A non-pharmacological wearable treatment for ADHD in youth

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Objectives & Methods

Objectives

- The purpose of this research was to explore a new wearable non-pharmacological treatment for ADHD in youth using real world data.

- Revibe Connect is a wearable device designed to improve on-task behavior in ADHD.

- Real-world (user) data was explored to evaluate:
    - the extent to which on-task behavior improved compared to baseline as a result of wearing Revibe Connect
    - the time it takes for an improvement to be demonstrated
    - the stability of the effect over a short-term

Methods

- Youth with ADHD, N = 706, 77% male, age 7-18 yo (M age = 11.5, SD = 2.02) wore Revibe Connect for a minimum of 2 days/week for a 3-week period.

- Attention Span (longest noted continuous stream of on-task behavior) and Focus Rate (% of time spent on/off task) were used to measure gains in on-task behavior.

- Measurements were recorded at baseline (Day 1), 1-week (Day 8), 2-weeks (Day 15), and 3-weeks (Day 22).

Note: Abstract reported on N = 600. Sample size increased since abstract submission. Results are based on the larger sample (N = 706).

Results

AFTER WEARING REVIBE CONNECT:

Attention Span

- Day 1 (baseline): Mean = 10.8 minutes
- Day 8 (1 week): Mean = 23.4 minutes (117% gain over baseline, t (705) = 15.41, p <.0001, Cohen's d = .58)
- Day 22 (3 weeks): Mean = 26.7 minutes, (148% gain over baseline, t (705) = 14.52, p <.0001, Cohen's d = .54)
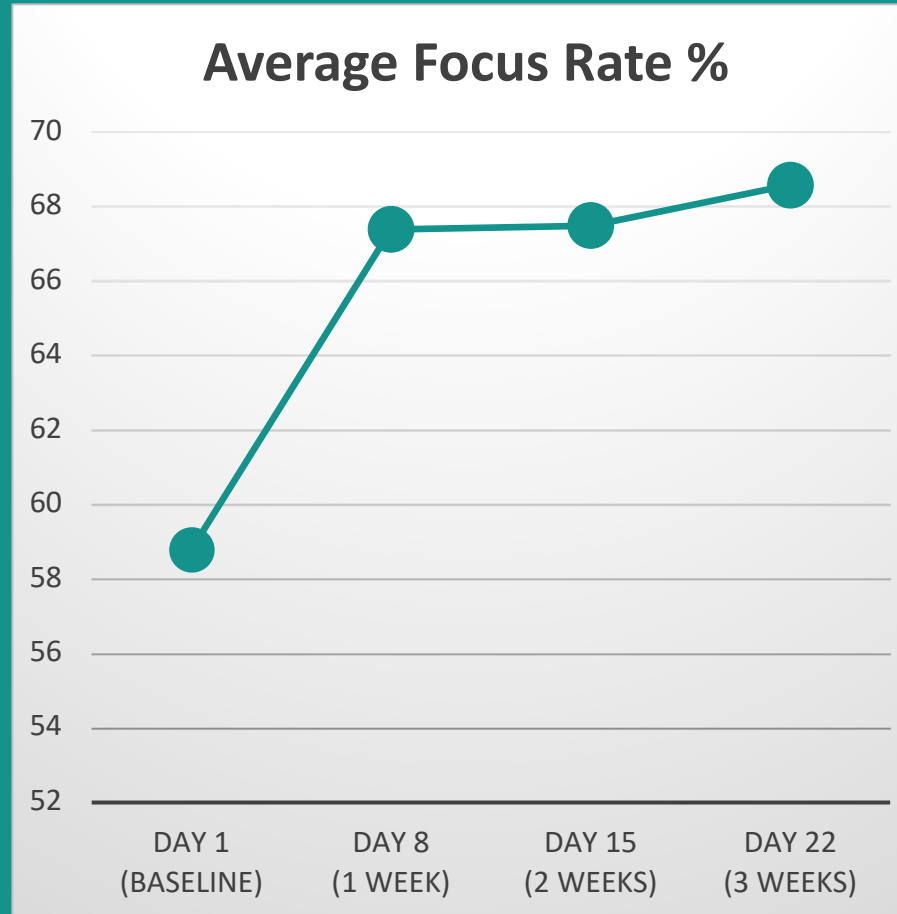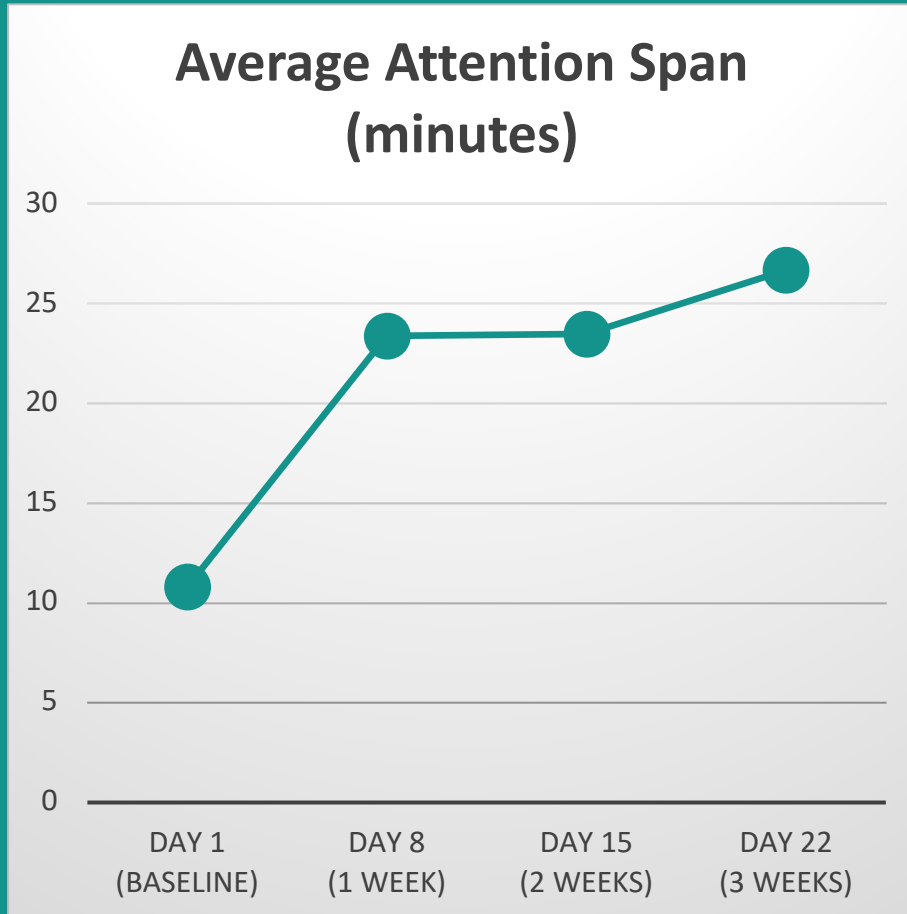
Focus Rate

