

Physiotherapy to Reduce the Sarcopenia in Patient with Type II Diabetes Mellitus: A Narrative Review

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ABSTRACT

In 2019, International Diabetes Federation (IDF) was estimated that 77 million persons suffered with Type 2 Diabetes Mellitus (T2DM) in India and according to the Asian Working Group for Sarcopenia (AWGS) criteria, a 22% prevalence of sarcopenia has been reported. Sarcopenia and T2DM, both are more prevalent with aging which increasing the chances of long term complications, hospitalisations, frailty and premature death. The risk of developing sarcopenia is 3 to 16 times more in patients with T2DM diabetes. Sarcopenia refers to the declining in skeletal muscle mass and muscle function with age. Approximately, 80% glucose clearance is primarily done by glucose transporter 4 (GLUT 4) which is present in skeletal muscles. The chance of developing T2DM is increased due to decreased efficiency of glucose uptake with age. The aim of this study is to synthesise and outline the current research studies using physiotherapy interventions to decrease the sarcopenia in patients with T2DM. A literature from 2015 to 2024 was searched on PubMed, Google Scholar, Scopus and PEDro with the keywords like "Physiotherapy AND Sarcopenia", "Type II diabetes mellitus AND sarcopenia", "Body composition and sarcopenia", "Exercise AND sarcopenia" which resulted in

671 Articles were retrieved, and from this 31 Articles we have include in our study. Exercises include strengthening exercise, sandbag exercises helps in increasing muscle mass, strength, functional capacity; and aerobic exercises will enhance the physical performance by improving cardiovascular health, metabolic function, and endurance in T2DM patients with sarcopenia. Blood Flow Restriction (BFR) training shows more significant result as compare to resistance exercises. BFR a promising approach which restrict flow of blood to the muscle during low intensity exercise; helps in improving muscle growth and strength. Pilates is an innovative version of exercises and Virtual Reality (VR) engage patient in immersive environment; shown to be beneficial in reducing sarcopenia by improving strength, balance, coordination and muscle stability. Neuromuscular Electrical Stimulation (NMES) can be used as adjunct to strength training in patients who are unable to perform exercises due to mobility issues. This review highlighting the significance of personalised, evidence based exercise programme customised according to the patient's need.

Keywords: Blood flow restriction, Endurance, Neuromuscular electrical stimulation.