ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 04 | April - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ROLE OF DIFFERENT TERRAIN BALANCE TRAINING AND BOSU BALL TRAINING TO IMPROVE BALANCE IN PARKINSON'S PATIENTS: A NARRATIVE REVIEW STUDY.

Neurophysiotherapy

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ABSTRACT

Background: Parkinson's disease (PD) is a long-term neurodegenerative disease of the central nervous system. It largely affects the motor system. The highlighted symptoms are bradykinesia, resting tremors, or rigidity. It occurs after the age of 50 years targeting 1 to 2 people per 1000 at any time. The prevalence rate escalates with age and targets 1% of the population above 60 years. The time-tested etiology says that PD is caused by a loss of nerve cells in the brain causing dopamine levels to drop, and exceed the symptoms. Owing to aging, muscular weakness and postural instability with progressing disease, gait and balance problems are experienced in the patients. The outcome measures used to assess the balance are Berg Balance Scale, Functional Reach Test, and Timed Up and Go Test. Recent past years have seen advances in both the definition of Parkinson's Disease (PD) and the assessment of outcomes after different interventions. **Objective:** To discover the effectiveness of different terrain gait training and bosu ball training to improve balance in Parkinson's patients. **Method:** A extensive search on PubMed, Google Scholar, Pedro, and Cochrane library using keywords such as epidemiology of Parkinson's disease, balance training, bosu ball training, different terrain gait training, gait training in Parkinson's patients, and rebound exercises for balance, all were included. **Results:** A total of 297 articles came out in search results out of which few were selected which met the following inclusion criteria: published in English, published from 2010- 2022, study population Parkinson's patients, age 65 to 80 years, male and female, Meta-analysis, Systematic reviews, and randomized control studies. **Conclusion:** The study concluded that different terrain gait training is effective in enhancing balance in Parkinson's patients and easily administrable outcome measures can be used in all clinical settings for Parkinson's patients.

KEYWORDS

Parkinson's Disease, Different Terrain, Gait Training, Bosu Ball Training, Balance, Gait, Muscular Weakness, Postural Instability, Outcome Measures.

INTRODUCTION :

Parkinson's Disease is a complicated innovative neurodegenerative disorder characterized by the aid of using tremor, rigidity, and bradykinesia, with postural instability acting in a few sufferers as the disorder progress. It became first defined with the aid of using James Parkinson in 1817 and in addition characterized with the aid of using Jean-Martin Charcot. Parkinson's disorder is the second maximum not unusual place neurodegenerative disorder after Alzheimer's disorder, with an incidence of about 0.5%-1% amongst the ones 65-69years of age, growing to 1-3% amongst men and women 80 years of age and older. Both the superiority and prevalence of Parkinson's disorder are anticipated to grow with the aid of using greater than 30% with the aid of using 2030. (8)

Parkinson's disorder refers to a motion sickness that influences numerous areas of the brain. The prognosis is scientific and occasionally difficult, thinking about many motor and non-motor signs and symptoms. The Parkinsonism signs and symptoms encompass paucity and slowness of motion (akinesia, bradykinesia, muscle stiffness (rigidity), tremors at rest, and later postural instability). (2)

The onset of the disorder is commonly at an age of 65 years to 70 years. (20)

Balance is vital for preserving postural equilibrium and consequently for the avoidance of falls. According to Shumway-prepare dinner and Woollacott stability may be subdivided into static/dynamic, constant-state (anticipation of an anticipated disturbance), and reactive (i.e., reimbursement of a disturbance) stability. (3)

Falls are a significant cause of disability, loss of independence, and reduced quality of life in people with Parkinson's disease (PD). Prospective studies show that between 45% and 68% of people with Parkinson's Disease will fall each year, with a large proportion (50–86%) falling recurrently. In addition, their risk of falls and fractures rises steadily from 40 years of age, much earlier than in healthy individuals. (13)

