

## Analysis of Gait Characteristics Using Dynamic Foot Scanner in Type 2 Diabetes Mellitus

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**Abstract :** Background: Diabetes mellitus (DM) is a metabolic disorder with involvement of neurovascular and muscular system. Studies have documented that the gait parameter is altered in type 2 diabetes mellitus with peripheral neuropathy. However, there is a dearth of literature regarding the gait characteristics in type 2 diabetes mellitus (T2DM) without peripheral neuropathy. Therefore, the present study is focused on identifying gait changes in early type 2 diabetes mellitus without peripheral neuropathy. Objective: To analyze the gait characteristics in Type 2 diabetes mellitus without peripheral neuropathy. Methods: After obtaining ethical clearance from Institutional Ethical Committee (IEC), 36 T2DM without peripheral neuropathy and 32 matched healthy subjects were recruited. Gait characteristics (step duration, gait cycle length, gait cycle duration, stride duration, step length, double stance duration) of all the subjects were analyzed using Windtrack dynamic foot scanner. Data were analyzed using Independent 't' test to find the difference between the groups (step duration, gait cycle length, gait cycle duration) and Mann-Whitney test was used to analyze the step length and double stance duration to find difference between the groups. Level of significance was kept at  $P < 0.05$ . Results: Result analysis showed significant decrease in step duration, gait cycle length, gait cycle duration, step length, double stance duration in T2DM subjects as compared to healthy subjects. We also observed a mean increase in stride duration in T2DM subjects compared to healthy subjects.

**Keywords :** type 2 diabetes mellitus, dynamic foot scan, gait characteristics, medical and health sciences

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