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# QEEG Clinical Report

BrainLens V0.4

## Report Description

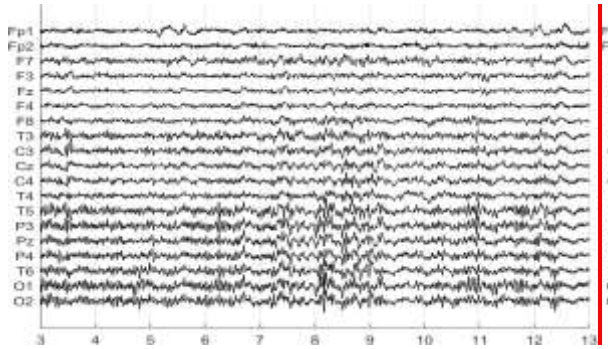
## Personal & Clinical Data

| | | | |
|---|---|---|---|
| Name | Roghaye Heshmat | Date of Recording | 02-Oct-2024 |
| Date of Birth - Age | 21-Mar-1940 - 84.53 | Gender | Female |
| Handedness(R/L) | Right | Source of Referral | Dr Masjedi |
| Initial Diagnosis | Anxiety-Dementia-Headache | | |
| Current Medication | Medication Free | | |

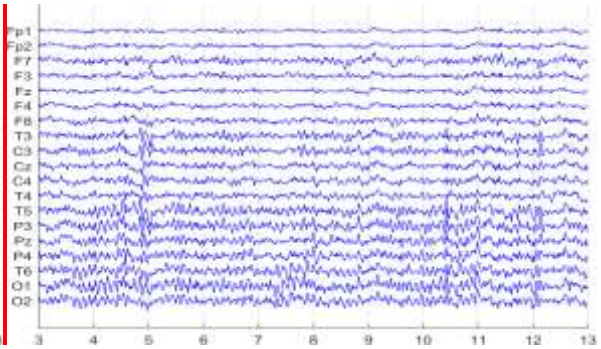
Dr Masjedi

## Denoising Information (EC)

Raw EEG




Denoised EEG



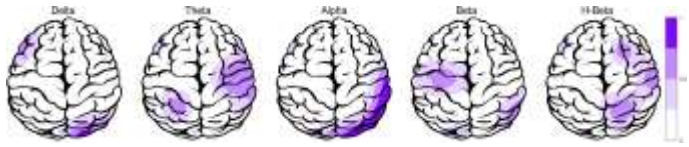

Flat Channels

Rejected Channels

| Number of Eye and Muscle Elements | | | | Low Artifact Percentage |
|---|---|---|---|---|
| **Eye** | 2 | **Muscle** | 2 | |
| **Total Artifact Percentage** | | | | **High Artifact Percentage** |
| | | | | |
| **EEG Quality** | good | | | **Total Recording Time Remaining** 243.26 sec |

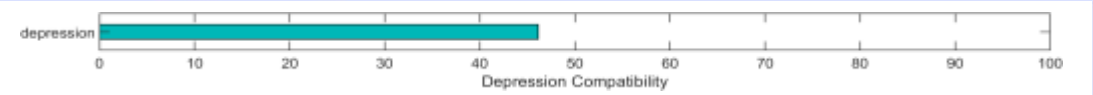
# Pathological assessment for mood disorders

## Compare to Mood Disorders Database




## EEG Compatibility with Depression Diagnosis

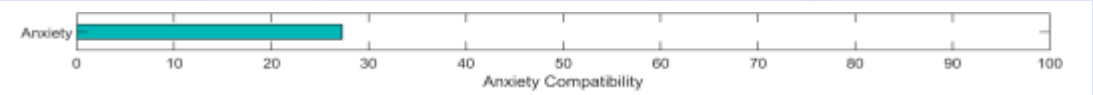
| Depression Table | EC | |
|---|---|---|
| Feature Name | Threshold | Region |
| Increased Global rAlpha | 0.00 | NAN |
| Increased global rTheta | 0.50 | global |
| Decreased rDelta | 0.00 | NAN |
| Increased rBeta | 0.00 | NAN |
| Left FAA | -0.09 | Left FAA |
| Right OAA | 0.30 | Right OAA |
| Decreased Coherence (D, T) | 0.00 | NAN |
| Increased Coherence (A, B) | 0.00 | NAN |




