

Outlasting corticomotor excitability changes induced by 25 Hz whole-hand mechanical stimulation

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The objective was to investigate if whole-hand mechanical stimulation (MSTIM) in the tapping-flutter frequency range induces outlasting poststimulus changes in the hand region of the primary motor cortex. MSTIM was applied to 12 healthy subjects for 20 minutes using a therapeutic stimulation device (Swisswing BMR 2000). Frequencies of 10 and 25 Hz were tested in separate sessions, and for additional control the foot sole was stimulated at 25 Hz. Motor evoked potentials (MEPs) after single (recruitment curves) and paired-pulse transcranial magnetic stimulation (TMS) were recorded from FDI and APB muscles of the right hand. TMS assessments were carried out at baseline (T0), immediately after (T1), 30 min (T2), 1hr (T3) and 2hrs (T4) after end of MSTIM. After vibration with 25Hz, MEP recruitment curves were increased in all post stimulation assessments in both muscles. The most significant effect was achieved at T3 (1h). Intracortical inhibition was decreased within the first hour, while intracortical facilitation was increased in all post stimulation assessments. No significant effects were found following MSTI with 10Hz and following foot vibration. We conclude that 20 minutes sensory stimulation, applied to the hand palm by MSTIM of 25Hz, induces outlasting plastic changes in the primary motor cortex. Paired pulse stimulation further confirms that intrinsic intracortical mechanisms are involved in these changes. Spinal adaptation could be excluded (F-wave assessments). These results could be of relevance for hemiplegic patients with motor deficits to improve the rehabilitation outcome with vibration exercise in combination with motor training.

P-01 POSTER SESSIONS
12.15 – 13.00 h Foyer DEK
 Poster Session
 Chairs J. Claßen, Leipzig, Germany
 J. B. Schulz, Aachen, Germany

P-01-001

Contrast of GSM radiation alpha1 adrenergic receptor in hippocampal CA1 on chronic pain in wister rat
 M. Ahmadi, Karaj, Iran

P-01-002

No effect of globus pallidus internus deep brain stimulation (GPI-DBS) in mitochondrial mutation associated generalised dystonia
 B. Bereznai, Budapest, Hungary
 L. Eröss, A. Gal, G. Inczédy Farkas, M. J. Molnar

P-01-003

L-kynurenine combined with probenecid attenuates changes in CGRP and TRPV1 immunoreactivity of trigeminal ganglion induced by subcutaneous formalin injection into the upper lip of rat
 A. Fejes, Szeged, Hungary
 Z. Bohar, L. Tar, J. Tajti, L. Vecsei, A. Pardutz

P-01-004

Role of the nested genes ALZAS and ALZAS-1 in Alzheimer's disease
 C. Gano, Dresden, Germany
 E. Kienzl, K. A. Jellinger, B. Janetzky

P-01-005

Premorbid level of functioning in MS: evaluation of vulnerability of scores on cognitive measures
 G. Giaglis, Langadas, Greece
 E. Paraskevopoulou, S. Kyriazidou, M. H. Kosmidis, N. Tascos

P-01-006

Modulation of motor cortex excitability by different levels of whole-hand afferent electrical stimulation
 S. Golaszewski, Salzburg, Austria
 A. Kunz, M. Seidl, M. Christova, R. Nardone, E. Trinka, F. Gerstenbrand

P-01-007

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P-01-008

Hemiplegic migraine with reversible cerebral vasoconstriction caused by an ATP1A2 mutation
 A. Hermann, Dresden, Germany
 B. Rautenstrauss, H. Reichmann, E. Jacobasch

P-01-009

Electromyoneurographic findings in patients with ankylosing spondylitis
 D. Janculjak, Osijek, Croatia
 I. Stenc Bradvica, D. S. Vukasinovic Soljagic, S. Soldo Butkovic

P-01-010

Mitochondrial function/biogenesis in fibroblasts from chorea-acanthocytosis (ChAc) and amyotrophic lateral sclerosis (ALS) patients as an indicator of metabolic stress in neurodegenerative disease
 M. Manucharyan, Dresden, Germany
 A. Hermann, R. Gerhard, A. Storch

P-01-011

Oxygen-dependent molecular pathways in dopaminergic neurogenesis
 L. Pape, Dresden, Germany
 A. Herrmann, A.-K. Meyer, A. Hermann, A. Storch

P-01-012

Moving to innovative MS patient management: update Multiple Sclerosis Documentation System "MSDS 3D"
 T. Schultheiß, Dresden, Germany
 F. Kratzsch, R. Kempcke, T. Ziemssen

P-01-013

The effects of the new kynurenic acid derivative to the trigeminal system in the orofacial formalin test of the rat
 L. Tar, Szeged, Hungary
 A. Fejes, Z. Bohár, J. Tajti, F. Fülöp, L. Vecsei, Á. Párdutz

P-01-014

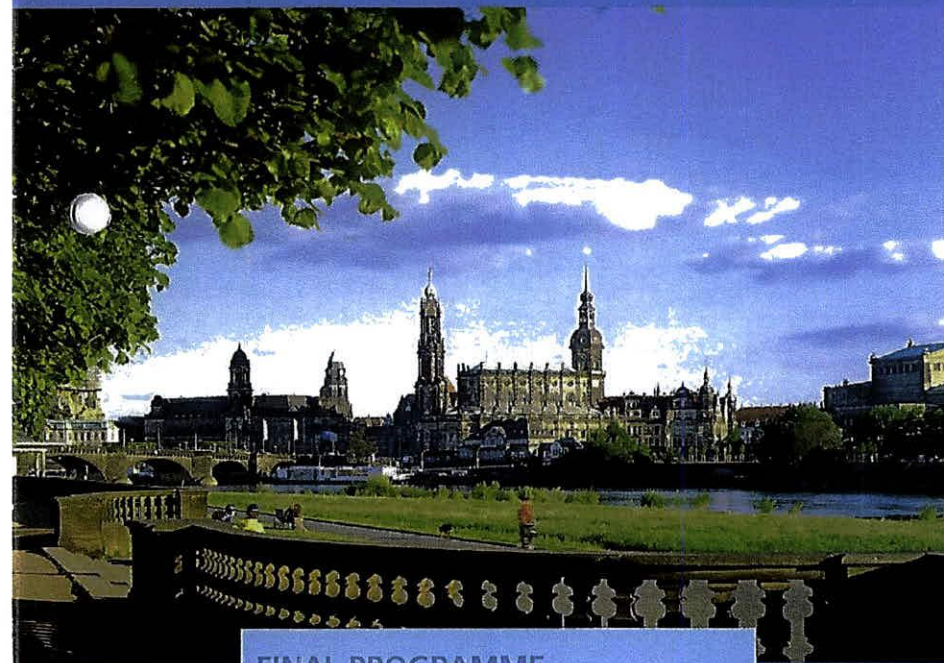
Effects of the vascular endothelial growth factor (vegf) on periventricular mid- and hindbrain neural precursor cells in the adult mouse brain
 G. Weselek, Dresden, Germany
 A. Hermann, S. Keiner, J. Walter, C. Redecker, A. Storch

P-01-015

EEG Biofeedback new promising procedure for neurorehabilitation in pediatric neurology. Where we are and where we want to be
 E. Ziakova, Bratislava, Slovakia
 D. Bartko



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