

Bal Ex Module with Prayer Regimes Improves Standing Dynamic Balance of Balance Disorders Cases

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Abstract

Integrating prayer regimes into balance rehabilitation, a well-established approach for patients with balance disorders offers an intriguing dimension to the therapy that had been incorporated in this Bal Ex Homebased video module for balance rehabilitation. Vestibular rehabilitation, often exemplified by Cawthorne-Cooksey exercises and their customized variants, effectively addresses symptoms like vertigo and instability. However, it's important to approach the inclusion of spiritual practices with sensitivity, acknowledging patients' diverse beliefs and ensuring inclusivity. Consulting healthcare professionals specialized in vestibular rehabilitation is essential to ensure that these additional elements harmonize with the primary therapeutic goals and are backed by scientific evidence, ultimately enhancing overall patient well-being and complementing the rehabilitation process. In this study, 10 subjects were recruited who underwent virtual balance rehabilitation. Upon the completion of these vestibular rehabilitation therapy sessions which were done virtually, the improvement recovery percentage among patients is 90% or more. The Bal Ex foam test and psychological test using questionnaires were improved as well. The study has effectively shown how virtual or online therapy of balance treatment using Bal Ex Module with Prayer Regimes can benefited balance disorders cases by improves Standing Dynamic Balance and reduce the vertigo symptoms.

Keywords: Vestibular rehabilitation, poor compliance, virtual clinic, balance disorder, balance rehabilitation, prayer movement, rehabilitation, vertigo, prayer

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INTRODUCTION

Vestibular rehabilitation, with a history growing over 70 years, has extensively accepted and increasing support as an optimum and basic an exercise-based program for vestibular and balance disorders cases [1]. An extensive research done and evidences highlights its effectiveness in addressing a range of symptoms, including imbalance, falls, fear of falling, oscillopsia, dizziness, vertigo, motion sensitivity, as well as secondary symptoms like nausea and anxiety [1]. Through central compensation mechanisms that promote natural healing through this vestibular rehabilitation can significantly improve these symptoms [1]. While early intervention is recommended for falls prevention and symptom management, even researcher showed individuals with chronic vestibular disorders can benefit from a course of vestibular rehabilitation [1]. Recent advancements in balance and gait training, gaze stability training, habituation training, virtual reality use, biofeedback, and

vestibular prostheses are discussed within the cases of both unilateral and bilateral vestibular disorders [1].

Recent developments in clinical practice guidelines have provided valuable insights into the management of peripheral vestibular hypofunction and benign paroxysmal positional vertigo (BPPV) [2]. Emerging diagnoses, like persistent postural-perceptual dizziness (PPPD) and vestibular migraine, are now commonly used that term, contributing to a more holistic understanding of vestibular disorders. Vestibular rehabilitation has gained support as an effective treatment option, with a growing body of literature proven its efficacy [2]. Notably, advancements in technology, including virtual reality and other technologies, are increasingly integrated into current and old vestibular rehabilitation practices [2]. This evolving landscape allows clinicians to better comprehend rehabilitation expectations and make evidence-based referrals, ultimately enhancing functional outcomes for balance problem patients with both peripheral and central vestibular disorders [2].

Ageing people face the degenerative decline, such as reduce the sensory systems ability that will affect the ability to adapt with the surrounding changes that will affect their balancing system. Vision becomes crucial for postural stability in this population [3]. Aging is related with distinct changes in spatiotemporal gait values, including slower gait and increased gait variability, particularly when exposed to visual perturbations. Elevated gait variability, especially in response to mediolateral perturbations, poses a significant challenge and is linked to an increased risk of falls among the elderly [3]. Virtual reality training has demonstrated valuable effects on balance and gait retraining, offering a potential avenue for these age-related challenges and improving general stability in elderly individuals [3].

Prayer is one of the most priority and a must thing in every Muslim community to obey our God Almighty rules. Prayer is proven their value in human body health, such as cardiovascular, psychological, social, and other benefits for our health [4]. In term of the calmness and spiritual comfort for our heart and soul [4]. Prayer also proven is therapeutic for certain psychological disorders, such as panic and anxiety where with prayer person able to learn how to control their emotion one of the direct ways for us to communicate with our creator Allah Almighty [4]. The movement of the prayer is shown in Figures 1 and 2.



Figure 1. Movement of prayer (Sujood)



Figure 2. Movement of prayer (Rukuk)

The findings from the review suggest that the use of virtual reality and interactive video gaming alone may not be more effective than conventional therapy in improving upper limb function [5]. However, when employed as an adjunct to usual care, they could potentially enhance outcomes by increasing overall therapy time [5]. While there was a trend indicating a preference for higher intervention doses (more than 15 hours) and customized virtual reality programs, these findings did not achieve statistical

significance. The review underscores the need for further research to elucidate the specific conditions under which virtual reality and interactive gaming can be most beneficial in stroke rehabilitation [5].

CASE STUDY

Ten subjects of this study suffered from a few years of sign and symptoms of balance disorders. They were experienced of difficulties in walking due to body imbalance during walking, floating sensation, vertigo, and severe dizziness No significant history of hearing loss, tinnitus, ear fullness, high fever, infection, and head trauma was reported. Their difficulties prevented them from performing normal daily activities. We also used vertigo and psychological tests to measure the severity of vertigo and psychological involvement in these patients (Table 1).

Table 1. Subjective Measures of Psychological & vertigo pre and post intervention.

