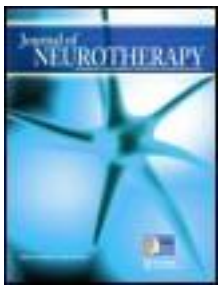

Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience

News from Other Journals and Websites

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NEWS FROM OTHER JOURNALS AND WEBSITES

David Kaiser, PhD, Editor

In the last 10 years, more journal papers have been published on functional MRI, the newest weapon in the neuroimaging arsenal, than on EEG during its entire history. Yet quantitative EEG maintains an important role in cognitive and clinical neurosciences (see below).

Authors are encouraged to submit reprints or preprints of recent research for review in this section. Everyone is encouraged to submit reviews of peer-reviewed papers of interest to the Journal's readership. Website recommendations are also requested. Contact David A. Kaiser, PhD at dakaiser@skiltopo.com or P.O. Box 491956, Los Angeles, CA 90049.

RECENT MUST-READ PAPERS

Monastra, V. J., Lubar, J. F., & Linden, M. (2001). The development of a quantitative electroencephalographic scanning process for attention deficit-hyperactivity disorder: Reliability and validity studies. *Neuropsychology*, *15*, 136-44.

A diagnostic index of ADHD based on psychophysiology is highly desirable, especially given the subjectivity inherent in current diagnostic methods. The authors have devised one possible index. They collected Cz theta-beta power ratios from hundreds of ADHD children during four baseline and task conditions. No single condition discrimi-

nated ADHD subtypes across age groups, but overall the index was very successful for identifying ADHD children from controls. The conditions were eyes-fixed, reading, listening, and drawing; perhaps a more challenging condition such as problem solving or math might have differentiated subtypes. The sensitivity of the QEEG-derived attentional index was 90%, specificity 94%. This seems high, given the recording site examined. Most functional neuroimaging suggests dysfunction in an anterior mechanism (e.g., Baving, Laucht, & Schmidt, 1999; Chabot & Serfontein, 1996; Mann, Lubar, Zimmerman, Miller, & Muenchen, 1992).

Nunez, P. L., & Silberstein, R. B. (2000). On the relationship of synaptic activity to macroscopic measurements: Does co-registration of EEG with fMRI make sense? *Brain Topography*, *13*, 79-96.

The authors outline fundamental principles and assumptions involved in co-registration of EEG and fMRI data. Each measure is sensitive to different forms of source activity with differing spatial and temporal resolution. According to their model, co-registration makes sense only when high frequency synchrony and low frequency power occurs in the same tissue.

Pierce, T. W., Kelly, S. P., Watson, T. D., Replogle, D., King, J. S., & Pribram, K. H. (2000). Age differences in dynamic measures of EEG. *Brain Topography*, *13*, 127-134.

Two groups of adults (younger, mean 22 years; older, mean 72 years) were evaluated with two novel indices of QEEG, recrudescence rate (highest squared voltage among all electrode sites at successive epochs) and algorithmic complexity of this rate. Data were recorded from 128 channels during baseline and task conditions (both indices require a high number of electrodes). Differences between age groups were found in both measures, regardless of condition. Older subjects exhibited a greater rate of change and more algorithmic complexity, which was interpreted as a decrease in the coordination of processing activities among cortical areas. A question remains: do these age groups differ on more common (e.g., mean spectral) QEEG measures?

EEG AND NEUROIMAGING

Casey, B. J., Giedd, J. N., & Thomas, K. M. (2000). Structural and functional brain development and its relation to cognitive development. *Biological Psychology*, *54* (1-3), 241-257.

Recent pediatric neuroimaging studies suggest that increasing cognitive capacity during childhood coincides with a gradual loss rather than formation of new synapses and presumably a strengthening of remaining synaptic connections.

de Peralta Menendez, R. G., & Andino, S. L. (2000). Discussing the capabilities of Laplacian Minimization. *Brain Topography*, *13*, 97-104.

