

Cerebellar Stimulation and its Effect on Attention in Children with Attention Deficit Hyperactivity Disorder

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Background: ADHD inattention is often associated with poor academic performance and poor planning and cognitive flexibility. Deficits in both the cerebellum and frontal lobe have been demonstrated in ADHD children's brains (compared to typical brains). In addition, research regarding typical brain structure indicates substantial integration between the cerebellum and frontal lobe. Studies show that stimulation of one brain region, that has connections with another region, can exert a change on the second region. Therefore, adequate training programs targeting the cerebellum may induce neuroplastic changes in the cerebrum and increase white matter tract conductivity along the prefrontal cortex interconnections. It was therefore hypothesized that stimulation of the cerebellum would trigger beneficial changes in attention of ADHD subjects.

Methods: Subjects would include children Aged 8-15 years old, Diagnosed formally with ADHD by a licensed professional. Subjects must be able to sit on a Swiss Balance Ball® for at least 3 hrs/day during studying or homework (cognitively engaged tasks), for 2 wks. Subject would undergo questionnaires and a balance test assessment pre and post treatment.

Results and Discussion: Following approval of University Level IRB, in January, this project is in the subject recruiting phase. Initial subject testing should begin in the next month. Recruitment has been slow and connections with school districts for classroom recruitment are being explored.