

# Brain Map Analysis

SAMPLE



MINDSET

NEUROSCIENCE

STEFANIE FAYE

Prepared by Stefanie Faye Molicki -  
[stefaniefaye.com](http://stefaniefaye.com)

## Brain Map Analysis: Sample

### Assessment #2 (Comparative Analysis)



Understanding your brainwaves and how they relate to your mental health and well-being is an important part of self-awareness and personal growth. Your recent assessments and performance metrics indicate a healthy balance in your brain activity, which is crucial for optimal mental functioning. This report gives some information into your brain wave patterns, correlated with your self-reported questionnaires, to provide insights on how to enhance your cognitive performance.

Your self-reported questionnaires show that your general health is above average, seen in a very low GHQ-12 score, a sign of psychological well-being. You appear to be extremely attentive and relaxed. Your current lifestyle factors, like caffeine, food intake, and sleep quality, are also likely contributing to good brain health.

Your Continuous Performance Task (CPT) results show exceptionally low commission errors, which suggest low levels of impulsivity; however, the moderately high omission errors could imply moments of distractibility. Coupled with your decreased reaction time variance, your capacity to maintain attention seems proficient but still has room to fine-tune.

EEG results: Your average alpha activity during both eyes open and closed states suggests calm alertness and shows a balance in your relaxation and focus. Your theta activity is highly below average centrally when your eyes are opened, indicating extreme wakefulness rather than the tendency for daydreaming or fatigue which is commonly seen with higher theta activity.

Elevated beta and high beta waves in the central areas of the brain can be indicative of various cognitive and emotional states. Elevated beta and high beta activity often correlates with heightened alertness, concentration, and engagement in tasks. This can be beneficial for learning, problem-solving, and productivity. However, elevated high beta can also be associated with anxiety, stress, tension, overthinking, or excessive cognitive processing. High levels of beta activity can also influence mood and emotional regulation, potentially leading to irritability or mood swings.

Your improved score in the theta/beta ratio while counting suggests that you may have experienced an improvement in attention and cognitive processing, as well as better strategies to concentrate and manage mental resources.

A previous beta symmetry ratio of 1.04 to 0.9 indicates a possible shift toward greater balance in beta activity between the left and right frontal regions of the brain while the eyes are closed. The initial ratio of 1.04, while still within the normal range, suggests a relatively balanced state, but it may also indicate a slight tendency toward one side, which could be associated with mild stress or mood volatility. The subsequent improvement to a ratio of 0.9 reflects a more significant shift towards balance, indicating enhanced emotional regulation and impulse control.

A previous beta response of -3% followed by an improved response of 17% while counting indicates a significant enhancement in cognitive engagement and alertness. The initial response of -3% suggests that you may have experienced a decrease in central beta activity, which could indicate tiredness or difficulty in focusing on the cognitive task. Your improved response of 17% indicates a robust increase in central beta activity, which is a positive sign of heightened cognitive engagement and focus, reflecting improved mental clarity and energy levels.

Overall, these results show a healthy balance of brain activity and improvements in various responses and ratios. We can see a nice 'clearing up' of almost all of the brainwave frequencies, as well as more symmetrical distribution. In terms of the increased beta and high beta - sometimes, as people experiment with various strategies and activities, the brain may show elevated amounts of brainwave frequencies that were not elevated before, as it consolidates new allocations of energy. To help lower beta and high beta activity, relaxation techniques such as relaxing meditation, and open, relaxed, soft attention while out in nature as well as throughout the day could be helpful, even activities such as coloring mandalas could be helpful.

# Overview of Brainwaves

**Gamma**  
(>30 Hz)



**Awareness**

These brainwaves are dominant at times of intense focus, like when you're trying to solve a problem.

**Beta**  
(13-30 Hz)



**Alertness**

Beta waves are dominant during instances of problem-solving, judgment, decision-making, or any other focused mental activity.

**Alpha**  
(8-12 Hz)



**Relaxed**

Alpha waves are typically dominant during meditative and mindful activities and represent non-arousal.

**Theta**  
(4-7 Hz)



**Tired**

These waves are dominant during "autopilot" states, or, in other words, instances of automatic tasks and sometimes in deep meditative states.