Gait education on volatile(unstable) surfaces in preference to the firm ground calls for giant various actions withinside the ankle joint in addition to big muscle strength. Using such area traits can set off extra ankle mobility and the development of proprioception. The escalated proprioception is powerful for boosting walking ability because it will increase muscle strength and balancing ability. (7)

Sand education is a low-effect shape of resistance education. Training on sand turns on and strengthens underworked areas, consisting of the ankles and foot muscles, which can be used to grip the choppy surface. It is fine for enhancing balance and stability. (6)

Highly hard physical games were cautioned to set off neuroplasticity in people with Parkinson's disorder. (16)

Balance education typically refers to workouts that assign one's manipulation of the body's center of mass throughout destabilizing actions or lower the dimensions of one's base of support. (11)

Rebound physical games the use of a trampoline and bosu ball offer proprioceptive and vestibular stimulation and enhance postural manipulation and stability. Rebound's physical games performed with a designed bodily remedy application are useful and feature an extensive impact in improving stability. (10)

METHODS:

- Source- A extensive search on PubMed, Google Scholar, Pedro, and Cochrane library using keywords such as epidemiology of Parkinson's disease, balance training, bosu ball training, different terrain gait training, gait training in Parkinson's patients, rebound exercises for balance, all were included.
- Study selection- Meta-analysis, Systematic reviews, and randomized control studies are eligible for inclusion if they meet up the predefined inclusion criteria. Published in English, published from 2010- to 2022, studied a population of Parkinson's patients, aged 60 to 80 years, male and female.
- Data Extraction: Studies objectives, methods, subjects, participant characteristics, interventions, outcome measures, and results are reviewed by the reviewer personally, and the final data summary is made by consensus.

	Title, Authors, years	Methodology	Outcome Measure
1.	Epidemiology of Parkinson's Disease, Tysnes OB, Storstein A. 2017	Autopsy study	-
2.	Fall prevention exercise program, Yves J Gschwind, Reto Wkressing, et.al. 2013	Older adults of 65 to 80 years without neurophysiologic disease were included in the RCT	Instrumented Gait Analysis, Sharpened Romberg Test, Functional Reach Test, Timed Up, and Go Test.

3.	The Effect of Balance and Sand Training on Postural Control in Elite Beach Volleyball Players, Sebastia-Amat S, Ardigò LP, set al. 2020	studied three elite international beach volleyball teams, six players (age 23.6 ± 3.3 years, height 188.2± 7.9 cm, body mass 77.7 ± 13.1 kg, BMI 22.3 ± 2.6 kg/m2, body fat 8.9 ±2.5% (measured with a Tanita BC-545N body composition analyzer), professional experience 4.9 ± 1.8 years, a predominance of arm and leg, right and left, 6/0).	Baropodometric platform
4.	Effectiveness of Three Different Surfaces for Balance Training on Ambulant Stroke Patients, Dr. Astha Jain, Dr. Chaitali Shah, et al.(2017)	1 Study Design An experimental study, Sample Size The required minimum sample size for the present study is 75 (25 per group). The sample size is obtained using n-Master software.	Berg Balance Scale, Timed Up And Go Test, and Functional Reach Test.
5.	Effects of a balance training program using a foam rubber pad in community-based older adults: a randomized controlled trial, Hirase T, Inokuchi S, et al. (2015)	Older Japanese adults accommodating community day centers once or twice per week were enrolled in this trial. In all, 93 participants were selected for 1 of 3 groups: foam rubber exercise group (n = 32), stable surface exercise group (n = 31), and control group (n = 30)	The one-leg standing test (OLST), the chair standing test, the timed up-and-go test (TUG), and the tandem-stance test (TST).
6.	Effect of rebound exercises on balance in children with spastic diplegia, Abd-Elmonem AM, Elhady HAS,2015	Forty children with spastic diplegia of both sexes, ages ranging from 6 to 10 years participated in this study. All of them were randomly chosen into two groups of equal numbers, one was the control group and the other was the study group. The control group received a designed physical therapy program for 1 hour and balance training for 1 hour. The study group received the same physical therapy program as the control group in addition to rebound exercises for one hour.	Biodex balance system
7.	Effects of gait training on the sand on improving the walking ability of patients with chronic stroke: a randomized controlled trial, Kim T-H, Hwang B-H,2017	A total of 30 subjects participated in this study, during the intervention period two of them were discharged from the hospital, making the total number of research subjects for the experiment 28. The patients who were capable of independent walking, including those using a walking aid and who had no musculoskeletal disease or cognitive problem, were allocated as the research subjects.	Timed Up and Go Test, 6 MWT

