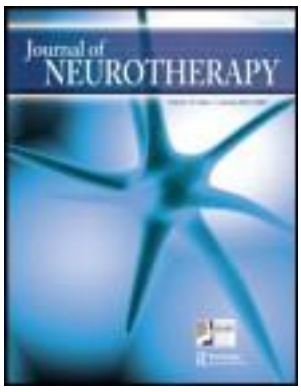

Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience

News from Other Journals and Websites

Martijn Arns Senior Editor

Published online: 26 Feb 2011.

To cite this article: Martijn Arns Senior Editor (2011) News from Other Journals and Websites, Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience, 15:1, 87-89, DOI: 10.1080/10874208.2011.545974

To link to this article: http://dx.doi.org/10.1080/10874208.2011.545974

Journal of Neurotherapy, 15:87–89, 2011

ISSN: 1087-4208 print/1530-017X online
DOI: 10.1080/10874208.2011.545974

Routledge
Taylor & Francis Group

NEWS FROM OTHER JOURNALS AND WEBSITES

Martijn Arns, Senior Editor

In the following section, interesting new articles recently published are summarized. The articles are mainly from the broad area of Applied Neurosciences with a focus on neurofeedback, brain computer interface, quantitative EEG, and real time transcranial magenetic stimulation. These are the articles, which could be found between September 7, 2010, and December 2, 2010.

NEUROFEEDBACK

Lansbergen, M. M., van Dongen-Boomsma, M., Buitelaar, J. K., & Slaats-Willemse, D. (in press). ADHD and EEG-neurofeedback: A double-blind randomized placebo-controlled feasibility study. *Journal of Neural Transmission*.

The first published, double-blind, randomized, placebo-controlled feasibility study investigating the effects of neurofeedback in ADHD. This study failed to find a difference between the placebo (noncontingent or random feedback) and neurofeedback. This study also had several methodological limitations such as the use of auto-tresholding, a small sample size, and QEEG-based protocols rated by one rater leading to 2-channel neurofeedback protocols aiming to train sensory motor rhythm at F3 and F4 (?). However, the effect sizes of the neurofeedback group were comparable to other published studies, with the placebo group demonstrating a rather large effect size. In line with other studies, such as the article by Perreau-Linck et al. (2010) in Volume 14, Issue 3 of this journal, and the results from the OSU study, a pattern is emerging of several independent reports on small studies demonstrating rather large effects of placebo neurofeedback in ADHD, operationalized as a ''random reinforcement'' schedule or ''noncontingent feedback.'' The task ahead is to further understand these phenomena, which could be explained by the fact either that a procedure such as neurofeedback is characterized by a large ''placebo'' effect or maybe that the ''random reinforcement'' schedule used is not truly passive and hence an invalid control group. Based on principles from learning theory, there are reasons to suspect a random reinforcement schedule—such as was used—might not be an inactive condition as demonstrated already in 1948 by Skinner, who showed that such a reinforcement schedule in pigeons led to superstitious behavior.

Zoefel, B., Huster, R. J., & Herrmann, C. S. (2010). Neurofeedback training of the upper alpha frequency band in EEG improves cognitive performance. *Neuroimage*. Advance online publication. doi:10.1016/j.neuroimage.2010.08.078.

This study uptrained individually adjusted upper-alpha and demonstrated improved performance on a mental rotation task and a specific increased power in the upper alpha band. The majority of subjects were able to learn to regulate their upper alpha EEG power.

Wangler, S., Gevensleben, H., Albrecht, B., Studer, P., Rothenberger, A., Moll, G. H., & Heinrich, H. (in press). Neurofeedback in children with ADHD: Specific event-related potential findings of a randomized controlled trial. *Clinical Neurophysiology*.

This study reports on the effects of Neurofeedback on the contingent negative variable (CNV) using data from the Gevensleben studies. Only SCP neurofeedback training resulted in an increased CNV posttraining. Furthermore, a larger pretraining CNV was associated with a

larger reduction of ADHD symptomatology for SCP neurofeedback.

Choi, S. W., Chi, S. E., Chung, S. Y., Kim, J. W., Ahn, C. Y., & Kim, H. T. (2011). Is alpha wave neurofeedback effective with randomized clinical trials in depression? A pilot study. *Neuropsychobiology, 63*(1), 43–51.

The first randomized controlled study investigating the effects of alpha-asymmetry neurofeedback in depressive patients employing a psychotherapy control group. The results demonstrated patients developed a ''left frontal dominance'' evidenced by an increased right frontal alpha, only for the neurofeedback group. About 50% of patients demonstrated a clinically meaningful improvement in their depressive symptoms.

Jann, K., Koenig, T., Dierks, T., Boesch, C., & Federspiel, A. (2010). Association of individual resting state EEG alpha frequency and cerebral blood flow. *Neuroimage, 51*(1), 365–372.

