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[Kinetics and kinematics of diabetic foot in type 2 diabetes mellitus with and without peripheral neuropathy: a systematic review and meta-analysis.](#)

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Abstract BACKGROUND: Diabetes mellitus patients are at increased risk of developing diabetic foot with peripheral neuropathy, vascular and musculoskeletal complications. Therefore they are prone to develop frequent and often foot problems with a relative high risk of infection, gangrene and amputation. In addition, altered plantar pressure distribution is an important etiopathogenic risk factor for the development of foot ulcers. Thus the review on study of foot kinematic and kinetic in type 2 diabetes mellitus to understand the biomechanical changes is important. **METHODOLOGY:** Scientific articles were obtained using electronic databases including Science Direct, CINAHL, Springer Link, Medline, Web of Science, and Pubmed. The selection was completed after reading the full texts. Studies using experimental design with focus on biomechanics of diabetic foot were selected. **RESULTS:** The meta-analysis report on gait velocity (neuropathy = 128 and non-diabetes = 131) showed that there was a significantly lower gait velocity in neuropathy participants compared to non-diabetes age matched participants at a high effect level (-0.09, 95 % CI -0.13 to 0.05; $p < 0.0001$). Regarding knee joint flexion range there was a significant difference between neuropathy and non-diabetes group (4.75, 95 % CI, -7.53 to 1.97, $p = 0.0008$). **CONCLUSIONS:** The systematic review with meta-analysis reported significant difference in kinematic and kinetic variables among diabetic with neuropathy, diabetic without neuropathy and non-diabetes individuals. The review also found that the sample size in some studies were not statistically significant to perform the meta-analysis and report a strong conclusion. Therefore a study with higher sample size should be done.

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