RESULTS:

	Above mentioned titles, Authors, years	Results
1.	Epidemiology of Parkinson's Disease, Tysnes OB, Storstein A. 2017	PD represents a frequent cause of morbidity that affects 1–2 per 1000 of the population at any time, clearly most often in the older age groups. Men population are slightly more frequently affected than women.
2.	Fall prevention exercise program, Yves J Gschwind, Reto Wkressing, et.al. 2013	This trial will provide insight into the effect of fall prevention exercises is pertinent for a wide population and setting, both in community and sporting groups and at home. exercise therapists and instructors will be provided with a feasible, authenticated exercise routine whose effect on intrinsic fall risk factors is scientifically rated.
3.	The Effect of Balance and Sand Training on Postural Control in Elite Beach Volleyball Players, Sebastia-Amat S, Ardigò LP, set al. 2020	The results when baseline level and post-balance training were compared in open eyes condition showed an improvement in the main indicators of postural control after the balance training intervention: 29.4% path length (p = 0.240) and 28.7% speed (p = 0.241) decreases. The results of the present study display that a balanced schooling program for beach volleyball players is effective for acquiring proper static balance control. It was also revealed that the same players undergoing their habitual and ecological beach volleyball sand schooling experienced worsening of their static balance control. It can be hypothesized that beach volleyball sand schooling might be selectively effective in acquiring a capability different from static balance control, namely a dynamic and open eyes postural control during beach volleyball practice.
4.	Effectiveness of Three Different Surfaces for Balance Training on Ambulant Stroke Patients, Dr. Astha Jain, Dr. Chaitali Shah, et al.(2017)	In the patients exercising on SAND (group A) the p-value of paired t-test for all three outcomes BBS, TUG, and FRT were obtained < 0.001 which is highly significant and suggests that there is a noticeable improvement in balance in this group.
5.	Effects of a balance training program using a foam rubber pad in community-based older adults: a randomized controlled trial, Hirase T, Inokuchi S, et al. (2015)	There were group × time interactions ($P < 0.001$) for all performance tests. The foam rubber exercise group exhibited remarkable improvements in the OLST, TST, and TUGT at 1 to 4 months compared with the control group ($P < 0.02$). The foam rubber exercise group also displayed remarkable improvements in the OLST and TST at 2 and 3 months compared with the stable surface exercise group ($P < 0.02$). Within the foam rubber exercise group, the OLST, TUGT, and TST, at 1 to 4 months, were remarkably improved compared with before the intervention ($P < 0.01$). Within the stable surface exercise group, the TUGT and TST, at 3 and 4 months, were notably upgraded compared with before the intervention ($P < 0.01$).
6.	Effect of rebound exercises on balance in children with spastic diplegia, Abd-Elmonem AM, Elhady HAS,2015	Baseline and post-treatment comparisons showed a statistically significant improvement in balance in the two groups. There was no notable difference between post-treatment and post-1-month follow-up in the control group, while a noteworthy difference was recorded in the study group.
7.	Effects of gait training on the sand on improving the walking ability of patients with chronic stroke: a randomized controlled trial, Kim T-H, Hwang B-H,2017	To evaluate walking ability, TUG was calculated three times, and the average of the three values was taken. TUG is an assessment tool that assesses dynamic balancing ability. It has proven reliability, with intra-rater reliability of r=0.99 and inter-rater reliability of r=0.98. In TUG, both groups showed a significant difference after the intervention. In 6MWT, only the sandy ground schooling group showed a significant difference after the intervention. However, neither variable showed a statistically significant between-group difference before or after the intervention.

