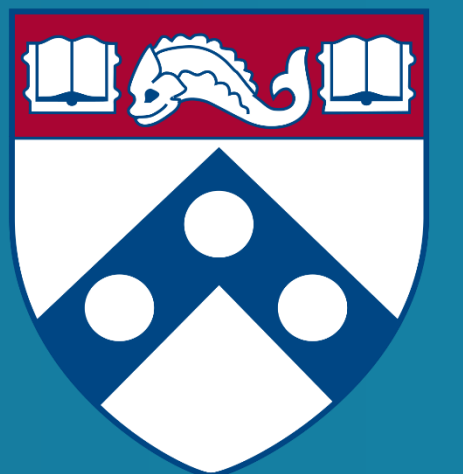




Efficacy of Accelerated-Intermittent Theta Burst Stimulation in Treating Symptoms of Bipolar Depression



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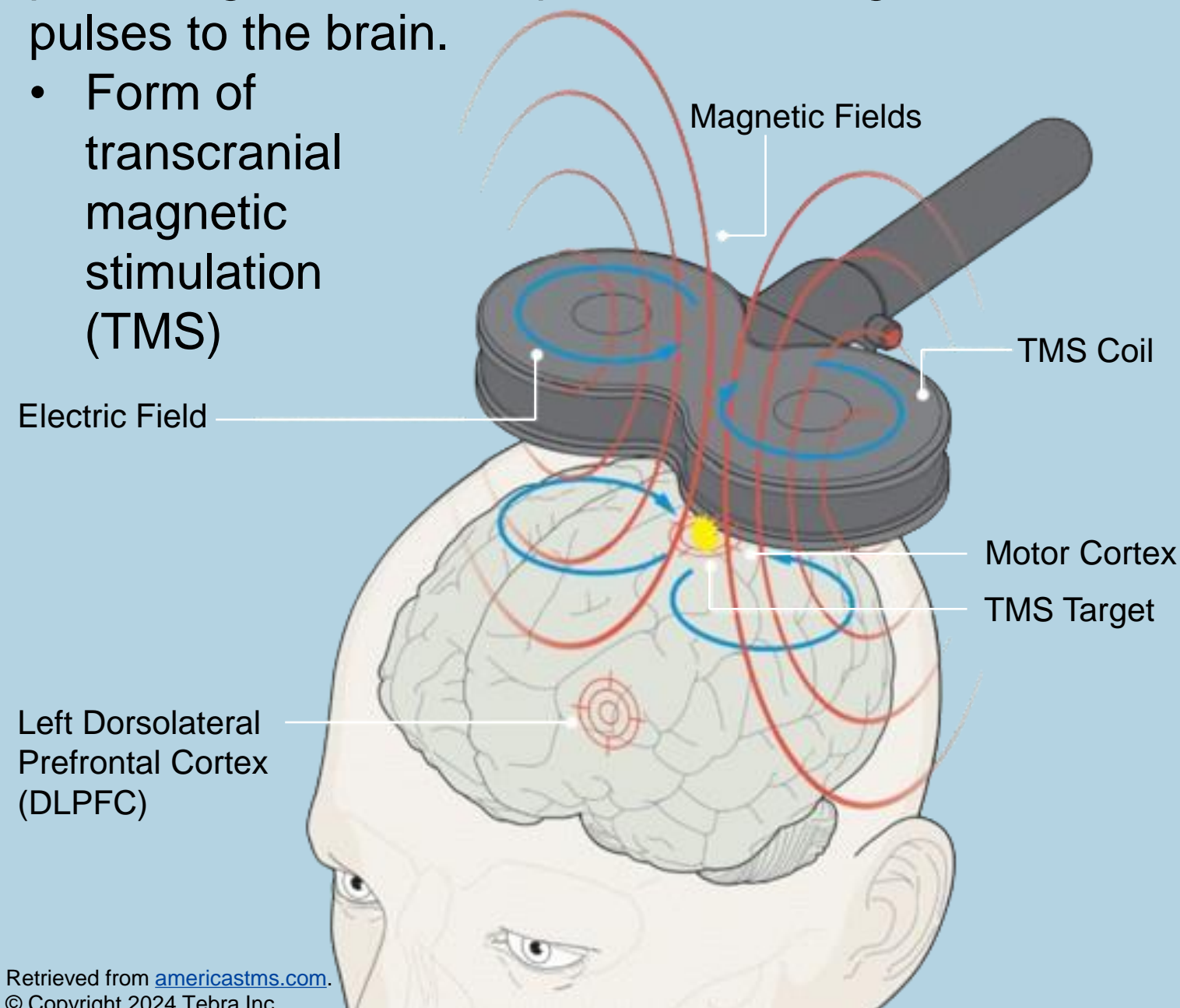
Introduction