**Delta**  
(1-3 Hz)



**Sleep**

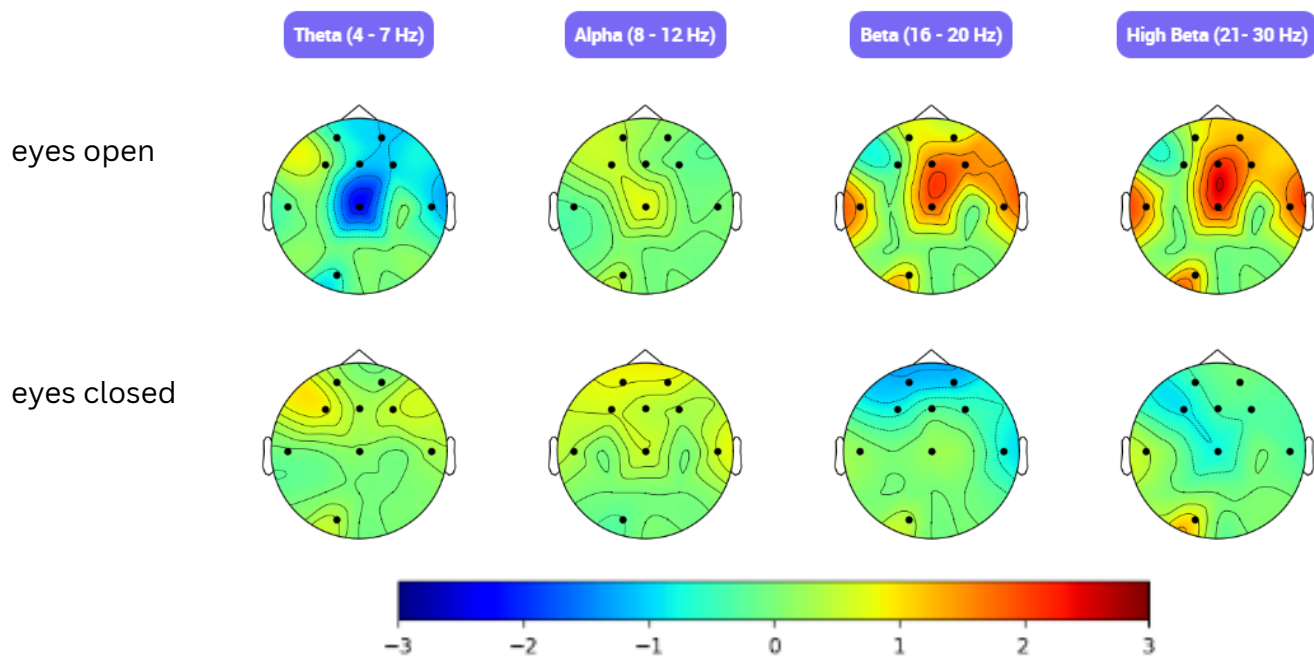
Delta waves are amplified in deep meditation and dreamless sleep.



# Brain maps

A comparison of your EEG activity to a normative population. Blue represents lower than normal activity, while red represents a higher than normal activity. Done via a sequential quantitative EEG measurement (sqEEG).

Quantitative Electroencephalography (qEEG) qEEG (also called “brain map”) is a measure of electrical patterns at the surface of the scalp using digital technology which primarily reflects cortical activity or “brain waves”. Quantitative assessment of brain waves (i.e. power, frequency/speed, relative power, distribution, spectral analysis, and comparison to normative databases) is used to determine and guide coaching protocols and practices and track progress.

