Dear Sir or Madame,

This is our current neuroConn Newsletter with information regarding our work and devices, as well as specialist topics and current events.

Further information can be found at:
www.neuroconn.de / www.adhs-feedback.de

If you would like to contact us, please write to: info@neuroconn.de

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News

neuroConn now neuroCare Group

The end of June brought about a successful change of ownership at neuroConn. With its sights set on advancing neuromodulation in clinical practice worldwide, the neuroCare Group is now the sole owner of neuroConn. Longstanding Co-CEO and partner Prof. Dr Ralf Th. Kersten took up his well-deserved retirement and sold his shares to the neuroCare Group GmbH.

The company founder, Klaus Schellhorn, will also become a shareholder of neuroCare Group GmbH, of which the other principle shareholders include the Passion Investment Group from entrepreneurs Thomas Mechtersheimer (longtime industry expert and former board member at Fresenius Kabi AG; he holds the biggest share) and Dirk Mohrmann (founder of World Compliance), the KITES GmbH from Peter Nietzer and his co-investors (Peter Nietzer is the supervisory board chairman of Voxeljet). We will provide you with detailed information on the new shareholders, as well as the strategies of neuroCare Group soon.

The thing that unites us we can already clearly sense: Working together over the coming years towards our common vision of establishing neuromodulation as another pillar for psychiatric diseases, pain management and rehabilitation.

This requires not only good devices, which we have provided to more than 1,500 customers worldwide, but further support as well.

On that note, we would like to give a warm welcome to Dr Kerstin Mayer, Dr Martijn Arns and Dipl.-Psych. Tilmann Gaber to our team in Europe and we are also happy to welcome Mr Lai Bou Leong. He is based in Singapore and is managing the neuroCare Asia region. We are currently in the process of further expanding our team, as well as opening and/or acquiring clinics. More details on this will be given shortly.

We will combine our expertise in technology with education and clinically proven protocols in order to ensure affordable, effective and sustainable care for patients.

All of this is not only a reason to celebrate, but also an opportunity to thank those who have accompanied us on this journey over the last 15 years.

New CE identification number for neuroConn medical devices

As of 8 August 2015, the following medical devices of neuroConn GmbH

THERA **PRAX**®, NEURO **PRAX**®, DC-**STIMULATOR**

are certified with the identification number CE 0123 of the Notified Body TÜV SÜD Product Service GmbH, Munich, Germany.

From Research & Technology: tDCS

tDCS and Effectiveness

The effectiveness of transcranial direct current stimulation (tDCS) is currently a discussed topic in the media. If you take a look at NIH databases, it shows an increase of more than 2,000 publications, particularly within the last five years.

A review by Horvath is currently being discussed intensively in the scientific world. It is disputed whether or not a physiological effect of tDCS, with the exception of stimulation of the motor cortex, can be seen at all. Particularly concerned with these statements were

the European scientists who have conducted intensive research in this area over the last 15 years. In their reply, they refer to the conceptual and procedural weaknesses of the review. They conclude that the review is unable to make a contribution towards the affectiveness or inaffectiveness of tDCS due to lacking quality of its statements.

Seeing Better with Alternating Current

The team led by Prof. Dr Bernard Sabel at the University of Magdeburg, Germany, has improved vision of those with various eye diseases with alternating current (tACS). To do so, the DC-STIMULATOR MC applies weak electrical impulses through the optic nerve to the visual center of the brain via electrodes placed around the closed eyes. This is done over several sessions, each lasting 30 minutes. The tACS stimulates the nerves in the visual center, allowing the visual stimuli to be better interpreted. The therapy may help to ensure that damaged areas in the visual field disappear.

More information: Film "New Visions for Partial Blindness"

Depression: tDCS improves processing of negative emotions

Individuals with depression perceive negative information very strongly. At the same time, they are unable to control and cope with negative perceptions, thoughts and feelings in a normal way. Activation of the left frontal lobe through transcranial direct current (tDCS), however, helped the participants of a study by the Tuebingen research teams of Prof. Christian Plewnia and Dr Larissa Wolkenstein. The stimulation temporarily eliminated their increased attention for negative information. In a second study, healthy test participants were given the same stimulation. These individuals were better able to suppress anger when failing a concentration task, therefore increasing their concentration.

Recently in the Media: tDCS

"Unter Strom": Survey article (in German) on transcranial brain stimulation by Prof. Dr Walter Paulus, University of Goettingen, Brain and Mind; No. 6/205

"Gehirn unter Strom": Article (in German) on electrical brain stimulation in severe neurological disorders, Focus; No. 9/15

BBC Contribution: tDCS is safe when used for medical purposes and under medical supervision.

From Research & Technology: Neurofeedback

Sleep quality improves through Neurofeedback

Neurofeedback training of the sensorimotor rhythm (SMR) can help individuals with moderate sleep disorders. This was found by researchers at the University of Salzburg in Austria in a study funded by FWF Wissenschaftsfonds. After ten training sessions with THERA **PRAX**®, sleep quality, as well as memory consolidation during sleep, improved for 16 of the 24 participants.

The sensorimotor rhythm is an EEG frequency range between 12 to 15 Hertz, and is especially apparent while falling asleep and during light sleep. This frequency has generally been trained in a waking state. For those with chronic sleeping problems, however, the training was ineffective.

A Dutch study on SMR-Neurofeedback by Dr Martijn Arns also resulted in sleep improvement. At the same time, the ADHD group saw a decrease in ADHD symptoms. An earlier study by Arns showed that the intensity of ADHD symptoms is closely linked to the quality of sleep and sleep onset problems. These studies show a close connection between Neurofeedback, sleep and symptom severity.

