**Name:** Sample 1 **Age:** 42
**Trainer:** **Date:** 11/15/2016

English

## Histogram

| Overall EEG Shape | F7 | F3 | Fp1 | Fz | Fp2 | F4 | F8 | T3 | C3 | Cz | C4 | T4 | T5 | P3 | Pz | P4 | T6 | O1 | Oz | O2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Slow Percent EC | 35% | 35% | 32% | 34% | 32% | 35% | 35% | 31% | 31% | 28% | 31% | 30% | 23% | 23% | 22% | 25% | 25% | 23% | 25% | 24% |
| Slow Percent EO | 39% | 39% | 37% | 41% | 35% | 39% | 39% | 34% | 39% | 37% | 37% | 29% | 36% | 36% | 32% | 35% | 35% | 33% | 35% | 34% |
| Mid Percent EC | 37% | 37% | 36% | 38% | 36% | 37% | 37% | 32% | 36% | 45% | 39% | 27% | 52% | 52% | 54% | 51% | 51% | 45% | 46% | 46% |
| Mid Percent EO | 27% | 27% | 29% | 30% | 29% | 27% | 27% | 30% | 27% | 34% | 31% | 25% | 31% | 31% | 38% | 33% | 33% | 32% | 32% | 32% |
| Fast Percent EC | 29% | 29% | 32% | 29% | 32% | 28% | 28% | 37% | 34% | 27% | 30% | 43% | 25% | 25% | 24% | 25% | 25% | 32% | 29% | 30% |
| Fast Percent EO | 34% | 34% | 34% | 29% | 36% | 34% | 34% | 36% | 34% | 29% | 32% | 45% | 34% | 34% | 30% | 33% | 33% | 35% | 33% | 34% |
| **EEG Speed** | | | | | | | | | | | | | | | | | | | | |
| Alpha Peak Freq | 10 | 10 | 9.8 | 10.1 | 9.9 | 10 | 10 | 10.5 | 10.4 | 10.5 | 10.6 | 10.7 | 10.3 | 10.3 | 10.6 | 10.2 | 10.2 | 10.4 | 10.3 | 10.4 |
| Beta Peak Freq | 18.5 | 18.5 | 19.6 | 18.2 | 19.6 | 18.4 | 18.4 | 19.1 | 18.1 | 17.7 | 17.6 | 29.4 | 17.8 | 17.8 | 17.3 | 17.7 | 17.7 | 19.7 | 18 | 18.5 |
| Overall Peak Freq | 7.9 | 7.9 | 7.4 | 7.5 | 7.7 | 7.6 | 7.6 | 7.3 | 8.2 | 8.9 | 8.2 | 6.2 | 8.8 | 8.8 | 9.8 | 8.6 | 8.6 | 9.4 | 8.7 | 8.9 |
| **Alpha Pattern** | | | | | | | | | | | | | | | | | | | | |
| A/T Ratio EC | 1.2 | 1.2 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 2 | 1.4 | 1 | 2.8 | 2.8 | 2.8 | 2.5 | 2.5 | 2.3 | 2.3 | 2.3 |
| A/T Ratio EO | 0.7 | 0.7 | 0.8 | 0.7 | 0.8 | 0.7 | 0.7 | 1.1 | 0.7 | 0.9 | 0.8 | 0.9 | 0.8 | 0.8 | 1 | 0.9 | 0.9 | 1 | 0.9 | 1 |
| Alpha EC/EO | 2 | 2 | 1.7 | 1.7 | 1.8 | 2 | 2 | 1.2 | 1.8 | 2.6 | 1.9 | 1.1 | 4.3 | 4.3 | 3.4 | 3.4 | 3.4 | 2.8 | 2.9 | 2.4 |
| Alpha EO/TSK | 1.2 | 1.2 | 1.1 | 1.1 | 1.2 | 1.2 | 1.2 | - | 1 | 1.1 | 1.2 | - | 1 | 1 | 1.1 | 1.1 | 1.1 | 1 | 1 | 1.1 |

## Heads

**Temporal Lobe**

Disconnect

| | | |
|---|---|---|
| Disconnect | Rule out ABUSE history | |
| Absolute R/L ratio | 2.03 | |
| Relative R/L ratio | 1.44 | |

| Hot Temporals | T3 | T4 | T3%L | T4%R |
|---|---|---|---|---|
| Beta Percent | 17.9% | 15.9% | 100% | 98% |
| High Beta Percent | 12.7% | 18.2% | 156% | 227% |

**Results**

very high
in range
very low

**Position**

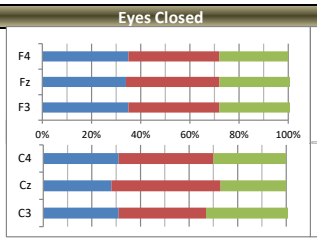
Front
Mid
Back

| Reversal | EC | EO | EC | EO | EC | EO | EC | EO | EC | EO | EC | EO | EC | EO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Left/Right Beta | F7/F8 | F7/F8 | F3/F4 | F3/F4 | C3/C4 | C3/C4 | T3/T4 | T3/T4 | T5/T6 | T5/T6 | P3/P4 | P3/P4 | O1/O2 | O1/O2 |
| irritable anxious angry | 1.03 | 0.98 | 1.03 | 0.98 | 1.16 | 1.08 | 0.90 | 0.83 | 1.05 | 1.05 | 1.05 | 1.05 | 1.05 | 1.03 |
| Right/Left Alpha | F8/F7 | F8/F7 | F4/F3 | F4/F3 | C4/C3 | C4/C3 | T4/T3 | T4/T3 | T6/T5 | T6/T5 | P4/P3 | P4/P3 | O1/O2 | O1/O2 |
| depressed negative | 1.00 | 1.07 | 1.00 | 1.07 | 1.13 | 1.20 | 0.64 | 0.65 | 0.94 | 1.17 | 0.94 | 1.17 | 1.01 | 0.99 |
| Front/Back Beta | F3/P3 | F3/P3 | F4/P4 | F4/P4 | F3/O1 | F3/O1 | F4/O2 | F4/O2 | Fz/Pz | Fz/Pz | Cz/Oz | Cz/Oz | | |
| perfectionism insomnia | 1.10 | 1.00 | 1.13 | 1.07 | 0.94 | 0.98 | 0.96 | 1.03 | 1.15 | 0.97 | 0.93 | 0.90 | | |
| Back/Front Alpha | P3/F3 | P3/F3 | P4/F4 | P4/F4 | O1/F3 | O1/F3 | O2/F4 | O2/F4 | Pz/Fz | Pz/Fz | Oz/Cz | Oz/Cz | | |
| unmotivated foggy | 1.63 | 1.16 | 1.55 | 1.26 | 1.24 | 1.27 | 1.24 | 1.21 | 1.74 | 1.40 | 0.94 | 0.80 | | |

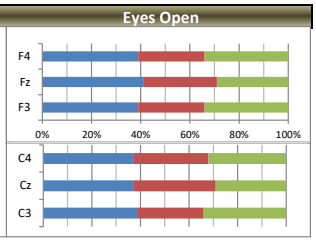
**Blocking** — Left & Right vs Midline

| Fz vs F3 or F4 | EC | EO | Swingle Ratio |
|---|---|---|---|
| Slow Pct | -3.6% | 3.8% | 74% |
| Mid Pct | 4.8% | 17.9% | |
| Fast Pct | -0.7% | -10.1% | |
| Cz vs C3 or C4 | EC | EO | Swingle Ratio |
| Slow Pct | -8.1% | -2.7% | 61% |
| Mid Pct | 31.3% | 35.3% | |
| Fast Pct | -15.9% | -12.2% | |

Eyes Closed




Eyes Open




**Blocking**

Comparing Left/Right vs. Midline sites in F and C areas for Slow, Mid and Fast frequencies can indicate issues with the Anterior Cingulate (AC). Red or Blue numbers show differences 15% above or below which indicates a hot or cold AC, depending on the frequency distribution that is also visualized on the charts.
Swingle Ratio (from Paul Swingle) shows Hibeta/Beta ratio at Fz and Cz. Values below 40% suggest low motivation. Values above 60% suggest stubbornness.

**Name:** Sample 1 **Age:** 42

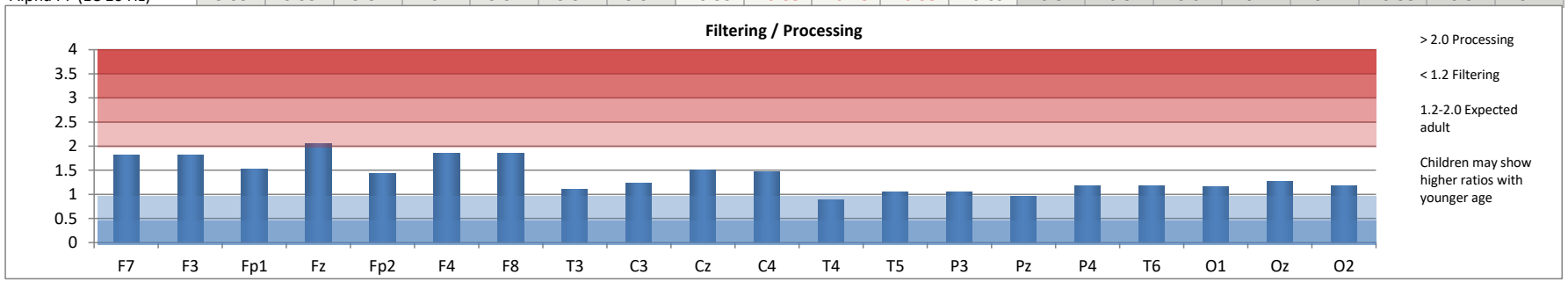
**Trainer:** **Date:** 11/15/2016

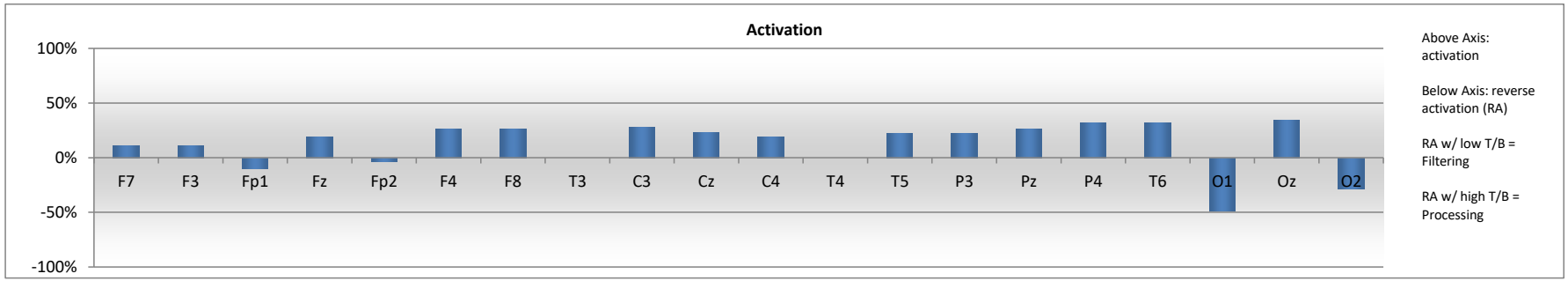
English

## Report

| Coherence/Phase % | COH | PH% | COH | PH% | COH | PH% | COH | PH% | COH | PH% | COH | PH% | COH | PH% | COH | PH% | COH | PH% | COH | PH% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Synchrony | Fp1Fp2 | Fp1Fp2 | F7-F8 | F7-F8 | F3-F4 | F3-F4 | C3-C4 | C3-C4 | T3-T4 | T3-T4 | T5-T6 | T5-T6 | P3-P4 | P3-P4 | O1-O2 | O1-O2 | Fz-Pz | Fz-Pz | Cz-Oz | Cz-Oz |
| SMR | | | | | | | 57.4 | 52.5 | | | | | | | | | | | | |
| Alpha | 93 | 82.5 | 88.1 | 76.6 | 88.1 | 76.6 | 69.3 | 61.7 | 12.4 | 19.6 | 75 | 50.2 | 75 | 50.2 | 71.6 | 59.3 | 52.6 | 29 | 45.9 | 28.2 |
| Theta | 90.5 | 87.6 | 84.4 | 80.4 | 84.4 | 80.4 | 73.5 | 68.6 | 13 | 28.4 | 73.4 | 65.4 | 73.4 | 65.4 | 61.4 | 59.5 | 47.1 | 45.5 | 38.4 | 39.3 |
| Gamma | 74.7 | 64.1 | 61.6 | 55.8 | 61.6 | 55.8 | 44.8 | 47.6 | 8.2 | 18.1 | 57 | 51.8 | 57 | 51.8 | 37.8 | 38.6 | 53 | 54 | 47.6 | 47 |
| Low Synchrony | Fp1Fp2 | Fp1Fp2 | F7-F8 | F7-F8 | F3-F4 | F3-F4 | C3-C4 | C3-C4 | T3-T4 | T3-T4 | T5-T6 | T5-T6 | P3-P4 | P3-P4 | O1-O2 | O1-O2 | Fz-Pz | Fz-Pz | Cz-Oz | Cz-Oz |
| Low Beta | 90.1 | 78.4 | 77.4 | 66.1 | 77.4 | 66.1 | | | 5.9 | 14.5 | 62.4 | 54.2 | 62.4 | 54.2 | 66.3 | 51.5 | 35.4 | 36 | 37.6 | 38.6 |
| Beta | 83.9 | 72.1 | 61.8 | 58.1 | 61.8 | 58.1 | 40.3 | 43.9 | 10.2 | 18.1 | 54.6 | 47.6 | 54.6 | 47.6 | 55.1 | 47.3 | 23.7 | 35.2 | 29.5 | 38.5 |
| High Beta | 80.7 | 67.5 | 57.1 | 50.6 | 57.1 | 50.6 | 40.5 | 41.1 | 9.8 | 19.6 | 53.9 | 48.8 | 53.9 | 48.8 | 41.8 | 41.3 | 35.5 | 43.6 | 32.7 | 41.6 |