DISCUSSION :

1. Tiago cetolin, Anderson Santiago Teixeira et al. (July 2021). High-intensity intermittent exercise performed on the sand induces higher internal load demands in soccer players.

This study aimed to look at the acute physiological result of shuttle-run-based high-intensity intermittent exercise (HIIE) performed at identical relative speed (i.e., 100 percent PST−CAR) on sand (SAND) and grass (GRASS) in male junior football game players. Seven Under-23 Brazilian national leagues ("Series A") football game players completed four testing sessions in either SAND or GRASS surface condition. the primary 2 take-look sessions consisted of activity a greatest progressive shuttle-run field protocol till voluntary exhaustion (Carminatti's test, T-CAR), whereas the third and fourth sessions comprised an HIIE session on every ground surface. The HIIE session consisted of 3 to 5-min bouts [12 s shuttle-run (with a direction modification each half dozen s)/12 s of passive rest] performed at 100 percent of T-CAR peak speed (PST−CAR) with three min of passive recovery between sets. Measurements of oxygen uptake (VO2), vital signs (HR), blood lactate concentration ([La]), and rating of perceived labor (RPE) were performed throughout all conditions. The SAND condition induced considerably higher %VO2peak (94.58 ± 2.73 vs. 87.45 ± 3.31%, $p < 0.001$, $d = 2.35$), hour peak (93.89 ± 2.63 vs. 90.31 ± 2.87%, $p < 0.001$, $d = 1.30$), RPE (8.00 ± 0.91 vs. 4.95 ± 1.23 au, $p < 0.001$, $d = 2.82$), and [La] (10.76 ± 2.37 vs. 5.48 ± 1.13 mmol/L, $p < 0.010$, $d = 2.84$). This study showed that higher internal workloads are knowledgeable about by the players throughout one HIIE session performed on a softer surface as SAND, even once the exercise intensity was personally supported.

2. Katharine E Forth, Charles S Layne et al. (Sept. 2021). Self-Monitoring of Balance Performance can reduce the Rate of Falls among Older Adults.

When participants were able to self-monitor their bodily property stability and fall risk when normalizing for participation length. Further, 42.9% of people with high fall risk at baseline shifted to a lower risk class at a median of thirty-four days and voluntarily measured themselves for an extended amount of their time. Conclusion: Providing Methods: cardinal older adults had open access to a balance activity platform that allowed them to self-monitor their bodily property stability and fall risk by employing a straightforward 1-min standing balance test. 12-month retrospective fall history was collected and a monthly/bimonthly fall log captured prospective falls. Participants had access to self-monitoring for up to a pair of 2.2 years. Fall history and fall incidence rate ratios and their confidence intervals were compared between the periods of your time with and while not access to self-monitoring. Results: A fifty-four reduction within the variety of individuals United Nations agency fell and a seventy-four reduction within the variety of falls was ascertained older adults with the flexibility to self-monitor their bodily property stability and apprehend their risk of falling seem to own changed their health behaviors to with success cut back fall rates.

3. Sebastia-Amat S, Ardigò LP, set al. (2020)The Effect of Balance and Sand Training on Postural Control in Elite Beach Volleyball Players.

Conclusion: The outcomes of the prevailing display that a stability training program for seashore volleyball gamers is powerful for obtaining the right static balance. It became additionally proven that the identical gamers present process their routine and ecological seashore volleyball sand schooling skilled worsening in their static balance curb. It may be hypothesized that seashore volleyball sand schooling is probably selectively powerful in obtaining a functionality distinctive from static balance control, specifically a dynamic and open eyes postural manipulation at some stage in seashore volleyball practice. Such functionality is probably received on the charge of a worsening of static balance curbing scores. Further research ought to inspect the relationships between sand schooling and seashore volleyball performance. To date, it may simplest be hypothesized that seashore volleyball gamers aiming at conditioning unique postural manipulation skills consisting of dynamic and open eyes postural stability ought to desire sand schooling over healthy gym schooling.

