

COMPARISON OF TRACKER 2-D VIDEO SOFTWARE AND VICON 3-D SYSTEM IN KNEE AND ANKLE GAIT KINEMATIC ANALYSIS OF SPASTIC PATIENTS

COMPARAISON DU SYSTEME D'ANALYSE VIDEO 2-D TRACKER ET DU SYSTEME 3-D VICON DANS L'ETUDE CINEMATIQUE DE GENOU ET DE CHEVILLE DANS LA MARCHE DU PATIENT SPASTIQUE

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Introduction: gait kinematics evaluation is mandatory to assess the effect of rehabilitation and treatments in spastic patients. Three-dimensional (3-D) analysis in gait laboratory is considered as the gold standard. In clinical practice, video assessment is a low cost alternative making two-dimensional (2-D) analysis with software an alternative.

Objective: to test the reliability of the 2-D Tracker video software analysis of gait as compared to the 3-D gait analysis used in the laboratory

Materials and Methods: 26 patients (19 cerebral palsy and 7 hemiplegic patients) benefited during the same session from a gait lab (Vicon) assessment and from a video recording analyzed with Tracker software. Angles of the knee and ankle of the lower left limb were measured in the sagittal plane during three walking cycles. The results obtained with gait lab and video were compared.

Results: the averages of the coefficients of determination obtained for the knee for one, two or three cycles of walking were successively for the cerebral palsy children, 0.72, 0.80 and 0.76; and for the hemiplegic patients 0.77, 0.82 and 0.83 respectively. In comparison, the averages of the coefficients of determination obtained for the ankle over one, two and three cycles were for the cerebral palsy patients 0.60, 0.51, and 0.42, and for the hemiplegic patients 0.56, 0.42 and 0.44.

Conclusion: as compared to the 3-D gait lab analysis, the Tracker 2-D video analysis is a reliable tool for the measurement of the knee angle but is not adequate for measurement of the ankle angle over time.

Key Words: Hemiplegic, Cerebral Palsy, cinematographic gait analysis