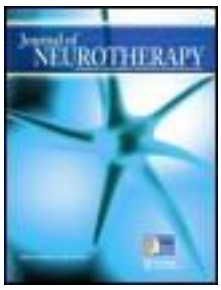

Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience

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NEWS FROM OTHER JOURNALS AND WEBSITES

David A. Kaiser, PhD, Editor

As you'll see, many important EEG, clinical neuroscience, and mental health articles were published the last few months. Authors are encouraged to submit recent preprints and/or reprints for this section and anyone can submit reviews or recommend websites. Contact David Kaiser at davidkaiser@yahoo.com.

NEUROTHERAPY

Monastra, V. J., Lynn, S., Linden, M., Lubar, J. F., Gruzelier, J., & La Vaque, T. J. (2005). Electroencephalographic biofeedback in the treatment of attention-deficit/hyperactivity disorder. *Applied Psychophysiology & Biofeedback*, *30*, 95-114.

Clinical improvement was reported in three-quarters of ADHD patients, but more controlled group studies are needed.

Scolnick, B. (2005). Effects of electroencephalogram biofeedback with Asperger's syndrome. *International Journal of Rehabilitation Research*, *28*, 159-163.

Pilot study of EEG biofeedback on five boys with Asperger's syndrome showed improved behavior as rated by parents and teachers.

Xiong, Z., Shi, S., & Xu, H. (2005). A controlled study of the effectiveness of EEG biofeedback training on children with attention deficit hyperactivity disorder. *Journal of Huazhong University of Science & Technology. Medical Science*, *25*, 368-370.

Reports an effectiveness for EEG biofeedback training above 90% after 40 sessions of EEG biofeedback training for ADHD children (6 years or older).

ELECTROENCEPHALOGRAPHY

Babiloni, C., Binetti, G., Cassarino, A., Dal Forno, G., Del Percio, C., Ferreri, F., et al. (2006). Sources of cortical rhythms in adults during physiological aging: A multicentric EEG study. *Human Brain Mapping*, *27*, 162-172.

Age and occipital delta magnitude correlated. This study highlights an analysis to predict dementia in mild cognitive impairment.

Deldin, P. J., & Chiu, P. (2005). Cognitive restructuring and EEG in major depression. *Biological Psychology 70*, 141-151.

Initial use of EEG frontal asymmetry as an indicator for mood improvement following cognitive restructuring.

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doi:10.1300/J184v10n01_07

di Michele, F., Prichep, L., John, E. R., & Chabot, R. J. (2005). The neurophysiology of attention-deficit/hyperactivity disorder. *International Journal of Psychophysiology*, *58*, 81-93.

Reviews neurobiology of ADHD and concludes there is no single pathophysiological profile underlying this disorder although two QEEG subtypes have been reported.

Doppelmayr, M., Klimesch, W., Sauseng, P., Hodlmoser, K., Stadler, W., & Hanslmayr, S. (2005). Intelligence related differences in EEG-bandpower. *Neuroscience Letters*, *381*, 309-313.

Intelligence is reflected in EEG activity by both lower and higher activations: A contradiction reflecting differences in task difficulty. Intelligence is the ability to organize energy effectively.

Ferri, R., Rundo, F., Bruni, O., Terzano, M. G., & Stam, C. J. (2005). Dynamics of the EEG slow-wave synchronization during sleep. *Clinical Neurophysiology*, *116*, 2783-2795.

Different roles for each sleep stage and REM/NREM cycle were observed in terms of EEG synchronization.

Fingelkurts, A. A., Fingelkurts, A. A., Ermolaev, V. A., & Kaplan, A.Y. (2006). Stability, reliability and consistency of the compositions of brain oscillations. *International Journal of Psychophysiology*, *59*, 116-126.

Using a probability-classification analysis of short-term EEG spectral patterns, researchers found relatively low variability within and between sessions for individuals.

Hagemann, D., Hewig, J., Naumann, E., Seifert, J., & Bartussek, D. (2005). Resting brain asymmetry and affective reactivity: Aggregated data support the right-hemisphere hypothesis. *Journal of Individual Differences*, *26*, 139-154.

EEG evidence that the right hemisphere is critical in the automatic generation of emotional responses.

Hughes, S. W., & Crunelli, V. (2005). Thalamic mechanisms of EEG alpha rhythms and their pathological implications. *The Neuroscientist*, *11*, 357-372.

According to the authors, the neurocellular components underlying thalamic alpha rhythms is also responsible for (2-7 Hz) activity when these cells are less depolarized.

