(visual dependence), 1 was influenced only towards the lesion side, and 7 were independent. Among the 9 patients having basically a bias, 3 were visual dependent, 3 independent, and 3 partially dependent. No correlation was found between the characteristics of the patients except the scholar level (p = 0.003) nor with balance.

Discussion: Many patients with recent hemiplegia post-stroke seem to rely on visual input. This excessive visual reliance may result from a higher level inability to select the pertinent sensory information or may represent a natural compensatory strategy. Rehabilitation programs should take into account the possible impairment of sensory organisation and should include exercises to be performed under visual disturbances.

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17.3 Procedural versus declarative learning in gait rehabiltation after stroke: a pilot study

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Introduction: This pilot study is aimed to quantify the effects of a rehabilitation protocol, that combined procedural and declarative methods of training, on gait recovery in patients with chronic unilateral stroke.

Methods: 10 outpatients (5 right hemiparesis) underwent an extensive (three/week) one-hour training characterized by the combination of a biofeedback weight-control exercises over a stabilometric platform (Satel – FRANCE) (procedural learning) and a therapist-assisted over-ground gait training (declarative learning). Outcome measures: CoP sway area, Satel test outcome measure, gait velocity, double support, soleus and tibialis anterior activation timing as gait cycle percentage (recorded throughout gait analysis – TELEMG-BTS Italy). The outcome measures were acquired before and after ten treatments.

Results: The 4 patients who presented motor aphasia ameliorated the asymmetrical weight distribution and control without improve velocity of gait. The 3 patients, who presented a minor attentive disturbance, showed a significantly improvement of gait parameters without reaching significant results over the stabilometric platform. The regression analysis (where the velocity and weight control changes over time represented the dependent variable with respect to hemiparetic side, cognitive status, gender, height, T0 velocity, T0 hip MRC) outlined cognitive status as associated factor of outcome entity and quality. Initial gait velocity and hip flexion strength were also correlated although these parameters did not differ between right and left hemiparetic patients. Finally EMG measure did not change over time.

Discussion and Conclusion: Cognitive problems influence functional recovery after stroke: they may be important to take into account choosing the rehabilitation methods.

17.4 Kinetic analysis of lateral-wedge insole on symmetry of stance and ambulation in stroke individuals

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Introduction: The stroke patients often have problems with asymmetry of stance and ambulation. This study was to assess the symmetry of weight bearing in stroke patients during stance and ambulation with and without wearing a lateral-wedge insole on the non-paretic side.

Methods: There were sixteen hemiplegic patients (mean age: 54.12±2.85 year old) with mean duration of illness 90.69±21.77 days. The subject with and without 5° lateral-wedge insole performed quiet standing on platforms (AMTI, USA) for 10 seconds, then walked with comfortable speed along a 6-m woody walkway. Symmetry index (SI) indicated the difference between the paretic and non-paretic limbs with zero being symmetric.

Results: The SI of vertical ground reaction force (GRF) during static standing was significantly improved (from 60.82% to 48.02%, $p < 0.05$) after wearing 5° lateral-wedge insole. During walking with wedge on the non-paretic limb, the SI of mean vertical GRF in stance phase was not significantly changed, although the mean vertical GRF on the non-paretic limb decreased significantly from 7.21±0.13 N/kg to 6.94±0.11 N/kg ($p < 0.05$).

Discussion and Conclusion: The 5° lateral-wedge insole on the non-paretic side can improve symmetry of weight bearing during static stance [1], but the effect is not significant during ambulation. The long-term effect of 5° lateral-wedge insole on the non-paretic side needs further investigation.

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17.5 Effect of learning postural tasks on postural stability in patients with poststroke hemiparesis, Parkinson's disease and cerebellar ataxia

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Introduction: Feedback training is an efficient way of posture rehabilitation. The relevant studies concern poststroke patients [1]. The present study investigates the effects of learning postural tasks on postural stability in patients with poststroke hemiparesis (PH), Parkinson's disease (PD) and cerebellar ataxia (CA).

Methods: 20 PH patients, 21 PD patients and 25 CA patients were investigated. The subjects stood on a force platform. The center of pressure (CP) was presented as a cursor on the monitor. The initial body stability during quiet standing and maximum CP displacements during trunk bending in sagittal and frontal planes were recorded. Then the subjects had to align the cursor with the target on the screen and to move the CP whereby the target shifted towards a new position. Two different tasks were used. A daily session lasted 2 min for each task. Duration of the training was 10 days. A control group consisted of 12 PH patients, 15 PD patients and 12 CA patients.

Results: After training the square of the CP displacement during quiet standing decreased and the CP amplitude during bending in both sagittal and frontal planes increased in hemiparetic patients as compared with the control group. The PD and cerebellar patients revealed increase of the bending in sagittal and frontal planes, correspondingly.

Conclusion: The feedback training improves postural stability in the patients with poststroke hemiparesis, Parkinson's disease and cerebellar ataxia.

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