

Gait in subjects with hemiplegia

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Acta Bioeng Biomech, 2004; 6(2):65-76

Abstract: The gait of 39 patients, 24 men and 15 women, was evaluated. The mean time from the stroke to examination was 17.4 months. Basic gait parameters, joint angle parameters and ground reaction forces (i.e. both kinematic and kinetic data) were evaluated in a gait laboratory on a 10 m walkway with two parallel, 5 m long force platforms. The recorded parameters represent the mean of 20-30 steps for each patient. Our results show quite a complete picture of hemiparetic gait: a reduction of all the basic gait parameters; a reduction of joint excursions in the hip and knee on both sides, significantly more on the affected side; only minor reduction of the vertical ground reaction forces, with no side differences; a reduction of the horizontal retardation and acceleration forces; and a reduced reproducibility of gait in angle-angle diagrams, indicating coordination problems. There were no major sex differences. Basic gait parameters were improved with time after the onset after the stroke. We found significant changes of gait parameters not only on the paretic side, but on the non-paretic side as well. We could not verify the stiff-knee walking pattern described earlier in the literature; and we found no weight take-over on the paretic side. These findings may be important in the design of training programs for stroke patients. They also show the importance of objective evaluation of gait after stroke.

Key words: hemiparetic gait, gait analysis, stroke, kinesiopathology, gait parameters