| Filtering/Processing | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Theta/Beta | F7 | F3 | Fp1 | Fz | Fp2 | F4 | F8 | T3 | C3 | Cz | C4 | T4 | T5 | P3 | Pz | P4 | T6 | O1 | Oz | O2 |
| T/B ratio EC | 1.79 | 1.79 | 1.29 | 1.67 | 1.29 | 1.81 | 1.81 | 1.04 | 0.94 | 1.13 | 1.1 | 1.07 | 0.65 | 0.65 | 0.76 | 0.98 | 0.98 | 0.68 | 0.75 | 0.68 |
| T/B ratio EO | 1.82 | 1.82 | 1.53 | 2.06 | 1.44 | 1.85 | 1.85 | 1.1 | 1.24 | 1.5 | 1.46 | 0.89 | 1.05 | 1.05 | 0.95 | 1.18 | 1.18 | 1.16 | 1.27 | 1.18 |
| T/B ratio TSK | 1.61 | 1.61 | 1.69 | 1.67 | 1.49 | 1.36 | 1.36 | - | 0.89 | 1.15 | 1.18 | - | 0.82 | 0.82 | 0.7 | 0.8 | 0.8 | 1.72 | 0.84 | 1.52 |
| T/B ratio Activation | 0.11 | 0.11 | -0.1 | 0.19 | -0.04 | 0.26 | 0.26 | - | 0.28 | 0.23 | 0.19 | - | 0.22 | 0.22 | 0.26 | 0.32 | 0.32 | -0.49 | 0.34 | -0.29 |
| SMR% EO | | | | | | | | | 10.2% | 9.5% | 10.9% | | | | | | | | | |
| Alpha PF (EC 10 Hz) | 9.99 | 9.99 | 9.84 | 10.1 | 9.91 | 9.97 | 9.97 | 10.53 | 10.35 | 10.48 | 10.55 | 10.69 | 10.31 | 10.31 | 10.64 | 10.22 | 10.22 | 10.38 | 10.34 | 10.44 |



**Name:** Sample 1 **Age:** 42

**Trainer:** **Date:** 11/15/2016

English

| Position | Site | CND | Delta | | Theta | | Alpha | | Low Beta | | Beta | | High Beta | | Gamma | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | COH | Phase % | COH | Phase % | COH | Phase % | COH | Phase % | COH | Phase % | COH | Phase % | COH | Phase % |
| Frontal | Fp1-Fp2 | EC | 89 | 89.3 | 90 | 87.6 | 93 | 82.5 | 90 | 78.4 | 84 | 72.1 | 81 | 67.5 | 75 | 64.1 |
| | | EO | 88 | 85.4 | 89 | 86.5 | 86 | 82.0 | 80 | 77.7 | 74 | 71.0 | 64 | 66.5 | 56 | 62.9 |
| | | TSK | 82 | 83.3 | 85 | 84.7 | 77 | 79.4 | 78 | 74.8 | 71 | 68.2 | 63 | 62.4 | 44 | 57.9 |
| Frontal | F3-F4 | EC | 85 | 85.4 | 84 | 80.4 | 88 | 76.6 | 77 | 66.1 | 62 | 58.1 | 57 | 50.6 | 62 | 55.8 |
| | | EO | 82 | 80.9 | 81 | 77.3 | 75 | 75.1 | 73 | 68.0 | 58 | 57.4 | 59 | 51.8 | 66 | 56.3 |
| | | TSK | 87 | 79.5 | 80 | 75.6 | 68 | 70.8 | 72 | 66.6 | 63 | 56.9 | 58 | 51.9 | 57 | 55.7 |
| Frontal | F7-F8 | EC | 85 | 85.4 | 84 | 80.4 | 88 | 76.6 | 77 | 66.1 | 62 | 58.1 | 57 | 50.6 | 62 | 55.8 |
| | | EO | 82 | 80.9 | 81 | 77.3 | 75 | 75.1 | 73 | 68.0 | 58 | 57.4 | 59 | 51.8 | 66 | 56.3 |
| | | TSK | 87 | 79.5 | 80 | 75.6 | 68 | 70.8 | 72 | 66.6 | 63 | 56.9 | 58 | 51.9 | 57 | 55.7 |
| Central | C3-C4 | EC | 78 | 73.2 | 74 | 68.6 | 69 | 61.7 | 57 | 52.5 | 40 | 43.9 | 41 | 41.1 | 45 | 47.6 |
| | | EO | 81 | 71.5 | 73 | 67.0 | 58 | 59.4 | 58 | 52.6 | 35 | 42.5 | 39 | 40.9 | 44 | 46.1 |
| | | TSK | 80 | 70.7 | 71 | 66.9 | 56 | 56.7 | 45 | 51.3 | 39 | 42.4 | 39 | 40.9 | 40 | 44.7 |
| Midline | Fz-Pz | EC | 50 | 51.2 | 47 | 45.5 | 53 | 29.0 | 35 | 36.0 | 24 | 35.2 | 35 | 43.6 | 53 | 54.0 |
| | | EO | 52 | 49.0 | 47 | 44.9 | 49 | 35.9 | 42 | 38.0 | 26 | 32.4 | 41 | 42.0 | 55 | 52.5 |
| | | TSK | 47 | 48.2 | 49 | 45.4 | 36 | 37.8 | 32 | 38.7 | 24 | 31.7 | 42 | 41.4 | 63 | 52.2 |
| Midline | Cz-Oz | EC | 50 | 44.2 | 38 | 39.3 | 46 | 28.2 | 38 | 38.6 | 29 | 38.5 | 33 | 41.6 | 48 | 47.0 |
| | | EO | 42 | 45.5 | 41 | 40.9 | 48 | 33.7 | 41 | 40.2 | 37 | 37.9 | 33 | 38.9 | 44 | 46.3 |
| | | TSK | 43 | 45.1 | 34 | 41.2 | 34 | 36.1 | 27 | 39.5 | 36 | 37.5 | 46 | 38.7 | 49 | 45.4 |
| Temporal | T3-T4 | EC | 6 | 28.7 | 13 | 28.4 | 12 | 19.6 | 6 | 14.5 | 10 | 18.1 | 10 | 19.6 | 8 | 18.1 |
| | | EO | 14 | 25.6 | 9 | 24.8 | 11 | 17.4 | 6 | 16.1 | 7 | 18.0 | 10 | 19.2 | 8 | 18.3 |
| | | TSK | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Temporal | T5-T6 | EC | 72 | 70.7 | 73 | 65.4 | 75 | 50.2 | 62 | 54.2 | 55 | 47.6 | 54 | 48.8 | 57 | 51.8 |
| | | EO | 72 | 66.3 | 75 | 66.7 | 66 | 57.4 | 62 | 54.8 | 57 | 48.1 | 52 | 49.1 | 53 | 50.1 |
| | | TSK | 79 | 66.5 | 75 | 66.3 | 71 | 58.2 | 62 | 54.3 | 60 | 49.2 | 53 | 49.2 | 52 | 50.0 |
| Parietal | P3-P4 | EC | 72 | 70.7 | 73 | 65.4 | 75 | 50.2 | 62 | 54.2 | 55 | 47.6 | 54 | 48.8 | 57 | 51.8 |
| | | EO | 72 | 66.3 | 75 | 66.7 | 66 | 57.4 | 62 | 54.8 | 57 | 48.1 | 52 | 49.1 | 53 | 50.1 |
| | | TSK | 79 | 66.5 | 75 | 66.3 | 71 | 58.2 | 62 | 54.3 | 60 | 49.2 | 53 | 49.2 | 52 | 50.0 |
| Occipital | O1-O2 | EC | 55 | 61.5 | 61 | 59.5 | 72 | 59.3 | 66 | 51.5 | 55 | 47.3 | 42 | 41.3 | 38 | 38.6 |
| | | EO | 60 | 56.7 | 70 | 58.0 | 68 | 60.1 | 66 | 54.6 | 60 | 49.1 | 45 | 41.6 | 30 | 37.4 |
| | | TSK | 66 | 55.7 | 76 | 59.9 | 73 | 60.7 | 62 | 55.3 | 63 | 50.6 | 50 | 42.7 | 46 | 37.7 |

**Connectivity**

This page shows Coherence values (0-100) and the % of Phase Angle values that were between -30 and 30 degrees for the Eyes Closed, Eyes Open and Task conditions for each frequency band.

Low levels of slow wave coherence suggest the brain's inability to rest between tasks. High levels of fast wave coherence suggest difficulty processing or shifting. Low phase values may suggest Synchrony training.

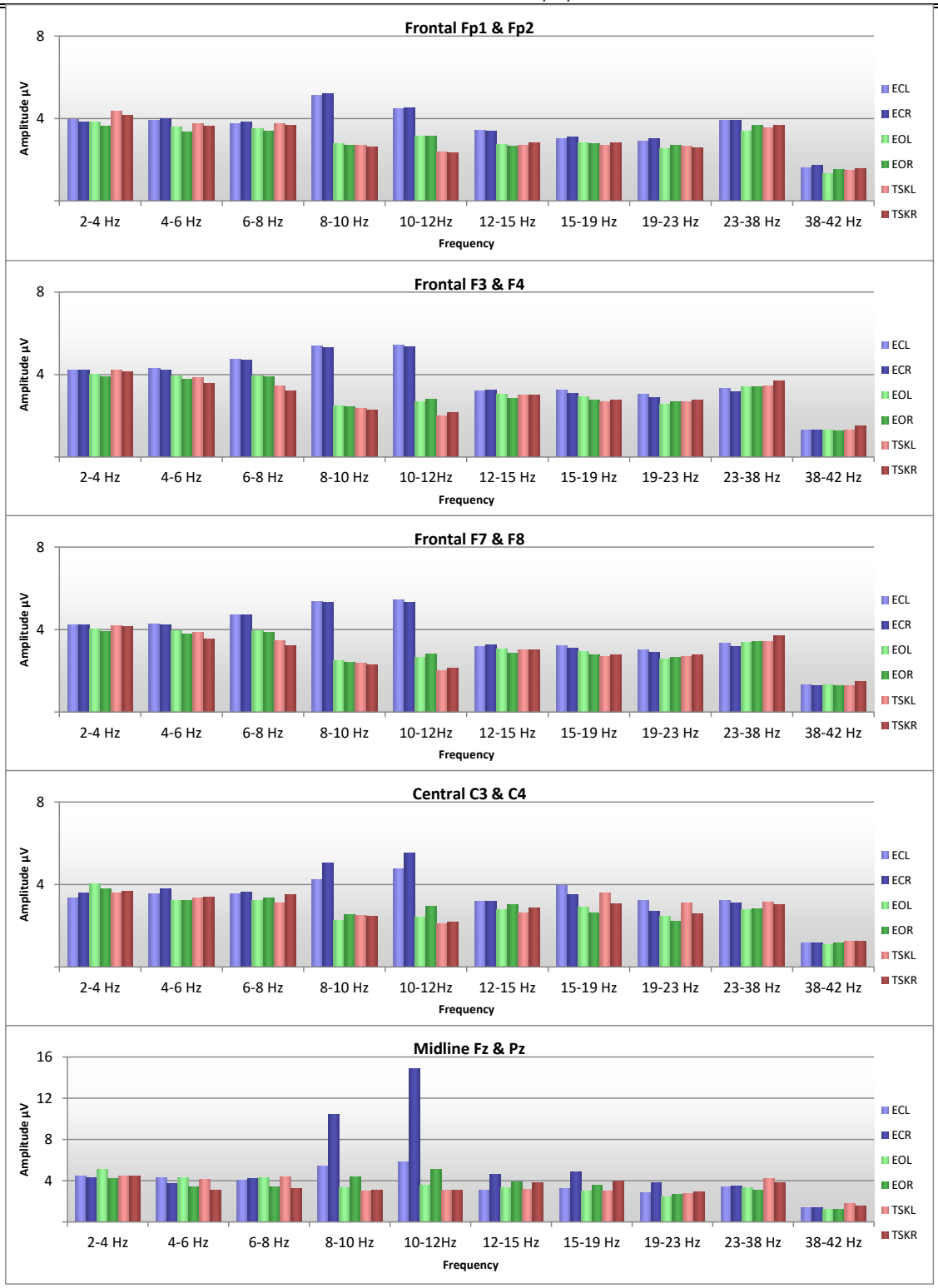
Shaded sites (frontal and temporal) are expected to have low connectivity values due to their degree of separation.