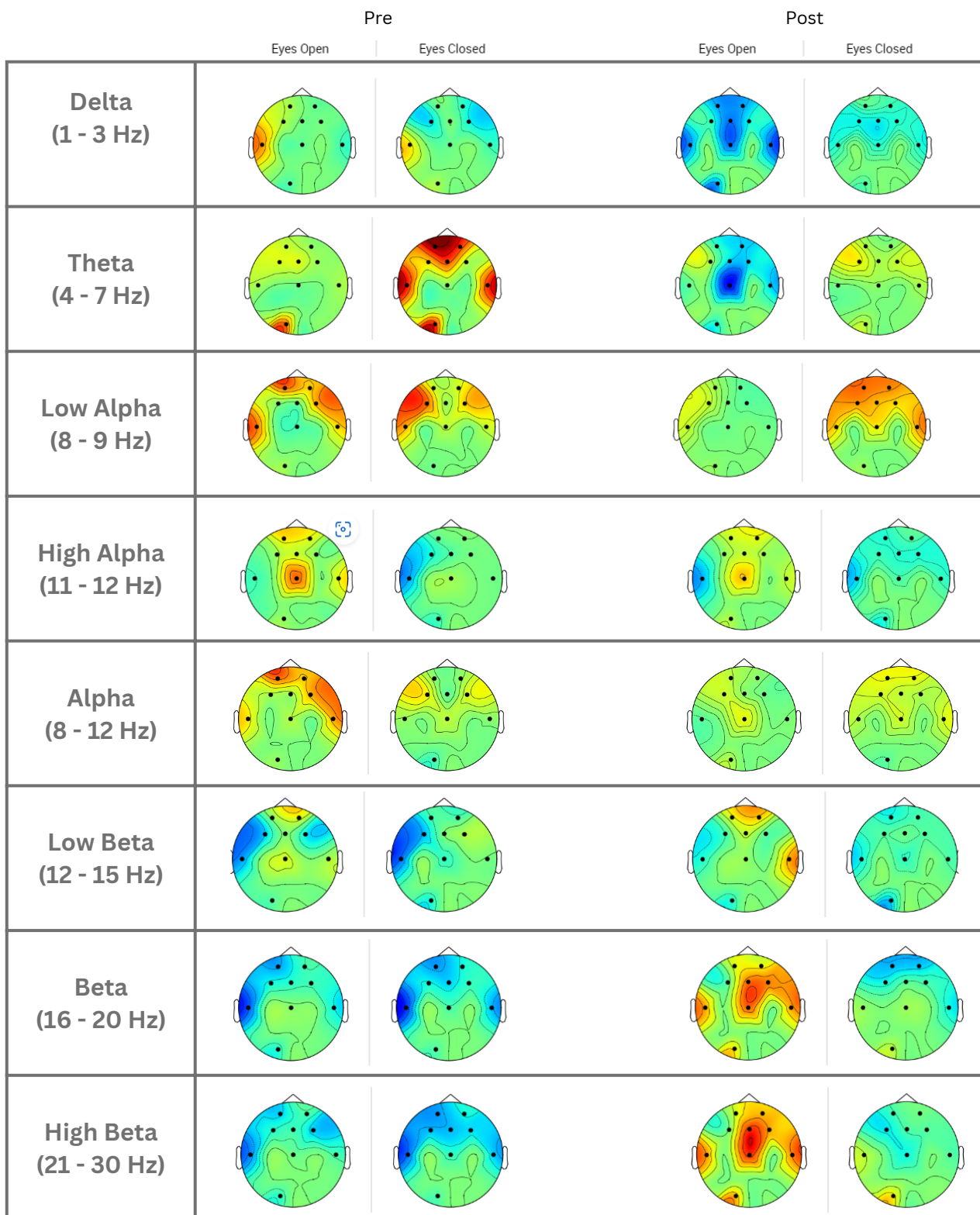


Your average alpha activity during both eyes open and closed states suggests calm alertness and shows a balance in your relaxation and focus.

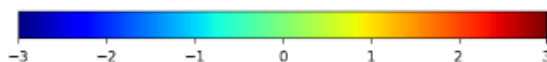
Your theta activity is highly below average centrally when your eyes are opened, indicating extreme wakefulness rather than the tendency for daydreaming or fatigue which is commonly seen with higher theta activity. This wakefulness is also reflected in the elevated beta and high beta in the central regions.

Lastly, beta activity being above average in certain areas while eyes open implies heightened alertness and cognition, especially in the central and right-sided regions, which might be linked to those occasional distractions seen in the CPT test.

