neurophysiological difference between trained and untrained. Topographic and neurophysiological differences of cortical motor representations of differentiated movements during MI can be the basis of new non-invasive brain–computer interface approach.

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ID 277 – The effects of BDNF Val66Met polymorphism on motor learning studied electrophysiologically by sensory-motor integration—S. Deveci[a], Z. Matur[a,b], G. Senturk[a], Y. Kesim[a], Z. Unlusoy-Acar[a], O. Ozdemir[c], E. Yücesan[c], Sibel Ugur-Iseri[c], N. Bebek[a], A.E. Oge[a] ([a]Clinical Neurophysiology, Neurology, Istanbul University, Istanbul Faculty of Medicine, Turkey, [b]Neurology, Istanbul Bilim University, Medical Faculty, Turkey, [c]Genetics, Istanbul University, Institute of Experimental Medicine, Turkey)

Objective: We previously found by performing sensory-motor integration (SMI) studies on sedentary subjects that there were less short latency afferent inhibition and higher facilitation after basketball shooting exercises which partially subsided after exercising for five days. We herein present the effect of brain-derived neurotrophic factor (BDNF) *val66met* polymorphisms on this motor learning process.

Method: Two groups of healthy sedentary subjects [16 Val66Val (group I); 10 Val66Met and 1 Met66Met (group 2)] performed standardized 5-day basketball shooting exercises under supervision. SMI studies were done before and after the exercise on day 1 (T0, T1) and after the exercise on day 5 (T2). SMI was studied by electrical median nerve stimulation at the wrist followed by transcranial magnetic stimulation (TMS) of the contralateral motor cortex. Recordings were made from thenar and flexor carpi radialis (FCR) muscles. Interstimulus intervals between the electrical stimulus and TMS were 20, 35, 50, 65, 80, 100 and 200 ms.

Results: Group 2 had significantly more reduced short afferent inhibition and increased facilitation at T2.

Conclusion: In group 2, persistently increased excitability in the sensory-motor cortex on day five might be the reflection of a defect in changing the learning process into a different mechanism.

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ID 306 – Mirror-box training in healthy subjects and a patient with hemiparesis—R. Rosipal[a], N. Porubcová[b,c], B. Cimrová[c], I. Farkaš[c] ([a]Department of Theoretical Methods, Institute of Measurement Science, Slovak Academy of Sciences, Bratislava, Slovak Republic, [b]ProCare Central Clinic, Bratislava, Slovak Republic, [c]Centre for Cognitive Science, Department of Applied Informatics, Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovak Republic)

Objective: Mirror therapy (MT) is an approach of neurorehabilitation improving motor functions after stroke. MT represents a mental process by which an individual rehearses a given motor action by reflecting movements of the non-paretic side in a mirror as if it were the affected side. Although a number of small-scale research studies have shown encouraging results, there is no clear consensus about the effectiveness of the therapy. The aim of this study is to investigate objective changes in EEG after MT.

Methods: A set of seven healthy volunteers carried-out five mirror-box training sessions. The same training is carried-out twice a week with a patient with hemiparesis for more than six months. The eleven channels of EEG placed over the sensorimotor and left occipital cortex are recorded. In addition to the standard power spectral analysis of EEG we decompose EEG into elemental components or "atoms." We estimate EEG atoms using multiway parallel factor analysis (PARAFAC) for modeling.

Results: Compering resting EEG prior and after training we found statistically significant increase of the motor-related oscillatory μ-rhythm in a hemiparetic patient. Atomic decomposition of EEG shows stable spatio-frequency components of motor-related synchronization and desynchronization of EEG in a hemisphere contralateral to the mirror-box.

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ID 319 – Is the presence of late evoked potentials (N100 wave) a good predictor of survival in comatose patients?—S. Souci, H. Bastuji, L. Garcia-larrea, N. Andre-obadia (Functional Neurology and Epileptology Department, Neurological Hospital, Hospices Civils de Lyon, France)

Objective: The persistence of both early cortical responses (N20, Pa) and late associative potentials (vertex potentials, N100) has been shown to improve the probability of return to consciousness of comatose patients. However, the prognostic value of late responses *without* early cortical potentials has not been documented.

Methods: We report results in 5 comatose patients in whom late N100 responses could be recorded in the absence of reproducible early cortical auditory and/or somatosensory potentials. The etiologies of coma were: anoxic–ischemic after cardiopulmonary arrest (3), brainstem hemorrhage (1) and ischeamic stroke (1).

Results: All patients showed reproducible N100 waves but absence of early cortical auditory and/or somatosensory responses. The EEG was non-reactive in 3 patients. All 5 patients had a poor clinical outcome, toward either death or vegetative state.

Discussion: The presence of N100 wave without previous recordable potentials may be explained either by alternative parallel pathways, or by re-synchronization of an altered ascending volley. Whatever the explanation, the presence of N100 wave may be associated with a good neurological outcome *only* if preceded by early cortical potentials (Pa and N20), but not if early responses are absent.

Key message: Caution should be exerted in interpreting the prognostic value of the N100 wave alone.

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