Depression Probability

## EEG Compatibility with Anxiety Diagnosis

| Anxiety Table | EC | |
|---|---|---|
| Feature Name | Threshold | Region |
| Decreased rAlpha | -0.50 | C |
| Increased rBeta | 0.00 | NAN |
| Right FAA | 0.00 | NAN |
| Left OAA | 0.00 | NAN |
| Increased IAF > 10.6 | 0.00 | NAN |




Anxiety Probability

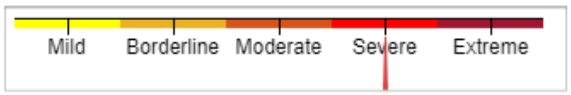
## EEG Compatibility with Mood Swings Diagnosis *

| Mood Swings Table | EC | |
|---|---|---|
| Feature Name | Threshold | Region |
| Decreased rAlpha | -0.50 | C |
| Increased (rDelta+rTheta) | 1.00 | LF-RF-MF-LT-RT-C-P-O- |
| Increased rBeta | 0.00 | NAN |
| Decreased Alpha Coherence | -0.50 | Decreased Alpha Coherence |
| Right FAA | 0.00 | NAN |

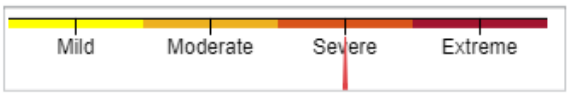

Mood Swings Probability

* This index can only be investigated if there are symptoms of mood swings (R/O BMD or R/O mood swings).

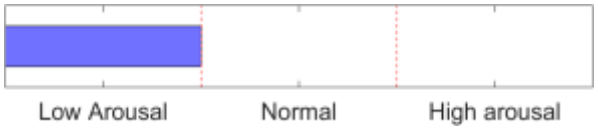
## Depression Severity




## Anxiety Severity

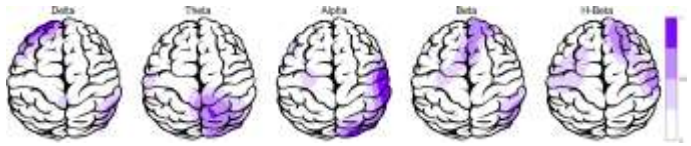



## Arousal Level Detection



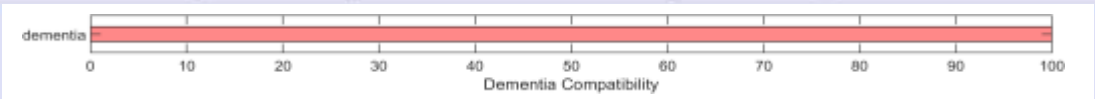
# Pathological assessment for Dementia

## Compare to Dementia Database



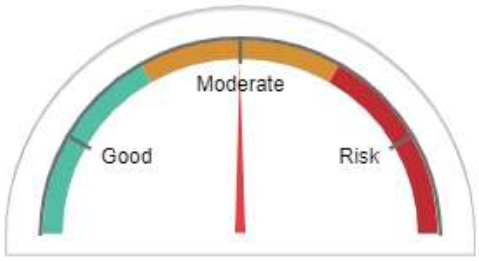

## Dementia Probability

| Dementia Table | EC | |
|---|---|---|
| Feature Name | Threshold | Region |
| Increased rDelta | 1.00 | LF-RF-MF-LT-RT-C-P-O- |
| Increased rTheta | 0.50 | LF-RF-MF-RT-C-P- |
| Decreased rAlpha | -0.50 | C |
| Decreased rBeta | -0.50 | LF-RF-MF-LT-RT-C-P-O- |
| Increased T/A Ratio | 0.50 | LF-RF-MF-RT-C- |
| Increased D/A Ratio | 1.00 | LF-RF-MF-LT-RT-C-P-O- |
| Decreased (D+T+A+B) Coherence | -0.50 | Decreased global Coherence |