Jenni, O. G., van Reen, E., & Carskadon, M. A. (2005). Regional differences of the sleep electroencephalogram in adolescents. *Journal of Sleep Research*, *14*, 141-147.

EEG evidence of the stability of sleep homeostasis across puberty.

Morgan, M. L., Witte, E. A., Cook, I. A., Leuchter, A. F., Abrams, M., & Siegman B. (2005). Influence of age, gender, health status, and depression on quantitative EEG. *Neuropsychobiology, 52*, 71-76.

Prefrontal cordance in theta activity, independent of demographic variables, was associated with pathophysiology of depression and response to treatment.

Oberman, L. M., Hubbard, E. M., McCleery, J. P., Altschuler, E. L., Ramachandran, V. S., & Pineda, J. A. (2005). EEG evidence for mirror neuron dysfunction in autism spectrum disorders. *Brain Research & Cognitive Brain Research*, *24*, 190-198.

Following the idea that mu activity (8-13 Hz) over sensorimotor cortex reflects mirror neuron activity, high-functioning autistics showed mu suppression to self-performed hand movements but not to observed hand movements.

Reischies, F. M., Neuhaus, A. H., Hansen, M. L., Mientus, S., Mulert, C., & Gallinat J. (2005). Electrophysiological and neuropsychological analysis of a delirious state: The role of the anterior cingulate gyrus. *Psychiatry Research*, *138*, 171-181.

LORETA findings suggest that theta excess associated with delirium were primarily localized in the anterior cingulate and right frontotemporal brain areas.

Rowe, D. L., Robinson, P. A., Lazzaro, I. L., Powles, R. C., Gordon, E., & Williams, L. M. (2005). Biophysical modeling of tonic cortical electrical activity in attention deficit hyperactivity disorder. *International Journal of Neuroscience*, *115*, 1273-1305.

According to a biophysical model, EEG abnormalities of ADHD are accounted for by increased dendritic response times, increased thalamic reticular nucleus activity, and increased intracortical activity.

Saletu, B., Anderer, P., Saletu-Zyhlarz, G. M., & Pascual-Marqui, R. D. (2005). EEG mapping and low-resolution brain electromagnetic tomography (LORETA) in diagnosis and therapy of psychiatric disorders: Evidence for a key-lock principle. *Clinical EEG & Neuroscience*, *36*, 108-115.

Low-resolution brain electromagnetic tomography identifies brain regions affected by psychiatric disorders and psychopharmacological substances.

Schutter, D. J., & Van Honk, J. (2005). Electrophysiological ratio markers for the balance between reward and punishment. *Brain Research & Cognitive Brain Research*, *24*, 685-690.

EEG indices reflecting motivational imbalances in reward and punishment-driven behavior are described.

CLINICAL NEUROSCIENCE AND MENTAL HEALTH

Ashwin, C., Wheelwright, S., & Baron-Cohen, S. (2005). Laterality biases to chimeric faces in Asperger's syndrome: What is 'right' about face processing? *Journal of Autism & Developmental Disorders*, *35*, 183-196.

The right hemisphere is dominant in processing faces; however, adults with Asperger's syndrome show less right brain bias during identity processing.

Bolla, K. I., Eldreth, D. A., Matochik, J. A., & Cadet, J. L. (2005). Neural substrates of faulty decision-making in abstinent marijuana users. *Neuroimage*, *26*, 480-492.

Heavy users of marijuana focus on immediate gratification, which results in persistent decision-making deficits and alterations in brain activity.

Breier, J. I., Castillo, E. M., Simos, P. G., Billingsley-Marshall, R. L., Pataraia, E., Sarkari, S., et al. (2005). Atypical language representation in patients with chronic seizure disorder and achievement deficits with magnetoencephalography. *Epilepsia*, *46*, 540-548.

Discusses inefficiencies of right-hemisphere structure for reading.

Bruder, G. E., Tenke, C. E., Warner, V., Nomura, Y., Grillon, C., Hille, J., et al. (2005). Electroencephalographic measures of regional hemispheric activity in offspring at risk for depressive disorders. *Biological Psychiatry*, *57*, 328-335.

Offspring at risk for a major depressive disorder show relatively more alpha activity over right central and parietal regions.

Bryant, R. A., Felmingham, K. L., Kemp, A. H., Barton, M., Peduto, A. S., Rennie, C., et al., (2005). Neural networks of information processing in posttraumatic stress disorder: A functional magnetic resonance imaging study. *Biological Psychiatry*, *58*, 111-118.