Results

high
in range
low

Frequency

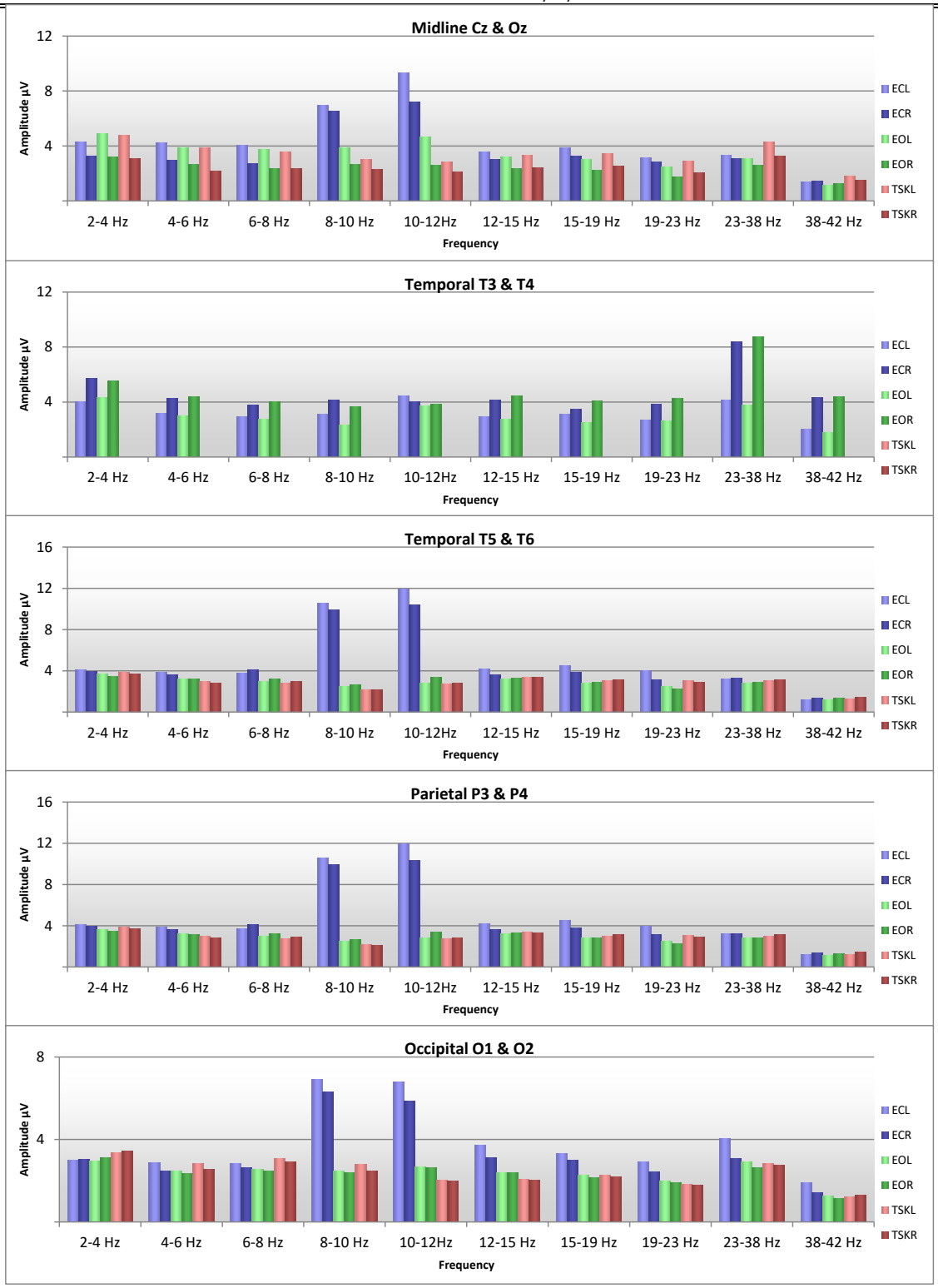
Slow
Fast
Gamma




- [x] Eyes Closed Left/Front
- [x] Eyes Closed Right/Back
- [x] Eyes Open Left/Front
- [x] Eyes Open Right/Back
- [x] Task Left/Front
- [x] Task Right/Back

**Absolute Distribution**

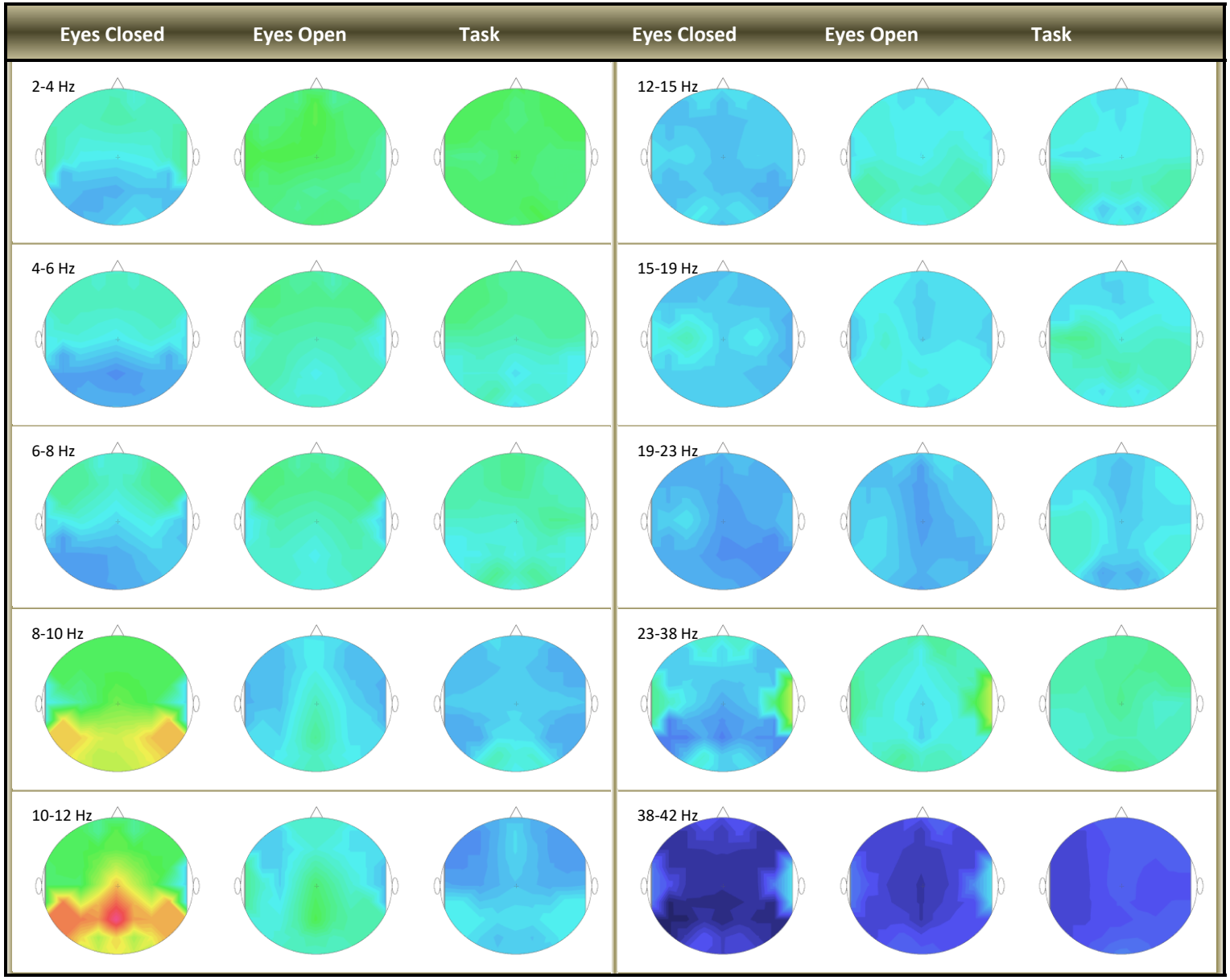
Histograms show absolute amplitude levels in each frequency at each site pair. By unchecking the boxes for Blue (EC), Green (EO) or Orange (Task), you can create specific views of variable activity.




Eyes Closed Left/Front
Eyes Closed Right/Back
Eyes Open Left/Front
Eyes Open Right/Back
Task Left/Front
Task Right/Back

**Absolute Distribution**

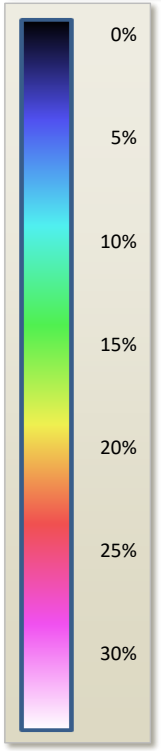
Histograms show absolute amplitude levels in each frequency at each site pair. By unchecking the boxes for Blue (EC), Green (EO) or Orange (Task), you can create specific views of variable activity.

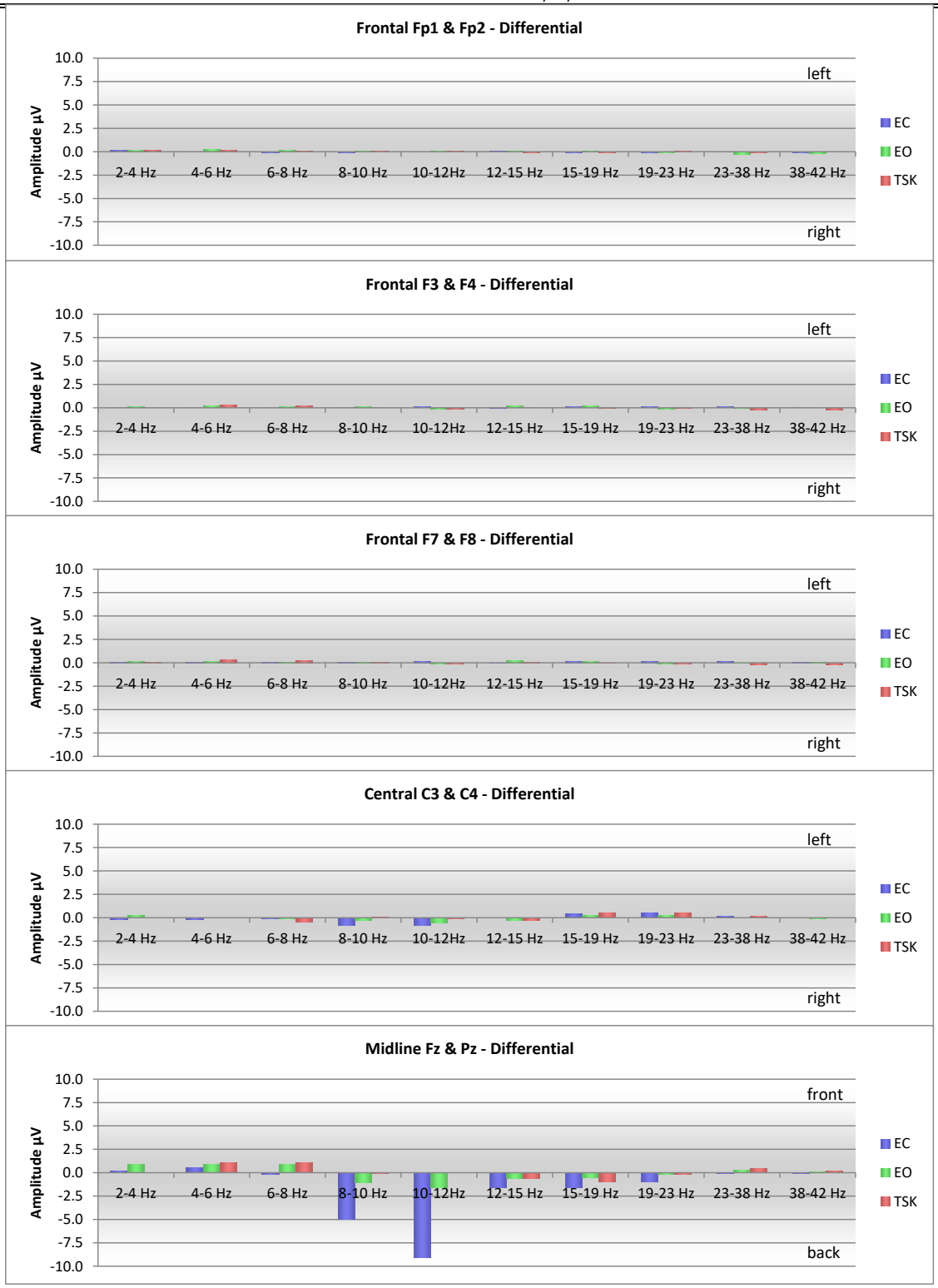


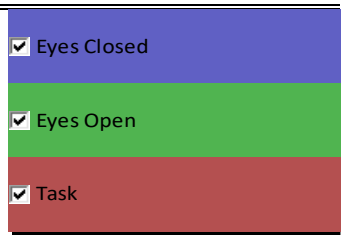

**Maps**

Images show relative value (percent of total EEG) for each frequency at all sites for eyes closed, open and task conditions. Higher percentages are shown in brighter colors.

Maps can be helpful in showing how activation patterns change from condition to condition or to identify sites which clearly differ from those around them.



