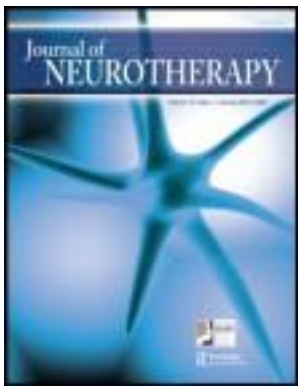

Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience

NEWS FROM OTHER JOURNALS AND WEBSITES

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NEWS FROM OTHER JOURNALS AND WEBSITES

David A. Kaiser, PhD, Editor

Neurotherapy papers appeared in five other journals this last quarter. Authors are encouraged to submit recent preprints or reprints for this section and anyone can submit reviews or recommend websites. Contact David Kaiser at dakaiser@mail.rit.edu

NEUROTHERAPY

Congedo, M., Lubar, J. F., & Joffe, D. (2004). Low-resolution electromagnetic tomography neurofeedback. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, *12*, 387-397.

Describes the first application of an EEG inverse solution for neurofeedback.

Duff, J. (2004). The usefulness of quantitative EEG (QEEG) and neurotherapy in the assessment and treatment of post-concussion syndrome. *Clinical EEG and Neuroscience*, *35*, 198-209.

QEEG can identify post-concussion syndrome and neurotherapy may redress symptoms of post-concussion syndrome.

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Egner, T., Zech, T. F., & Gruzelier, J. H. (2004). The effects of neurofeedback training on the spectral topography of the electroencephalogram. *Clinical Neurophysiology*, *115*, 2452-2560.
Alpha/theta training produced replicable reductions in frontal beta activity.

Gruzelier, J., & Egner, T. (2005). Critical validation studies of neurofeedback. *Child and Adolescent Psychiatric Clinics of North America*, *14*, 83-104.
Validates neurofeedback protocols for improving attention, memory, and performance in healthy participants.

Hammond, D. C. (2005). Neurofeedback with anxiety and affective disorders. *Child and Adolescent Psychiatric Clinics of North America*, *14*, 105-123.
A more recent neuroscience technology, electroencephalographic biofeedback, holds promise as a methodology for retraining abnormal brain wave patterns.

Hirshberg, L. M., Chiu, S., & Frazier, J. A. (2005). Emerging brain-based interventions for children and adolescents: Overview and clinical perspective. *Child and Adolescent Psychiatric Clinics of North America*, *14*, 1-19.
Brief overview of emerging interventions as to their success via medical standard. Neurofeedback is effective for ADHD, seizure disorders, anxiety, depression, and traumatic brain injury.

Kropotov, J. D., Grin-Yatsenko, V. A., Ponomarev, V. A., Chutko, L. S., Yakovenko, E. A., & Nikishena, I. S. (2005). ERP correlates of EEG relative beta training in ADHD children. *International Journal of Psychophysiology*, *55*, 23-34.
ADHD children (n = 86) underwent approximately 20 sessions of EEG biofeedback, enhancing 15-18 Hz relative power, and other components. Good performers acquired a positive evoked component over frontal-central areas as a result of training.

Monastra, V. J. (2005). Electroencephalographic biofeedback (neurotherapy) as a treatment for attention deficit hyperactivity disorder: Rationale and empirical foundation. *Child and Adolescent Psychiatric Clinics of North America*, *14*, 55-82.

Reviews rationale for EEG biofeedback and examines empirical support for this treatment modality.

Thornton, K. E., & Carmody, D. P. (2005). Electroencephalogram biofeedback for reading disability and traumatic brain injury. *Child and Adolescent Psychiatric Clinics of North America*, *14*, 137-162.

Initial support for improving brain injury and reading disabilities with neurofeedback.

Trudeau, D. L. (2005). Applicability of brain wave biofeedback to substance use disorder in adolescents. *Child and Adolescent Psychiatric Clinics of North America*, *14*, 125-136.

Discusses medication-free, neurophysiologic, and self-actualizing treatment for substance use populations.

Walker, J, E., & Kozlowski, G. P. (2005). Neurofeedback treatment of epilepsy. *Child and Adolescent Psychiatric Clinics of North America*, *14*, 163-176.

Electroencephalographic biofeedback can eliminate seizures or reduce the amount of medication required to control them.

ELECTROENCEPHALOGRAPHY

Byring, R. F., Haapasalo, S., & Salmi, T. (2004). Adolescents with learning disorders have atypical EEG correlation indices. II. Correlation indices during reading. *Clinical Neurophysiology*, *115*, 2584-2592.

Reading was associated with high correlations in EEG indices within the right hemisphere in reading and writing impaired students.

Chabot, R. J., di Michele, F., & Prichep, L. (2005). The role of quantitative electroencephalography in child and adolescent psychiatric disorders. *Child and Adolescent Psychiatric Clinics of North America*, *14*, 21-53.

Critical review of quantitative EEG research relevant to its clinical application. Includes a neurophysiologic model of ADD.

Davydov, D. M., & Polunina, A. G. (2004). Heroin abusers' performance on the Tower of London Test relates to the baseline EEG alpha2 mean frequency shifts. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *28*, 1143-1152.

Planning dysfunction in heroin abusers is related to high alpha frequency shifts at central regions.

Franken, I. H., Hulstijn, K. P., Stam, C. J., Hendriks, V. M., & van den Brink, W. (2004). Two new neurophysiological indices of cocaine craving: Evoked brain potentials and cue modulated startle reflex. *Journal of Psychopharmacology*, *18*, 544-552.

