Device for rapid measurement of repetition suppression in the brain

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Technology description

Publications: 1. Pariyadath V.,and Eagleman D.M. (2008). Brief subjective durations contract with repetition. Journal of Vision, 8(16):11, 1-6. 2. Eagleman, D. M. (2009). Using time perception to measure fitness for duty. Military Psychology, 21(S1), S123. 3. Parsons BD, Gandhi S, Aurbach EL, Williams N, Williams M, Wassef A, Eagleman DM. (2013) Lengthened temporal integration in schizophrenia. Neuropsychologia, 51(2):372-6.

The normal human brain shows a diminishing response to stimuli that are repeated over and over, and this is known as repetition suppression (RS). In schizophrenia, RS is impaired: repetition does not cause a diminishment of the response. Therefore, the measure of repetition suppression and visual persistence is a powerful diagnostic tool which can be used in the detection and tracking of schizophrenia. Currently, there is no quantitative method for schizophrenia testing; instead, psychiatrists rely on the rule that the symptoms of schizophrenia must be exhibited for more than six months before a diagnosis can be confirmed. Dr. David Eagleman developed a novel and purely visual paradigm to test for repetition suppression. His method uses bursts of light and images to detect a patient's ability to suppress instances of repetition. Depending on the number of objects a person perceives on a screen, Dr. Eagleman can instantly and inexpensively measure RS in human observers. Dr. Eagleman and his team have recently utilized this device to compare patients with schizophrenia against controls. The results showed that the schizophrenic patients visually perceive more objects on the screen when presented with Dr. Eagleman's testing procedure, a symptom of impaired RS. The output of this device not only allows physicians to detect the condition sooner and begin treatment more quickly, but also allows the effective monitoring of drug and other treatment progress.

Advantages

- Available on an electronic mobile device, such as a tablet or a smart phone. - Instantly and inexpensively aids in the diagnosis of schizophrenia - Allows physicians to detect the condition sooner and begin treatment more quickly - Allows the effective monitoring of drug and other treatment progress - May also be useful for detection of autism, drug use, or traumatic brain injury

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