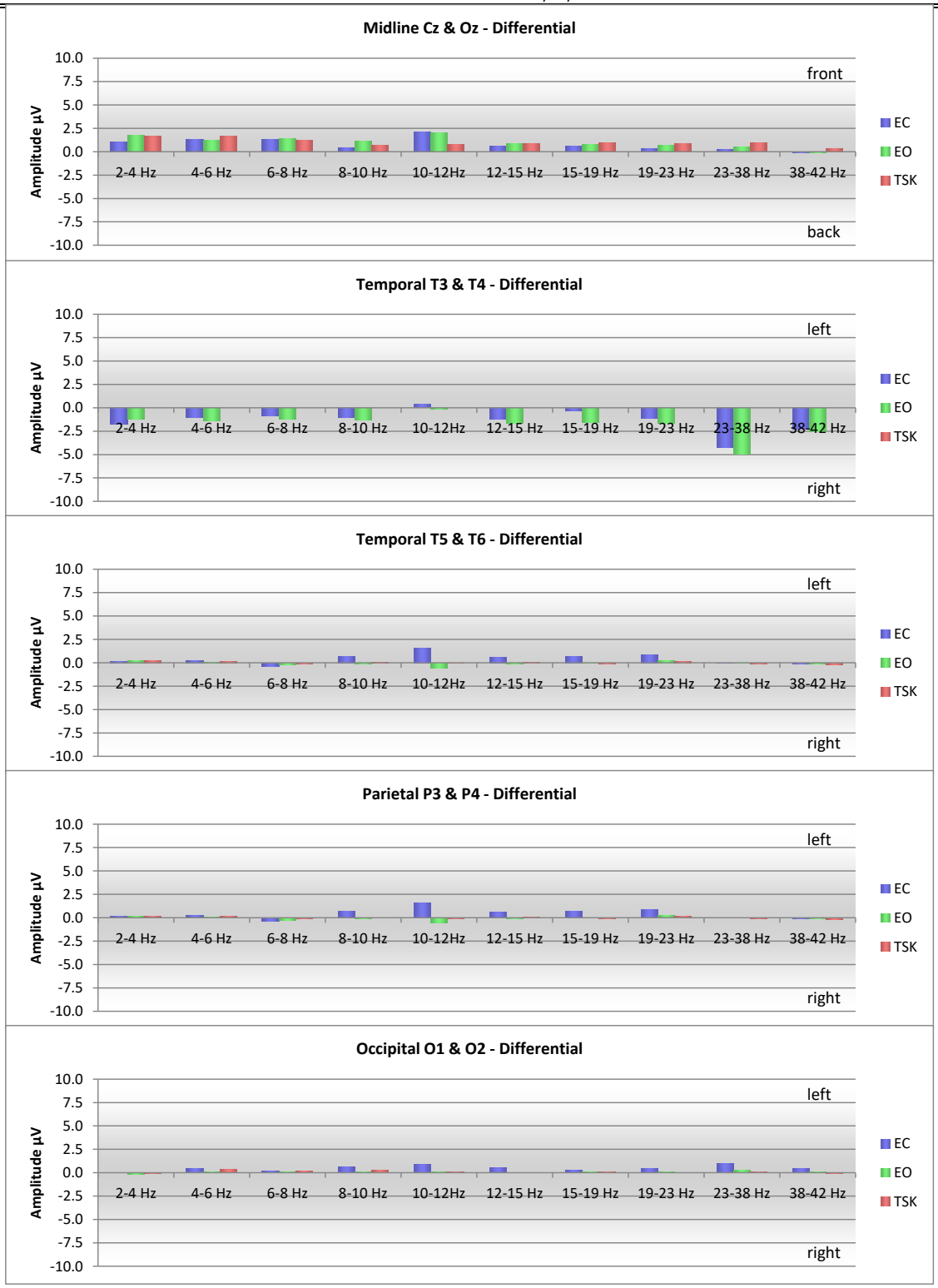



**Symmetry**

Histograms show amplitude difference by site and frequency. Small values indicate symmetry between the sites.

Large values suggest CH1 (large positive) or CH2 (large negative) is dominating.




Eyes Closed
Eyes Open
Task

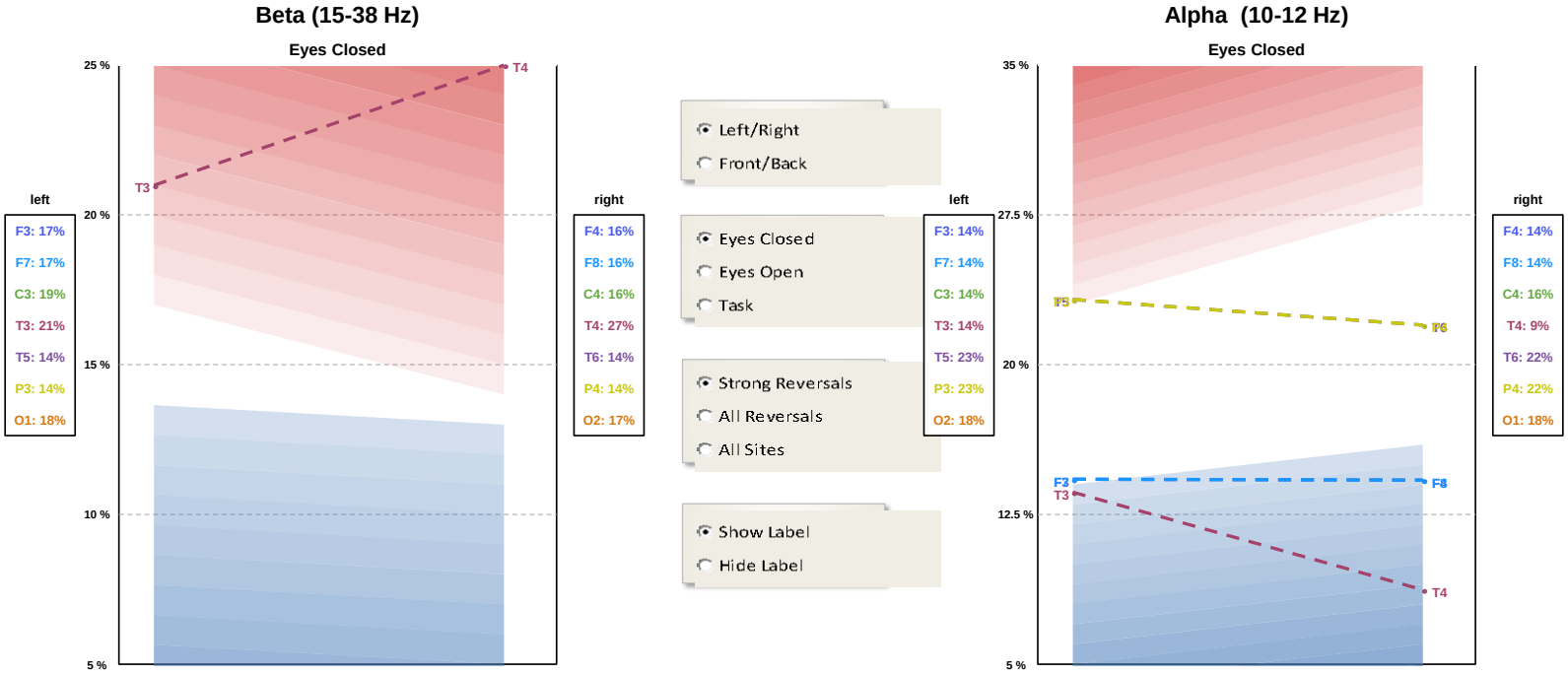
**Symmetry**

Histograms show amplitude difference by site and frequency. Small values indicate symmetry between the sites.

Large values suggest CH1 (large positive) or CH2 (large negative) is dominating.

**Name:** Sample 1 **Age:** 42

**Trainer:** **Date:** 11/15/2016




**Reversals**

This page graphically shows relationships between beta levels over left and right hemispheres and frontal and posterior sites (on the left side of the graph) and alpha levels in the same areas (right side of the graph). Beta is expected to be higher on left and frontal sites; alpha higher on right and posterior sites. Reversals of these relationship can correlate with issues of mood and cognition and are considered a primary training focus.

Each graph shows a shaded area for each measure to suggest whether, in addition to their symmetry, the values are higher or lower than expected. This information can guide training decisions on the most efficient way to resolve the reversals.

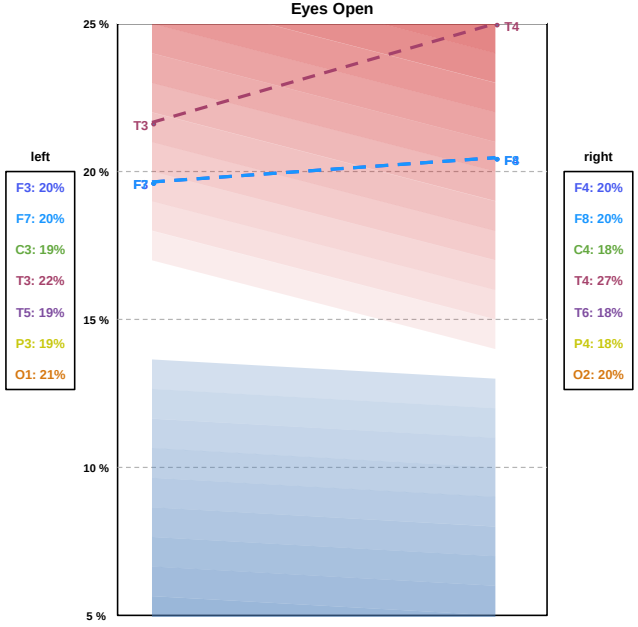
The page allows display of all sites or only those with a reversal, visualization of hemispheric or front/back values.

**Name:** Sample 1 **Age:** 42

**Trainer:** **Date:** 11/15/2016

## Beta (15-38 Hz)

Eyes Open




left

F3: 20%
F7: 20%
C3: 19%
T3: 22%
T5: 19%
P3: 19%
O1: 21%

right

F4: 20%
F8: 20%
C4: 18%
T4: 27%
T6: 18%
P4: 18%
O2: 20%

Left/Right
Front/Back

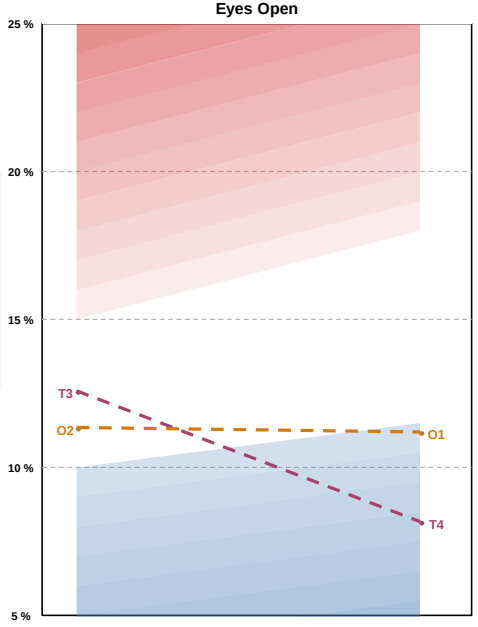
Eyes Closed
Eyes Open
Task

Strong Reversals
All Reversals
All Sites

Show Label
Hide Label

## Alpha (10-12 Hz)

Eyes Open




left

F3: 9%
F7: 9%
C3: 9%
T3: 13%
T5: 10%
P3: 10%
O2: 11%

right

F4: 9%
F8: 9%
C4: 11%
T4: 8%
T6: 12%
P4: 12%
O1: 11%

**Reversals**

This page graphically shows relationships between beta levels over left and right hemispheres and frontal and posterior sites (on the left side of the graph) and alpha levels in the same areas (right side of the graph). Beta is expected to be higher on left and frontal sites; alpha higher on right and posterior sites. Reversals of these relationship can correlate with issues of mood and cognition and are considered a primary training focus.

Each graph shows a shaded area for each measure to suggest whether, in addition to their symmetry, the values are higher or lower than expected. This information can guide training decisions on the most efficient way to resolve the reversals.

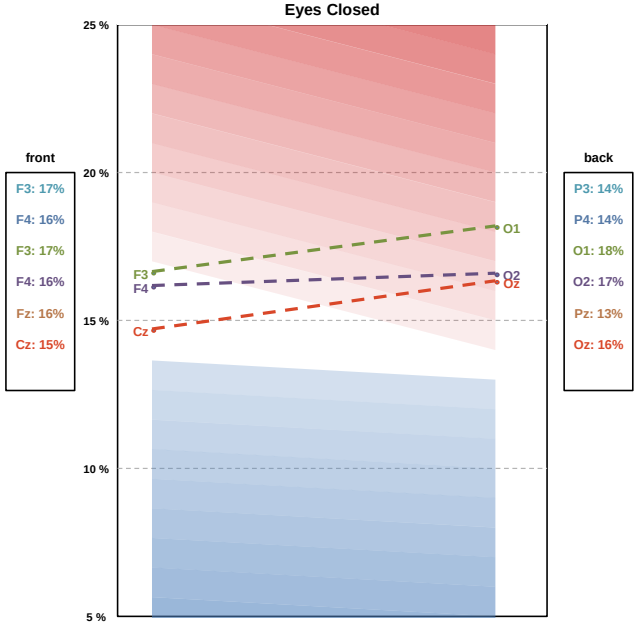
The page allows display of all sites or only those with a reversal, visualization of hemispheric or front/back values.

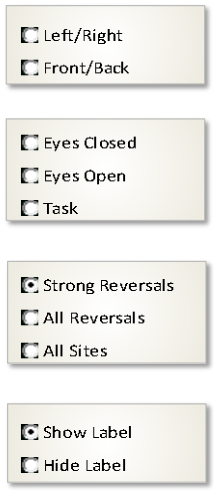
**Name:** Sample 1 **Age:** 42

**Trainer:** **Date:** 11/15/2016

## Beta (15-38 Hz)

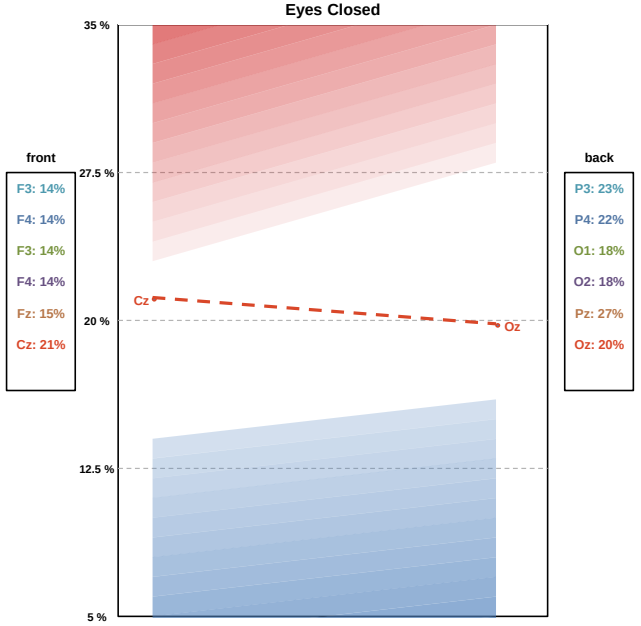
Eyes Closed




## Alpha (10-12 Hz)

Eyes Closed




**Reversals**

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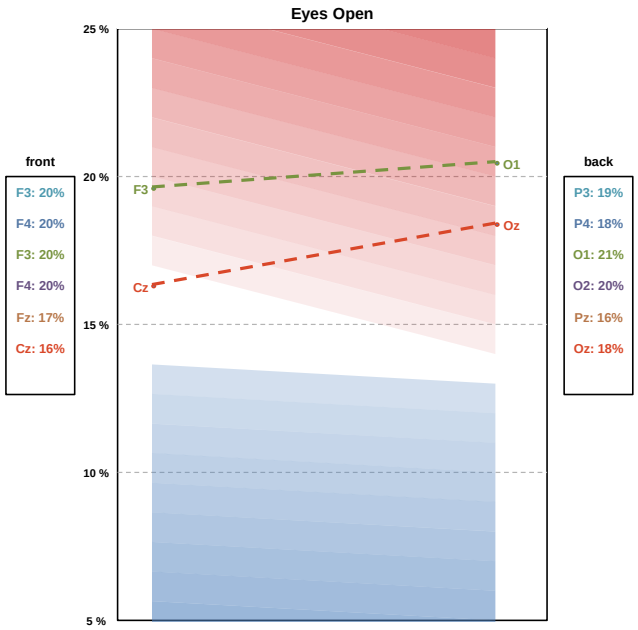
Each graph shows a shaded area for each measure to suggest whether, in addition to their symmetry, the values are higher or lower than expected. This information can guide training decisions on the most efficient way to resolve the reversals.

