

Impact of Physiotherapy Interventions on Physiological Biomarkers in Individuals with Diabetes Mellitus Type 2

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Commentary

Diabetes Mellitus Type 2 is a chronic metabolic condition characterised by raised blood glucose levels over a long period of time. Raised blood glucose levels lead to diabetes related complications which may either be macrovascular or microvascular in nature [1]. The prevalence of Diabetes Mellitus Type 2 DM2 in India has increased from 7.1% in 2009 to 8.9%, ten years later in 2019. Approximately, 77 million of the Indian population is estimated to be diagnosed with Diabetes Mellitus Type 2 as per the International Diabetes Federation (IDF) in 2019 and it is estimated that this number will reach 101 million in 2030 and 134 million by the year 2045. India is on a verge of becoming the diabetes capital of the world, closely followed by China. Almost half of the diagnosed cases of Diabetes Mellitus Type 2 remain undetected until complications related to Diabetes Mellitus Type 2 occur [2]. Chronic Diabetes Mellitus Type 2 can be quite fatal too; globally 16% of causes of death is associated with Diabetes Mellitus Type 2 related conditions [3]. Anti-diabetic medications, physical activity and diet recommendations are the usual practice for management of Diabetes Mellitus Type 2. Metformin is one of the first drugs of choice in the line of management of Diabetes Mellitus Type 2. A lot of focus has been done to showcase those exercises help to control the blood glucose levels along with diet and medications. There are many research articles which have shown to have many prognostic effects

on blood glucose levels, pain, diabetic neuropathy, diabetic wounds, diabetic foot, etc. in individuals suffering from Diabetes Mellitus Type 2.

Weight management, lifestyle modifications, cessation of smoking, moderate or no alcohol intake are some measures that are adopted in the management of Diabetes Mellitus Type 2 [4]. In our planned systematic review which has been prospectively registered with PROSPERO; with the objective to study the effect of various physiotherapy interventions on physiologic biomarkers in individuals suffering from Diabetes Mellitus Type 2 we intend to systematically review research articles on the basis of type of study, sample demographics, type of intervention, duration of intervention, outcome measures and results or conclusions. Also, a special mention about the reviewers' comments on the drawbacks or limitations on the existence of a research gap in the study will be added in the discussion of the systematic review. These physiological biomarkers will mainly be the blood sugar levels markers like Glycated Haemoglobin, Fasting Blood Sugar, Random Blood Sugar, Mean Plasma Glucose (MPG) Estimate. Also, a detailed analysis on the quality of the study with the help of a PEDro scale will also be added inclusive of the level of evidence using the Centre of Evidence Based Medicine (CEBM) scale. This is the first of a kind unique, systematic review which will be used to gather evidence related to the role of physiotherapy as a non-phar-

macological approach in managing Diabetes Mellitus Type 2. A brief note in the discussion on how the research gap can be bridged shall be added by the reviewers in the systematic review. Further, research will be needed to substantiate the answers to the research questions to bridge the prevalent research gap in the existent peer – reviewed published literature till date.

It is very important to infer and demonstrate the results of a physiotherapy intervention in the management of Diabetes Mellitus Type 2 worldwide. The different physiotherapeutic interventions will play a prognostic role in the management of Diabetes Mellitus Type 2 and its associated conditions. Physiotherapy interventions have an effect on blood sugar levels, pain, range of motion, wound healing status, etc. to name a few in individuals who suffer from Diabetes Mellitus Type 2 and its associated conditions. The various physiotherapeutic interventions include aerobic exercises, resisted exercises, combination of aerobic and resisted exercises, whole body vibration therapy, Pilates, acupuncture Transcutaneous Electrical Nerve Stimulation, Pulsed Electromagnetic Field Therapy, structured exercise protocol. Physiotherapy as a professional healthcare discipline plays a very important role in the interdisciplinary integrated management of Diabetes Mellitus Type 2. Physiotherapy interventions affect the physiological biomarkers which include the blood sugar levels to a large extent which has not been studied or researched on a large scale [5,6].

Currently, early detection of Diabetes Mellitus Type 2 is not focussed so much on the current practice. Physiotherapists can help in screening individuals who are at risk of developing Diabetes Mellitus

Type 2. Physiotherapy should be considered as one of the first lines of treatment in the management of Diabetes Mellitus Type 2. Maintaining the ideal glycaemic control is very important to avoid health deterioration with rising blood glucose levels. It is a need of the hour to have good quality research studies which specifically study the effect of physiotherapy interventions in individuals suffering from Diabetes Mellitus Type 2; so that early treatment can be initiated, and quality of life can be enhanced [7].

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