

ROLE OF VITAMIN D IN MOBILITY AND REHABILITATION OF ELDERLY WITH NEURODEGENERATIVE DISORDERS

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INTRODUCTION: Neurodegenerative diseases have proven underlying mechanisms closely associated with cellular oxidative stress and accumulation of toxic proteins. Vitamin D has been suggested as possessing a neuroprotective role.

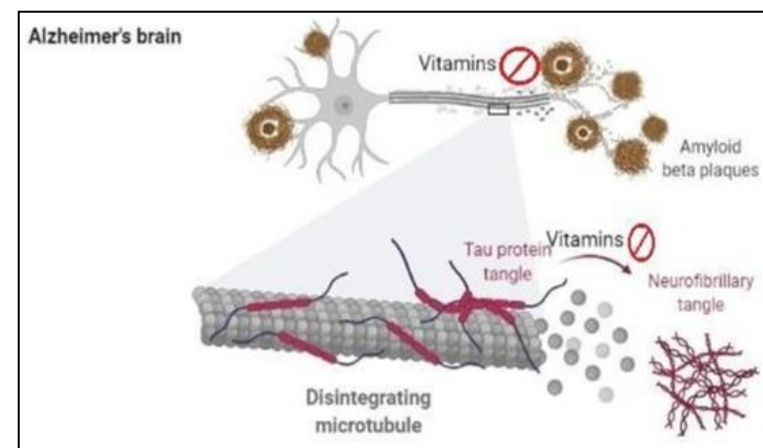
MATERIALS & METHODS: A recent literature review searched Pubmed for data published in the last 5 years, based on relevant keywords.

RESULTS: More than 190 recent articles were identified on the relationship of vitamin D and neurodegenerative disorders, but only 21 works also included data on mobility or rehabilitation in elderly. Deficiency of vitamin D was associated with abnormal neuronal functioning in neurodegeneration-based brain disorders (Alzheimer's disease, Parkinson's disease, Huntington's disease, Amyotrophic lateral sclerosis). Although not consistent across trials, we found data regarding therapeutic activity of vitamin D in Parkinson's disease by antioxidative and anti-inflammatory activity, as well as a preventative role in amyloid beta and tau pathology. Vitamin D action is essential for bone homeostasis - strong data support a beneficial effect of vitamin D supplementation in elderly: on bone mineral density and fractures, improvement of late stages of fracture healing and increasing the success of rehabilitation therapy during the first 3 months poststroke. Some research found that its supplementation may reduce neuronal injury, neurotoxicity and oxidative stress.

CONCLUSIONS: We found evidence showing that vitamin D deficiency is associated with disability in activities of daily living, mobility, cognitive and objective physical functioning. Further data is needed to address the role of vitamin D as a biomarker influencing the clinical management of neurodegenerative patients, or the importance of its supplementation.

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In Alzheimer's disease, vitamins prevent A β plaque formation by inhibiting the aggregation of beta-amyloid plaques and also prevent the tau protein aggregation and its oligomerization into neurofibrillary tangles. (Source: Rai SN et al. "The Role of Vitamins in Neurodegenerative Disease: An Update." *Biomedicines*. 2021 Sep 22;9(10):1284)



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