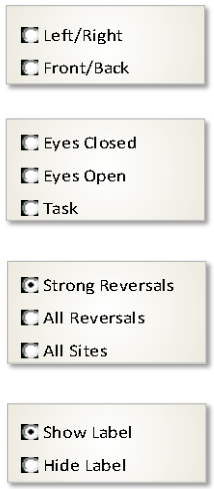
The page allows display of all sites or only those with a reversal, visualization of hemispheric or front/back values.

**Name:** Sample 1 **Age:** 42

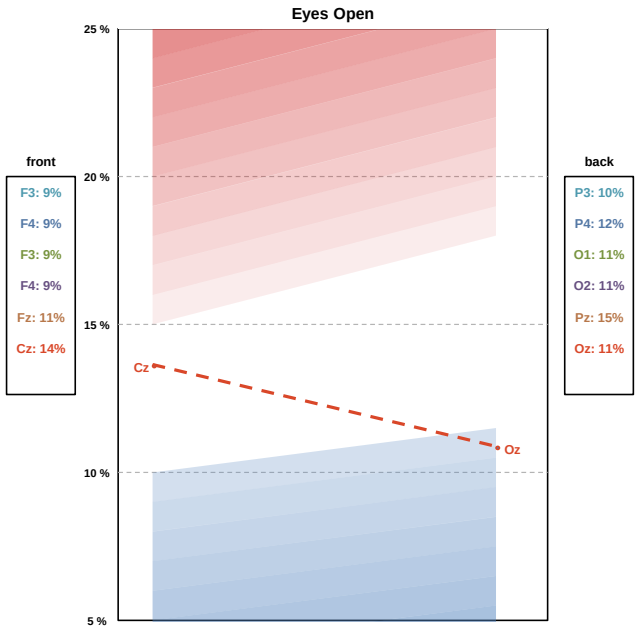
**Trainer:** **Date:** 11/15/2016

## Beta (15-38 Hz)




## Alpha (10-12 Hz)

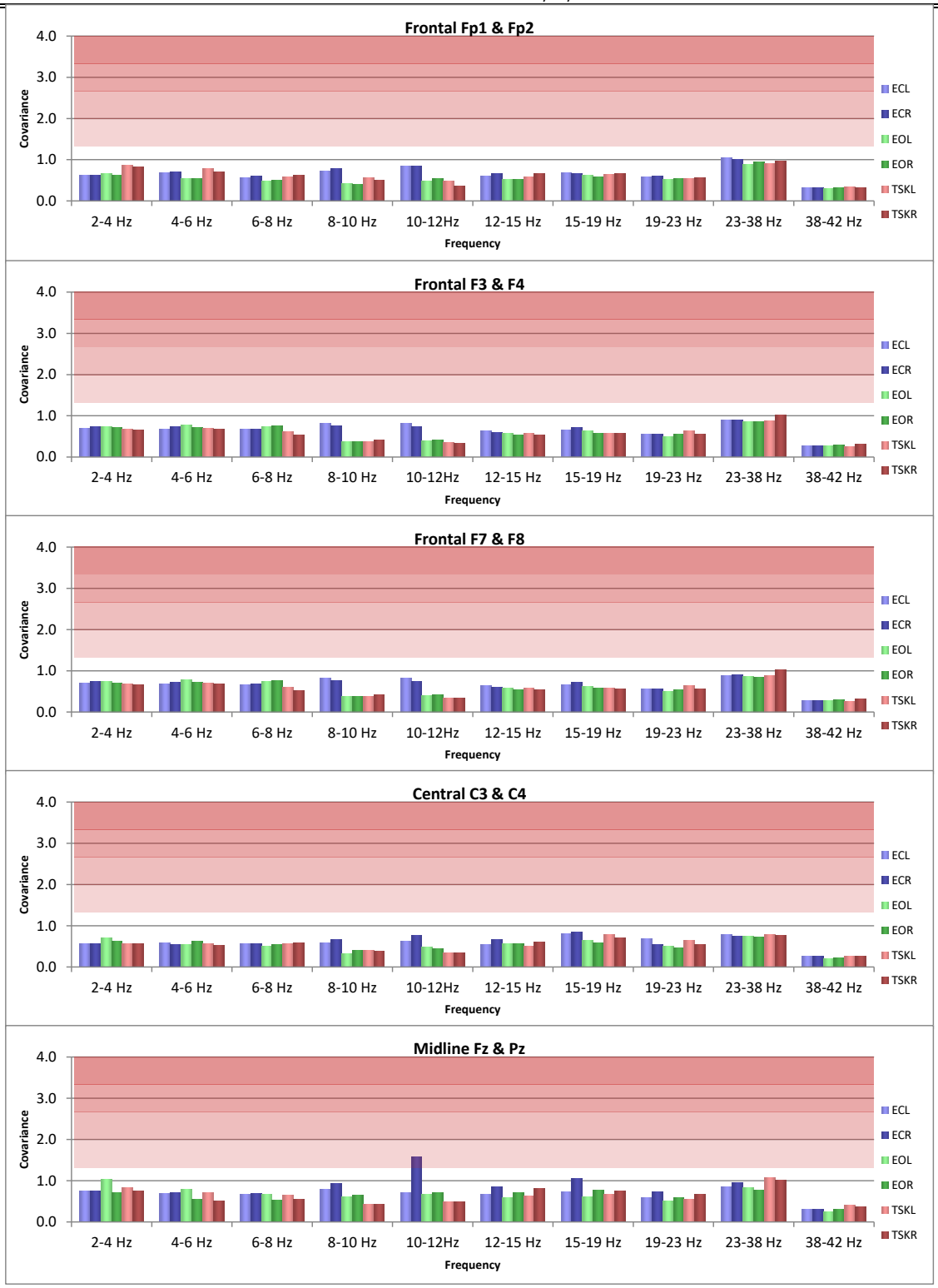



**Reversals**

This page graphically shows relationships between beta levels over left and right hemispheres and frontal and posterior sites (on the left side of the graph) and alpha levels in the same areas (right side of the graph). Beta is expected to be higher on left and frontal sites; alpha higher on right and posterior sites. Reversals of these relationship can correlate with issues of mood and cognition and are considered a primary training focus.

Each graph shows a shaded area for each measure to suggest whether, in addition to their symmetry, the values are higher or lower than expected. This information can guide training decisions on the most efficient way to resolve the reversals.

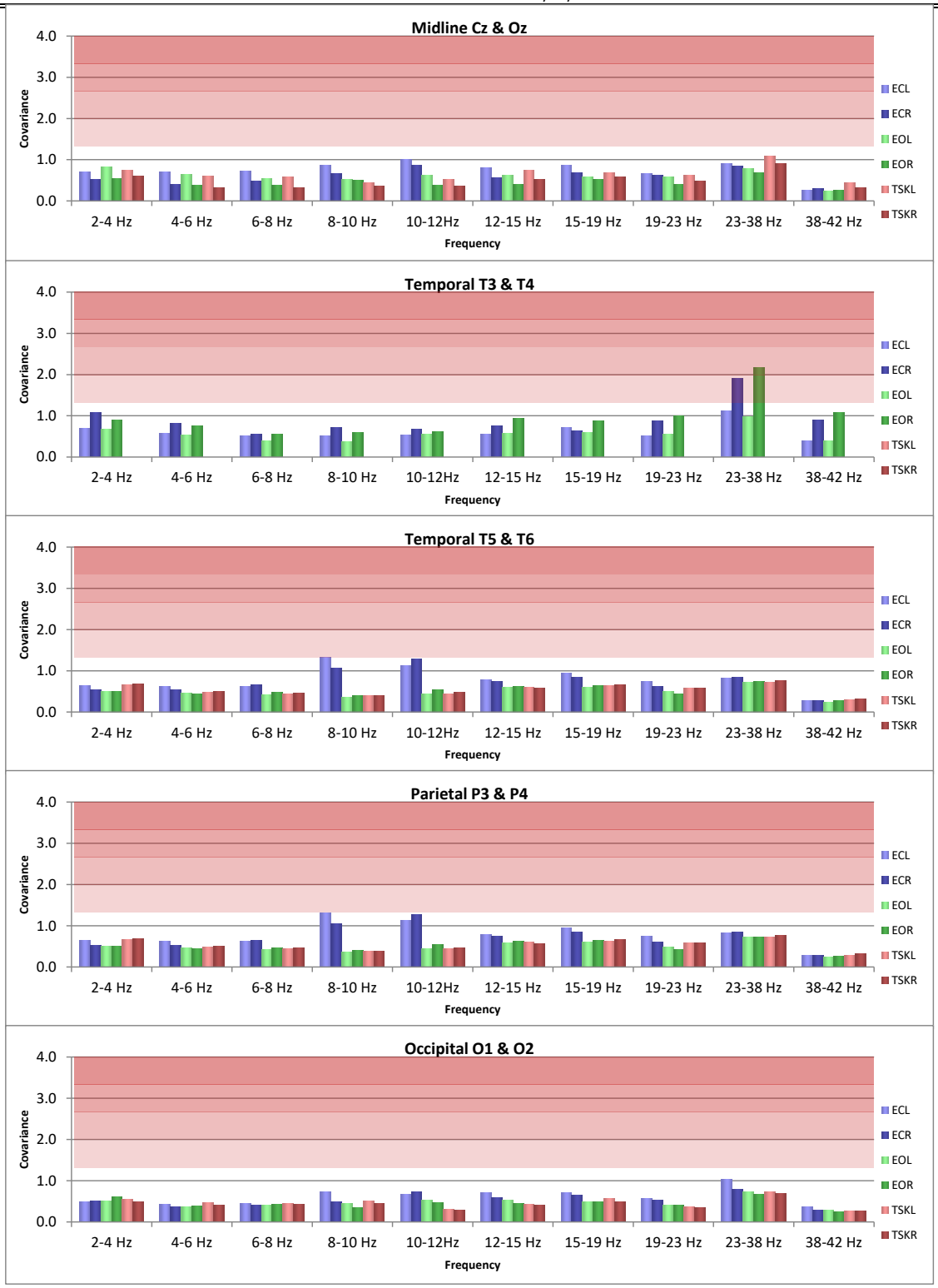
The page allows display of all sites or only those with a reversal, visualization of hemispheric or front/back values.




- [x] Eyes Closed Left/Front
- [x] Eyes Closed Right/Back
- [x] Eyes Open Left/Front
- [x] Eyes Open Right/Back
- [x] Task Left/Front
- [x] Task Right/Back

**Variability**

Histograms show Variance/Mean--a measure of the stability of the EEG signal by site and frequency. Values consistently below 1 may suggest excessive control; the higher values rise above 2 the greater the likelihood of diminished control or increased artifact.




- [x] Eyes Closed Left/Front
- [x] Eyes Closed Right/Back
- [x] Eyes Open Left/Front
- [x] Eyes Open Right/Back
- [x] Task Left/Front
- [x] Task Right/Back

**Variability**

Histograms show Variance/Mean--a measure of the stability of the EEG signal by site and frequency. Values consistently below 1 may suggest excessive control; the higher values rise above 2 the greater the likelihood of diminished control or increased artifact.

