

What color is...your

Dick tracy
hat?



Or...

WHERE do you look for
clues?

And then...???



Is...

your radio on?





Or in other
words ...

are you
listening ... and Looking
for clues?

Let's ask the master
detective...



WHAT DOES IT TAKE TO BE A GOOD THERAPIST?

- John Warkentin:
 - With Carl Whitaker and Tom Malone founded the Atlanta Psychiatric Center in 1952.
 - Psychotherapist for 40 years
 - Founded a retreat in Clayton “Cloudland”
 - Autobiographical chapter, “Paradox of Being Alien and Intimate,” “Twelve Therapists” (Burton, 1972)
- “It takes having lived long enough to understand what people say to you.”

...why are you a therapist?

- Want to understand / fix self?
- Want to understand / fix significant other?
- Want to understand human behavior
- How to influence people for a better life?

Besides listening to what people say...verbally...listen to their EEG

- The EEG does not reflect a large number of diagnoses
- The EEG can point the way to a few outliers
 - Anxiety
 - Attention
 - Aging
 - Brain injury
 - Sleep
 - Stress
 - Trauma
 - Drug use

40 year old with anxiety & attention issues

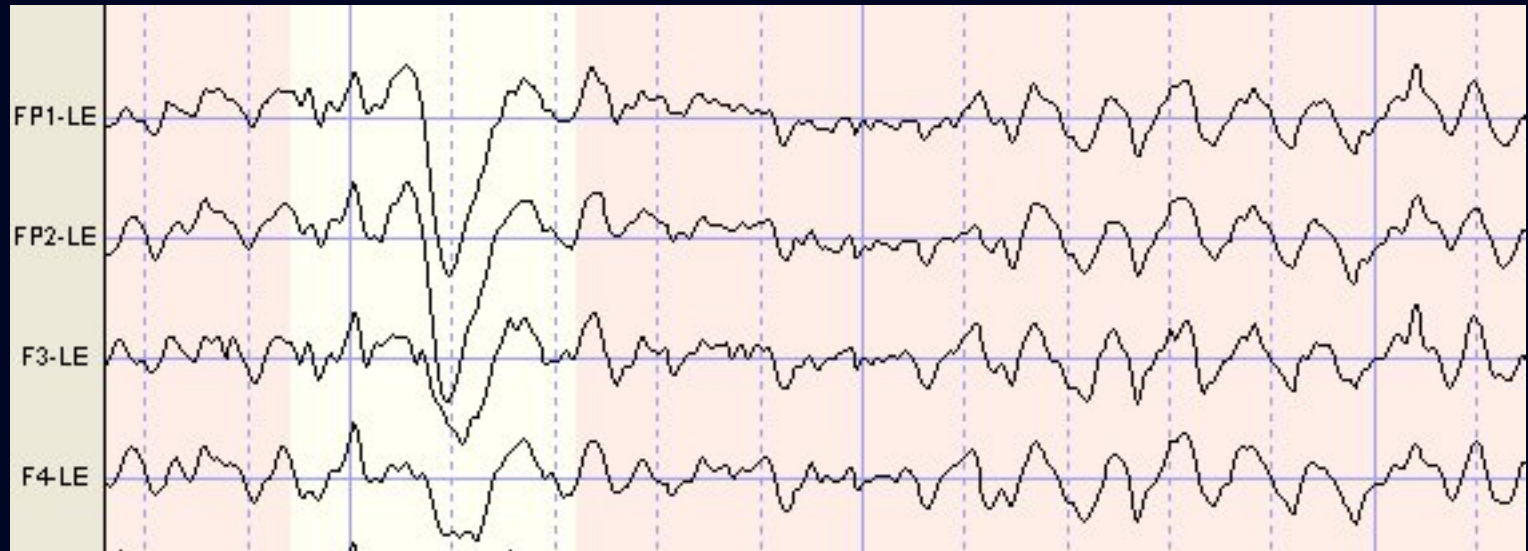


40 year old with anxiety & attention issues



40 year old with anxiety & attention issues

- Frontal Sites: 5-8 Hertz with Eyes Open

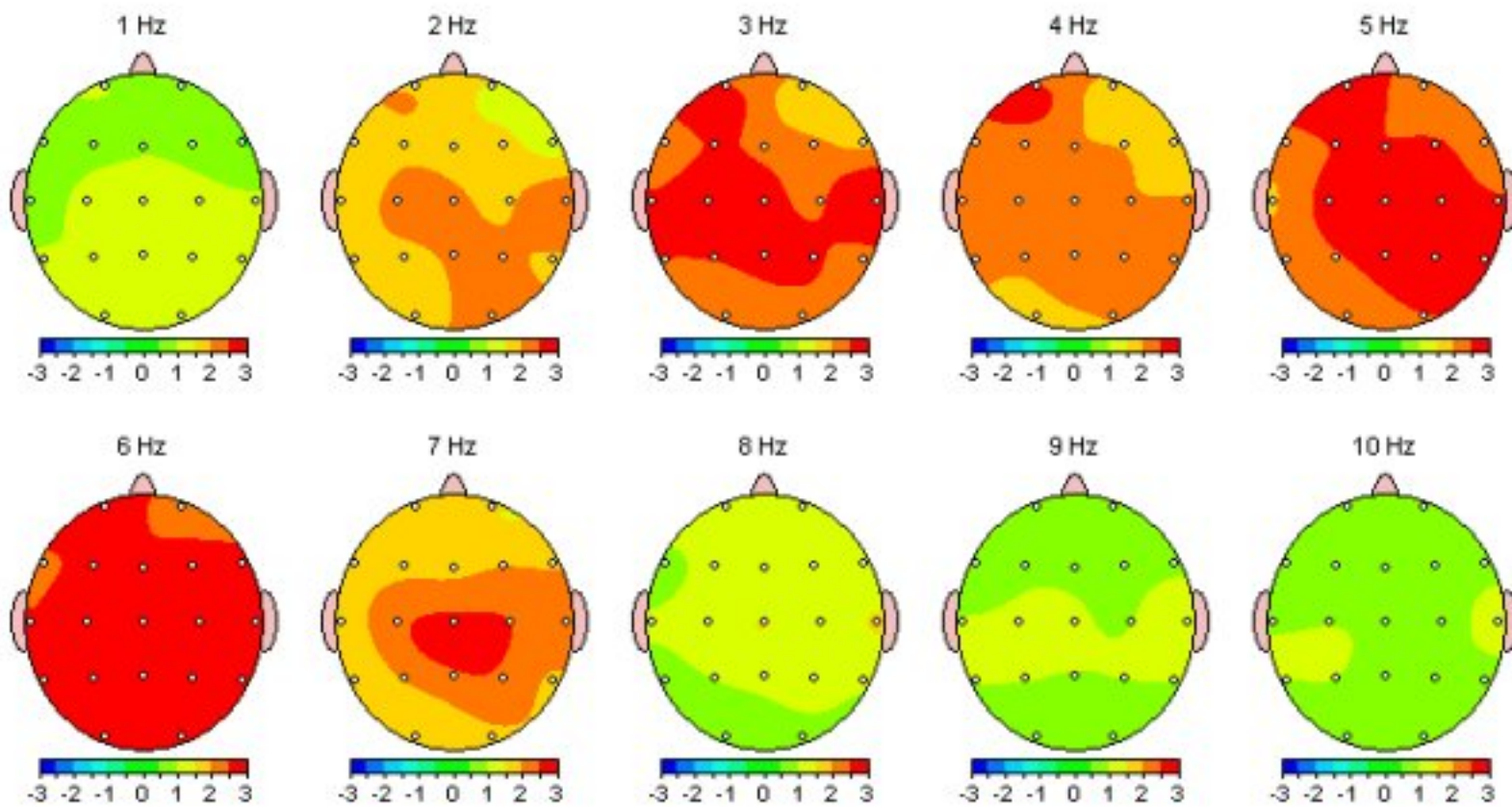


40 year old with anxiety & attention issues

Montage: LinkEars

EEG ID: EC

Z Scored FFT Absolute Power



40 year old with anxiety & attention issues

Montage: LinkEars

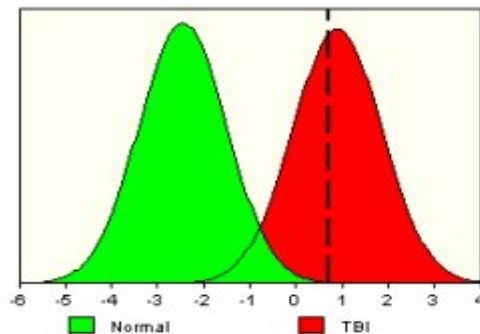
EEG ID: EC

Traumatic Brain Injury Discriminant Analysis*

TBI DISCRIMINANT SCORE = 0.67

TBI PROBABILITY INDEX = 99.5%

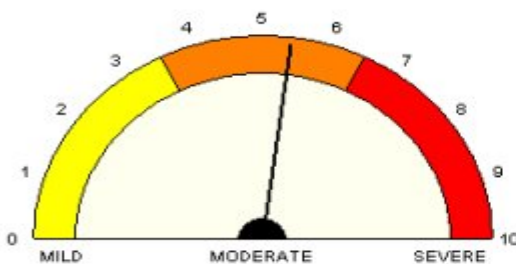
The TBI Probability Index is the subject's probability of membership in the mild traumatic brain injury population. (see Thatcher et al, EEG and Clin. Neurophysiol., 73: 93-106, 1989.)



			RAW	Z
FP1-F3	COH	Theta	86.30	0.47
T3-T5	COH	Beta	77.29	1.78
C3-P3	COH	Beta	87.17	1.33
FP2-F4	PHA	Beta	0.05	-1.23
F3-F4	PHA	Beta	0.10	-0.06