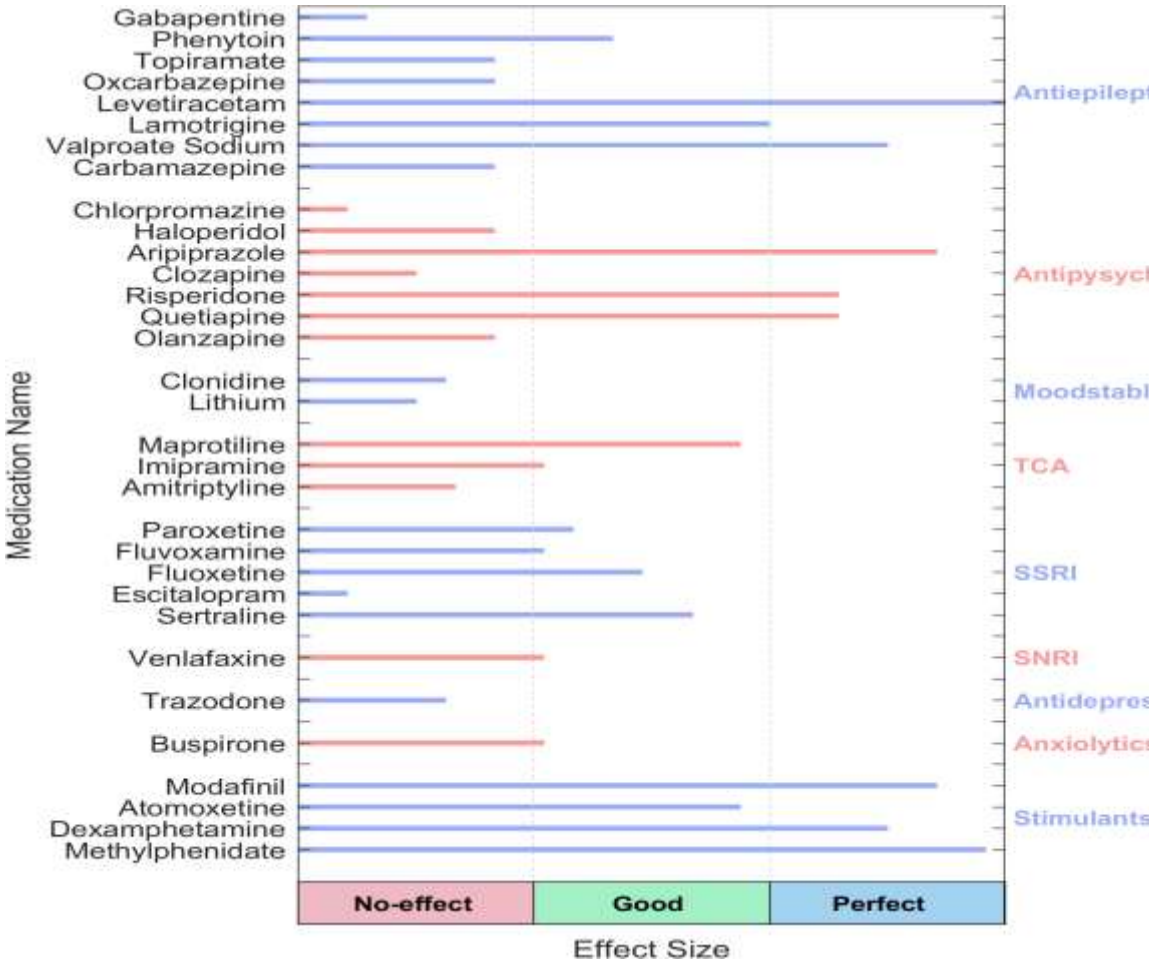



Dementia Probability

## Cognitive Impairment Severity



## QEEG based predicting medication response




## Explanation

These two tables can be considered the most important finding that can be extracted from QEEG. To prepare this list, the NPCIndex Article Review Team has studied, categorized, and extracted algorithms from many authoritative published articles on predict medication response and Pharmaco EEG studies. These articles are published between 1970 and 2021. The findings extracted from this set include 85 different factors in the raw band domains, spectrum, power, coherence, and loreta that have not been segregated to avoid complexity, and their results are shown in these diagrams. One can review details in NPCIndex.com .

## Medication Recommendation

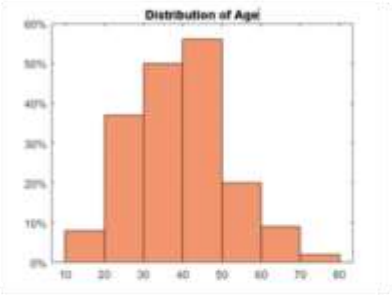
These two charts, calculate response probability to various medications, according only to QEEG indicators. Blue charts favor drug response and red charts favor drug resistance. The longer the bar, the more evidence there is in the articles. Only drugs listed in the articles are listed. These tables present the indicators reviewed in the QEEG studies and are not a substitute for physician selection.

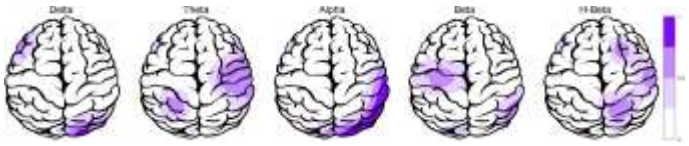
# rTMS Response Prediction

## Network Performance

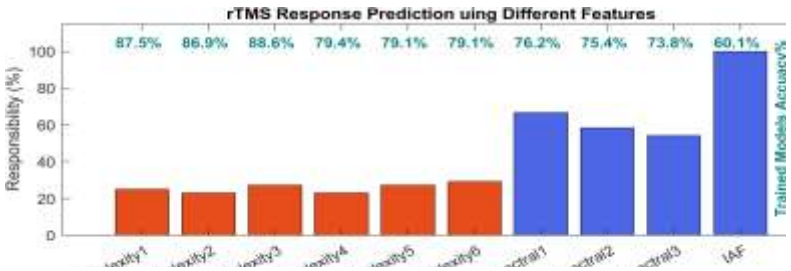
**Accuracy:** 92.1%
**Sensitivity:** 89.13%
**Specificity:** 97.47%