- Day 1 (baseline): Mean = 58.8%
- Day 8 (1 week): Mean = 67.4% (14.7% gain over baseline, t (705) = 12.42, p <.0001, Cohen's d = .46)
- Day 22 (3 weeks): Mean = 68.6% (16.7% gain over baseline, t (705) = 13.06, p <.0001 , Cohen's d = .49)

	Attention Span (minutes) Mean(SD)	% Increase over baseline	Cohen's d	Focus Rate % Mean(SD)	% Increase over baseline	Cohen's d
Day 1 (Baseline)	10.8 (9.8)			58.8% (18.8)		
Day 8 (1 week)	23.4 (23.6)	117%	.58	67.4% (17.8)	14.7%	.46
Day 15 (2 weeks)	23.5 (23.6)	119%	.55	67.5% (17.5)	14.8%	.45
Day 22 (3 weeks)	26.7 (29.3)	148%	.54	68.6% (17.7)	16.7%	.49

Note. Cohen's d is interpreted such that $d \geq 0.2$ represents a small effect, $d \geq 0.5$ represents a medium effect, $d \geq 0.8$ represents a large effect.

Increase Over Baseline After Wearing Revibe Connect

Average Attention Span (minutes)

Average Focus Rate %

Conclusions

Results demonstrated that:

(1) Attention Span and Focus Rate both demonstrated statistically significant and clinically meaningful improvement over baseline as a result of wearing Revibe

(2) improvements were immediate (within the first week)

(3) gains were maintained over a period of 3 weeks

Revibe Connect has demonstrated promising results as a non-pharmacological treatment that improves on-task behavior in youth with ADHD by providing personalized real-time intervention at the point of performance.

Equally encouraging, results are commensurate with meta-analytic results reporting improvement in on-task behavior of 14% over baseline with methylphenidate and mixed amphetamine drug treatments (Prasad et al., 2013).

The current analyses are conservative estimates of efficacy, as they are based on the full sample of responders and non-responders. Future research will explore differences between various patterns of response (including responders and non-responders) by age, gender, presentation type, and other demographic characteristics.

Reference: Prasad, V., Brogan, E., Mulvaney, C., Grainge, M., Stanton, W., & Sayal, K. (2013). How effective are drug treatments for children with ADHD at improving on-task behaviour and academic achievement in the school classroom? A systematic review and meta-analysis. *Eur Child Adolesc Psychiatry, 22*, 203:216.