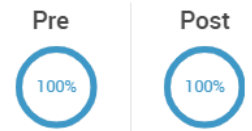
# Brain maps by frequency band - pre/post



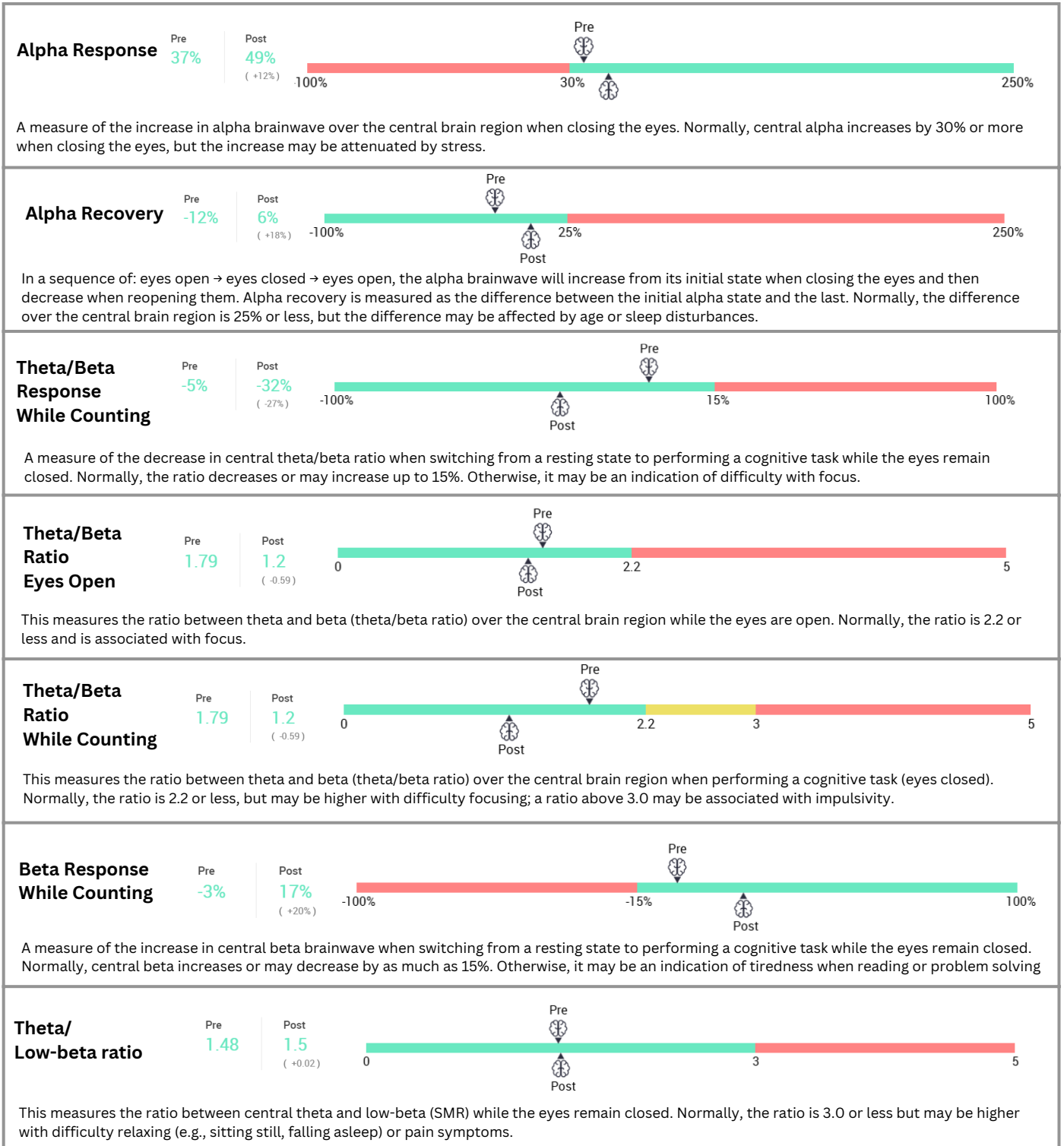
Isocontour lines represent increments of the standardized (z-score) units. Black dots represent electrode locations, which include: AF7, AF8, F3, FZ, F4, CZ, TP9, TP10, and O1. Voltage for the current assessment is standardized relative to the mean voltage for the normative population in the same age group as of the date of the client's first assessment.



