

**On-line Puzzle Game Based Assessment & Training for Adhd**

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Attention-deficit hyperactivity disorder (ADHD) is the most prevalent and impairing neurodevelopmental disorder, with worldwide estimates of 5.29%. ADHD is clinically characterized by hyperactivity-impulsivity and inattention, with neuropsychological deficits in executive functions, attention, working memory and inhibition. These cognitive processes rely on prefrontal cortex function; cognitive training programs enhance performance of ADHD participants supporting the idea of neuronal plasticity. Here we propose the development of an on-line puzzle game based assessment and training tool in which participants must deduce the 'winning symbol' out of N distracters. To increase ecological validity of assessments strategically triggered Twitter/Facebook notifications will challenge the ability to ignore distracters. In the UK, significant cost for the disorder on health, social and education services, stand at £23m a year. Thus the potential impact of neuropsychological assessment and training to improve our understanding of the pathophysiology of ADHD, and hence our treatment interventions and patient outcomes, cannot be overstated.