**Name:** Sample 1 **Age:** 42

**Trainer:** **Date:** 11/15/2016

English

| Frequencies | |
|---|---|
| Delta (δ) | 2-4 Hz |
| Theta (θ) | 4-8 Hz |
| Alpha (α) | 8-12 Hz |
| Low Beta (Loβ) | 12-15 Hz |
| Beta (β) | 15-23 Hz |
| High Beta (Hiβ) | 23-38 Hz |
| Gamma (γ) | 38-42 Hz |

## Head Amplitudes - Eyes Closed

| Fp1 | Fp2 | F7 | F3 | Fz | F4 | F8 | T3 | C3 | Cz | C4 | T4 | T5 | P3 | Pz | P4 | T6 | O1 | Oz | O2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.0 | 3.8 | 4.2 | 4.2 | 4.5 | 4.2 | 4.2 | 4.0 | 3.4 | 4.3 | 3.6 | 5.7 | 4.1 | 4.1 | 4.3 | 3.9 | 3.9 | 3.0 | 3.3 | 3.0 |
| 7.7 | 7.8 | 9.0 | 9.0 | 8.3 | 9.0 | 9.0 | 6.2 | 7.1 | 8.2 | 7.4 | 8.1 | 7.6 | 7.6 | 7.9 | 7.7 | 7.7 | 5.7 | 5.6 | 5.1 |
| 9.6 | 9.7 | 10.8 | 10.8 | 11.3 | 10.6 | 10.6 | 7.5 | 9.0 | 16.3 | 10.6 | 8.2 | 22.6 | 22.6 | 25.3 | 20.3 | 20.3 | 13.7 | 13.7 | 12.2 |
| 3.4 | 3.4 | 3.2 | 3.2 | 3.1 | 3.2 | 3.2 | 2.9 | 3.2 | 3.6 | 3.2 | 4.1 | 4.2 | 4.2 | 4.6 | 3.6 | 3.6 | 3.7 | 3.0 | 3.1 |
| 5.9 | 6.1 | 6.3 | 6.3 | 6.1 | 6.0 | 6.0 | 5.9 | 7.2 | 7.0 | 6.2 | 7.3 | 8.5 | 8.5 | 8.6 | 7.0 | 7.0 | 6.2 | 6.1 | 5.4 |
| 3.9 | 1.7 | 3.3 | 3.3 | 3.4 | 3.2 | 3.2 | 4.1 | 3.2 | 3.3 | 3.1 | 8.4 | 3.2 | 3.2 | 3.5 | 3.3 | 3.3 | 4.0 | 3.1 | 3.1 |
| 1.6 | 1.7 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 2.0 | 1.2 | 1.4 | 1.2 | 4.3 | 1.2 | 1.2 | 1.4 | 1.3 | 1.3 | 1.9 | 1.4 | 1.4 |

## Head Percentages - Eyes Closed

| Fp1% | Fp2% | F7 % | F3 % | Fz % | F4 % | F8 % | T3 % | C3 % | Cz % | C4 % | T4 % | T5 % | P3 % | Pz % | P4 % | T6 % | O1 % | Oz % | O2 % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.0 | 10.5 | 11.1 | 11.1 | 11.8 | 11.3 | 11.3 | 12.2 | 9.8 | 9.7 | 10.2 | 12.4 | 8.0 | 8.0 | 7.7 | 8.4 | 8.4 | 7.9 | 9.0 | 9.1 |
| 21.3 | 21.4 | 23.6 | 23.6 | 21.9 | 23.9 | 23.9 | 18.9 | 20.7 | 18.7 | 21.0 | 17.5 | 14.7 | 14.7 | 14.3 | 16.4 | 16.4 | 14.9 | 15.6 | 15.3 |
| 26.6 | 26.6 | 28.3 | 28.3 | 29.7 | 28.4 | 28.4 | 23.1 | 26.2 | 36.9 | 30.0 | 17.7 | 43.9 | 43.9 | 45.5 | 43.1 | 43.1 | 35.8 | 37.9 | 36.5 |
| 9.5 | 9.3 | 8.4 | 8.4 | 8.1 | 8.6 | 8.6 | 9.0 | 9.3 | 8.1 | 9.0 | 8.9 | 8.2 | 8.2 | 8.3 | 7.7 | 7.7 | 9.7 | 8.3 | 9.4 |
| 16.3 | 16.8 | 16.4 | 16.4 | 16.0 | 16.0 | 16.0 | 17.9 | 21.0 | 15.9 | 17.6 | 15.9 | 16.5 | 16.5 | 15.5 | 14.8 | 14.8 | 16.3 | 16.7 | 16.3 |
| 10.8 | 10.7 | 8.7 | 8.7 | 9.0 | 8.4 | 8.4 | 12.7 | 9.5 | 7.6 | 8.8 | 18.2 | 6.3 | 6.3 | 6.2 | 6.9 | 6.9 | 10.5 | 8.5 | 9.3 |
| 4.5 | 4.8 | 3.4 | 3.4 | 3.6 | 3.5 | 3.5 | 6.2 | 3.4 | 3.1 | 3.4 | 9.3 | 2.4 | 2.4 | 2.5 | 2.9 | 2.9 | 5.0 | 4.0 | 4.3 |

**Name:** Sample 1 **Age:** 42

**Trainer:** **Date:** 11/15/2016

English

| Frequencies | |
|---|---|
| Delta (δ) | 2-4 Hz |
| Theta (θ) | 4-8 Hz |
| Alpha (α) | 8-12 Hz |
| Low Beta (Loβ) | 12-15 Hz |
| Beta (β) | 15-23 Hz |
| High Beta (Hiβ) | 23-38 Hz |
| Gamma (γ) | 38-42 Hz |

## Head Amplitudes - Eyes Open

| Fp1 | Fp2 | F7 | F3 | Fz | F4 | F8 | T3 | C3 | Cz | C4 | T4 | T5 | P3 | Pz | P4 | T6 | O1 | Oz | O2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.8 | 3.6 | 4.0 | 4.0 | 5.1 | 3.9 | 3.9 | 4.3 | 4.0 | 4.9 | 3.8 | 5.5 | 3.7 | 3.7 | 4.2 | 3.5 | 3.5 | 3.0 | 3.2 | 3.1 |
| 7.1 | 6.7 | 7.9 | 7.9 | 8.6 | 7.6 | 7.6 | 5.7 | 6.4 | 7.6 | 6.6 | 8.4 | 6.2 | 6.2 | 6.8 | 6.4 | 6.4 | 5.0 | 5.0 | 4.8 |
| 5.9 | 5.8 | 5.2 | 5.2 | 6.9 | 5.2 | 5.2 | 6.1 | 4.7 | 8.5 | 5.5 | 7.5 | 5.3 | 5.3 | 9.5 | 6.0 | 6.0 | 5.2 | 5.3 | 5.0 |
| 2.7 | 2.7 | 3.0 | 3.0 | 3.3 | 2.9 | 2.9 | 2.8 | 2.8 | 3.2 | 3.0 | 4.4 | 3.2 | 3.2 | 3.9 | 3.3 | 3.3 | 2.4 | 2.3 | 2.4 |
| 3.4 | 5.5 | 5.5 | 5.5 | 5.4 | 5.4 | 5.4 | 5.1 | 5.4 | 5.4 | 4.9 | 8.3 | 5.3 | 5.3 | 6.2 | 5.1 | 5.1 | 4.3 | 4.0 | 4.1 |
| 1.3 | 3.7 | 3.4 | 3.4 | 3.3 | 3.4 | 3.4 | 3.8 | 2.8 | 3.1 | 2.8 | 8.7 | 2.8 | 2.8 | 3.1 | 2.9 | 2.9 | 2.9 | 2.6 | 2.6 |
| | 1.5 | 1.3 | 1.3 | 1.2 | 1.3 | 1.3 | 1.8 | 1.1 | 1.2 | 1.2 | 4.4 | 1.2 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 | 1.2 | 1.1 |

## Head Percentages - Eyes Open

| Fp1% | Fp2% | F7 % | F3 % | Fz % | F4 % | F8 % | T3 % | C3 % | Cz % | C4 % | T4 % | T5 % | P3 % | Pz % | P4 % | T6 % | O1 % | Oz % | O2 % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.9 | 12.3 | 13.2 | 13.2 | 15.1 | 13.1 | 13.1 | 14.6 | 14.8 | 14.5 | 13.7 | 11.7 | 13.2 | 13.2 | 12.1 | 12.2 | 12.2 | 12.4 | 13.5 | 13.5 |
| 23.9 | 22.8 | 26.0 | 26.0 | 25.4 | 25.7 | 25.7 | 19.4 | 23.7 | 22.5 | 23.8 | 17.7 | 22.4 | 22.4 | 19.5 | 22.5 | 22.5 | 20.9 | 21.2 | 20.8 |
| 19.9 | 19.8 | 17.0 | 17.0 | 20.4 | 17.6 | 17.6 | 20.5 | 17.2 | 25.0 | 19.7 | 15.9 | 19.2 | 19.2 | 27.3 | 21.2 | 21.2 | 21.6 | 22.3 | 21.6 |
| 9.2 | 9.0 | 10.0 | 10.0 | 9.7 | 9.6 | 9.6 | 9.3 | 10.2 | 9.5 | 10.9 | 9.4 | 11.5 | 11.5 | 11.2 | 11.6 | 11.6 | 9.9 | 9.9 | 10.4 |
| 18.1 | 18.5 | 18.1 | 18.1 | 15.9 | 18.3 | 18.3 | 17.3 | 19.8 | 16.1 | 17.5 | 17.6 | 19.2 | 19.2 | 17.7 | 17.9 | 17.9 | 17.8 | 16.9 | 17.6 |
| 11.4 | 12.4 | 11.2 | 11.2 | 9.8 | 11.5 | 11.5 | 12.7 | 10.3 | 9.1 | 10.2 | 18.4 | 10.3 | 10.3 | 8.7 | 10.0 | 10.0 | 12.2 | 11.1 | 11.4 |
| 4.5 | 5.2 | 4.3 | 4.3 | 3.7 | 4.3 | 4.3 | 6.1 | 4.0 | 3.4 | 4.2 | 9.2 | 4.2 | 4.2 | 3.4 | 4.6 | 4.6 | 5.3 | 5.3 | 4.9 |

**Name:** Sample 1 **Age:** 42
**Trainer:** **Date:** 11/15/2016

English

| Frequencies | |
|---|---|
| Delta (δ) | 2-4 Hz |
| Theta (θ) | 4-8 Hz |
| Alpha (α) | 8-12 Hz |
| Low Beta (Loβ) | 12-15 Hz |
| Beta (β) | 15-23 Hz |
| High Beta (Hiβ) | 23-38 Hz |
| Gamma (γ) | 38-42 Hz |

## Head Amplitudes - Task

| Fp1 | Fp2 | F7 | F3 | Fz | F4 | F8 |
|---|---|---|---|---|---|---|
| 4.3 | 4.1 | 4.2 | 4.2 | 4.4 | 4.1 | 4.1 |
| 7.5 | 7.3 | 7.3 | 7.3 | 8.5 | 6.8 | 6.8 |
| 5.1 | 5.0 | 4.4 | 4.4 | 6.1 | 4.4 | 4.4 |
| 2.7 | 2.8 | 3.0 | 3.0 | 3.2 | 3.0 | 3.0 |
| 5.4 | 5.4 | 5.4 | 5.4 | 5.8 | 5.5 | 5.5 |
| 3.6 | 3.7 | 3.4 | 3.4 | 4.2 | 3.7 | 3.7 |
| 1.5 | 1.6 | 1.3 | 1.3 | 1.8 | 1.5 | 1.5 |

| C3 | Cz | C4 |
|---|---|---|
| 3.6 | 4.8 | 3.7 |
| 6.4 | 7.4 | 6.9 |
| 4.6 | 5.9 | 4.6 |
| 2.6 | 3.3 | 2.9 |
| 6.7 | 6.3 | 5.7 |
| 3.2 | 4.3 | 3.0 |
| 1.2 | 1.8 | 1.3 |

| T5 | P3 | Pz | P4 | T6 |
|---|---|---|---|---|
| 3.9 | 3.9 | 4.5 | 3.7 | 3.7 |
| 5.7 | 5.7 | 6.3 | 5.8 | 5.8 |
| 4.9 | 4.9 | 6.2 | 4.9 | 4.9 |
| 3.4 | 3.4 | 3.8 | 3.3 | 3.3 |
| 6.1 | 6.1 | 6.9 | 6.0 | 6.0 |
| 3.0 | 3.0 | 3.8 | 3.1 | 3.1 |
| 1.2 | 1.2 | 1.6 | 1.4 | 1.4 |

| O1 | Oz | O2 |
|---|---|---|
| 3.4 | 3.1 | 3.4 |
| 5.9 | 4.5 | 5.4 |
| 4.8 | 4.4 | 4.5 |
| 2.1 | 2.4 | 2.0 |
| 4.1 | 4.5 | 4.0 |
| 2.8 | 3.3 | 2.8 |
| 1.2 | 1.5 | 1.3 |

## Head Percentages - Task

| Fp1% | Fp2% | F7 % | F3 % | Fz % | F4 % | F8 % |
|---|---|---|---|---|---|---|
| 14.5 | 13.9 | 14.5 | 14.5 | 13.1 | 14.2 | 14.2 |
| 24.9 | 24.4 | 25.2 | 25.2 | 25.2 | 23.3 | 23.3 |
| 16.9 | 16.6 | 15.1 | 15.1 | 17.9 | 15.2 | 15.2 |
| 9.0 | 9.5 | 10.4 | 10.4 | 9.3 | 10.3 | 10.3 |
| 17.8 | 18.2 | 18.6 | 18.6 | 17.0 | 19.0 | 19.0 |
| 11.9 | 12.3 | 11.9 | 11.9 | 12.4 | 12.7 | 12.7 |
| 5.0 | 5.2 | 4.5 | 4.5 | 5.2 | 5.2 | 5.2 |

| C3 % | Cz % | C4 % |
|---|---|---|
| 12.7 | 14.2 | 13.1 |
| 22.8 | 21.9 | 24.6 |
| 16.2 | 17.4 | 16.5 |
| 9.2 | 9.8 | 10.3 |
| 23.6 | 18.7 | 20.2 |
| 11.1 | 12.6 | 10.8 |
| 4.3 | 5.4 | 4.5 |

| T5 % | P3 % | Pz % | P4 % | T6 % |
|---|---|---|---|---|
| 13.8 | 13.8 | 13.5 | 13.0 | 13.0 |
| 20.3 | 20.3 | 19.2 | 20.3 | 20.3 |
| 17.2 | 17.2 | 18.7 | 17.4 | 17.4 |
| 12.1 | 12.1 | 11.4 | 11.8 | 11.8 |
| 21.5 | 21.5 | 21.0 | 21.3 | 21.3 |
| 10.7 | 10.7 | 11.5 | 11.0 | 11.0 |
| 4.4 | 4.4 | 4.7 | 5.0 | 5.0 |

| O1 % | Oz % | O2 % |
|---|---|---|
| 13.9 | 13.1 | 14.7 |
| 24.3 | 18.9 | 23.2 |
| 19.8 | 18.5 | 19.1 |
| 8.5 | 10.2 | 8.7 |
| 16.8 | 19.1 | 17.0 |
| 11.7 | 13.8 | 11.8 |
| 5.0 | 6.3 | 5.5 |