# Central - alpha/theta/beta patterns



The central region has several functions associated with the limbic systems, role in fight-flight-freeze response to threat, including some sensory dysfunction, and difficulties with attention, concentration, emotional regulation, and interpersonal adaptation. Dysregulation in this region may be a function of individual genetics, stress, level, risk, and protective factors .

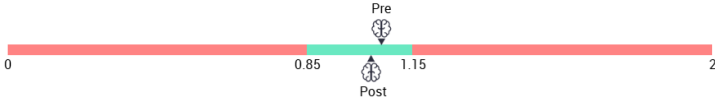
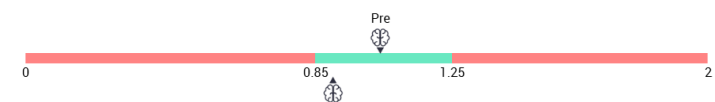




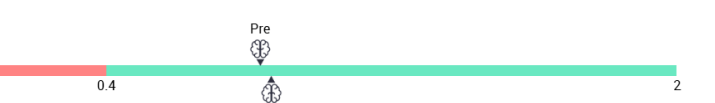

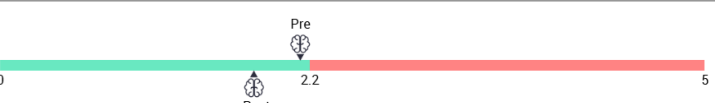
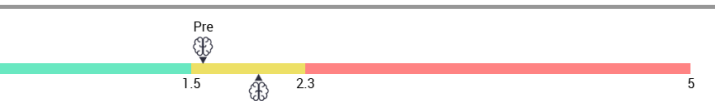


# Frontal - alpha/theta/beta patterns

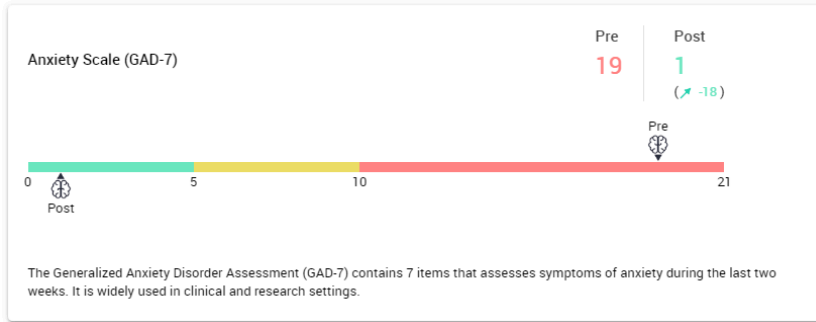
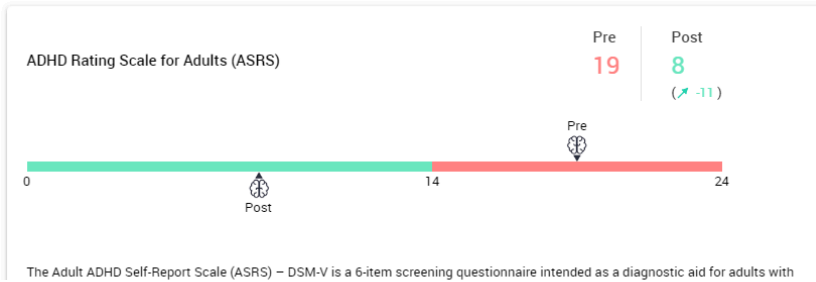
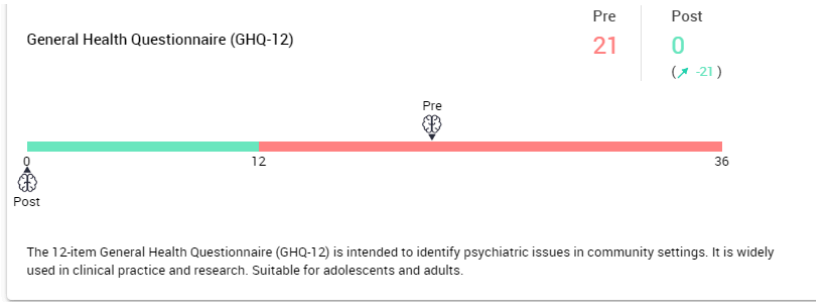
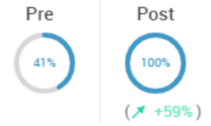