4. Andres Soto varela, marcos rossi izquierdo, (June 2020). Modified Timed Up and Go Test for Tendency to fall and Balance Assessment in Elderly Patients with Gait Instability

Materials and Methods: Cross-sectional study was conducted in a tertiary university hospital, on 174 individuals aged sixty-five years or older with gait instability. changed TUG take a look at what was performed; time, step count, and also the want for support throughout the take a look at were the analyzed variables. They were compared with the number of falls, computerized Dynamic Posturography scores, and questionnaires scores (Dizziness Handicap Inventory and a shortened version of the Falls effectiveness Scale-International). Results: the typical time to finish the TUG take a look at was twenty-one. 24 ± 8.18 s, and also the average step count was twenty-seven. 36 ± 7.93. 100 2 patients (58.6%) needed no support to finish the take-a-look, whereas the opposite seventy-two (41.4%) used to support. The time taken to finish the task was considerably connected with having or not having fallen within the previous year, with the millions of questionnaires, and with numerous parameters of dynamic posturography. a better proportion of patients the UN agency took over fifteens had fallen within the previous year than people who took up to fifteens to finish the task at [P = zero.012; OR = two.378; ninety-fifth CI (1.183, 4.780)]. No vital correlation was found between the step count and also the range of falls within the previous year, with falling throughout the take a look at or not, or with being one or a frequent faller. No relation was found between the necessity for support and also the range of falls, with having or not having fallen within the previous year, or with being one or a frequent faller. Conclusion: The change TUG task analyzed is the presence or absence of falls. Time is the essential parameter for analyzing the chance of falling and also the 15-s threshold may be a smart worth to differentiate older patients at high risk of falling.

5. K. Patel, Vandana G. et al. (April-June 2020). Effect of 4 Weeks Balance Training Program in Healthy Young Adults.

A Randomized control clinical Study to see the efficaciousness and to match the effectiveness of 2 completely different Balance coaching Devices in rising balance among healthy young people exploiting SEBT. the themes were indiscriminately divided into 2 teams for BOSU Ball and Balance Board coaching, the intervention was given for four weeks. The pre and post-test measurements were taken exploitation SEBT to examine the effectiveness of the coaching devices. Results: Each team showed applied math vital improvement ($p = zero.001$) pre- and post-coaching among the teams however there was no applied vital statistical distinction between the teams ($p > zero.05$). Conclusion: four weeks Of Continuous Balance coaching is efficient; BOSU Ball and Balance Board is effective in rising balance.

6. Priscila de Brito Silvaa , Natalie Mrachacz-Kerstinga , et al.(2018)Effect of wobble board training on movement strategies to maintain equilibrium on unstable surfaces.

Conclusion: The study research confirmed that balance education progressed overall performance whilst standing on a WB with the aid of using improving the contribution of the trunk and contra-lateral leg speed to counteract board oscillations. Better manipulation of inter-segmental actions allowed for an extended status time at the board and decreased leg muscle activity, which suggests that WB education does now has no longer aware of changing contribution of assisting the leg to manipulate the board and trunk, however as an alternative to overall body coordination.

7. Abd-Elmonem AM, Elhady HSA. Effect of rebound exercises on balance in children with spastic diplegia. Int J Ther Rehabil. 2018;25

Rebound physical games the use of a trampoline and bosu ball offer proprioceptive and vestibular stimulation and enhance postural manipulation and stability. Rebound's physical games performed with a designed bodily remedy application are useful and feature an extensive impact in improving stability.