**Name:** Sample 1 **Age:** 42

**Trainer:** **Date:** 11/15/2016

English

| Position | Site | CND | RATIOS: Beta / Theta | RATIOS: SMR / Total | RATIOS: Alpha / Theta | RATIOS: High Alpha / Low Alpha | RATIOS: High Beta / Alpha | RATIOS: High Beta / Low Beta | Peak Frequency: Alpha | Peak Frequency: Beta | Peak Frequency: 2-38 Hz |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Frontal | Fp1 | EC | 0.77 | - | 1.26 | 0.88 | 0.57 | 1.14 | 9.84 | 19.59 | 7.43 |
| | | EO | 0.65 | - | 0.80 | 1.14 | 0.86 | 1.24 | 10.22 | 19.08 | 5.55 |
| | | TSK | 0.59 | - | 0.70 | 0.87 | 1.01 | 1.32 | 9.70 | 19.87 | 4.51 |
| | Fp2 | EC | 0.78 | - | 1.24 | 0.87 | 0.57 | 1.15 | 9.91 | 19.60 | 7.72 |
| | | EO | 0.70 | - | 0.82 | 1.16 | 0.95 | 1.37 | 10.16 | 20.00 | 6.29 |
| | | TSK | 0.67 | - | 0.65 | 0.89 | 1.13 | 1.29 | 9.95 | 19.38 | 4.95 |
| Frontal | F3 | EC | 0.56 | - | 1.19 | 1.01 | 0.44 | 1.04 | 9.99 | 18.51 | 7.88 |
| | | EO | 0.55 | - | 0.65 | 1.07 | 0.90 | 1.12 | 9.88 | 18.98 | 5.45 |
| | | TSK | 0.62 | - | 0.60 | 0.85 | 1.13 | 1.14 | 9.83 | 20.25 | 4.65 |
| | F4 | EC | 0.55 | - | 1.17 | 1.01 | 0.43 | 0.98 | 9.97 | 18.44 | 7.63 |
| | | EO | 0.54 | - | 0.68 | 1.15 | 0.91 | 1.20 | 9.95 | 19.80 | 5.56 |
| | | TSK | 0.73 | - | 0.64 | 0.93 | 1.20 | 1.23 | 10.30 | 20.17 | 4.92 |
| Frontal | F7 | EC | 0.56 | - | 1.19 | 1.01 | 0.44 | 1.04 | 9.99 | 18.51 | 7.88 |
| | | EO | 0.55 | - | 0.65 | 1.07 | 0.90 | 1.12 | 9.88 | 18.98 | 5.45 |
| | | TSK | 0.62 | - | 0.60 | 0.85 | 1.13 | 1.14 | 9.83 | 20.25 | 4.65 |
| | F8 | EC | 0.55 | - | 1.17 | 1.01 | 0.43 | 0.98 | 9.97 | 18.44 | 7.63 |
| | | EO | 0.54 | - | 0.68 | 1.15 | 0.91 | 1.20 | 9.95 | 19.80 | 5.56 |
| | | TSK | 0.73 | - | 0.64 | 0.93 | 1.20 | 1.23 | 10.30 | 20.17 | 4.92 |
| Central | C3 | EC | 1.07 | - | 1.19 | 1.12 | 0.54 | 1.02 | 10.35 | 18.13 | 8.21 |
| | | EO | 0.81 | 10.2% | 0.73 | 1.07 | 0.84 | 1.01 | 10.31 | 18.75 | 5.33 |
| | | TSK | 1.12 | - | 0.72 | 0.83 | 0.96 | 1.21 | 9.86 | 18.37 | 6.27 |
| | C4 | EC | 0.91 | - | 1.39 | 1.10 | 0.43 | 0.98 | 10.55 | 17.55 | 8.15 |
| | | EO | 0.69 | 10.9% | 0.81 | 1.17 | 0.74 | 0.93 | 10.20 | 18.59 | 5.56 |
| | | TSK | 0.85 | - | 0.68 | 0.88 | 0.93 | 1.06 | 9.84 | 18.28 | 5.78 |
| Midline | Fz | EC | 0.60 | - | 1.29 | 1.07 | 0.44 | 1.11 | 10.10 | 18.20 | 7.49 |
| | | EO | 0.49 | - | 0.74 | 1.07 | 0.72 | 1.01 | 9.68 | 18.27 | 5.42 |
| | | TSK | 0.60 | - | 0.70 | 1.04 | 1.00 | 1.33 | 9.96 | 19.83 | 6.88 |
| | Pz | EC | 1.31 | - | 2.85 | 1.43 | 0.21 | 0.75 | 10.64 | 17.34 | 9.77 |
| | | EO | 1.05 | - | 1.02 | 1.17 | 0.63 | 0.78 | 10.53 | 17.66 | 6.09 |
| | | TSK | 1.42 | - | 0.98 | 1.01 | 0.85 | 1.00 | 10.57 | 18.50 | 5.88 |
| Midline | Cz | EC | 0.88 | - | 2.00 | 1.34 | 0.28 | 0.93 | 10.48 | 17.74 | 8.89 |
| | | EO | 0.67 | 9.5% | 0.86 | 1.20 | 0.69 | 0.96 | 10.18 | 17.90 | 5.53 |
| | | TSK | 0.87 | - | 0.77 | 0.95 | 1.06 | 1.29 | 10.11 | 20.32 | 7.02 |
| | Oz | EC | 1.34 | - | 2.30 | 1.10 | 0.34 | 1.03 | 10.34 | 17.98 | 8.68 |
| | | EO | 0.79 | - | 0.92 | 0.96 | 0.81 | 1.12 | 10.10 | 18.56 | 5.13 |
| | | TSK | 1.19 | - | 0.96 | 0.92 | 1.05 | 1.35 | 9.90 | 19.89 | 5.90 |
| Temporal | T3 | EC | 0.96 | - | 1.19 | 1.44 | 0.79 | 1.41 | 10.53 | 19.07 | 7.26 |
| | | EO | 0.91 | - | 1.09 | 1.60 | 0.86 | 1.37 | 10.91 | 21.77 | 5.44 |
| | | TSK | - | - | - | - | - | - | - | - | - |
| | T4 | EC | 0.93 | - | 0.98 | 0.97 | 1.48 | 2.04 | 10.69 | 29.45 | 6.17 |
| | | EO | 1.12 | - | 0.92 | 1.05 | 1.62 | 1.96 | 10.41 | 27.21 | 7.05 |
| | | TSK | - | - | - | - | - | - | - | - | - |
| Temporal | T5 | EC | 1.54 | - | 2.85 | 1.13 | 0.21 | 0.77 | 10.31 | 17.80 | 8.75 |
| | | EO | 0.95 | - | 0.81 | 1.13 | 0.81 | 0.89 | 10.34 | 18.64 | 6.09 |
| | | TSK | 1.22 | - | 0.88 | 1.28 | 0.83 | 0.89 | 10.97 | 19.01 | 6.27 |
| | T6 | EC | 1.03 | - | 2.51 | 1.04 | 0.24 | 0.90 | 10.22 | 17.66 | 8.61 |
| | | EO | 0.85 | - | 0.88 | 1.28 | 0.71 | 0.86 | 10.47 | 17.72 | 6.24 |
| | | TSK | 1.24 | - | 0.87 | 1.31 | 0.87 | 0.94 | 10.92 | 18.25 | 6.42 |
| Parietal | P3 | EC | 1.54 | - | 2.85 | 1.13 | 0.21 | 0.77 | 10.31 | 17.80 | 8.75 |
| | | EO | 0.95 | - | 0.81 | 1.13 | 0.81 | 0.89 | 10.34 | 18.64 | 6.09 |
| | | TSK | 1.22 | - | 0.88 | 1.28 | 0.83 | 0.89 | 10.97 | 19.01 | 6.27 |
| | P4 | EC | 1.03 | - | 2.51 | 1.04 | 0.24 | 0.90 | 10.22 | 17.66 | 8.61 |
| | | EO | 0.85 | - | 0.88 | 1.28 | 0.71 | 0.86 | 10.47 | 17.72 | 6.24 |
| | | TSK | 1.24 | - | 0.87 | 1.31 | 0.87 | 0.94 | 10.92 | 18.25 | 6.42 |
| Occipital | O1 | EC | 1.48 | - | 2.32 | 0.98 | 0.43 | 1.09 | 10.38 | 19.70 | 9.35 |
| | | EO | 0.86 | - | 0.97 | 1.08 | 0.86 | 1.23 | 10.27 | 19.19 | 6.06 |
| | | TSK | 0.58 | - | 0.83 | 0.73 | 0.82 | 1.38 | 9.09 | 18.73 | 5.12 |
| | O2 | EC | 1.48 | - | 2.30 | 0.93 | 0.38 | 0.99 | 10.44 | 18.46 | 8.90 |
| | | EO | 0.85 | - | 0.99 | 1.11 | 0.78 | 1.10 | 10.31 | 18.84 | 6.01 |
| | | TSK | 0.66 | - | 0.85 | 0.80 | 0.86 | 1.36 | 9.38 | 18.89 | 4.56 |

**Comparatives**

Provides comparative data (ratios and peak frequencies) for all measured sites by condition (eyes closed, open and task). These are not "normative" but "descriptive". Numbers in blue show under-activation; numbers in red show an overactive brain. Black numbers are as expected.

Low peak frequencies suggest under-arousal; high peaks suggest over-arousal.

very high
in range
very low

**Whole-Brain Training Plan for Sample 1**

Block 1 Training

| Active | Reference | Protocol | State & Dura | Notes |
|---|---|---|---|---|
| F7 Fpz F8 | | nIR HEG (LIFE) | EO | EEG Sites: A1, A2, T3, T4, C4, Fp2, P4, Fz, Pz, |
| T3 T4 | L(A1 A2) | FRE2C IN (19-38) REW (2-9) | EO | EEG Sites in brackets require Quick Insert Electrodes |
| T3 C4 (Fp2) P4 | C(T4) | BAL4C RH Bipolar | EC/EO | |
| Fz Pz | C(A2) | CON2C MBC Combined | EO | |

Block 2 Training

| Active | Reference | Protocol | State & Dura | Notes |
|---|---|---|---|---|
| F7 Fpz F8 | | nIR HEG (LIFE) | EO | EEG Sites: A1, A2, F3, F4, P3, P4, O1, O2, |
| F3 F4 P3 P4 | L(A1 A2) | CON4C MBC Down | EC/EO | |
| O1 O2 | L(A1 A2) | CON2C MBC Down | EC/EO | |
| O1 O2 | L(A1 A2) | CON2C Gamma Up | EO | |

Block 3 Training

| Active | Reference | Protocol | State & Dura | Notes |
|---|---|---|---|---|
| F7 Fpz F8 | | nIR HEG (LIFE) | EO | EEG Sites: A1, A2, C3, C4, |
| C3 C4 | L(A1 A2) | CON2C MBC Down | EC/EO | |
| C3 | C4 | SMR%1C | EO | |
| C3 C4 | L(A1 A2) | BAL2C SUM (2-38) DIFF (15-38) | EC | |

Block 4 Training

| Active | Reference | Protocol | State & Dura | Notes |
|---|---|---|---|---|
| F7 Fpz F8 | | nIR HEG (LIFE) | EO | EEG Sites: A1, A2, Fz, Cz, P3, P4, Pz, AFz, |
| Fz Cz | L(A1 A2) | FRE2C IN (2-6) REW (13-21) | EC/EO | EEG Sites in brackets require Quick Insert Electrodes |
| P3 P4 Pz (AFz) | L(A1 A2) | DMN4C Sync 3 Band | EO | |
| Fz Pz | C(A2) | CON2C MBC Combined | EO | |

Block 5 Training

| Active | Reference | Protocol | State & Dura | Notes |
|---|---|---|---|---|
| P4 O1 | L(A1 A2) | FRE2C IN(2-38) | EC 10:00m | EEG Sites: A1, A2, P4, O1, |
| P4 or O1 | A2 or A1 | ALP1C Alpha Theta | EC 23:50m | |

**Executive Summary Report for Sample 1**

1. Client Information

***The following report regards Sample 1, a 42 year old male (right handed) who presented for an assessment of brain activation patterns. The client grew up with his birth family with no siblings. There is a known history of neglect and abuse. He has received high school education and reported "Business owner / Author" as current occupation. Both alcohol (in the past, but no longer) as well as recreational drugs (in the past, but no longer) are used by the client. There is no reported history of significant head injuries or seizure activity.***

1.1. Medications

The use of psycho-active medications changes the playing field for brain training. The addition of chemicals to the brain with the goal of adjusting neurotransmitter levels may change patterns in the assessment. It also may artificially inflate the levels of specific neurotransmitters in the brain. Training often produces such chemical changes as a natural result of how the brain is now operating. The result can be that training may actually appear to produce negative results as levels of a brain chemical that was previously in short supply become excessive due to the combined effect of training and medication.

Working with medicated clients should only be done after gathering information on the symptoms of over-medication with each of the drugs being taken. A page with a list of each medication and its indications of over-dosage, is created and referred to throughout the training. As symptoms appear, the client's physician can be notified and can reduce medication levels as the brain itself takes over.

***1.1.1. Medications reported as being taken at the time of the recording are listed below:***

***Drugs listed: Using a legal narcotic called Kava- anesthetic action. Did not use on the day of the data gathering.Dose 4 teaspoons root powder(one Fijian shot)but rather than taking as a shot / skull and I instead water down and sip over a whole day.***

***1.2. The client reported the following areas of significant difficulty:***

***100% Fear***
***89% Anxiety***
***75% Thinking***
***48% Stress***
***47% Physical Disturbance***
***37% Depression***
***30% Memory***
***28% Control***
***17% Social Difficulties***
***16% Sleep Disturbance***
***13% Learning***
***9% Attention***

2. Data Quality

One site was found to be asymmetric: T3-T4

There are unusually high levels of coherence at the following sites: F7-F8 and T5-T6. Potential for muscle movement or tension resulting in high-frequency artifact should be ruled out, or the data should be re-gathered.