Refutes some properties attributed to the LORETA implementation of the Laplacian Minimization by means of simulated counterexamples.

George, M. S., Nahas, Z., Molloy, M., Speer, A. M., Oliver, N. C., Li, X. B., Arana, G. W., Risch, S. C., & Ballenger, J. C. (2000). A controlled trial of daily left prefrontal cortex TMS for treating depression. *Biological Psychiatry*, *48*, 962-970.

Daily left prefrontal TMS for two weeks reduced depression symptoms more than sham training.

Gilbert, D. G., Dibb, W. D., Plath, L. C., & Hiyane, S. G. (2000). Effects of nicotine and caffeine, separately and in combination, on EEG topography, mood, heart rate, cortisol, and vigilance. *Psychophysiology*, *37*, 583-595.

Nicotine increases EEG power in some higher frequencies in some conditions whereas caffeine decreases EEG power across almost all conditions.

Haznedar, M. M., Buchsbaum, M. S., Wei, T. C., Hof, P. R., Cartwright, C., Bienstock, C. A., & Hollander, E. (2000). Limbic circuitry in patients with autism spectrum disorders studied with positron emission tomography and magnetic resonance imaging. *American Journal of Psychiatry*, *157* (12), 1994-2001.

Patients with autism spectrum disorders showed decreased metabolism in anterior and posterior cingulate gyri.

Howard, M. A., Cowell, P. E., Boucher, J., Broks, P., Mayes, A., Farrant, A., & Roberts, N. (2000). Convergent neuroanatomical and behavioral evidence of an amygdala hypothesis of autism. *Neuroreport*, *11*, 2931-2935.

A developmental malformation of the amygdala may underlie high-functioning autism. These individuals often show enlarged amygdalas and characteristics associated with amygdala damage such as impaired recognition of fear expressions, perception of eye-gaze.

Kesler, S. R., Adams, H. F., & Bigler, E. D. (2000). SPECT, MR and quantitative MR imaging: Correlates with neuropsychological and psychological outcome in traumatic brain injury. *Brain Injury*, *14*, 851-857.

Each neuroimaging modality detected brain abnormalities in 52 traumatically brain injured patients that the others missed. QMR and MR abnormalities correlated with intellectual and memory outcome; SPECT did not.

Kumar, A., Bilker, W., Lavretsky, H., & Gottlieb, G. (2000). Volumetric asymmetries in late-onset mood disorders: An attenuation of frontal asymmetry with depression severity. *Psychiatry Research*, *100*, 41-47.

Attenuation of volumetric asymmetry in frontal cortex may provide a structural basis to late-onset mood disorders. The extent of asymmetry was negatively associated with increased severity of depression.

Mandelbaum, D. E., Krawciw, N., Assing, E., Ostfeld, B., Washburn, D., Rosenfeld, D., Hiatt, M., & Hegyi, T. (2000). Topographic mapping of brain potentials in the newborn infant: The establishment of normal values and utility in assessing infants with neurological injury. *Acta Paediatrics*, *89*, 1104-1110.

Quantitative EEG analysis was superior to clinical EEG, neuroultrasound, and CT in identifying infants with neurological abnormalities.

McEwen, B. S. (2000). The neurobiology of stress: From serendipity to clinical relevance. *Brain Research*, *886* (1-2), 172-189.

Stress-induced structural changes in the hippocampus and other regions have clinical ramifications for disorders such as depression, PTSD, and individual differences in the aging process.

Osuch, E. A., Ketter, T. A., Kimbrell, T. A., George, M. S., Benson, B. E., Willis, M. W., Herscovitch, P., & Post, R. M. (2000). Regional cerebral metabolism associated with anxiety symptoms in affective disorder patients. *Biological Psychiatry*, *48*, 1020-1023.

Depression ratings correlated with activity in bilateral medial frontal, right anterior cingulate, and right dorsolateral prefrontal cortices. Anxiety scores correlated with activity in other regions entirely.

