The multi-professional targeted approach of neurorehabilitation can enhance recovery of functional deficits beyond spontaneous recovery and consequently improve quality of life: Specifically tailored therapeutic interventions address very specific information processes in the brain, re-train skills and thereby improve performance and abilities step by step. As a consequence of training, centres within the brain responsible for these functions become effectively re-actived, functional re-organisation of the brain occurs and ensures long-term benefits of training therapy. The non-invasive brain stimulation techniques of repetitive or patterned transcranial magnetic stimulation (rTMS) can focally influence the excitability of specific brain areas and might promote these functional adaptations in concert with and potentially beyond training therapy. rTMS holds much promise as a potential therapeutic intervention in a wide range of neurological conditions. However, many questions need to be addressed before a more widespread use in clinical practise can be recommended. The symposium on brain stimulation and brain recovery will shed light on these issues.
State-of-the-art knowledge about rTMS effects from animal experiments to clinical trials in conditions such as stroke, Parkinson disease and depression will be presented by senior researchers in the field from all around the world coming from various neuroscience and medical fields. This concentrated multi-disciplinary in depth approach on brain stimulation with rTMS and recovery will facilitate our understanding of mechanisms, effects, and therapeutic potentials of rTMS, and will promote future research from bench to bed side. The results of the symposium will timely be made available with a special issue of the journal Restorative Neurology and Neuroscience.

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Registration:
Please register for the conference at the following URL: www.wiko-greifswald.de/anmeldung

A participation fee of 120 € is charged. Please transfer your participation fee to the address given in the application form within 10 days after registration. Application deadline is August 20, 2010.

The conference language is English.

An international conference organized by the Alfried Krupp Wissenschaftskolleg Greifswald and the neurorehabilitation research group Greifswald, funded by the Alfried Krupp von Bohlen und Halbach-Stiftung, Essen, and the European Union (ImpactG FP7-REGPOT-2008-1).

Alfried Krupp Wissenschaftskolleg Greifswald

Das Alfried Krupp Wissenschaftskolleg Greifswald ist eine wissenschaftlich unabhängige Einrichtung in der Trägerschaft der Stiftung Alfried Krupp Kolleg Greifswald.

Die Initiative zur Errichtung des Alfried Krupp Wissenschaftskollegs Greifswald ging vom Vorsitzenden des Kuratoriums der Alfried Krupp von Bohlen und Halbach-Stiftung, Professor Dr. h. c. mult. Berthold Beitz, aus. Professor Beitz verband mit dieser Initiative die Idee, dass ein Wissenschaftskolleg in der Universitäts- und Hansestadt Greifswald dazu beitragen könne, die Region Greifswald wieder zu demjenigen „liberalen, weltoffenen Zentrum für Begegnungen im Ostseeraum" werden zu lassen, das sie jahrhundertelang war. Diesem Ziel ist das Alfried Krupp Wissenschaftskolleg Greifswald verpflichtet.

Das wissenschaftliche Programm des Alfried Krupp Wissenschaftskollegs wird durch Fördermittel ermöglicht, die von der Alfried Krupp von Bohlen und Halbach-Stiftung zur Verfügung gestellt werden.

Alfried Krupp Wissenschaftskolleg Greifswald

The Alfried Krupp Wissenschaftskolleg is an academically independent institution sponsored by the Stiftung Alfried Krupp Kolleg Greifswald.

The initiative to establish the Alfried Krupp Wissenschaftskolleg came from the Chairman of the Board of Trustees of the Alfried Krupp von Bohlen und Halbach-Stiftung, Professor Dr. h. c. mult. Berthold Beitz. Professor Beitz associated this initiative with the idea that an institute for advanced study in the Hanseatic and university city of Greifswald could assist Greifswald to become once again the „liberal, cosmopolitan centre for encounters in the Baltic Sea region" that it used to be for centuries. The Alfried Krupp Wissenschaftskolleg is committed to this goal.

The academic programme of the Alfried Krupp Wissenschaftskolleg is made possible by financial support provided by the Alfried Krupp von Bohlen und Halbach-Stiftung.

Alfried Krupp Wissenschaftskolleg Greifswald

Brain stimulation and brain repair

Mechanisms, behavioural and clinical effects

International symposium
September 2–4, 2010

Thursday, September 2, 2010

17.00

Welcome Address
Bärbel Friedrich (Greifswald, Germany)
Academic Director of the Alfried Krupp Wissenschafts-kolleg Greifswald

Conference Chair's Address
Thomas Platz (Greifswald, Germany)

Opening Lecture

18.30

Reception and Buffet

Friday, September 3, 2010

9.00 — 12.30

Metabolic and haemodynamic effects of rTMS

Immediate and prolonged effects of theta burst stimulation (TBS) and conventional lowfrequency rTMS on the rat cortex — concepts and overview
Klaus Funke
Institut für Neurophysiologie, Universität Bochum

Theta burst and conventional low-frequency rTMS differentially affect GABAergic neurotransmission in the rat cortex (GAD and Ca-binding proteins expression)
Alia Benali
Institut für Neurophysiologie, Universität Bochum