Bipolar Depression: An episode of overwhelming depression, characterized by greatly disrupted mood, sleep, self-concept, pleasure & will to live.

- Predominant mood state in bipolar patients
- Only 5 FDA-approved treatments

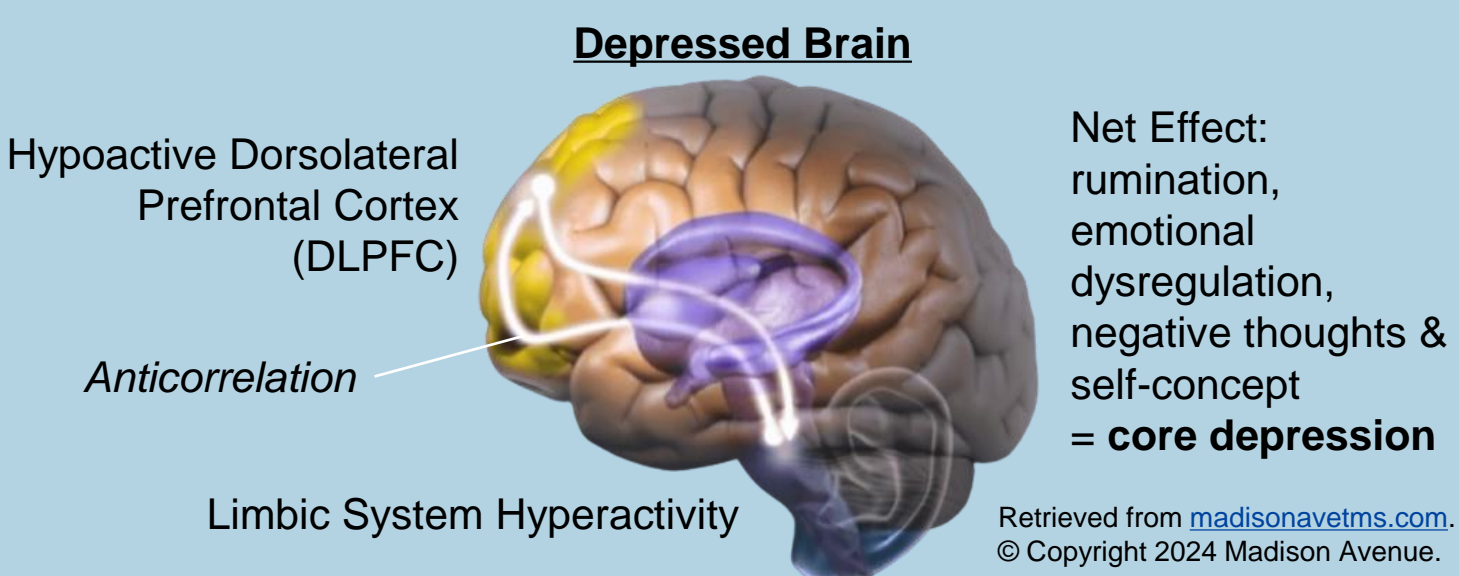
Accelerated Intermittent Theta Burst Stimulation (aiTBS): A neurostimulation technique where an electromagnetic coil is placed against the scalp to deliver magnetic pulses to the brain.