## Participants Information

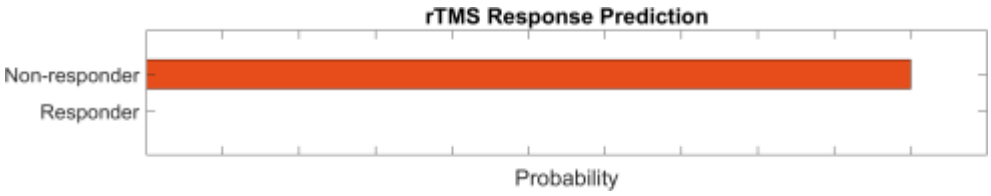



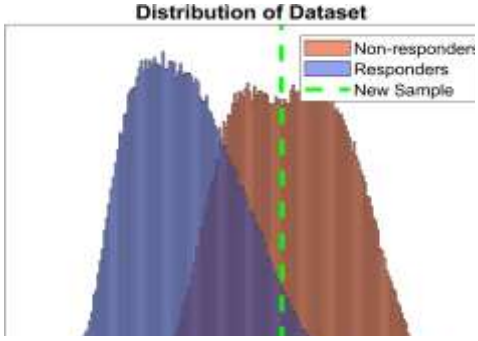
## Features Information




## Responsibility




## Data Distribution

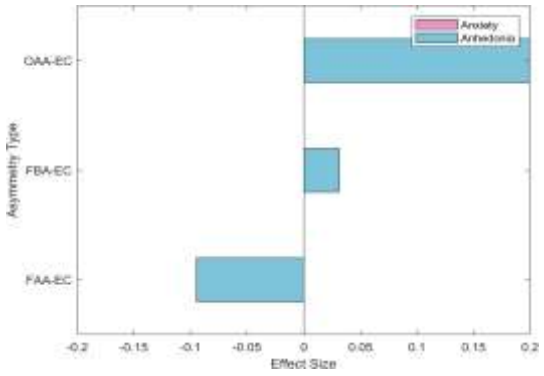



## About Predicting rTMS Response

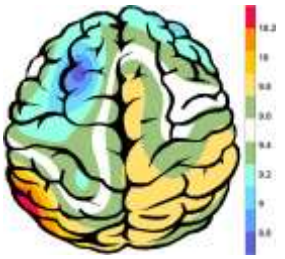
This index was obtained based on machine learning approaches and by examining the QEEG biomarkers of more than 470 cases treated with rTMS. The cases were diagnosed with depression (with and without comorbidity) and all were medication free. By examining more than 40 biomarkers capable of predicting response to rTMS treatment in previous studies and with data analysis, finally 10 biomarkers including bispectral and nonlinear features entered the machine learning process. The final chart can distinguish between RTMS responsive and resistant cases with 92.1% accuracy. This difference rate is much higher than the average response to treatment of 44%, in the selection of patients with clinical criteria, and is an important finding in the direction of personalized treatment for rTMS.

