

## Kinetic Analysis for Assessing Gait Disorders in Muscular Dystrophy Disease

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**Abstract :** Background: The purpose of this case series was to quantify gait to study muscular dystrophy disease. In this research, the quantitative differences between normal and waddling gaits were assessed by force plate analysis. Methods: Nineteen myopathy patients and twenty normal subjects serving as the control group participated in this research. In this study, quantitative analyses of gait have been used to investigate the differences between the mobility of normal subjects and myopathy patients. This study was carried out at the Iranian Muscular Dystrophy Association in Boali Hospital, Tehran, Iran, from October 2015 to July 2020. Patient data were collected from Iranian Muscular Dystrophy Association members. individuals signed an informed consent form approved by the ethics committee of the Azad University. All of the gait tests were performed using a Kistler force platform. Participants walked at a self-selected speed, barefoot, independently, and without assistive devices. Results: Our findings indicate that there were no significant differences between the patients and the control group in the anterior-posterior components of the ground reaction forces; however, there were considerable differences in the force components between the groups in the medial-lateral and vertical directions of the ground reaction force. In addition, there were significant differences in the time parameters between the groups in the vertical and medial-lateral directions.

**Keywords :** biomechanics, force plate analysis, gait disorder, ground reaction force, kinetic analysis, myopathy disease, rehabilitation engineering

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