Pincus, J. H. (2000). Neurologic evaluation of violent juveniles. *Child and Adolescent Psychiatric Clinics of North America*, *9*, 777-792.

The author argues for systematic, meticulous neurologic evaluation of any juvenile who acts violently. This evaluation should include tests of cerebral-cortical function, waking and sleep EEGs, and other neuroimaging.

Stoll, A. L., Renshaw, P. F., Yurgelun-Todd, D. A., & Cohen, B. M. (2000). Neuroimaging in bipolar disorder: What have we learned? *Biological Psychiatry*, *48* (6), 505-517.

Decreased activity of the prefrontal cortex is found for bipolar patients during depression, though it is not clear if these changes are reversed with mania.

Thornton, K. (2000). Improvement/rehabilitation of memory functioning with neurotherapy/QEEG biofeedback. *Journal of Head Trauma Rehabilitation*, *15*, 1285-1296.

Remediation of memory deficits by applying a QEEG database guided biofeedback protocol is described in a number of cases. Improvements ranged from 68% to 181% in a group of brain-injured patients as a result of the interventions.

MENTAL HEALTH AND NEUROLOGICAL DISORDERS

Brook, J. S., Richter, L., & Rubenstone, E. (2000). Consequences of adolescent drug use on psychiatric disorders in early adulthood. *Annals of Medicine*, *32* (6), 401-407.

Three models of addiction and psychiatric comorbidity generally exist: (1) psychiatric disorders precede drug abuse, (2) disorders and drug use co-occur as they share etiological factors, and (3) drug ab/use precedes some disorders. The third model was supported.

Clark, C., Prior, M., & Kinsella, G. J. (2000). Do executive function deficits differentiate between adolescents with ADHD and oppositional defiant/conduct disorder? *Journal of Abnormal Child Psychology*, *28* (5), 403-414.

Executive function deficits are specific to those with ADHD.

Endicott, J. (2000). History, evolution, and diagnosis of premenstrual dysphoric disorder. *Journal of Clinical Psychiatry*, *61* (S12), 5-8.

Premenstrual problems with mood and behavior have only been formally recognized since 1987. Its history and how it differs from other conditions are reviewed.

Konrad, K., Gauggel, S., Manz, A., & Scholl, M. (2000). Inhibitory control in children with traumatic brain injury (TBI) and children with attention deficit/hyperactivity disorder (ADHD). *Brain Injury*, *14* (10), 859-875.

Slowing of information processing speed is often a general consequence of TBI in childhood, whereas slowing of the stop-processes (inhibitory deficits) are associated with post-injury hypo- or hyperactivity.

Koob, G. F., & Le Moal, M. (2001). Drug addiction, disregulation of reward, and allostasis. *Neuropsychopharmacology*, *24* (2), 97-129.

Addiction is modeled as a cycle of spiraling disregulation of brain reward systems that progressively increases, ending in compulsive use and loss of control over drug-taking.

McGue, M., Elkins, I., & Iacono, W. G. (2000). Genetic and environmental influences on adolescent substance use and abuse. *American Journal of Medical Genetics*, *96* (5), 671-677.

Heritability of abuse of illicit substances (e.g., marijuana) was modest (< 25%), compared to that of tobacco use and nicotine dependence (40% to 60%).

Munro, C. A., Saxton, J., & Butters, M. A. (2000). The neuropsychological consequences of abstinence among older alcoholics: A cross-sectional study. *Alcoholism, Clinical and Experimental Research*, *24* (10), 1510-1516.

Memory and executive skills recover slowly, if at all, with abstinence.

Murata, Y., Kimura, M., & Robinson, R. G. (2000). Does cognitive impairment cause post-stroke depression? *American Journal of Geriatric Psychiatry*, *8* (4), 310-317.

Post stroke major depression leads to cognitive impairment and not vice versa.

