

Understanding Postural Control Deficits in Type 2 Diabetes Mellitus: A Narrative Review of Contributing Factors

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Abstract

Chronic diabetes mellitus (DM) represents a major global health challenge, significantly impacting morbidity and mortality through its direct effects and long-term complications. This narrative review explores the complex relationship between type 2 DM (T2DM) and balance impairments. The prevalence of diabetes has surged, with estimates suggesting 299 million cases by 2025. T2DM is known to affect balance, increasing the risk of falls and deteriorating quality of life. The review synthesizes evidence on the mechanisms underlying balance impairments in T2DM, including the roles of peripheral and autonomic neuropathy, as well as musculoskeletal changes. Key findings indicate that peripheral neuropathy, autonomic dysfunction, and musculoskeletal deterioration significantly impair balance. Interventions such as physical therapy and appropriate footwear have shown promise in improving balance and reducing fall risk. The review also highlights that balance issues are more pronounced in low-income countries and among younger populations in middle-income countries, where diabetes prevalence is rising. This review synthesizes findings from a range of relevant studies, revealing a strong correlation between diabetes and balance problems. This review underscores the importance of incorporating balance training into early diabetes management and recommends a multidisciplinary approach for effective intervention. Future research should focus on long-term intervention outcomes and innovative therapeutic strategies to manage balance impairments in T2DM.

Key words: Autonomic neuropathy, balance impairments, fall risk, musculoskeletal changes, peripheral neuropathy, type 2 diabetes mellitus