This study demonstrated clear associations between individual alpha peak frequency and cerebral blood flow in specific areas of the brain. The authors hypothesize that high alpha peak frequencies have preactivated task-relevant networks and thus are both more efficient in the task executions and show a reduced fMRI-BOLD response to the stimulus, not because the absolute amount of activation is smaller but because the additional activation by processing of external input is limited due to the higher baseline.

Congedo, M., John, R. E., De Ridder, D., & Prichep, L. (2010). Group independent component analysis of resting state EEG in large normative samples. *International Journal of Psychophysiology, 78*(2), 89–99.

This study used group blind source separation with two different EEG databases (test–retest) where seven unique patterns were obtained with each of their unique spatial distributions and spectral profiles.

Boggio, P. S., Rocha, M., Oliveira, M. O., Fecteau, S., Cohen, R. B., Campanhã, C., ... Fregni, F. (2010). Noninvasive brain stimulation with high-frequency and low-intensity repetitive transcranial magnetic stimulation treatment for posttraumatic stress disorder. *The Journal of Clinical Psychiatry, 71,* 992–999.

This study investigated the differential effects of several rTMS stimulation protocols in posttraumatic stress disorder. This study demonstrated that left frontal high-frequency rTMS improved mainly depressive complaints, whereas right frontal high-frequency rTMS specifically affected the anxiety complaints and also had the best effect on posttraumatic stress disorder complaints overall.

Duschek, S., Schuepbach, D., Doll, A., Werner, N. S., & Reyes Del Paso, G. A. (2010). Self-Regulation of cerebral blood flow by means of transcranial dopplersonography biofeedback. *Annals of Behavioral Medicine*. Advance online publication. doi:10.1007/s12160-010-9237-x

This study explored the possibility for self-regulation of intracranial blood flow by using Transcranial Doppler Sonography. One half of the participants were asked to increase and the other half to decrease their flow velocities and were successful. The authors mention migraine and poststroke rehabilitation as possible clinical applications.

Weber, E., Köberl, A., Frank, S., & Doppelmayr, M. (2010). Predicting successful learning of SMR neurofeedback in healthy participants: Methodological considerations. *Applied Psychophysiology and Biofeedback*. Advance online publication. doi:10.1007/s10484-010-9142-x

This study describes a method for predicting which individuals will be able to learn to control their sensory motor rhythm.

Blankertz, B., Sannelli, C., Halder, S., Hammer, E. M., Kübler, A., Müller, K. R., ... Dickhaus, T. (2010). Neurophysiological

predictor of SMR-based BCI performance. *Neuroimage, 51,* 1303–1309.

A method using eyes-open EEG to predict how well people will learn to control a brain computer interface using sensory motor rhythm.

Fitzgerald, P. B., Hoy, K., Gunewardene, R., Slack, C., Ibrahim, S., Bailey, M., & Daskalakis, Z. J. (2010). A randomized trial of unilateral and bilateral prefrontal cortex transcranial magnetic stimulation in treatment-resistant major depression. *Psychological Medicine, 7,* 1–10.

This study compared slow transcranial magnetic stimulation (TMS) to the right dorsolateral prefrontal cortex (DLPFC) with two forms of bilateral treatment in depression: (a) sequential right DLPFC slow TMS followed by left DLPFC high-frequency TMS and (b) sequential right DLPFC slow TMS followed by slow left DLPFC TMS. There were no differences between the groups, and the authors call into question the specificity between frequency and laterality and rTMS response.

Mathiak, K. A., Koush, Y., Dyck, M., Gaber, T. J., Alawi, E., Zepf, F. D., … Mathiak, K. (2010). Social reinforcement can regulate localized brain activity. *European Archives of Psychiatry and Clinical Neuroscience*. Advance online publication. doi:10.1007/s00406-010-0135-9

This study investigated fMRI-based neurofeedback of the anterior cingulate and used a computer-generated image that provided feedback in the form of a smiling face. The results suggest that such social reinforcement can be used as a reinforcer in operant conditioning.

Pop-Jordanova, N., Zorcec, T., Demerdzieva, A., & Gucev, Z. (2010). QEEG characteristics and spectrum weighted frequency for children diagnosed as autistic spectrum disorder. *Nonlinear Biomedical Physics, 4*(1), 4.

A QEEG study in autism reporting increased delta and theta in the frontal region of the brain and lower brain rate at Cz (spectrum weighted frequency).

Cryan, J. F., & O'Leary, O. F. (2010). A glutamate pathway to faster-acting antidepressants. *Neuroscience, 329*(5994), 913–914.

This article in neuroscience covers in more detail the potential pathway involved with the very fast-acting antidepressant effects of Ketamine in depression.

Arns, M. (2010). Handboek of neurofeedback bjj ADHD. [Handbook of neurofeedback in ADHD]. In *Handboek neurofeedback in ADHD*. Amsterdam: SWP.

The *Handbook of Neurofeedback in ADHD* was published covering many relevant aspects related to the treatment of ADHD with neurofeedback such as QEEG, neuropsychological impairments, clinical embedding of neurofeedback, and so on. Many authors from the Netherlands contributed to this handbook.