Novack, T. A., Alderson, A. L., Bush, B. A., Meythaler, J. M., & Canupp, K. (2000). Cognitive and functional recovery at 6 and 12 months post-TBI. *Brain Injury*, *14* (11), 987-996.

Both mild and severe TBI groups demonstrate similar recovery rates.

Wu, L. T., & Anthony, J. C. (2000). The estimated rate of depressed mood in US adults: Recent evidence for a peak in later life. *Journal of Affective Disorders*, *60* (3), 159-171.

Women show an increased likelihood of depression after age 60 whereas men do not.

ONLINE RESOURCES

Here are mailing lists (a.k.a. list servers) open to mental health professionals and other interested parties (group size in parenthesis). For more information about each list, visit www.yahoogroups.com. To subscribe directly, send a message to LISTNAME-subscribe@yahoogroups.com (e.g., biofbp-subscribe@yahoogroups.com). Some subscriptions may be restricted.

Discussion Groups provide forums for both spirited discussion and chitchat. Any message sent by a member to a discussion list is distributed to all members of the group.

aus-eeg For professionals in the field of Australian EEG Biofeedback (< 10).

biofbp Discuss biofeedback/neurofeedback as a profession and as a practice (> 100).

biofeedback Dedicated to research, clinical applications and public information on biofeedback, neurofeedback, self-regulation, related sciences and stress disorders (> 250).

biofeedback-europe For people interested in biofeedback (< 10).

biofeedbackinschools For psychotherapists and school personnel who are utilizing biofeedback and stress management techniques and neurofeedback in schools (> 25).

brainchild For parents of children or adults undergoing EEG biofeedback (> 25).

cpnf For people interested in using neurofeedback as a treatment for cerebral palsy (> 10).

eeg Discuss methods and findings relevant to QEEG and neurofeedback (> 100).

eeghometraining For parents using EEG biofeedback with their children at home (< 10).

eegbio For practitioners of EEG biofeedback (> 25).

euroneurofb Discuss methods and results of EEG biofeedback training particularly but not exclusively to those in Europe, in English (> 25).

eegjobs Job offers and people seeking jobs in EEG and/or EEG biofeedback fields (> 10).

eegdatabases For professionals interested in EEG databases, current differences (< 10).

mind-l Focus on neurotechnology such as mind machines, biofeedback, and sensory deprivation (> 500).

neurogames For neurofeedback games developers and testers (> 25).

nfcontroversy Discuss current controversies in the field of EEG biofeedback such as whether young children have the nervous system maturity to benefit from training and whether quick results can be obtained (> 25).

nootopia Discuss human cognition and methods, ancient to the hi-tech (> 25).

If email discussion is not for you, but you like the idea of using email to keep up to date, you might try an announcement list.

Announcements Groups provide periodic announcements or alerts on relevant topics.

wnin What's New in Neurofeedback: A webzine dedicated to news, reviews, and information about neurofeedback, in its fourth year. Monthly.

nfinthemedia Alerts whenever neurofeedback articles appear in print, TV, radio.

nfnewsalert News and research from Mental Health, Neuropsychology, Neuropsychiatry, and Neuroscience. Weekly.

mhalert Mental Health news, research, and treatment information. Weekly.

eegalert EEG and Cognitive Neuroscience news and research. Weekly.

adhdalert News and research about Attention Deficit Hyperactivity Disorder. Weekly.

cdalert News and research about Chemical Dependency/Alcoholism. Weekly.

moodalert News and research about Mood and Anxiety Disorders. Includes depression, bipolar disorder, phobias, PTSD, and generalized anxiety disorders. Weekly.

painalert News and research about chronic pain, fatigue, and related disorders.Weekly.

(Note: Editor David Kaiser, PhD moderates the above nine mailing lists.)

Journal Contents. Many publishers such as Springer and Elsevier release journal table of contents (and more) online or by email. To find out which, visit *PsycLine,* a guide to 1,500 psychology and social science journals. http://www.psycline.org/journals/psycline.html