Roghaye Heshmat\Dr Masjedi

## Alpha Asymmetry(AA)



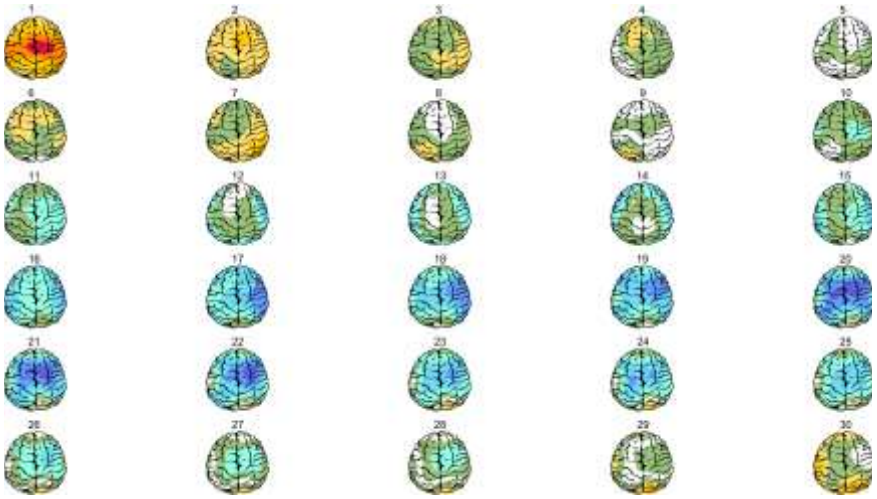

## APF(EC)



**Frontal APF= 09.42**

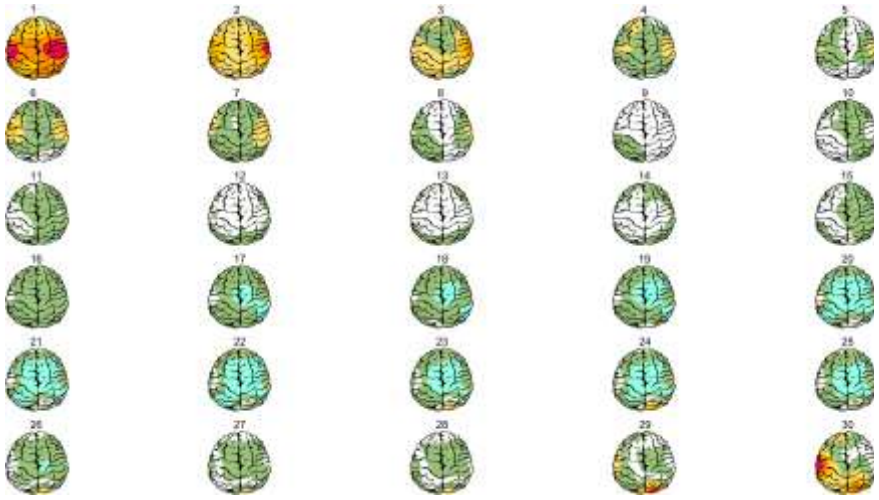
**Posterior APF= 09.75**

## Absolute Power-Eye Closed (EC)

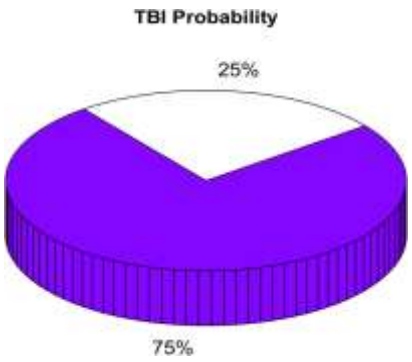


## TBI Severity

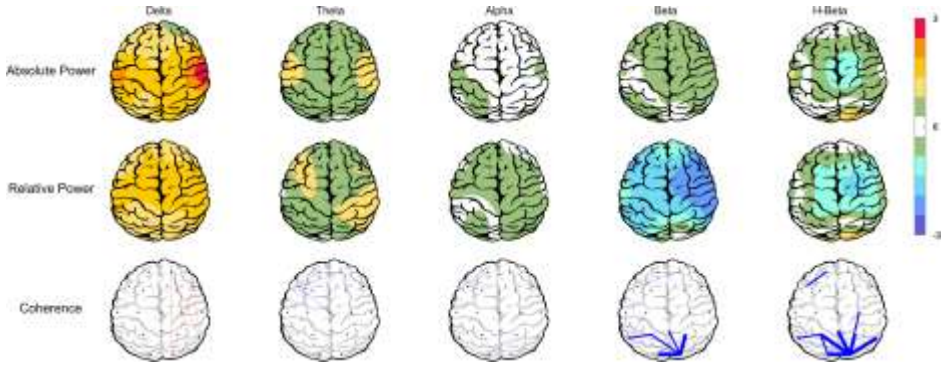

