TECHNOLOGY BRIEF

Software

Mega Team - ADHD Digital Therapeutic video game

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Background

Attention Deficit Hyperactivity Disorder (ADHD) is a childhood onset clinical disorder of inattention, hyperactivity and impulsivity (DSM-5-TR). Behavioural hyperactivity in ADHD children generally decreases with age, however, attentional and inhibitory problems frequently continue into adulthood. Approximately 6.4 million American children are currently diagnosed with ADHD.

Children with disorders that impact neurodevelopment (e.g., ADHD, autism) often have difficulties with executive functions and emotion regulation. Cognitive-based video game training has been shown to improve outcomes, however, this training has been expensive, has required professional supervision, and has been investigated only within a narrow group of children. The Mega Team study is validating the effects of a highly engaging, take-home video game-based intervention designed to improve executive functions in children with various brain-based developmental disorders.

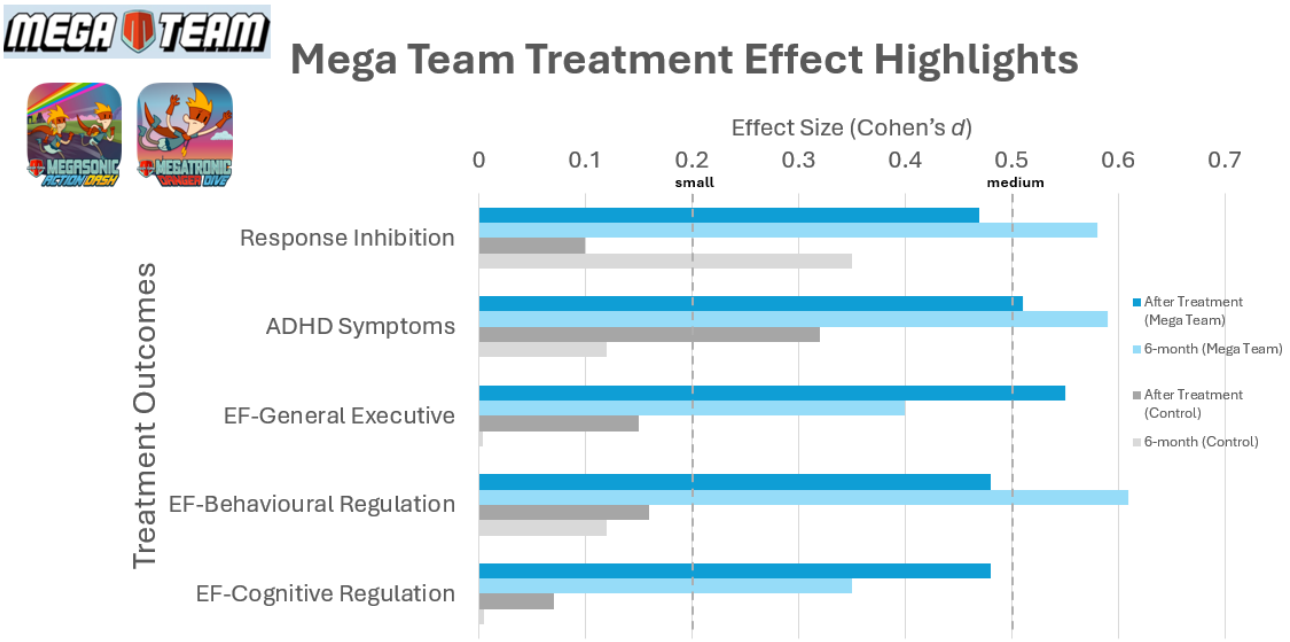
Description of the Invention

Mega Team is a video game-based cognitive rehabilitation software. The program was co-designed with input from youth and family advisors to increase acceptability. Mega Team incorporates features identified from the literature as important to increase the likelihood of beneficial outcomes, including training of multiple executive function processes, a motivating and fun platform, and decreasing the need of intensive trainer involvement/supervision. Early pilot work and feedback was utilized to enhance patient engagement with the games. The applications involve the embedding of cognitive rehabilitation tasks within engaging video game environment. It trains cognitive control and working memory for ADHD patients and other neurodevelopmental disorders with executive function deficits (e.g. autism).

Keywords: ADHD, Video Game, executive functions

Study Results

Mega Team training for five weeks significantly improved inhibition, working memory, ADHD traits, and executive function (EF)-related impairment at post-treatment and at 6 months indicating its potential as an affordable and engaging EF intervention.



Note: Sample size: Mega Team (n = 94); Control (n = 92); Response Inhibition: Stop-Signal Reaction Time (SSRT) on Stop-Signal Task; ADHD Symptoms: SNAP-Parent; Executive Function (EF): BRIEF-2 (parent): Global Executive Composite (GEC), Behavior Regulation Index (BRI) and Cognitive Regulation Index (CRI); all treatment effects were significant, *ps* <.05

Key Results:

- Video game training for executive functions is a promising novel intervention for ADHD.
- Significant improvement in ADHD symptoms and executive functioning after 5 weeks, sustained at 6 months.
- Youth and family co-design boosted engagement and acceptability.

IP&C is seeking a licensee to refine the video game into a commercial product and bring it to market.

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