

Monitoring Attention in ADHD with an Easy-to-Use Electrophysiological Index.

Shahaf G, Nitzan U, Erez G, Mendelovic S, Bloch Y.

Front Hum Neurosci. 2018 Feb 1;12:32.

doi: 10.3389/fnhum.2018.00032. eCollection 2018.

Abstract

Attention deficit hyperactivity disorder (ADHD) involves characteristic electroencephalographic (EEG) activity. We developed a single-channel EEG marker for attention: the Brain Engagement Index (BEI). In this study, we evaluated the use of BEI for distinguishing between ADHD patients and controls, and for monitoring the effect of pharmacological treatment on ADHD patients. The BEI values of 20 ADHD patients and 10 controls were measured using a 1-min auditory oddball paradigm and a continuous performance test (CPT) task. We showed that CPT BEI is trait-specific and separates controls from ADHD patients. At the same time, oddball BEI is state-specific and identifies differences in attention level within the two groups of ADHD participants and controls. The oddball BEI also associates with response to treatment, after distinguishing between treatment effect and learning/time effect. The combined use of this marker with common computerized tests holds promise for research and clinical use in ADHD. Further work is required to confirm the results of the present study.