- Form of transcranial magnetic stimulation (TMS)



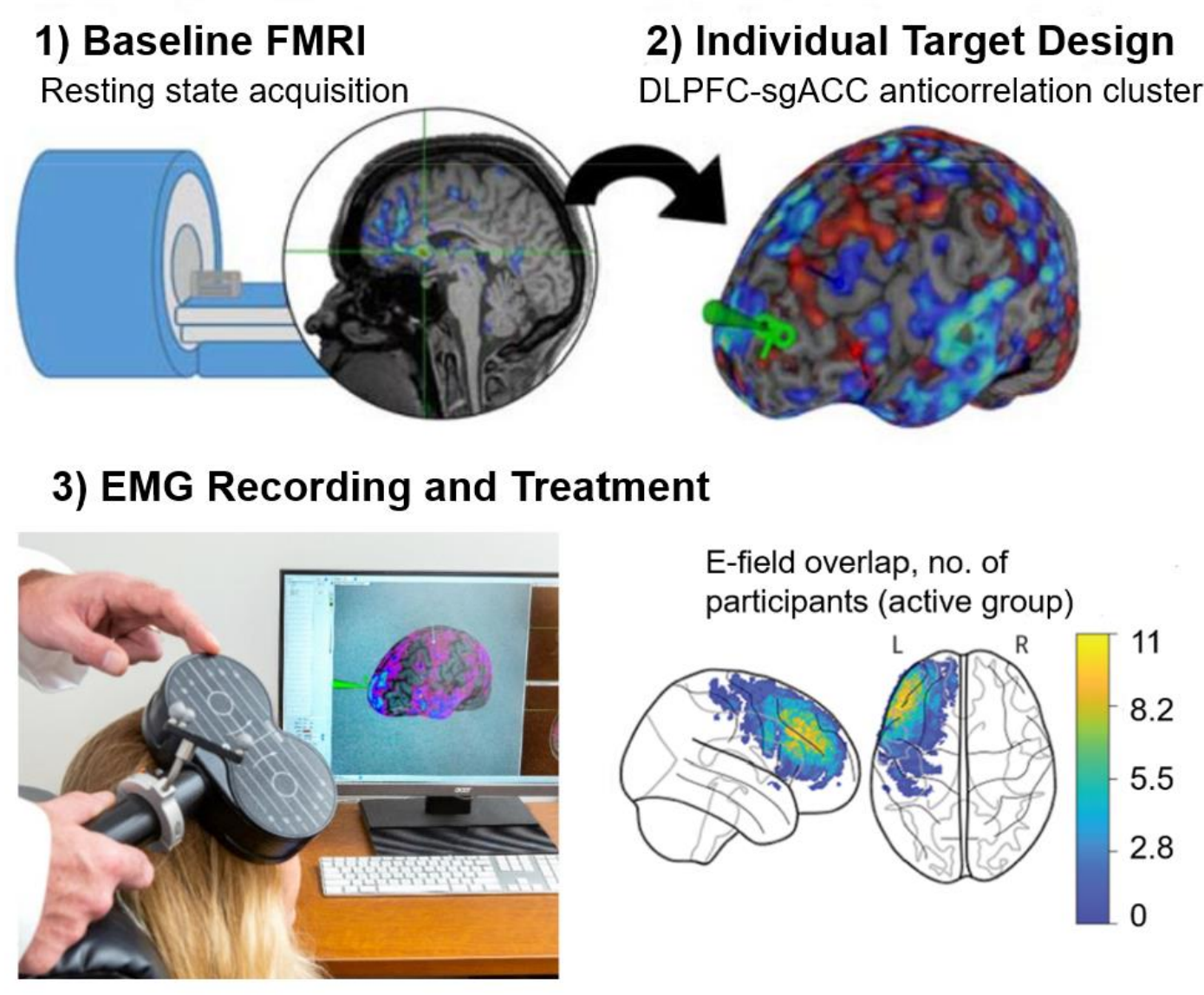
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- Significantly reduces depressive symptoms in patients with treatment-resistant MDD
- Restores normal limbic system activity via DLPFC



Key Takeaway: aiTBS is a proven treatment for MDD but remains *untested in bipolar disorder* – **potential new treatment** amongst limited options.