Enhanced anterior cingulate responses in PTSD, regardless of threat, was found suggesting reflect generalized hypervigilance.

Bush, G., Valera, E. M., & Seidman, L. J. (2005). Functional neuroimaging of attention-deficit/hyperactivity disorder: A review and suggested future directions. *Biological Psychiatry*, *57*, 1273-1284.

Convergent findings from numerous research approaches implicate dysfunction of fronto-striatal structures in ADHD (lateral prefrontal cortex, dorsal anterior cingulate, caudate, and putamen).

Cantero, J. L., & Atienza, M. (2005). The role of neural synchronization in the emergence of cognition across the wake-sleep cycle. *Reviews in the Neurosciences*, *16*, 69-83.

More evidence of hypofrontality in ADHD children; also evidence of a compensatory network including basal ganglia, insula and cerebellum during low cognitive load.

de Lange, F. P., Kalkman, J. S., Bleijenberg, G., Hagoort, P., van der Meer, J. W., & Toni, I. (2005). Gray matter volume reduction in the chronic fatigue syndrome. *Neuroimage*, *26*, 777-781.

A decline in gray matter volume linked to reduced physical activity was found.

Fregni, F., & Pascual-Leone, A. (2005). Transcranial magnetic stimulation for the treatment of depression in neurologic disorders. *Current Psychiatry Reports*, *7*, 381-390.

Depression is not adequately treated in many neurologic patients, but rTMS treatment for depression in Parkinson's disease, epilepsy, stroke, multiple sclerosis, and Alzheimer's disease is promising.

Fries, P. (2005). A mechanism for cognitive dynamics: Neuronal communication through neuronal coherence. *Trends in Cognitive Science*, *9*, 474-480.

A flexible pattern of neuronal coherence produces flexible communication between cells and thereby cognitive flexibility.

Fujita, K., & Koga, Y. (2005). Clinical application of single-pulse transcranial magnetic stimulation for the treatment of depression. *Psychiatry and Clinical Neurosciences*, *59*, 425-432.

Single-pulse TMS has antidepressive effects without inducing adverse reactions.

Gonzalez-Martinez, J. A., Gupta, A., Kotagal, P., Lachhwani, D., Wyllie, E., Luders, H. O., et al. (2005). Hemispherectomy for catastrophic epilepsy in infants. *Epilepsia*, *46*, 1518-1525.

Argues that hemispherectomy for catastrophic epilepsy is excellent with a reasonable complication rate (16.7%).

Herbert, M. R. (2005). Large brains in autism: The challenge of pervasive abnormality. *The Neuroscientist*, *11*, 417-440.

Argues for a disease-based reformulation of function and pathophysiology in autism based on diminished functional connectivity and neuroinflammation

Hurliman, E., Nagode, J. C., & Pardo, J. V. (2005). Double dissociation of exteroceptive and interoceptive feedback systems in the orbital and ventromedial prefrontal cortex of humans. *Journal of Neuroscience*, *25*, 4641-4648.

Evidence for two appetitive systems in prefrontal cortex.

Jensen, O., Goel, P., Kopell, N., Pohja, M., Hari, R., & Ermentrout, B. (2005). On the human sensorimotor-cortex beta rhythm: Sources and modeling. *Neuroimage*, *26*, 347-355.

Inhibitory neurons drive neuronal synchronization (in the 20 Hz beta band) than those onto excitatory pyramidal cells, as we've always presumed.

Kameyama, M., Fukuda, M., Yamagishi, Y., Sato, T., Uehara, T., Ito, M., et al. (2006). Frontal lobe function in bipolar disorder: A multichannel near-infrared spectroscopy study. *Neuroimage*, *29*, 172-184.

Uni- and bipolar depressions were characterized by reduce and delayed frontal lobe activations, respectively.

Knyazev, G. G., Savostyanov, A. N., & Levin, E. A. (2006). Alpha synchronization and anxiety: Implications for inhibition vs. alertness hypotheses. *International Journal of Psychophysiology*, *59*, 151-158.

Anxiety is associated with increased alertness, as shown by higher alpha power during reference intervals; which was interpreted as increased readiness for information processing.

Lavretsky, H., Roybal, D. J., Ballmaier, M., Toga, A. W., & Kumar, A. (2005). Antidepressant exposure may protect against decrement in frontal gray matter volumes in geriatric depression. *Journal of Clinical Psychiatry*, *66*, 964-967.