Neurochemical effects of theta burst stimulation
Charlotte Stagg
FMRIB Centre, University of Oxford

Neural substrates of low-frequency rTMS during movement in healthy subjects and acute stroke patients. A PET study
Angelique Gerdelas-Mas
INSERM U 825, Universités de Toulouse

Assessing the effects of TMS on brain activity in a quantifiable fashion by interleaved TMS/CASL (continuous arterial spin-labeling): Comparison of different rTMS protocols
Axel Thielscher
MPI for Biological Cybernetics, Tübingen

11.00 — 11.30

Coffee break

11.30 — 12.30

Specificity and Modification of rTMS effects

Optimizing functional accuracy of TMS in cognitive studies: a comparison of methods
Alexander Sack
Faculty of Psychology and Neuroscience, Maastricht University

Optimizing stimulation parameters for theta burst stimulation applications
Walter Paulus
Clinical Neurophysiology, Georg-August-University Göttingen

12.30

Lunch break

14.00 — 18.30

The complex relationship between voluntary movement and rTMS-induced plasticity in motor cortex
Gabrielle Todd
School of Molecular and Biomedical Science, University of Adelaide

The effect of continuous theta burst stimulation on circuits in the motor cortex and spinal cord and its modulation by physiological activity and a NMDA receptor antagonist
Ying-Zu Huang
Department of Neurology, Chang Gung Memorial Hospital and Chang Gung University, College of Medicine, Taipei

Suppression of ipsilateral motor cortex facilitates motor skill learning
Masahito Kobayashi
Department of Neurosurgery, Saitama Medical University

15.30 — 16.00

Coffee break

Electrophysiological correlates of reduced pain perception after theta burst stimulation
Andrea Antal
Clinical Neurophysiology, Georg-August-Universität Göttingen

Effects of priming stimulation (metaplasticity) in human rTMS studies — concepts and overview
Michael C. Ridding
Neuromotor Plasticity & Development (NeuroPAD)
The Robinson Institute School of Paediatrics and Reproductive Health, University of Adelaide

Modulation of effects of iTBS applied over M1 by conditioning stimulation of the opposite M1
Patrick Ragert
Max-Planck-Institut für Kognitions- und Neurowissenschaften, Abteilung Kognitive Neurologie, Leipzig

TMS-jamming during complex movement performance — evidence for functional involvement in healthy subjects and stroke patients
Martin Lotze
Baltic Imaging Center, Diagnostische Radiologie und Neuroradiologie, Ernst-Moritz-Arndt-Universität Greifswald

Effects of TBS on motor performance and motor learning and its pharmacological modification
Orlando B.C. Swayne
Sobell Department of Motor Neuroscience and Movement Disorders, Institute of Neurology, University College London

19.00

Social programme

Saturday, September 4, 2010

9.00 — 14.15

Clinical effects of rTMS

Curing the brain by applied neurophysiology — fact or fiction?
John Rothwell
Sobell Department of Motor Neuroscience and Movement Disorders, Institute of Neurology, University College London

Short- and long-term effect of rTMSon motor function recovery after acute ischemic stroke
Eman M. Khedr
Department of Neurology, Assiut University Hospital

Effects of ipsilesional and contralesional rTMS on motor recovery in cortical and subcortical stroke
Dennis A. Nowak
Klinik Kipfenberg, Neurologische und Neurochirurgische Fachklinik

Effects of parietal theta burst stimulation trains on visual attention and visual neglect
Thomas Nyffeler
Abteilung für kognitive und restorative Neurologie, Inselspital Bern

Research with rTMS in the treatment of aphasia
Paula I. Martin, Margaret A. Naeser
Harold Goodglass Boston University, Aphasia Research Center, Department of Neurology, Boston University School of Medicine and the Veterans Affairs

11.00 — 11.30

Coffee break

Effects of coupled rTMS and speech therapy on language and brain activation in subacute stroke patients
Ilona Rubi-Fessen
RehaNova Köln

High-frequency rTMS over the supplementary motor area improves bradykinesia in Parkinson's disease
Masashi Hamada
Department of Neurology, Division of Neuroscience Graduate School of Medicine, University of Tokyo

Cerebellar magnetic stimulation decreases levodopa-induced dyskinesias in Parkinson disease
Giacomo Koch
Laboratorio di Neurologia Clinica e Comportamentale Fondazione Santa Lucia, IRCCS, Rome

Efficacy and safety of bilateral continuous theta burst stimulation (cTBS) for the treatment of chronic tinnitus: a three-armed randomized controlled trial
Christian Plewnia
Neurophysiology & Interventional Psychiatry, Universitätsklinikum Tübingen

Influence of rTMS on depression and its symptoms
Jacqueline Höppner
Universitätsklinik für Psychiatrie und Psychotherapie, Rostock

Antidepressant effects of augmentative transcranial magnetic stimulation. Randomised multicentre trial
Carlos Schönfeldt-Lecuona
Universitätsklinik für Psychiatrie und Psychotherapie III, Ulm

14.00

Closing
Thomas Platz
BDH-Klinik Greifswald
Ernst-Moritz-Arndt-Universität Greifswald

14.15

Farewell lunch