Required minimum data is present. Some task data missing. However, assessment validity should not be affected.

In summary, two quality issues were found, mostly pertaining to muscle artifacts.

Check for disruption of the data and re-record the assessment, if necessary. Bad or missing data can compromise the validity of the TQ training plan.

3. Assessment Findings

3.1. Brain Activation Patterns

The human brain can be considered to be a complex chaotic network, with trillions of signals passing through it at any moment as groups of neurons fire together. In resting states, large areas of the cortex are synchronized with older areas of the brain which produce slower rhythms. In task situations, local groups work independently with faster rhythms produced in the cortex. They also communicate with other groups, at various distances and locations to cooperate on tasks and share information.

The cortex, like most chaotic systems, tends to evolve certain "habits" in how it acts and responds to inputs. These "stable activation patterns" form the basis for much of how we act, feel, learn and perform. They can have an impact on stress responses and how our bodies operate as well. Brain training focuses on identifying—and changing—such habits when they are no longer effective. The goal of training is not necessarily to change brain patterns but to increase the range of options, flexibility in shifting up and down the scale and capacity to sustain patterns long enough to perform tasks. Results of training the middle-frequency patterns related to awareness and presence—the resting-ready observer state—can often be measured over the course of training. Peak frequency, blocking alpha at task, etc. may show stable changes from beginning to end of training. But coherence, frequency and balance training are not about removing a pattern but about improving access to additional ones. The client's steady-state may change little, but what he can do and in what situations can change significantly.

The following are the findings of this assessment in the areas of brain energy levels (Frequency Patterns), their distribution within the brain (Symmetry Patterns) and the ability of cortical areas to operate independently and to share information efficiently (Connectivity Patterns).

Where a brain pattern is found, the areas are identified, and possible correlations with mental/physical states are stated. The Whole-Brain Training Plan produced in this assessment is a recommended set of where and what to train to help break up identified "energy habits" and allow the brain to establish a new, more functional set.

3.2. Frequency Patterns

Cortical neurons fire at different speeds (frequencies), which represent different energy levels. Fast-dominant brains continue firing at working speeds, even when there is no work to do, wasting energy; slow-dominant brains are unable to activate to perform cortical tasks for very long. Frequency patterns show us the ability of the brain to idle when appropriate and to activate necessary areas when there is a task.

***This brain shows no dominant frequency pattern.***

***3.3. Additional patterns***

***While this brain is dominated by no particular frequency range the following patterns were found which are commonly associated with a slow and a fastdominant brain:***

***3.3.1. Low overall peak frequency***

***Overall peak frequency is a measure of general brain speed. Low peaks indicate a dominance of slow frequencies. This is consistent with difficulties in maintaining external focus, difficulty with detail and language processing, potentially depressed, low energy affect. This brain shows slow peak frequencies at* all sites.**

***3.3.2. High Theta/Beta ratios***

***Theta/beta ratio measures the relationship between sub-conscious and conscious processes. High ratios show dominance of Theta (access to the subconscious) and can correlate with internal focus of awareness, image-based processing at the expense of language-based, intuitive thinking rather than logical/sequential and difficulty with details. This brain shows these patterns at* Fz.**

***3.3.3. Left-side Disconnect***

***This pattern may indicate early experience of neglect—a sense of not receiving nurturing when desired. May result in flat emotional responses in general; memories are "stories" but without emotional content. May lead to depression over time.***

***3.3.4. High beta peak frequency***

***Beta operates in several bands, including 12-15Hz, 15-19Hz, 19-23Hz and 23-38Hz. This fastest group is not generally functional; it is more related to hyper-vigilance and trauma-based fear. High beta peak frequencies indicate a greater share of hibeta. Fast beta peaks are shown at* F4, F8, T3, T4 *and* O1.**

***3.3.5. Low Theta/Beta ratios***

***Theta/beta ratio measures the relationship between sub-conscious and conscious processes. Low ratios show dominance of Beta (conscious) and can correlate with stress, anxiety, sensitivity, thinking-over-feeling. This brain shows these patterns at* all sites except F3, F4, F7, F8 *and* Fz.**

3.4. Alpha Patterns

Alpha (8-12 or 9-13 Hz) is perhaps more accurately a dance between two different frequency bands. Slow alpha—8-10 Hz—is produced by one set of rhythm generating nuclei in the thalamus. When it dominates, it is an almost-hynogogic state. Fast alpha—10-12 Hz—is produced by other thalamic nuclei. It is more of an awareness state, presence in the moment, mental stillness.

Alpha is a crucial brain frequency, since it is consistent with the ability to idle, reducing energy demands in a resting-ready observer state. It can also be considered the bridge between conscious and sub-conscious minds, linking the thinking brain with the feeling/remembering brain. It allows the brain to perform routine tasks in auto-pilot mode, and in tasks over which the brain has mastery, synchronous alpha is related to peak performance "flow" or "zone" states.

Alpha is evaluated based on its location, its responsiveness, its peak and its synchrony.

3.4.1. Alpha Location

Alpha is expected be stronger in the rear of the brain than the front and stronger over the right hemisphere than the left. Disturbance of these relationships is identified in a training category called Alpha Asymmetry which is correlated with a number of issues of mood and executive function.

***3.4.1.1. Asymmetric Alpha***

***This brain shows Alpha asymmetry patterns at F3/F4, F7/F8, T3/T4, T5/T6, P3/P4 and O2/O1. For further details see the Symmetry Patterns section below.***

3.4.2. Alpha Responsiveness

Alpha is expected to dominate eyes-closed frequencies, especially in the rear of the head. With eyes open or at task, alpha levels are expected to fall 30-50%. Failure to produce alpha with eyes closed is often consistent with anxiety, inability to "turn off" the mind, eventually with fatigue or low-energy states. Inability to block alpha in eyes open/task conditions often correlates with spacy, un-motivated, foggy mental processes and low energy. It can be seen as an emotional "anesthesia".

***This brain shows expected levels of alpha responsiveness.***

3.4.3. Alpha Peaks

Alpha peak frequency is a measure of the balance between slow and fast alpha frequencies. It is the alpha frequency at which amplitude is highest—an important central frequency of brain operation. For adults the peak is expected at 10 Hz, which represents a balance between fast and slow alpha. This frequency is correlated with "semantic memory", the ability to recall words, and with working memory.

Children of 8 may have an alpha peak around 8 Hz. The peak tends to speed up to around 10 by mid-teens. It is common to see a slowing of the alpha peak with aging. Peaks down in the 8-9 Hz range are very slow and are consistent with dementia. Alpha peaks in the rear of the brain may be higher than 10, which may correlate with improved working memory and improved performance on IQ tests. Frontal alpha peak frequency above 10 Hz often relate to anxiety and feeling driven.

***3.4.3.1. HighAlpha Peak Frequency***

***High anterior alpha peaks are found at C3, C4, Cz, T3 and T4. This is consistent with anxiety, a sense of being driven, even beneath a calm exterior.***

3.4.4. Alpha Synchrony

Alpha is not produced in the cortex. Rhythm generating neurons in sub-cortical areas in the center of the brain are the unique sources of slow and fast alpha. They broadcast their signals all the time, and specific pools of neurons not currently activated—or de-synchronized—can resonate to their signals.

A single signal from a single source would be expected to be expressed in different areas consistently. If transmission is not interrupted, the pulse at one site should be synchronous with that at other sites. If it is not, there may be damage in a brain area that disrupts the transmission. Or the brain may be overly excited, with areas bursting randomly into cortical beta speeds when no task is present, disturbing synchrony.

***This brain does not display low levels of alpha connectivity.***

3.5. Midline

The sagittal line separates right and left hemispheres. Its frequency pattern may differ from them because a structure called the cingulate gyrus runs beneath it from the front to rear of the brain. This line passes over the anterior cingulate, the vertex and the default-mode network.

***3.5.1. Anterior Cingulate***

***This structure is involved in both cognitive and emotion-driven tasks. The cingulate is activated when competing sensory inputs must be screened, it helps the brain resolve conflicts between inputs, it manages the process of error detection and experiences rewards and losses. It appears to manage emotional reactions to pain (not the pain itself). It also seems to regulate the flow of emotional material from the sub-cortical brain to the prefrontal cortex.***

***This brain shows a "slow" cingulate, with dominant alpha or slow frequency activity. This could be consistent with reduced ability to manage emotions, low motivation, difficulties with screening and decision-making, possibly with depressive feelings.***

***3.5.2. Vertex***

***This central point on the top of the brain is connected to the thalamus and basal ganglia, centers for regulating sensory and motor screening. Cz is located over the motor cortex and can be useful for motor control and sleep issues.***

***This brain shows slowing at the vertex. This could be consistent with physical impulsivity, poor relaxation, lack of physical control, body maintenance issues and distractibility.***

3.6. Symmetry Patterns

Different geographical areas of the brain appear to work best with specific frequencies based on whether their work is integrative or processing. The left hemisphere produces a brighter, more positive view of experience—it approaches life. It handles routine operations and produces a more focused, detailed picture. The right hemisphere sees things more negatively, in terms of risks—tends toward avoidance. It is involved in responding to novel situations and produces more

of a focus on context.
The rear of the brain receives and integrates sensory information from senses into a unified, constantly changing picture of experience which is sent to the prefrontal cortex. The front of the brain processes this material and organizes actions.
Asymmetries between front vs. rear and left vs. right sites for levels of integrative (alpha) and processing (beta) frequencies can correlate with a variety of mood and performance issues.

***3.6.1. Left slower than right hemisphere***

***The left hemisphere is expected to be more activated than the right, but in this brain it is less activated. This may result in difficulty setting up and maintaining routines, lack of attention to outside experience. Language processing may be weak. Tendency toward low energy and depressive feelings. The following sites show this pattern: F3/F4, F7/F8, C3/C4, T5/T6, P3/P4 and O1/O2.***

***3.6.2. Left hemisphere alpha dominance***

***This brain shows alpha greater on the left. This correlates with depressed mood, negative view of experience, perhaps difficulty with language processing. The following sites show this pattern: F3/F4, F7/F8, T3/T4, T5/T6, P3/P4 and O2/O1.***

3.7. Connectivity Patterns

Brain functions generally involve activation of specific areas, which operate independently and share information efficiently. Between functions brain areas should ideally shift into lower activation states so as not to waste energy.
The ability to rest between (and during) tasks, to activate and function independently and to cooperate efficiently are determined by measures of connectivity: Coherence (the stability of a linkage) and phase (the timing of the linkage) in various frequencies. The combination of coherence and phase is known as Synchrony. Depending on the state and frequency, these values should be higher or lower.

***3.7.1. Excessive synchrony***

***In working states, cortical areas produce faster beta frequencies which are expected to appear locally in the area performing a task. Unless two sites being measured are working together on a task, synchrony in fast frequencies should be low. When it is found to be high, it is first important to verify that there was not significant muscular tension present during the recording, which can create artifactual high fast-wave synchrony.***

***This brain shows high fast-wave synchrony at the following site pairs:***

***F3 and F4 which can be related to mental rigidity or obsessiveness, perhaps to anxiety.***

***P3 and P4 which can be related to either difficulty in processing or extreme sensitivity to touch, difficulty with math processing, problems with awareness of self in physical space.***

***O1 and O2 which can be related to either difficulty in processing—or extreme sensitivity to—light and visual stimuli, sleep disturbances, headaches.***

3.8. Sensory-Motor Rhythm Patterns

The frequency band above alpha (12-15 or 12-16Hz—often centered on 14 Hz) is considered to be the lowest cortically-generated frequency—low beta or beta1. However, when it is found in the sensory-motor cortex (the central strip running across the brain's front-back midpoint from side to side), it is called Sensory-Motor Rhythm (SMR).
The sensory-motor cortex bridges the separating line between the front (motor) and the rear of the brain (sensory), In this area, sensory and motor information can be linked. It may also be a major site of mirror neurons, which appear to be related to empathy. It is heavily connected to both sensory screening (thalamus) and motor screening (basal ganglia) brain systems.

***This client's SMR is below the 10-12% target at Cz with eyes open. The lower the levels at the sensory-motor sites, the more likely one or more of the following problems will be present;***

***3.8.1. Sleep-onset insomnia***

***Bursts of SMR during sleep onset are called "sleep spindles". Low SMR levels are often related to sleep-onset insomnia, bruxism and restless sleep.***

***3.8.2. Physical hyperactivity***

***SMR has been shown to relate to physical relaxation and control. Poor handwriting, fidgetiness, impulsivity, distractibility and motor coordination issues are common symptoms.***

***Circadian rhythms and hormonal/endocrine functions have responded to training to increase SMR levels.***

3.9. Sleep Issues

Although some long-standing sleep problems—especially when complicated by the use of medications to assist in sleep—can take longer to resolve, improved sleep is often an early response to training. Where possible, improving sleep should be a high priority for all training, since it can often help to resolve a high percentage of other issues as well.
Exploring sleep should be an important part of the initial interview with the client. If this was done carefully, this report will include paragraphs on each identified issue and it will tell whether or not the expected brain pattern is

present.

*The client has reported the following sleep-related pattern(s):*

*3.9.1. Sleep-onset Insomnia*

*Does the client go to bed at a reasonable hour but has difficulty to fall asleep within 10-20 minutes? This can be related to either of 2 patterns.*

*Low levels of SMR in the sensory-motor cortex, keep the brain from shifting from drowsiness to physical sleep. Often unsettled or active sleepers; may grind their teeth or have restless legs in bed.*

*Fast right-rear quadrant with anxiety can also block sleep onset.*

**Low SMR levels are present in this brain. Furthermore, the right-rear quadrant shows signs of unusually fast activity.**