



The effect of exercise interventions on the balance of diabetic neuropathic patients: A systematic review

Oral Presentation

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Abstract

Introduction: Diabetic peripheral neuropathy (DPN) is a diabetic complication experienced by more than 30% of diabetic patients. It reduces the senses, proprioception, reflexes, and strength in the lower extremities and leads to balance dysfunction. This study aimed to evaluate the effectiveness of interventions used by researchers and therapists to minimize balance dysfunction in people with DPN.

Methods: In this study, a comprehensive review of training interventions on the balance of patients with diabetic neuropathy by searching the PubMed Elsevier, Springer, Science Direct and Google Scholar, and Scopus databases with the combined keywords Balance, Diabetic Peripheral Neuropathy, Training interventions and also in Persian databases of Jihad Daneshgahi Scientific Information Center, MedLib (Comprehensive Database of Medical Articles), IranMedex, Iran Information Science and Technology Research Institute (IRANDOC), Iranian Publications Database (MAGIRAN) and Google Scholar with keywords balance in patients Diabetic, postural control, diabetic neuropathy. In addition, a manual search and a complete review of article sources were performed to find articles that could not be seen through electronic tracking. After collecting the search results, first the title and then the summary of the pieces were studied. If the articles met the inclusion and exclusion criteria, their results would be used in the review study and otherwise discarded.

Results: Twenty studies published between 2010 and 2020 met the inclusion criteria. The results showed that training interventions were more effective than control conditions to improve the balance of patients with diabetic neuropathy. Also, the results of studies show that most training programs and rehabilitation protocols have a positive effect on the balance of patients with diabetic neuropathy.

Conclusion: The studied exercise interventions are an effective tool to improve the balance of diabetic neuropathy patients. However, given the small number of studies and their limitations, the present findings of this study should be considered.

Keywords

Diabetic neuropathy; Balance; Physical activity

Reference:

- 1.Orlando, G., et al., Neuromuscular dysfunction in type 2 diabetes: underlying mechanisms and effect of resistance training. *Diabetes/metabolism research and reviews*, 2016. 32(1): p. 40-50.
- 2.Suda, E., et al., Reduced complexity of force and muscle activity during low level isometric contractions of the ankle in diabetic individuals. *Clinical Biomechanics*, 2017. 42: p. 38-46.
- 3.Kiani, J., et al., The prevalence and associated risk factors of peripheral diabetic neuropathy in Hamedan, Iran. *Archives of Iranian medicine*, 2013. 16(1): p. 17-19