Neurofeedback improves control over impulsive and aggressive behavior in psychopaths

In addition to our contribution in Newsletter 6, we can now report back on the results of the Neurofeedback study in forensic psychiatry. Tuebingen researchers Prof. Dr Niels Birbaumer and Dr Lilian Konicar were able to establish that even imprisoned psychopaths are able to better activate regions of the brain that are responsible for self-regulation, aggression control and the development of fear.

Under high security, the inmates trained self-regulation of slow cortical potentials (SCP) with THERA **PRAX**® for 25 sessions. Following the training, participants were better able to control aggressive and impulsive behavior under test conditions. According to Dr Konicar, future studies are required to comfirm whether Neurofeedback is generally applicable as neurobiological therapy for these types of people.

More about this research: 3sat TV Report, FAZ Wissen (in German).

In addition, we refer to an earlier case study from the University of Nottingham, UK. In this study, a forensic patient with severe personality disorders trained with SCP Neurofeedback, showed improvements on the neurophysiological and behavioral level.

Newest developments for Neurofeedback in therapeutic practice

Recent publications have further strengthened the effectiveness of Neurofeedback: Here are a few examples:

Dr Björn Albrecht and Dr Holger Gevensleben from the University of Göttingen, Germany, published results on the pathological backgrounds of ADHD and the possible mechanisms of action underlying Neurofeedback. The same research group examined changes in brain activation in a small group of healthy adults. They did this with a demanding study design. The study found effects on the ADHD relevant brain structures and activity patterns.

In addition, the presentation of preliminary results of the large German multicenter study on the effect of Neurofeedback on ADHD by Prof. Dr Dr Martin Holtmann and Prof. Dr Daniel Brandeis were promising. The presentations, held during the annual meeting of the DGKJP (German Society for Child and Youth Psychiatry) in Munich, Germany and the World Congress on ADHD in Glasgow, UK, provided further foundation for the main goal of recognition of Neurofeedback.

In an interview (in German) published in *pädiatrie: Kinder- und Jugendmedizin hautnah* 2015, Prof. Dr Dr Holtmann described Neurofeedback as complimentary to already established ADHD therapies that might replace medications in single cases.

All of these published or ongoing studies will eventually lead to an even higher rate of acceptance and recognition by insurance companies. In Germany initial achievements were already seen in 2012 for occupational therapy and 2014 for behavioral therapy. Corresponding documents by the German National Association of Statutory Health Insurance Funds (GKV) and the German National Association of Statutory Health Insurance Physicians (KBV) are available to us.

Recently in the German Media: Neurofeedback

„Wie der Kopf sich gesund trainiert“: 15-page cover story in GEO; 04/April 2015.

Neurofeedback workshops at neuroConn

Record number of participants at this year’s THERA **PRAX**® **User Conference**

Never before have we seen such a large interest in our THERA **PRAX**® User Conference than we saw this year. In mid-June, we welcomed nearly 60 users of our Neurofeedback system to Elgersburg near Ilmenau. We’d like to give many thanks to our guest speakers PD Dr Ute Strehl from the University of Tuebingen, Germany, Dr Edith Schneider from the Practice for Neurofeedback in Stuttgart, Germany, and Prof. Dr Herbert Bauer from the University of Vienna, Austria for their extensive therapeutic and scientific explanations, thoughts and discussion topics.

Workshops and Conferences

Workshop Recommendations 2015

Workshops on Neurofeedback:

3 September 2015: Neurofeedback of the Slow Cortical Potentials (in English), Dr. Kerstin Mayer, neuroCare group, Sao Paolo, Brazil [more]

25 – 26 September 2015: Masterclass Neuromodulation and Personalized Medicine QEEG, ERP, rTMS, tDCS, Neurofeedback (in English), Brainclinics, Nijmegen, The Netherlands [more]

6 – 9 October 2015: Neurofeedback in ADHD and insomnia: 4-day course (in English), Brainclinics, Nijmegen, The Netherlands [more]

26 November 2015: Neurofeedback – basics, application and scientific evidence (in German), Berlin, Germany [more]

4 – 5 December 2015: Neurofeedback in ADHD (in German), Akademie bei König & Müller, Dr Kerstin Mayer, neuro-Care Group, training equipment: THERA **PRAX**® MOBILE and NeXus, Veitshöchheim, Germany [more]

Workshops for Transcranial Stimulation:

22 – 25 September 2015: Donders Institute Transcranial Brain Stimulation Toolkit (in English), Nijmegen, The Netherlands [more]

25 – 26 September 2015: Masterclass Neuromodulation and Personalized Medicine Q-EEG, ERP, rTMS, tDCS, Neurofeedback (in English), Brainclinics, Nijmegen, The Netherlands [more]

Further Workshops by neuroCare Group on the use of rTMS for Depression and Neurofeedback of slow cortical potentials for ADHD can be found in the next newsletter or on our websites at www.neuroconn.com and www.brainclinic.com.

neuroConn Exhibitions/Conferences 2015

1 - 5 September 2015: BaCI, International Conference on Basic and Clinic Multimodal Imaging, Utrecht, Netherlands [more]

9 – 13 September 2015: Munich Neurophysiology Conference 2015, Munich, Germany [more]

17 – 21 October 2015: SfN 2015, Society for Neuro-science, Chicago, USA [more]

29 – 31 Ocotober 2015: Annual meeting of BKJPP, Mainz, Germany [more]

25 – 28 November 2015: Annual meeting of DGPPN, Berlin, Germany [more]

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