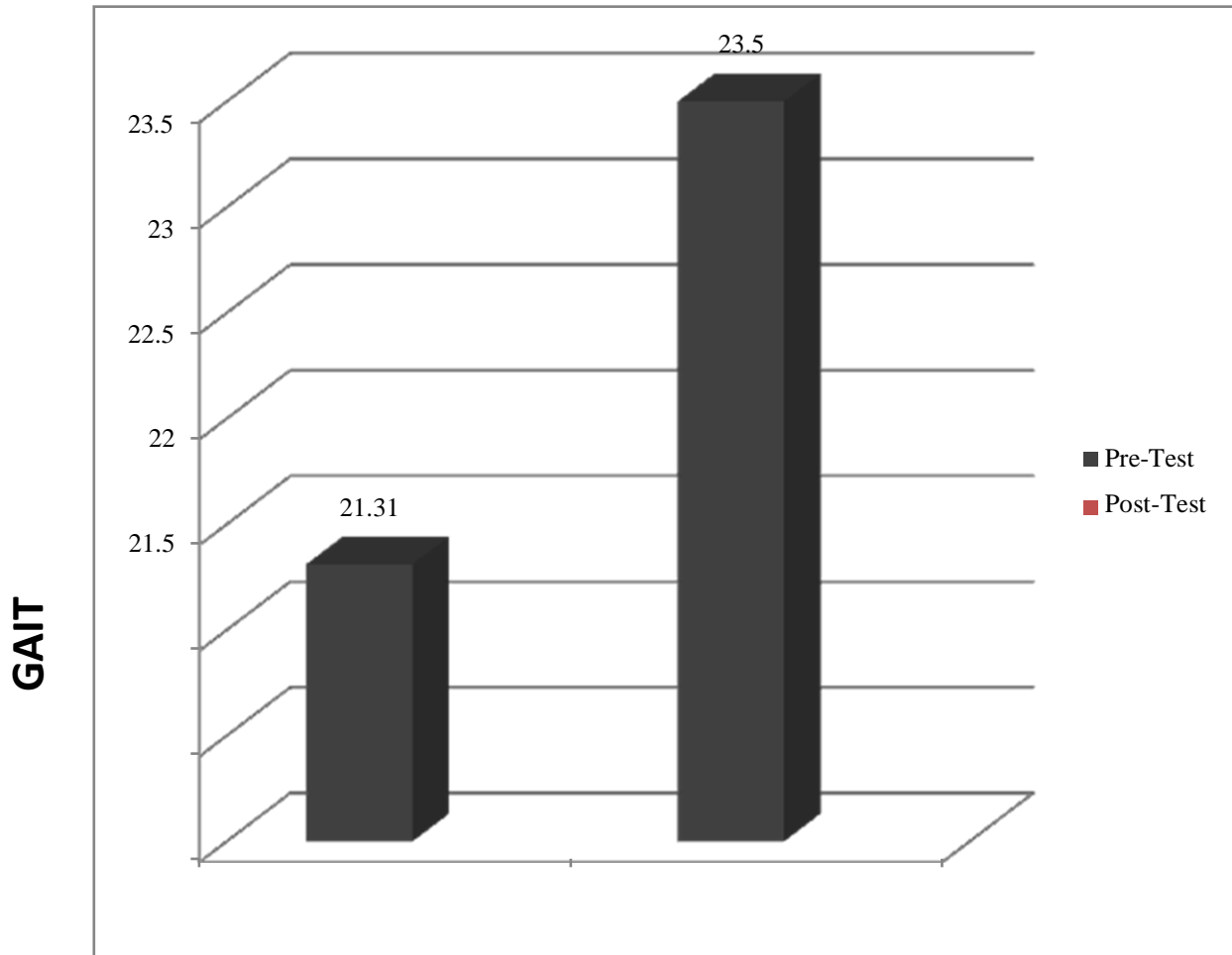
Graph:-5.2.2: Comparison of pre-test and post - test mean value of Nutt

Unexpected Retropulsive Test.



Graph:-5.2.3: Comparison of pre-test and post - test mean value of 10

Meter Walk Test.



**Result:** The result of the study shows that the newly developed exercise protocol for the idiopathic Parkinson patient is safe flexible exercise program for the rehabilitation flexibility training play and important role in improving postural stability and mobility, and Gait idiopathic Parkinson patient this may be used as adjunct treatment to physiotherapy to improve the physical performance and to enhance the Gait stability and improving the quality of life in idiopathic patients.

**Discussion:** Postural problem and Gait disturbance is a common in idiopathic Parkinson patients (IPD) which are characterized by an impairment to maintain the upright position and therefore affect the gross motor and general mobility.

The present study 30 patients are included patient received flexibility exercise for a duration of 6 weeks outcome measure for Null unexpected retropulsive test for assessing postural instability and 10 meter walk test for assessing Parkinson gait.

In this study we investigated the effect of flexibility exercise protocol with proper dosage duration and intensity of the exercise.

The effect of flexibility training on fall prevention in IPD patient can be done in further studies.

## **REFERENCES**

1. Adriana Galvan, et al., pathophysiology of Parkinson;s disease Neurophysiology 119(2008) 1459 -1474.
2. Allan Ladkin, Phd et al., fear of falling and postural control in Parkinson disease . Movement disorders society, vol 18, no.5,2003.
3. Anne Shumway-cook, et al, Effect of multidirectional exercise on balance, mobility fall risk in community-older adults. Phys TherapyJournal 2008.
4. Addisons's & papa.E.et.al., Effect of balance training on balance in person with Parkinson disease.
5. Addison,O,Earhart. et al., 2008, The effects of exercise on balance in person with Parkinson disease.
6. Bloem BR, Beckley D.J., et al., Influence of dopaminergic medication on automatic postural response and balance impairment in Parkinson's disease Mov. Disord 1996.
7. Bronte-Stewart HM , Minn AY. et al.,Postural instability in Idiopathic Parkinson's disease: the role of medication and unilateral pallidotomy. Brain 2002;87;209-23.
8. Bloem BR, postural instability and falls in Parkinson's disease, AdvNeuro 2001; 87;2009-23.
9. Bloem BR, Bhatia KP.et al., Basal ganglia disorder; Clinical disorders of balance, posture and gait.London:Arnold;2004.p.173-206.
10. Benvenuti F.et.al., physiology of human balance. Adv Neuro 2001.
11. Bloem BR, Van Dijk JG, Beckley DJ, Roos RAC.et.al, Altered postural reflex in parkinson disease; a reverse hypothesis, Med hypothesis39:243-247.