8. Dr. Astha Jain, Dr. Chaitali Shah, et al.(2017)Effectiveness of Three Different Surfaces for Balance Training on Ambulant Stroke Patients

Conclusion: A Comparative Study. All the 3 surfaces used withinside the studied sand, balance pad, and wobble board is powerful for supplying balance training. However sand is the only first-class floor for balance schooling. All the 3 surfaces used withinside the studied sand, stability pad, and wobble board is powerful for supplying stability schooling in ambulant stroke patients.

9. Hirase T, Inokuchi S, et al. (2015)Effects of a balance training program using a foam rubber pad in community-based older adults: A randomized controlled trial.

Conclusion: This observation confirms that balance education in older adults executed the usage of a foam rubber pad is powerful for

enhancing balance capacity and that this development occurs2 months in advance in comparison with balanced education executed on a strong surface. These findings endorse that balance education executed through the usage of a foam rubber pad is useful to customers and carriers due to the fact the packages enhance bodily functioning with a discounted wide variety of exercise sessions.

10. Emma Barry, Rose Galvin[(]Feb2014). Is the Timed Up and Go test a useful predictor of the risk of falls in community-dwelling older adults: a systematic review and meta-analysis.

Falls square measure a significant supply of death and injury in old individuals. as an example, they cause 90% of hip fractures, and therefore the current price of hip fractures within the U.S.A. is calculable to be regarding ten billion greenbacks. Age-related changes within the physiological systems (somatosensory, proprioception, and visual) that contribute to the upkeep of balance square measure well documented in older adults. These changes in addition to age-related changes in the muscle-associated degreed bone square measure possible to contribute to a redoubled risk of falls during this population. The integrated rehabilitation-based model of fall risk factors reveals multiple sites for interventions that will reverse fall risk factors. Regular exercise is also a way of preventing falls and fall-related fractures. The proof of this rivalry comes from a spread of sources. On the idea of nine randomized controlled studies conducted since 1996, exercise seems to be a great tool in the fall bar in older adults, considerably reducing the incidence of falls compared with management teams. However, current limitations like inconsistencies within the mensuration of key-dependent and freelance variables don't, at present, allow a meta-analysis of intervention trials. more investigation, exploitation trials designed with this limitation in mind, is critical to determine the optimum exercise program to maximize the fall bar in older adults.

11. Shinya ogaya tome ikezoe , et al. (2011)Effects of balance training using wobble boards in the elderly.

Conclusion: These consequences recommend that wobble board schooling is powerful for aged human beings to enhance their status balance, via way of means which they regularly manipulate their center of gravity and keep a static posture on volatile floor conditions.

12. F M Impellizzeri, E Rampinini, et al. (14 May 2007). Effect of plyometric training on sand versus grass on muscle soreness and jumping and sprinting.

Objective: The lower impact on the system elicited by plyometric exercise on sand compared to a firm surface may be helpful to scale back the strain of intense coaching periods or throughout rehabilitation from injury. This study aimed to match the results of plyometric coaching on sand versus a grass surface on muscle soreness, vertical jump height, and sprinting ability. Design: Parallel two-group, randomized, longitudinal (pretest-post-test) study. Methods: once random allocation, eighteen football players completed four weeks of plyometric coaching on grass (grass group) and nineteen players on sand (sand group). Before and once plyometric coaching, ten mins and twenty mins sprint time, squat jump (SJ), countermovement jump (CMJ), and eccentric utilization magnitude relation (CMJ/SJ) were determined. Muscle soreness was measured employing a Likert scale. Results: No coaching surface x time interactions were found for sprint time ($p>0.87$), whereas a trend was found for SJ (p = zero.08), with each team showing similar enhancements. Conclusion**s:** Plyometric training on sand enhanced both jumping and sprinting ability and induced reduced muscle soreness. A grass surface seems to be superior in enhancing CMJ performance while the sand surface displayed a greater improvement. Therefore, plyometric training on different grounds may be associated with different training-induced effects on some neuromuscular factors related to the efficiency of the stretch-shortening cycle