(-1%)

The frontal region comprising the prefrontal and frontal cortex is the primary locus of higher executive function. Cognitive functions arise in this region, in a complex and interactive fashion, and these capacities are best conceived as a product of the whole brain. This region is associated with reasoning, cognitive/emotional/language/visual spatial processing, attention, concentration, memory acquisition, and retrieval, as well as other aspects, such as social intelligence, motivation, and higher meditative states

<p><b>Alpha Symmetry</b></p> <p>Pre: 1.06 Post: 1.03 (-0.03)</p>	 <p>This measures the ratio between frontal left and right alpha brainwave while the eyes remain closed. Normally, the ratio is between 0.85 and 1.15 and is associated with mood volatility or impulse control.</p>
<p><b>Beta Symmetry</b></p> <p>Pre: 1.04 Post: 0.9 (-0.14)</p>	 <p>This measures the ratio between frontal left and right beta brainwave while the eyes remain closed. Normally, the ratio is between 0.85 and 1.25 and is associated with stress tolerance, mood volatility or impulse control.</p>
<p><b>Theta Symmetry</b></p> <p>Pre: 1.1 Post: 1.04 (-0.06)</p>	 <p>This measures the ratio between frontal left and right theta brainwave while the eyes remain closed. Normally, the ratio is between 0.85 and 1.25 and is associated with mood/emotional volatility or impulse control.</p>
<p><b>Theta/Beta Ratio Symmetry</b></p> <p>Pre: 1.06 Post: 1.16 (+0.10)</p>	 <p>This measures the ratio between frontal left and right theta/beta ratio (TBR) while the eyes remain closed. Normally, the ratio is 0.8 or higher, but it may be lower with emotional volatility.</p>
<p><b>Beta Balance</b></p> <p>Pre: 0.51 Post: 0.71 (+0.20)</p>	 <p>This measures the ratio between fast (high) beta and beta over the frontal brain region while the eyes remain closed. Normally, this ratio is between 0.4 and 0.75, and it may be affected by stress.</p>
<p><b>Theta/Alpha Ratio Frontal Left</b></p> <p>Pre: 0.86 Post: 0.87 (+0.01)</p>	 <p>This measures the ratio between frontal left theta and alpha while the eyes remain closed. Normally, the ratio is at least 0.4 and may be affected by sleep disturbance or pain.</p>
<p><b>Theta/Alpha Ratio Frontal Right</b></p> <p>Pre: 0.83 Post: 0.86 (+0.03)</p>	 <p>This measures the ratio between frontal right theta and alpha while the eyes remain closed. Normally, the ratio is at least 0.4 and may be affected by sleep disturbance or pain.</p>
<p><b>Theta/Beta Ratio Frontal Left</b></p> <p>Pre: 2.27 Post: 2.09 (-0.18)</p>	 <p>This measures the ratio between frontal left theta and beta (theta/beta ratio) while the eyes remain closed. Normally, the ratio is 2.2 or less and is associated with impulse control or emotional volatility.</p>
<p><b>Theta/Beta Ratio Frontal Right</b></p> <p>Pre: 2.13 Post: 1.8 (-0.33)</p>	 <p>This measures the ratio between frontal right theta and beta (theta/beta ratio) while the eyes remain closed. Normally, the ratio is 2.2 or less and is associated with impulse control or emotional volatility.</p>
<p><b>Low Alpha/High Alpha Ratio</b></p> <p>Pre: 1.58 Post: 1.97 (+0.39)</p>	 <p>This is a measure of the ratio between slow alpha and fast alpha brainwaves over the frontal brain region while the eyes remain closed. Normally, the ratio is 1.5 or less, but it is associated with memory/concentration and may be higher with age or sleep difficulties.</p>

