



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

## NEWS FROM OTHER JOURNALS AND WEBSITES

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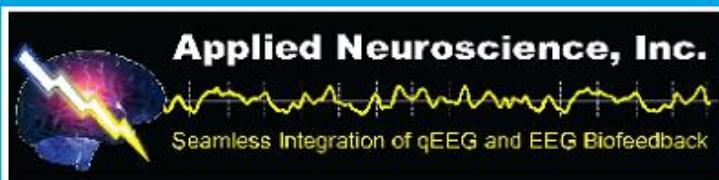
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David A. Kaiser, PhD, Editor

*In keeping with the connectivity findings reported in this issue, here are some useful EEG connectivity findings from other journals.*

Bell MA, & Wolfe CD. (2007). Changes in brain functioning from infancy to early childhood: evidence from EEG power and coherence working memory tasks. *Developmental Neuropsychology*, 31, 21-38.

Progressive brain specialization can be observed in EEG coherence and power: infants activate most of the cortex to perform working memory tasks whereas young children (4.5 years) show power and coherence changes in medial frontal cortex only.

Cover KS, Vrenken H, Geurts JJ, van Oosten BW, Jelles B, Polman CH, Stam CJ, & van Dijk BW. (2006). Multiple sclerosis patients show a highly significant decrease in alpha band interhemispheric synchronization measured using MEG. *Neuroimage*, 29, 783-8.

Interhemispheric coherence was decreased in MS patients, particularly in the alpha band.

Fingelkurts AA, Fingelkurts AA, Kallio S, & Revonsuo A. (2007). Cortex functional connectivity as a neurophysiological correlate of hypnosis: An EEG case study. *Neuropsychologia*, 45, 1452-62.

In very highly hypnotizable individuals separate cognitive modules may be temporarily incapable of communicating with each other, as measured by functional connectivity.

Fingelkurts AA, Fingelkurts AA, Kivisaari R, Autti T, Borisov S, Puuskari V, Jokela O, & Kahkonen S. (2006). Increased local and decreased remote functional connectivity at EEG alpha and beta frequency bands in opioid-dependent patients. *Psychopharmacology (Berlin)*, 188, 42-52.

Greater local functional connectivity and lower remote functional connectivity was associated with opioid abusers.

Grabner RH, Fink A, & Neubauer AC. (2007). Brain correlates of self-rated originality of ideas: evidence from event-related power and phase-locking changes in the EEG. *Behavioral Neuroscience*, 121, 224-30.

Original ideas elicited event-related synchronization of alpha activity and higher phase coupling in the right hemisphere.

Higashima M, Takeda T, Kikuchi M, Nagasawa T, & Koshino Y. (2006). Functional connectivity between hemispheres and schizophrenic symptoms: a longitudinal study of interhemispheric EEG coherence in patients with acute exacerbations of schizophrenia. *Clinical and EEG Neuroscience*, 27, 10-15.

Functional disconnection between left and right frontal lobe may be related to positive (psychotic) schizophrenic symptoms.

Melloni L, Molina C, Pena M, Torres D, Singer W, & Rodriguez E. (2007). Synchronization of neural activity across cortical areas correlates with conscious perception. *Journal of Neuroscience*, 27, 2858-65.

Perceived words induce transient long-distance synchronization of gamma oscillations across widely separated regions of the brain and enhance theta oscillations over frontal regions.

Murias M, Webb SJ, Greenson J, & Dawson G. (2007). Resting state cortical connectivity reflected in EEG coherence in individuals with autism. *Biological Psychiatry* [Epub].

Locally elevated theta coherence was found for autism spectrum disorder, especially within left hemisphere frontal and temporal regions.

Murias M, Swanson JM, & Srinivasan R. (2006). Functional connectivity of frontal cortex in healthy and ADHD children reflected in EEG coherence. *Cerebral Cortex*. [Epub].

ADHD subjects show elevated coherence in lower alpha (8 Hz) and reduced coherence in upper alpha (10-11 Hz) activity.

Rippon G, Brock J, Brown C, & Boucher J. (2007). Disordered connectivity in the autistic brain: challenges for the "new psychophysiology." *International Journal of Psychophysiology*, 63, 164-72.

Theoretical and empirical advances in research implicate disordered connectivity in autism.

Shields DC, Leiphart JW, McArthur DL, Vespa PM, Levan Quyen M, Martinerie J, & Soss JR. (2007). Cortical synchrony changes detected by scalp electrode electroencephalo-

graph as traumatic brain injury patients emerge from coma. *Surgical Neurology*, 67, 354-9.

Brain injury patients demonstrate synchrony differences between different brain areas during emergence from coma.

Stephan KE, Baldeweg T, & Friston KJ. (2006). Synaptic plasticity and dysconnection in schizophrenia. *Biological Psychiatry*, 59, 929-39.

Reviews evidence of disconnectivity and synaptic plasticity in schizophrenia.

Tao HY, & Tian X. (2005). Coherence characteristics of gamma-band EEG during rest and cognitive task in MCI and AD. *Proceedings of IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society*, 3, 2747-50.

EEG coherence during rest was lower in Alzheimer patients compared to controls in right anterior site-pairs (Fp2-T4 and F4-C4) and to a lesser extent in medial left site-pairs (F3-C3, Fp1-T3, P3-O1). During a visual counting task, coherence in all channel connections was lower for Alzheimer patients. Cognitive impairment appeared to commence with frontal disconnectivity.

Thatcher RW, Biver CJ, & North D. (2007). Spatial-temporal current source correlations and cortical connectivity. *Clinical EEG and Neuroscience*, 38, 35-48.

Correlational analysis of current density showed higher intra-hemispheric correlations in the right hemisphere, especially in posterior areas.