Methodology



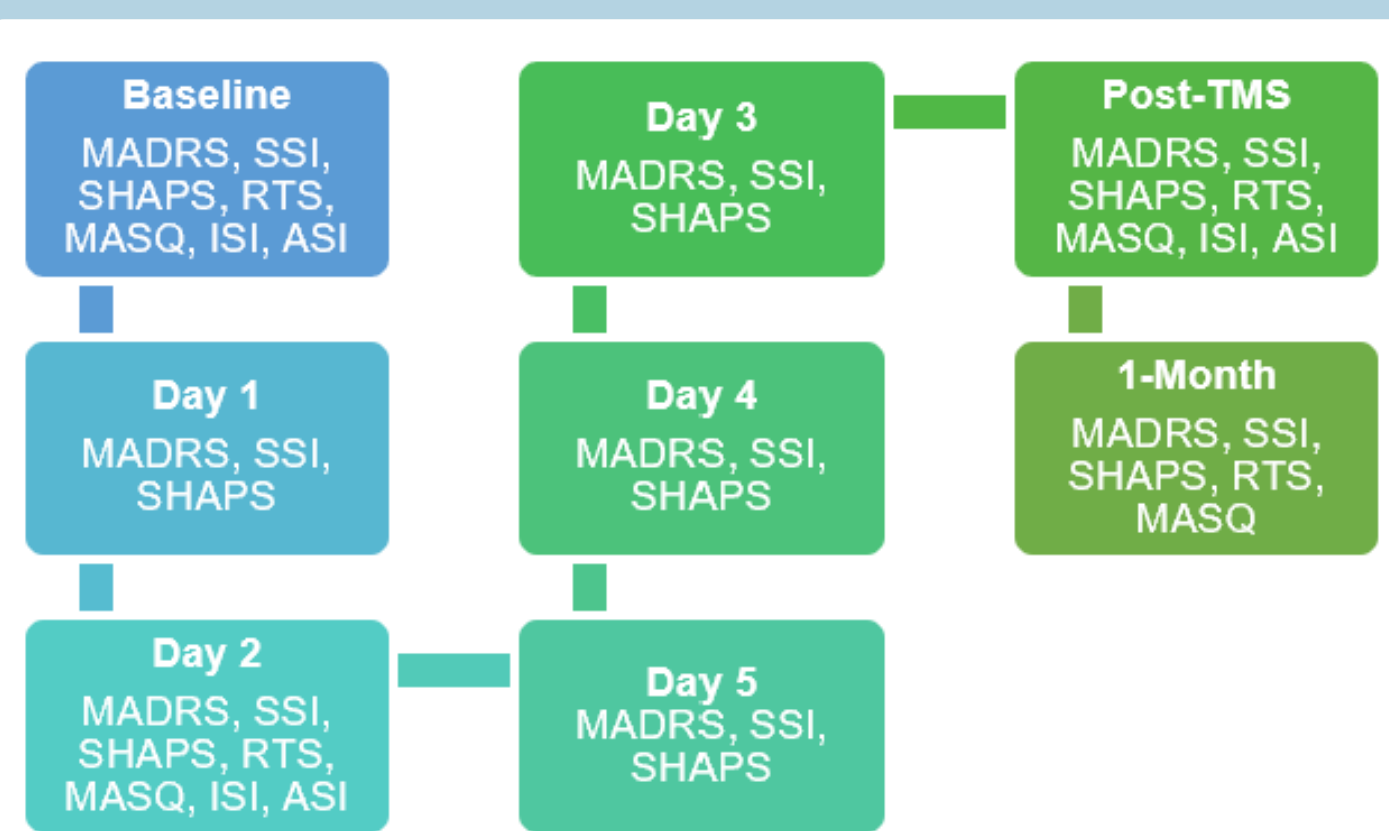
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Target: aiTBS' most effective target is the DLPFC-sgACC cluster of maximum anticorrelation (CMA)