13. T M Lejeune [1], P A Willems, et al. (July, 1998). Mechanics and energetics of human locomotion on the sand.

Moving regarding in nature usually involves walking or running on a soft yielding substrate like sand, which encompasses a profound impact on the mechanics and energetics of locomotion. Force platform and cinematographic analyses were accustomed to verifying the mechanical work performed by human subjects through walking and running on sand and a tough surface. atomic number 8 consumption was accustomed to verifying the energetic price of walking and running beneath identical conditions. Walking on sand needs 1.6-2.5 times more additional mechanical work than will walking on a tough surface at an identical speed. In distinction, running on sand needs just 1.15 times more additional mechanical work than will running on a tough surface at an identical speed. Walking on sand needs a pair of 2.1-2.7 times additional energy expenditure than will walk on a tough surface at an identical speed; whereas running on sand needs 1.6 times additional energy expenditure than will running on a tough surface. the rise in energy price is due primarily to 2 effects: the mechanical work done on the sand, and a decrease in the potency of positive work done by the muscles and tendons.

14. Pelicioni PHS, Menant JC, Latt MD, Lord SR. (No Title). Available from: www.mdpi.com/journal/ijerph

Conclusion.: Physiotherapy interventions like balance schooling mixed with muscle strengthening, the range of movement, and schooling sporting activities are powerful in enhancing balance in sufferers with Parkinson's disorder and are greater powerful than balance sporting activities alone. Highly tough balance schooling and incremental speed-structured treadmill schooling also can be a part of a rehabilitation application for the control of balance disorder and Postural instability in sufferers with Parkinson's disorder.

Summary:

The objective of this was to evaluate the current evidence for the benefits of physiotherapy treatments for treating balance impairment, and postural instability, and reducing the tendency and frequency of falling for patients with Parkinson's disease. The physiotherapy interventions like muscle strengthening, range of movement, balance training, and walking training exercises were found to have a positive effect on treating Balance Dysfunction and Postural Instability in Parkinson's Disease.

Distinct balance schooling techniques were found to be effective in enhancing balance and they were administered in the form of static, dynamic, and functional schooling.

Exercises Physiotherapy interventions targeted at preventing falls and Exercises of self-destabilization of the Centre of body mass during walking and locomotor dexterity have an impact on reinforcing the need to focus attention on maintaining balance when performing mobility tasks in a standing position.

Physiotherapy interventions like balance training combined with muscle strengthening, range of movement, and walking training exercises are effective in improving balance in patients with Parkinson's Disease and are more effective than balance exercises alone.

So lastly, I conclude that based on studies analyzed in this review and the above-listed outcome measures used in the older adult population and Parkinson's disease patients states that the different terrain balance training would be effective and efficient in enhancing balance in Parkinson's patients.

Acknowledgement

In the accomplishment of this research successfully, many people have best owned upon me their blessings and the heart pledged support, this time I am Utilizing this to thank all the people who have been concerned with this Research.

Primarily, I would like to thank the **Almighty lord** for showering his blessing throughout my study. I'd like to take this opportunity to thank **my Parents & my family** for their valuable suggestions, constant support, encouragement, and guidance.

It is my privilege my sincere gratitude to my guide **Dr. ANNIE THOMAS ma'am** Professor, Director of Physiocare, and Research Co-Ordinator at Garden City University, her attention to detail and invaluable guidance has encouraged and stimulated me to put in my best efforts throughout and would like to thank for all help and support to complete my Literature Review Article.

It is a Genuine pleasure to express my deep sense of thanks and Gratitude to My Mentor **Dr. ANJALI SURESH** (Cardio-Respiratory disorders), Professor and head of the department of Physiotherapy at Garden City University, it is my Privilege to thank **My Friends and Colleagues** for constant encouragement and the invaluable support.

Place: Bangalore (Karnataka)

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