

EEG TOPOGRAPHIC MAP DIFFERENCES IN ATTENTION DEFICIT
DISORDERED AND NORMAL CHILDREN: MODERATING EFFECTS
FROM FOCUSED ACTIVE ALERT INSTRUCTIONS DURING
READING, MATH AND LISTENING TASKS

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Recent research (e.g., Barabasz, Barabasz, & Nishith, 1992; Lubar, 1991) has found unusually high theta densities in attention deficit disordered (ADD) children. The present study extends this research by examining the differential EEG patterns of low and high theta, low and high alpha, and low and high beta during counterbalanced conditions of (1) normal processing and (2) a focused active alert attentional instructional procedure, developed for pilots in flight (Barabasz, 1985; Crawford & Barabasz, 1993). Subjects were 24 children (12 normals; 12 ADDs) without any known neurological disorders. Establishment of ADD criteria of the Diagnostic Statistical Manual III Revised (American Psychiatric Association, 1987) was done by child and parental interview by a licensed clinical psychologist (AB) and the Attention Deficit Disorders Evaluation Scale (McCarney, 1991). Using the Lexicor Neurosearch-24 system, EEG was recorded from 3 midline and 8 left and 8 right hemispheric sites referenced to linked ears. Tasks lasting two minutes each were school level appropriate silent reading, finding As, simple math, listening to a story, and looking at a picture. Differential topographic brain maps and statistical analyses demonstrate significant differences between the two groups of children, as well as among conditions and tasks. Results provide further understanding of the neurophysiological correlates of attentional processing in ADD and normal children, and how attentional instructions can assist in the processing of information.

BARABASZ, A., CRAWFORD, H.J., & Barabasz, M. (1993) EEG topographical map differences in attention deficit disordered and normal children: Moderating effects from focused active alert instructions during reading, math and listening tasks. *Psychophysiology*, 30, (Suppl. 1), p. 15.