Component	Pre-Intervention (Range)	Post Intervention (Range)
Malay Version of Vertigo Symptom Scale (MVVSS)	11–35 (moderate to severe)	9–20 (mild to moderate)
Beck Depression Inventory (BDI)	7–14 (moderate to mild)	6–10 (mild)
Beck Anxiety Inventory (BAI)	10–20 (mild to moderate)	2–9 (mild)
Automatic Thought Questionnaire (ATQ)	1-10 (mild)	0–3 (mild)

Further assessment was done, cerebellar test and neurological examination were normal. Vestibular examinations, such as Dix Hallpike test, and Roll test were negative. An otoscopy was done and showed normal findings. To evaluate the postural control, we used the Bal Ex Foam test (Figure 3). This Bal Ex test has a structured scoring foam divided into seven sections.



Figure 3. Bal Ex Foam test.

Table 2. Bal Ex Foam Test Scoring before and after balance rehabilitation.

Level	Description	Before Intervention (Range)	After Intervention (Range)
1	Stand on the floor with arms across your chest and feet together and hold for 30 seconds (opened eyes)	Normal	Normal
2	Stand on the floor with arms across your chest and feet together and hold together and hold for 30 seconds (closed eyes)	Normal	Normal
3	Stand on the floor with arms across your chest, toe touching the other side of heel and hold for 30 seconds (opened eyes)	3–6 seconds	Normal
4	Stand on the floor with arms across your chest, toe touching the other side of heel and hold for 30 seconds (closed eyes)	2–7 seconds	Normal
5	Stand on a 3-inch-high density foam cushion with your arms crossed, feet together and hold for 30 seconds (opened eyes)	3–6 seconds	Normal
6	Stand on a 3-inch-high density foam cushion with your arms crossed, feet together and hold for 30 seconds (closed eyes)	2–3 seconds	Normal

After 10 sessions of balance rehabilitation, the patient's condition was assessed. They reported almost 90 % improvement of the balance difficulty. Their balance was better than before which can perform prayer while standing and driving. The Bal Ex foam test and psychological test using questionnaires were improved based on the comparison (Table 2).

DISCUSSION

With the intention of assessing the efficacy of structured balance rehabilitation by applying the BAL EXzz Balance Module (Physical rehabilitation), we were able to achieve a recovery outcome of 90% in term of psychological improvement in term of anxiety, depression and vertigo following the completion of the ten virtual rehabilitation sessions. Therefore, we can conclude that this preliminary study has successfully demonstrated the significance of balance therapy in improving daily function in vertigo and balance disorder patients. Further study with a bigger and proper sample size should be pursued to prove the effectiveness of this module can be valuable and practicable to be used clinically.

The present case report highlights the effectiveness of virtual balance rehabilitation in improving balance issues in individuals suffering from anxiety, tinnitus, and floating sensations. In this case they reported a huge improvement in his postural after underwent a five-session balance training session that include the prayer methods. Patient clinical improvement was proven by the clinical postural test, questionnaire the Malay version Vertigo Symptom Scale (MVSS), and the BAL EX foam test. These findings are consistent with previous research demonstrating the effectiveness of balance rehabilitation in improving balance and reducing falls in patients with balance disorders [6, 7].

Physical therapy or physiotherapist is the main person that involved. The role of physical therapy in the management of vestibular symptoms in patients with peripheral and central vestibular disorders has been well established. Vestibular Rehabilitation Therapy (VRT) is a highly efficacious treatment modality for a majority of individuals with vestibular or central balance system disorders, or a combined aetiology [8]. Various interventions provided by physical therapists have successfully shown a decrease in dizziness and improvement in postural control. In addition to balance rehabilitation, the use of psychological interventions, such as cognitive-behavioral therapy, has also been shown to improve the psychological impact of vestibular disorders [9]. In fact, the patient in the present case study reported a significant improvement in his psychological symptoms after undergoing balance rehabilitation, which highlights the potential benefits of this intervention for the management of vestibular disorders.

It is worth noting that the patient in this case study had no major history of head trauma, high fever, ear fullness, or hearing loss. *Therefore, referred to this case study we cannot make this as the general conclusion for all vestibular disorder patients till we do detail and extensive research.* Further research is needed to evaluate the effectiveness of balance rehabilitation programs in patients with different types of balance disorders and to determine the optimal duration and intensity of such programs.

In conclusion, the present case report highlights the potential benefits of one-on-one balance rehabilitation in improving balance and reducing falls in individuals suffering from anxiety, tinnitus, and floating sensations. These findings are consistent with previous research demonstrating the effectiveness of balance rehabilitation in improving balance and reducing falls in patients with balance disorders. The use of home items, such as cushion, foam, mattress, chair, and table in the intervention further emphasizes the potential for low-cost interventions that can be conducted remotely to improve balance. Several suggested methods have been suggested, such as cognitive-behavioral therapy, have been proven their effectiveness to reduce the psychological consequence among vestibular disorders. Further research is needed to evaluate the effectiveness of balance rehabilitation programs in patients with different types of balance disorders and to determine the optimal duration and intensity of such programs [10–13].

CONCLUSIONS

Prayer movement adapted with Customized Cawthorne Cooksey Exercise in this Bal Ex module that had been proven the effectiveness among Balance disorder cases. Prayer movement is a holistic

approach and daily routine that must be performed among Muslim people. In this case study it shown the effectiveness of this Bal Ex module in term of postural control and balance improvement after several sessions of the balance rehabilitation using Thai Bal Ex Module. In conclusion we can summarize that Bal Ex Module with the prayer movements regime can be proposed among Balance disorder patient in as a routine rehabilitation that can be performed with Physiotherapy session in the hospital or they can perform as a homebased at home.

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