# Questionnaires



## Current State Questionnaire

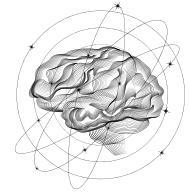
Question	Answer
How much caffeine have you had today?	No more than usual
Are you taking any psychotropic medications capable of affecting the mind, emotions, and behavior?	Not at all
How tired do you feel?	Not at all
Was your sleep interrupted last night?	Not at all
Have you eaten in the past 2 hours?	No more than usual
Did you consume nicotine in the last hour?	Not at all
How reclined is your sitting position right now?	No more than usual

Your self-reported questionnaires, the General Health Questionnaire (GHQ-12), the Adult ADHD Self-Report Scale (ASRS) – DSM-V, and the Generalized Anxiety Disorder Assessment (GAD-7), and questions about your current state, show healthy responses. You seem to have strong concentration, minimal worry, and an overall positive sense of self.

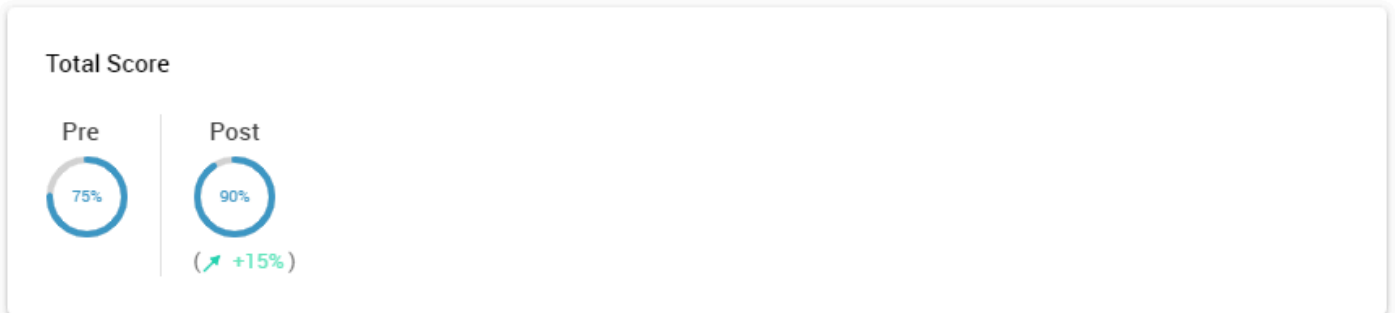
This is an exceptionally high improvement from your reports in April 2024. These results, combined with your EEG show that you are on a healthy, positive and strong track of continuous improvement and enhancement of your cognitive functioning, performance and overall well-being.



# Continuous Performance Task



A continuous performance task, continuous performance test, or CPT, is any of several kinds of neuropsychological test that measures a person's sustained and selective attention. Sustained attention is the ability to maintain a consistent focus on some continuous activity or stimuli, and is associated with impulsivity. Selective attention is the ability to focus on relevant stimuli and ignore competing stimuli. This skill is associated with distractibility.



**Raw Values**

	Accuracy ?	Commission Errors ?	Omission Errors ?	Reaction Time ?	Reaction Time Variability ?
Pre	99%	2	0	468ms	110ms
Post	100% (↗ +1%)	0 (↘ -2)	0	429ms (↘ -39ms)	66ms (↘ -44ms)

**Standardized Values**

	Accuracy ?	Commission Errors ?	Omission Errors ?	Reaction Time ?	Reaction Time Variability ?
Pre	<b>Very High</b> (0.48)	<b>Very High</b> (0.45)	<b>Very Superior</b> (0.31)	<b>Medium</b> (-0.32)	<b>Low</b> (-0.37)
Post	<b>Very Superior</b> (0.55) (↗ +0.07)	<b>Very Superior</b> (0.56) (↗ +0.11)	<b>Very Superior</b> (0.31)	<b>High</b> (0.22) (↗ +0.54)	<b>High</b> (0.42) (↗ +0.79)

In your Continuous Performance Task, you exhibited extremely low commission and omission errors, indicating great impulse control and attentiveness, backed by a solid foundation in maintaining focus shown in your average reaction time and consistency of responses.

Your CPT performance in August improved at an exceptional levels compared with your performance in April. This indicates an overall improvement in attention control and cognitive functioning.