## Relative Power-Eye Closed (EC)



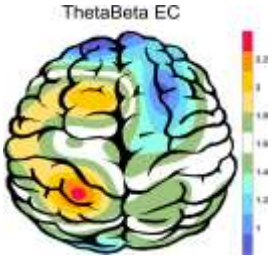
## TBI Probability

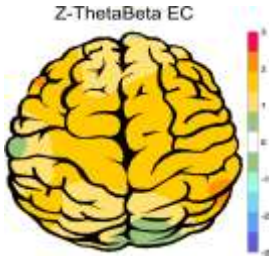


## Z Score Summary Information (EC)

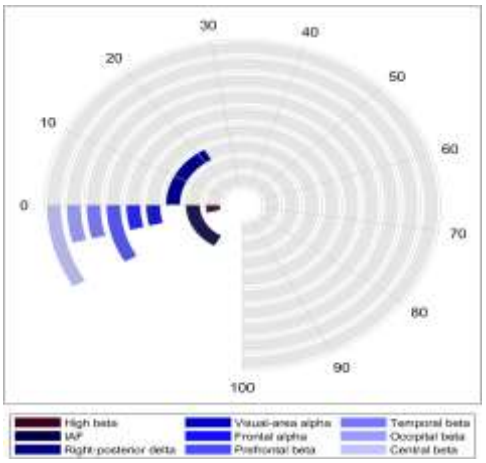



## E.C.T/B Ratio ( Raw- Z Score)




## Arousal Level




## EEG Spectra