Using the ERP paradigm, cocaine-dependent subjects show augmented slow-positive waves in response to cocaine pictures compared to neutral pictures.

Ilan, A. B., Smith, M. E., & Gevins, A. (2004). Effects of marijuana on neurophysiological signals of working and episodic memory. *Psychopharmacology (Berlin)*, *176*, 214-222.

Marijuana decreases global theta power and responses in a working memory task were accompanied by reduced alpha band reactivity in response to increased task difficulty.

Jin, S. H., Na, S. H., Kim, S. Y., & Kim, D. J. (2004). Effects of total sleep-deprivation on waking human EEG: functional cluster analysis. *Clinical Neurophysiology*, *115*, 2825-2833.

Cluster analysis to characterize interactions among many brain regions after sleep deprivation revealed a decoupling of neuronal activities between C3 and F7 location.

Loo, S. K., Hopfer, C., Teale, P. D., & Reite, M. L. (2004). EEG correlates of methylphenidate response in ADHD: Association with cognitive and behavioral measures. *Journal of Clinical Neurophysiology*, *21*, 457-464.

Increased frontal beta activity was correlated with med-related improvement on the Conners' CPT and parental ratings. Decreased right frontal theta activity was associated with parent-rated attention improvements.

Sachs, G., Anderer, P., Dantendorfer, K., & Saletu, B. (2004). EEG mapping in patients with social phobia. *Psychiatry Research*, *131*, 237-247.

Trait anxiety and depression scores correlated positively with alpha activity and negatively with theta, suggesting a hyperarousal pathogenetic factor of anxiety.

van Putten, M. J., & Tavy, D. L. (2004). Continuous quantitative EEG monitoring in hemispheric stroke patients using the brain symmetry index. *Stroke*, *35*, 2489-2492.

A brain symmetry index may be used to monitor possible changes of brain function after stroke.

CLINICAL NEUROSCIENCE AND OTHERS

Apkarian, A. V., Sosa, Y., Sonty, S., Levy, R. M., Harden, R. N., Parrish, T. B., et al. (2004). Chronic back pain is associated with decreased prefrontal and thalamic gray matter density. *Journal of Neuroscience*, *24*, 10410-10415.

Chronic back pain is accompanied by brain atrophy and the pathophysiology of chronic pain includes thalamocortical processes.

Cardillo, E. R., Aydelott, J., Matthews, P. M., & Devlin, J. T. (2004). Left inferior prefrontal cortex activity reflects inhibitory rather than facilitatory priming. *Journal of Cognitive Neuroscience*, *16*, 1552-1561.

The left inferior prefrontal cortex inhibits interference from prepotent representations during task-appropriate target selection. This is consistent with its role in behavioral inhibition.

Eden, G. F., Jones, K. M., Cappell, K., Gareau, L., Wood, F. B., Zeffiro, T. A., et al. (2004). Neural changes following remediation in adult developmental dyslexia. *Neuron*, *44*, 411-422.

Tutored dyslexic adults produce increased activity in left-hemisphere regions engaged by normal readers and right perisylvian cortical activity.

Eldreth, D. A., Matochik, J. A., Cadet, J. L., & Bolla, K. I. (2004). Abnormal brain activity in prefrontal brain regions in abstinent marijuana users. *Neuroimage*, *23*, 914-920.

Marijuana users display persistent metabolic alterations in brain regions responsible for executive cognitive functioning and they may recruit alternative networks to compensate for this, possibly leading to maladaptive behaviors.

Husted, D. S., & Shapira, N. A. (2004). A review of the treatment for refractory obsessive-compulsive disorder: From medicine to deep brain stimulation. *CNS Spectrums*, *9*, 833-847.

Review of latest research including pharmaceuticals, vagal nerve stimulation, transcranial magnetic stimulation, deep brain stimulation, and psychosurgery.

Ohayon, M. M., Carskadon, M. A., Guilleminault, C., & Vitiello, M. V. (2004). Meta-analysis of quantitative sleep parameters from childhood to old age in healthy individuals: Developing normative sleep values across the human lifespan. *Sleep*, *27*, 1255-1273.

Total sleep time, sleep efficiency, percentage of slow-wave and REM sleep, and REM latency decrease with age in adults, while sleep latency, percentage of stage 1 and stage 2 and wake after sleep onset increase with age.

Shea, A., Walsh, C., Macmillan, H., & Steiner, M. (2005). Child maltreatment and HPA axis dysregulation: Relationship to major depressive disorder and post traumatic stress disorder in females. *Psychoneuroendocrinology*, *30*, 162-178.

Both MDD and PTSD are associated with a dysregulation of the Hypothalamic-Pituitary-Adrenal (HPA) axis. Highlights the relevance of early stress to later onset of psychiatric disorders.

Tryon, W. W., Jason, L., Frankenberry, E., & Torres-Harding, S. (2004). Chronic fatigue syndrome impairs circadian rhythm of activity level. *Physiology and Behavior*, *82*, 849-853.

CFS yielded lower daytime activity and less regular activity-rest cycles

Volkow, N. D., Fowler, J. S., & Wang, G. J. (2004). The addicted human brain viewed in the light of imaging studies: Brain circuits and treatment strategies. *Neuropharmacology*, *47 Suppl*, 3-13.

Chronic drug consumption results in a marked decrease in dopamine activity, associated with dysregulation of orbitofrontal cortex and cingulate gyrus.