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SENSAMOVE MINIBOARD - A REHABILITATION TOOL FOR BALANCE AND PROPRIOCEPTION TRAINING: A NARRATIVE REVIEW

Physiotherapy & Rehabilitation

Adajania Punita Kishor Assistant Professor, SPB Physiotherapy College, Surat, India.

ABSTRACT

Balance dysfunction is a major clinical concern in neurological and musculoskeletal populations and is associated with reduced functional independence and increased fall risk [1]. Recent rehabilitation advances emphasize technology-assisted balance training systems using real-time visual feedback to enhance motor learning and adherence [2]. The Sensamove MiniBoard is a sensor-integrated wobble board that provides interactive visual feedback during balance training tasks [3]. Evidence from controlled trials in stroke and balance-impaired populations demonstrates significant improvements in postural control, gait performance, and functional balance outcomes compared with conventional therapy [4,5]. Reliability studies indicate mixed measurement consistency, highlighting the importance of standardized testing protocols [6]. Overall, the Sensamove MiniBoard represents a promising adjunct to conventional balance rehabilitation programs [7].

KEYWORDS

Sensamove MiniBoard, balance rehabilitation, visual feedback, proprioception

INTRODUCTION

Balance and postural control are fundamental for safe functional mobility and independence in daily activities [1]. Impairments in balance are commonly observed following stroke, neurological injury, and aging, increasing the risk of falls and disability [2]. Traditional balance rehabilitation relies on unstable surface training and therapist-guided feedback; however, these approaches may limit objective monitoring and patient engagement [3]. Sensor-based balance training systems, such as the Sensamove MiniBoard, provide augmented visual feedback and enable task-oriented rehabilitation strategies [4].

Methodology

This structured narrative review included full-text peer-reviewed studies published between 2020 and 2025 that examined sensor-based balance training systems with visual feedback, including wobble board and force-platform technologies [5]. Randomized controlled trials, systematic reviews, and reliability studies indexed in PubMed and Scopus databases were considered to ensure methodological quality and relevance [6].

Clinical Evidence

Clinical trials in stroke rehabilitation demonstrate that balance training incorporating visual feedback significantly improves functional balance outcomes compared with conventional physiotherapy [7]. Improvements have been consistently reported in Berg Balance Scale scores, Timed Up and Go performance, and postural stability measures [8]. Studies involving chronic stroke patients further indicate that interactive feedback enhances gait symmetry and trunk control [9].

Additional evidence from older adult populations suggests that visual feedback-based balance interventions reduce postural sway and improve dynamic balance, potentially lowering fall risk [10]. Comparable sensor-based systems, including exergaming and virtual reality balance platforms, demonstrate similar therapeutic benefits, supporting the broader applicability of interactive balance technologies [11].

DISCUSSION

The effectiveness of the Sensamove MiniBoard may be attributed to enhanced sensory integration and motor learning facilitated by real-time visual feedback [12]. Interactive training increases patient motivation and allows progressive task difficulty, which are key factors in neuroplastic adaptation [13]. Despite positive findings, heterogeneity in intervention protocols and outcome measures limits direct comparison across studies [14].

CONCLUSION

The Sensamove MiniBoard is a clinically valuable rehabilitation tool for balance and proprioception training, particularly in neurological and balance-impaired populations [15]. While current evidence supports its use as an adjunct to conventional therapy, further large-scale randomized controlled trials with standardized assessment protocols are required to confirm long-term effectiveness and measurement reliability [6,14].

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