Larger orbitofrontal cortex was seen in depressed patients exposed to antidepressants than drug-naive depressed geriatric patients.

Mann, K., Ackermann, K., Croissant, B., Mundle, G., Nakovics, H., & Diehl, A. (2005). Neuroimaging of gender differences in alcohol dependence: Are women more vulnerable? *Alcoholism, Clinical & Experimental Research*, *29*, 896-901.

Alcoholic effects on brain function and behavior are gender specific.

Mantovani, A., Lisanby, S. H., Pieraccini, F., Ulivelli, M., Castrogiovanni, P., & Rossi, S. (2006). Repetitive transcranial magnetic stimulation (rTMS) in the treatment of obsessive-compulsive disorder (OCD) and Tourette's syndrome (TS). *International Journal of Neuropsychopharmacology*, *9*, 95-100.

Normalization of right hemisphere hyperexcitability was observed after just the first week of rTMS treatments.

Marks, D. J., Berwid, O. G., Santra, A., Kera, E. C., Cyrulnik, S. E., & Halperin, J. M. (2005). Neuropsychological correlates of ADHD symptoms in preschoolers. *Neuropsychology*, *19*, 446-455.

Evidence against whether executive function deficits contribute to early ADHD behaviors.

Massimini, M., Ferrarelli, F., Huber, R., Esser, S. K., Singh, H., & Tononi, G. (2005). Breakdown of cortical effective connectivity during sleep. *Science*, *309*, 2228-2232.

Evalautes the loss of cortical functional connectivity during sleep, and presumes this reflects the loss of consciousness of sleep.

Nakamura, M., McCarley, R. W., Kubicki, M., Dickey, C. C., Niznikiewicz, M. A., Voglmaier, M. M., et al. (2005). Fronto-temporal disconnectivity in schizotypal personality disorder: A diffusion tensor imaging study. *Biological Psychiatry*, *58*, 468-478.

Schizotypal personality disorder shows altered fronto-temporal connectivity (as with schizophrenia) but intact neocortical-limbic connectivity (unlike schizophrenia).

Perico, C. A., Skaf, C. R., Yamada, A., Duran, F., Buchpiguel, C. A., Castro, C. C., et al. (2005). Relationship between regional cerebral blood flow and separate symptom clusters of major depression: A single photon emission computed tomography study using statistical parametric mapping. *Neuroscience Letters*, *384*, 265-270.

Blood flow correlated with severity of depressive mood, insomnia, anxiety, and cognitive performance at different brain locations in depressed individuals.

Pham, M., Hinterberger, T., Neumann, N., Kubler, A., Hofmayer, N., Grether, A., et al. (2005). An auditory brain-computer interface based on the self-regulation of slow cortical potentials. *Neurorehabilitation & Neural Repair, 19*, 206-218.

Brain-computer communication based on auditory stimulation only is possible.

Savitz, J., Solms, M., & Ramesar, R. (2005). Neuropsychological dysfunction in bipolar affective disorder: A critical opinion. *Bipolar Disorders*, *7*, 216-235.

Reviews possible causes of neuropsychological dysfunction associated with bipolar disorder, in attention, learning and memory, and executive function.

Wilson, S., & Argyropoulos, S. (2005). Antidepressants and sleep: A qualitative review of the literature. *Drugs*, *65*, 927-947.

Most antidepressants change sleep and some antidepressants actually worsen conditions.

Zang, Y. F., Jin, Z., Weng, X. C., Zhang, L., Zeng, Y. W., Yang, L., et al. (2005). Functional MRI in attention-deficit hyperactivity disorder: Evidence for hypofrontality. *Brain Development*, *27*, 544-550.

Hypofrontality is apparent in ADHD but a compensatory network including basal ganglia, insula and cerebellum for low cognitive load tasks also exists.

ONLINE RESOURCES

Wikipedia, the free encyclopedia:
http://en.wikipedia.org/

Merriam-Webster Dictionary & Thesaurus:
http://www.m-w.com/

Google Book Search (search inside the full text of books)
http://books.google.com/

Science & culture debates
http://www.ingenious.org.uk/

One-page Reference Desk
http://www.refdesk.com/

Medline Plus (Medical Information)
http://www.nlm.nih.gov/medlineplus/medlineplus.html

APA Style
http://www.wooster.edu/psychology/apa-crib.html

MRC Psycholinguistic Database
http://www.psy.uwa.edu.au/mrcdatabase/uwa_mrc. htm