Keywords: Amputee; Reproducibility; Walking; Posturography

Background.—There is an increasing demand for routine assessments of posture and gait in the rehabilitation of amputees. Are these assessments reliable?

Objective.—To analyse the reproducibility of main posturographic and spatiotemporal gait parameters in amputees.

Methods.—Reproducibility was investigated by calculating coefficients of variation (CV) of 6 posturographic trials and gait tests in 20 amputees (age = 63.1 years) compared to 20 matched healthy controls. Gait parameters were assessed using an optical track (optogait). Data are given in median values.

Results.—The reproducibility of posturographic parameters was excellent for the weight-bearing asymmetry (CV = 5%), and acceptable for the velocity of the center of pressure (CV = 14.5%), and its excursion on both axes (18% and 15.5%). The reproducibility of gait parameters was excellent for walking speed (CV = 4.4%), step cadence (CV = 2.8%), times of monopodal (CV = 3% and 4%) and bipodal support (CV = 4%), step length (CV = 3.6% and 3%). The reproducibility was good for step width (CV = 9%). Similar data were found in normals.

Conclusion.—This study is the first to report the reproducibility of posturographic and gait parameters in amputees. It shows that these parameters are reproducible and may be used for clinical assessments, overall regarding gait.

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Measuring the pressures under feet during the gait rehabilitation with G-EO System in stroke patients: An observational study

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Keywords: Gait rehabilitation; Stroke; Robotic device; Foot pressures; Insole sensors

Introduction.—In a previous study we observed that in normal subjects, during the training with G-EO System, the maps and the curves of the pressures measured under feet are extremely different as compared with that recorded while walking over ground.

Methods.—In 14 post stroke patients we performed measurements of the pressures under feet using insole sensors during sessions of gait rehabilitation on G-EO System. Measure sessions have been done at the beginning and at the end of the study. The functional assessment has been made using: Trunk Control Test, Standing Balance, Functional Ambulation Category, Lower Limbs MI, FIM Transfers and FIM-Locomotion, Tinetti Balance, Tinetti Gait.

Results.—When a gait cycle is clearly recognizable, the patterns of the pressures under feet are very different from that observed in free walking and show a high rate of asymmetry. Even though the sample group shows a statistically significant improvement in all functional tests, there are not substantial variations in the feet pressure measures.

Discussion.—The transmission of movement from an “end effector” robotic system to the lower limbs of the post stroke patients generates abnormal patterns of pressures under feet. Could this evidence be useful in the management of the gait rehabilitation program?

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P348-e

Gait changes in patients with valgus and flatfoot deformities after application of foot insoles and special exercise program

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Keywords: Gait; Valgus flatfoot; Insoles; Pedobarogram

Objective.—Evaluation of changes in static and dynamic pedobarogramm findings and pain in patients with valgus and flatfoot deformities after the use of special modulated insoles in combination with a program of rehabilitation exercises.

Methods.—Ten patients (6 men, 4 women) with valgus and flatfoot deformity were included with symptoms of pain, fatigue, foot hyperkeratosis due to increased ground friction. Pain was assessed with visual analogic scale (VAS) before the intervention and after 6 and 12 months, concomitant. Static and dynamic pedobarogramm measurements were performed. Special foot insoles were prescribed after the first evaluation, in addition to rehabilitation program for strengthening of the intrinsic foot muscles and stretching exercises for the foot aponeurosis.

Results.—Significant improvements were found after 6 and 12 months regarding both pain and gait parameters.

Discussion.—Patients with valgus and flatfoot were benefited by focused rehabilitation program and use of specially modulated insoles and presented improvement regarding pain and quality of gait.

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