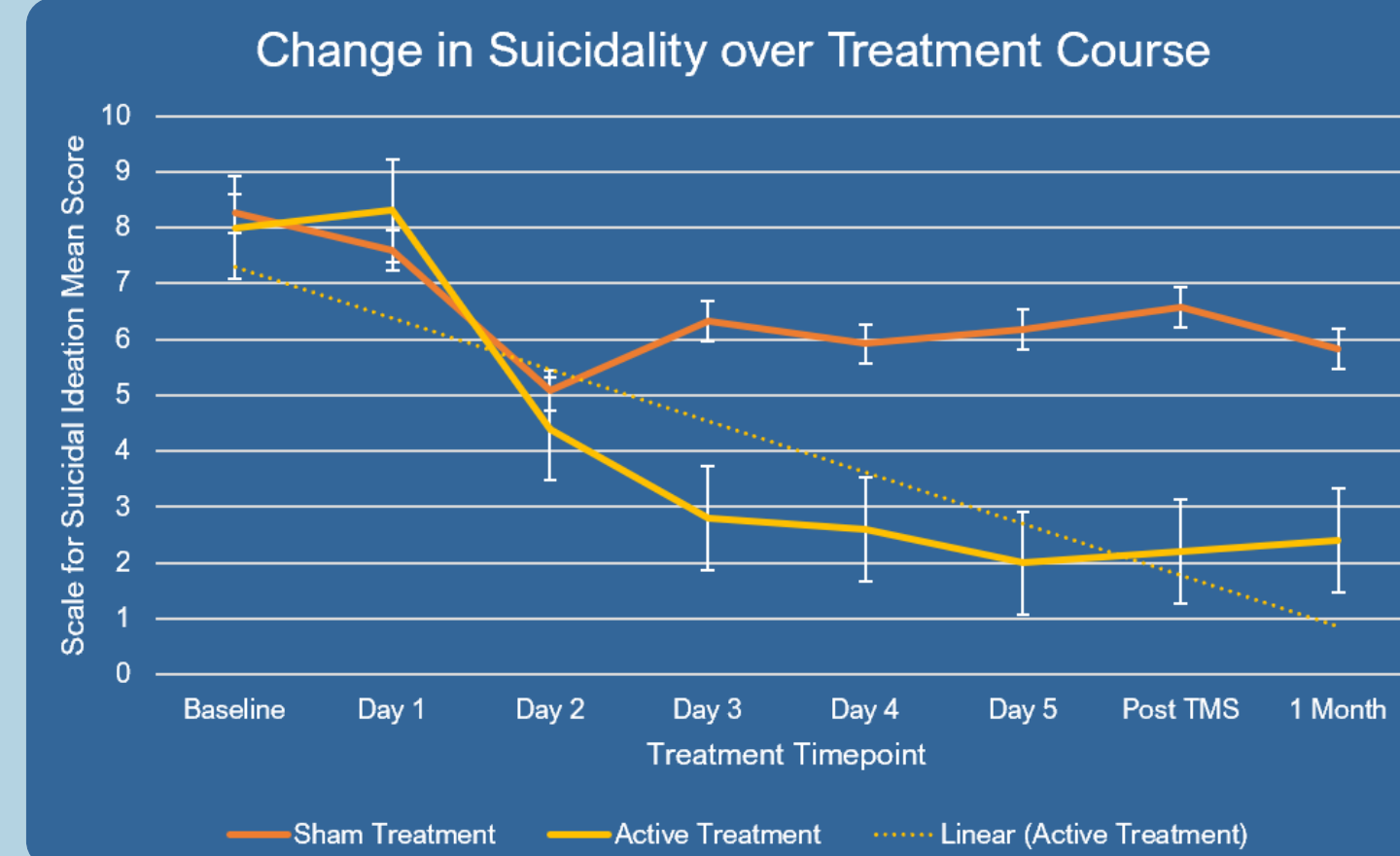
- fMRI (resting) used to identify individual targets
- EMG (finger twitch) used to identify resting motor threshold (RMT)

