

MetaBrain Labs Inc. Pilot And Feasibility Testing Summary-August 2022 to August 2024

Neurotech Innovation: Lie Detecting Chatbot & Wearable for Mindset Shifting

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Products (3)	<p><u>MetaBrain Self</u>: MetaBrain Self, led by Kim Askey Strasser, was designed to help achievers that feel stuck and offers coaching in cohorts and private sessions to design and develop mindsets that realizes dreams. Both of these are designed to first establish the current state of affairs, set goals for the desired outcome, and then map mindsets for this purpose. It's also a lifestyle, not a one time "fix."</p>

	<p><u>MetaBrain Golf</u>: MetaBrain Golf, led by Daniel Guest, was designed to address the mindset of golfers. It is well-established that golf is a game of the mind and as a result, mindset shifting is the perfect process to apply that addresses how the mindset affects the game. Multiple programs are offered to assist golfers, from private coaching sessions committed to eliminating all negative thoughts to one time, on-demand coaching. And there is a grab and go product that includes a 2-hour zoom session to learn how to use it</p> <p><u>MetaBrain Labs</u>: MetaBrain Labs is pioneering the development of a personalized Cognitive Behavioral Therapy (CBT) digital therapeutic that leverages brainwave measurements to guide users in identifying and modifying maladaptive thought patterns—a groundbreaking advancement in the field. Our trajectory is directed towards conducting rigorous clinical trials and securing FDA clearance, ultimately enabling us to offer a Prescription-based Digital Therapy (PDT). At MetaBrain Labs, we are actively seeking collaborative partners to harness the potential of our existing platform and methodology. Our objective is to integrate artificial intelligence (AI) into our research and development efforts, leading to the creation of innovative products that have a profound impact on improving health outcomes. Join us in shaping the future of healthcare through cutting-edge technologies and evidence-based solutions.</p>
<p>Research Questions</p>	<p><u>Research Question 1</u>: Pilot 1 (August 2022, October 2022): Test MetaBrain App Feasibility for Leadership Development</p> <p><u>Research Question 2</u>: Pilot 2 (Feb-April 2023): Test MetaBrain App Feasibility for Putting Improvement by Golfers</p> <p><u>Research Question 3 - Future</u>: Pilot 3 (January – June 2024): Test mindset restructuring to improve the mental outlook of those that have undergone Bariatrics surgery to stop overeating.</p> <p><u>Research Question 4 - Future</u>: Pilot 4 (June-August 2024): Test the feasibility of the MetaBrain app for integration of health psychology behavior self-care into digital interventions for chronic disease populations. The pilot will provide insights into the feasibility of implementing a cognitive-behavioral self-care app-based intervention</p>

	among adolescents with diabetes. The specific intervention will improve social media behaviors to optimize adolescent Diabetes self-care.
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Pilot Results

Research Question 1: Pilot 1 (August 2022, October 2022): Test MetaBrain App Feasibility for Leadership Development

Abstract:

This study aimed to assess the efficacy of a novel application, MetaBrain, which integrates electroencephalogram (EEG) data collection with a chatbot interface, designed to enhance leadership qualities among employees in the food manufacturing and distribution sector. A pilot was conducted between August 22, 2022, and October 3, 2022, at a site in Lancaster County, PA. The sample comprised six individuals undergoing a leadership development program, with an emphasis on analyzing the effects of different modes of delivery (app-based versus in-person) on the improvement of leadership-related attributes.

Study Design:

A randomized, controlled pilot intervention was structured to evaluate the MetaBrain Leader Program App, utilizing an EEG-enabled headset for real-time data analysis. Participants were divided into three groups: a control group (n=2) performing relaxation breathing exercises, an in-person therapeutic session group (n=2) employing cognitive reframing techniques, and a MetaBrain App group (n=2) using the chatbot to identify and perform cognitive reframing.

Participants engaged with the assigned interventions over a two-week period, with the app and in-person groups attempting to reverse and replace belief patterns through twice-daily reinforcement combined with relaxation breathing exercises. Data collection involved both qualitative and quantitative measures, with qualitative assessments utilizing Cykometrix evaluations in key developmental areas, including Dependability, Empathy, Conscientiousness, and Agreeableness.

Results:

Incremental improvements were observed across all attributes measured. For Dependability, a 2-17% increase was noted; for Empathy, a 3-8% increase; for Conscientiousness, a 2-11% increase; and for Agreeableness, a 5-20% increase.

Conclusions:

The findings suggest that in-person therapeutic intervention yielded the highest improvement in measured attributes. While the control group showed the least improvement, indicating that the mere act of relaxation breathing was less effective. Notably, the MetaBrain App intervention demonstrated significant enhancement, nearly paralleling the results of the in-person sessions. These preliminary results advocate for the potential of the MetaBrain app as a viable tool for leadership development, meriting further investigation in larger sample sizes to substantiate these findings.

Research Question 2: Pilot 2 (Feb-April 2023): Test MetaBrain App Feasibility for Putting Improvement by Golfers

Background and Objective:

The physical aspects of golf are well-supported through various training aids, but the mental component is often neglected. The pilot study conducted by Meta-Brain Labs aimed to explore the efficacy of their novel technology in enhancing mental training and performance among golfers, specifically in the context of putting.

Technology Overview:

Meta-Brain Labs' intervention involves a two-step process utilizing EEG technology to measure beta and theta brain waves, thereby identifying patterns related to golfers' mental states and beliefs. Based on this data, a chatbot recommends affirmations that golfers select, verbalize, and listen to via an app. This process is informed by adaptive theory, a subset of cognitive-behavioral theory, suggesting that modifying unconscious beliefs can change behavior.

Research Questions:

The pilot study aimed to determine whether Meta-Brain Labs' technology could:

Improve golfers' putting performance.

Alter golfers' putting mechanics.

Reduce golfers' performance anxiety about putting.

Methodology:

Thirty golfers participated in the pre-post study to test the MetaBrain labs technology. Psychological beliefs were assessed using standardized surveys, and putting performance was quantified through controlled tasks under induced stress conditions. Putting mechanics were analyzed using the Blast Golf sensor system. Data were analyzed using repeated measures ANOVA.

Results:

	<p>Post-intervention results indicated significant improvements in both mental and putting skills. Participants reported reduced somatic and cognitive anxiety, increased confidence, and a shift from fixed to growth mindset beliefs about putting ability. The number of successful 8-foot putts increased, and the aggregate distance from the hole in 20-foot putts decreased. Moreover, putting stroke mechanics improved, with a measurable change in putter face angle at impact.</p> <p>Ethical Considerations: Data was collected anonymously, analyzed in aggregate form, and no IRB review was conducted, as it was a pilot study.</p> <p>Conclusion: The pilot study suggests that Meta-Brain Labs' technology, leveraging neurofeedback and cognitive affirmation strategies, can be a valuable tool for improving mental training and golf performance, specifically in the domain of putting. These findings support further research and potential integration of mental skills training in sports performance enhancement programs.</p>
<p>Technical Road Map</p>	<ul style="list-style-type: none"> ● MVP: Current with Research Pilots and Feasibility testing 8-2022 to 8-2024. ● App Brain Wave Visualization: Q1 2024 ● AI development: Q1 2024 ● FDA 515B: Q1 2024 ● Data Gathering: Q3 2024 ● Digital Therapeutics: Q 2025