Treatment: 5 days of active or sham

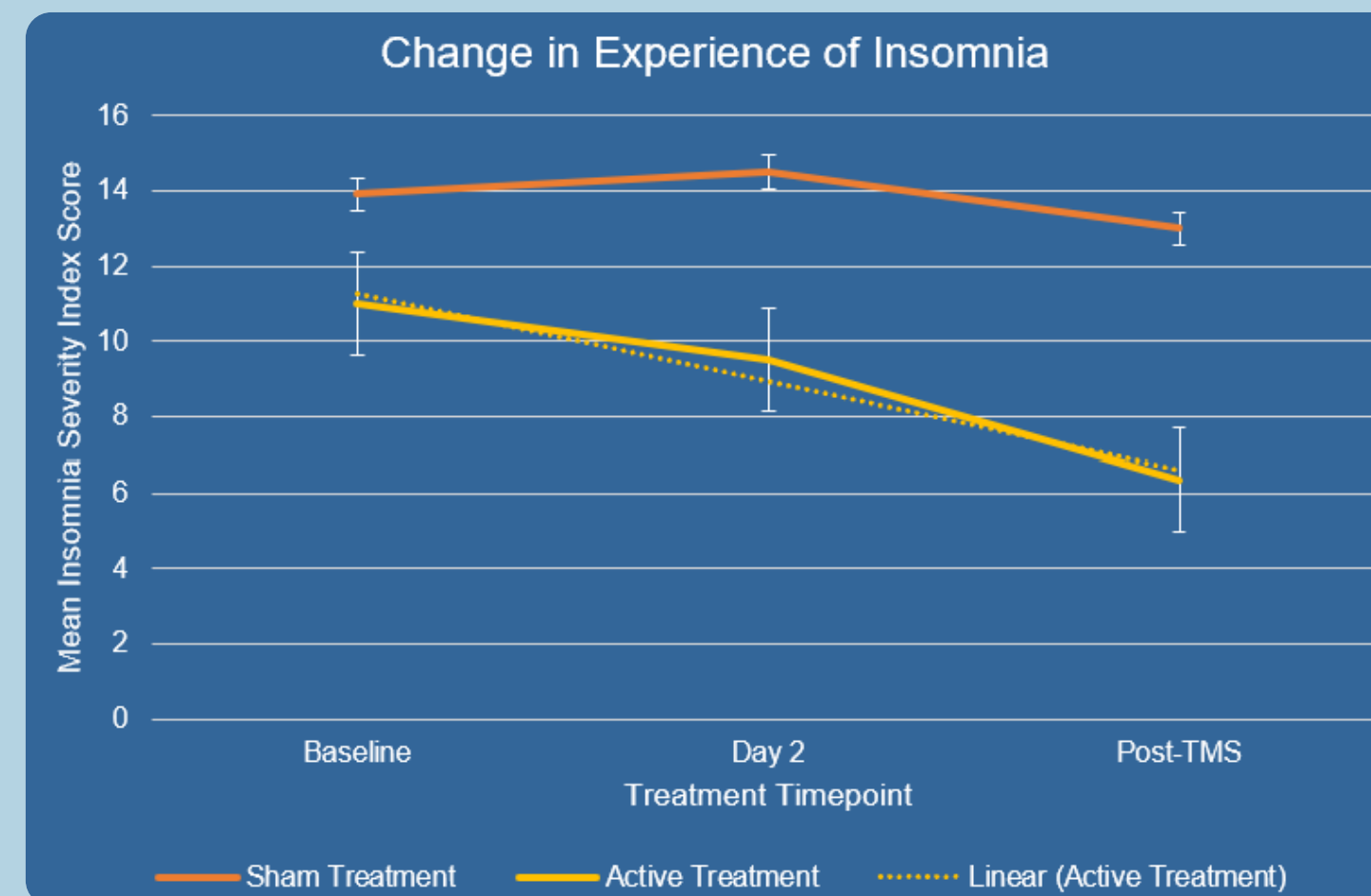
- 10 sessions per day
- Each session ~1 hour, 1,800 pulses delivered to CMA target @ 90% RMT
- Clinical assessments administered to track efficacy of treatment



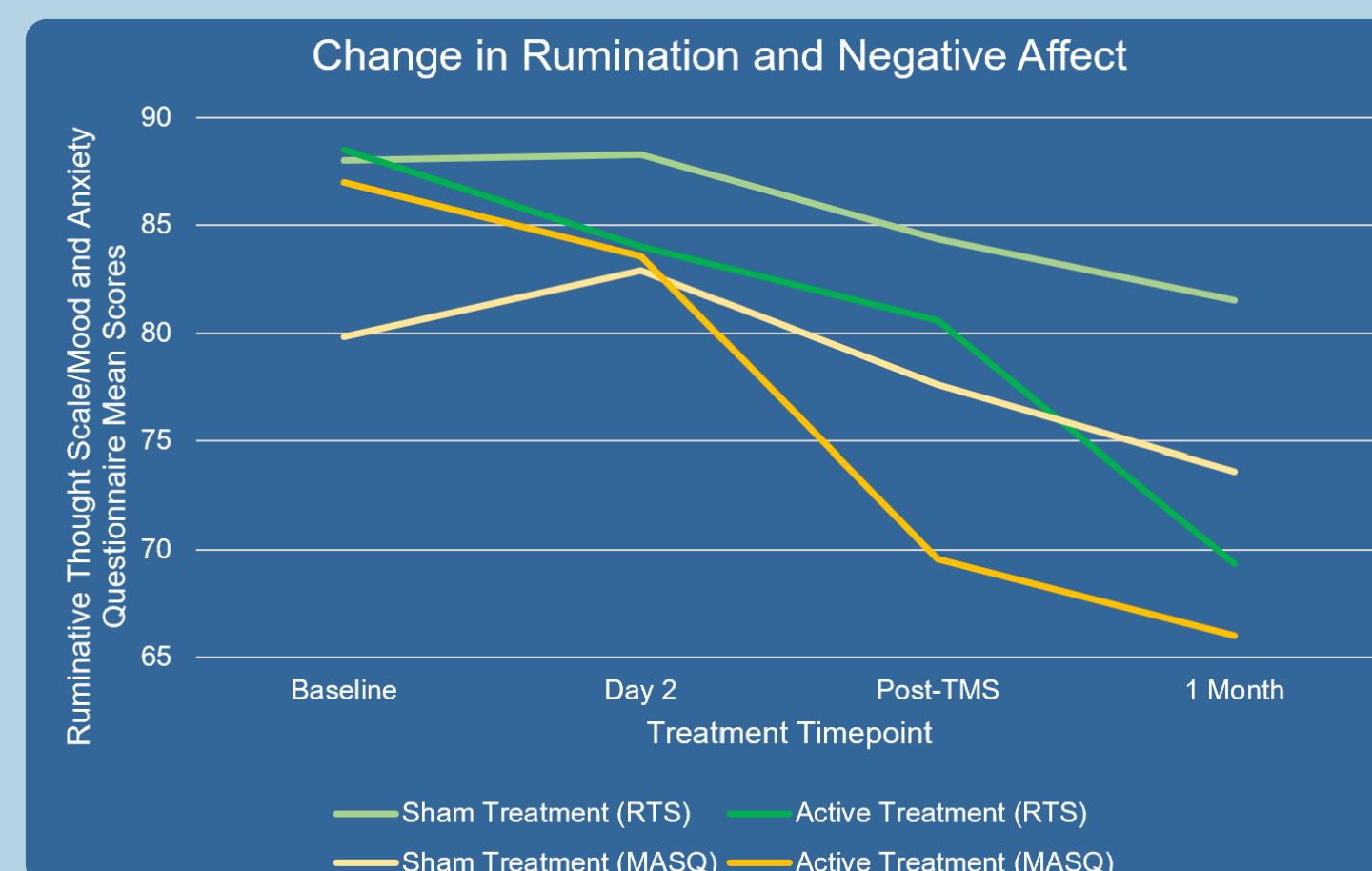
Results



- 70% reduction in suicidality ($p=0.016$).

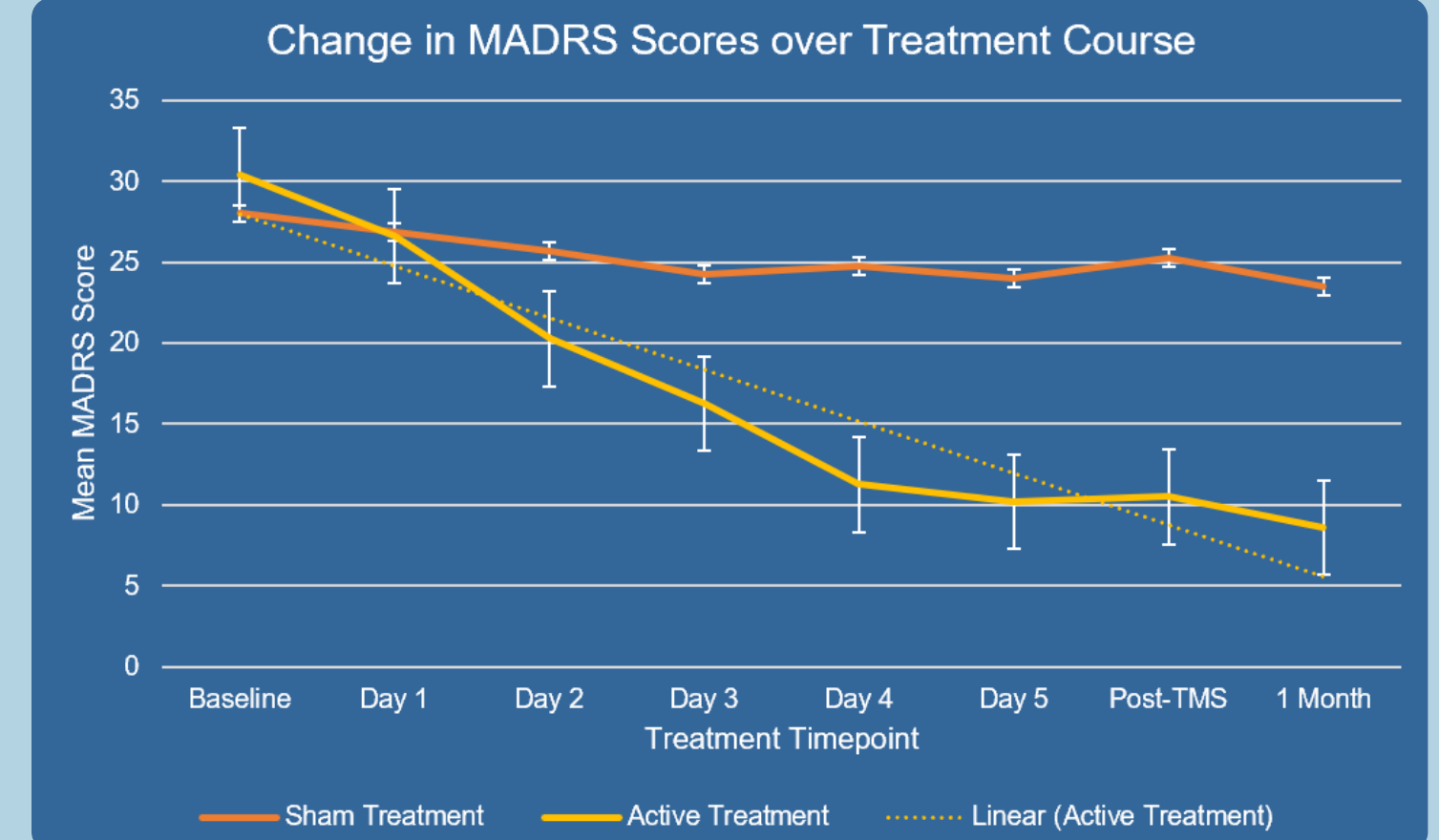


- 42.4% improvement in insomnia ($p=0.0013$).



- 21.7% reduction in rumination ($p=0.025$).
- 24.1% improvement in mood ($p=0.00063$).

Results (contd.)



- 71.78% decrease in MADRS scores ($p=1.27 \times 10^{-8}$).

Treatment Group	Baseline	Post-TMS	Difference	p-Value	% Change
Sham Treatment	28.25	31.25	-3	0.42	-10.61947
Active Treatment	27.92	24.58	3.34	0.25	11.96275

Table 1. Anxiety Sensitivity Index Scores Before and After Treatment

Conclusion

aiTBS is an effective treatment for bipolar depression, significantly treating suicidality, insomnia, rumination, and negative affect with **no** associated increases in anxiety.

- No effect on anhedonia – possibly independent from ATN-DMN changes
- Limited by small sample size ($n=24$), future studies must replicate these findings to confirm
- New path for additional approved treatments

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