F4-T6	AMP	Alpha	-39.31	-0.31
F8-T6	AMP	Alpha	-79.28	-0.08
F4-T6	AMP	Beta	13.55	0.21
F8-T6	AMP	Beta	-13.40	0.06
F3-O1	AMP	Alpha	-66.93	-0.00
F4-O2	AMP	Alpha	-61.79	0.11
F7-O1	AMP	Alpha	113.23	0.09
F4-O2	AMP	Beta	-7.09	0.42
P3	RP	Alpha	41.12	-0.99
P4	RP	Alpha	39.23	-1.19
O1	RP	Alpha	46.60	-0.80
O2	RP	Alpha	45.44	-1.20
T4	RP	Alpha	37.12	-0.47
T5	RP	Alpha	46.02	-0.68
T6	RP	Alpha	46.37	-0.85

TBI SEVERITY INDEX = 5.42

This severity score places the patient in the MODERATE range of severity.



			RAW	Z
FP1-C3	COH	Delta	44.78	-0.71
FP1-FP2	COH	Theta	89.35	0.63
O1-F7	COH	Alpha	32.29	0.16
O2-T6	COH	Alpha	90.79	1.01
P3-O1	COH	Beta	89.39	1.89
FP1-T3	PHA	Theta	-2.31	-0.07
T3-T4	PHA	Theta	3.19	-0.87
O1-F7	PHA	Alpha	-6.88	-0.49
F7-F8	PHA	Alpha	1.82	0.04
T5-T6	PHA	Beta	1.74	0.01
C3-F7	AMP	Delta	43.31	0.04
FP2-F4	AMP	Delta	27.28	0.24

40 year old with anxiety & attention issues

- 25 sessions Z score reducing absolute pwr
- Session 12, observable decrease in 6-8 Hz
- Session 16, commented on memory
- Session 20, commented on “feeling easier”

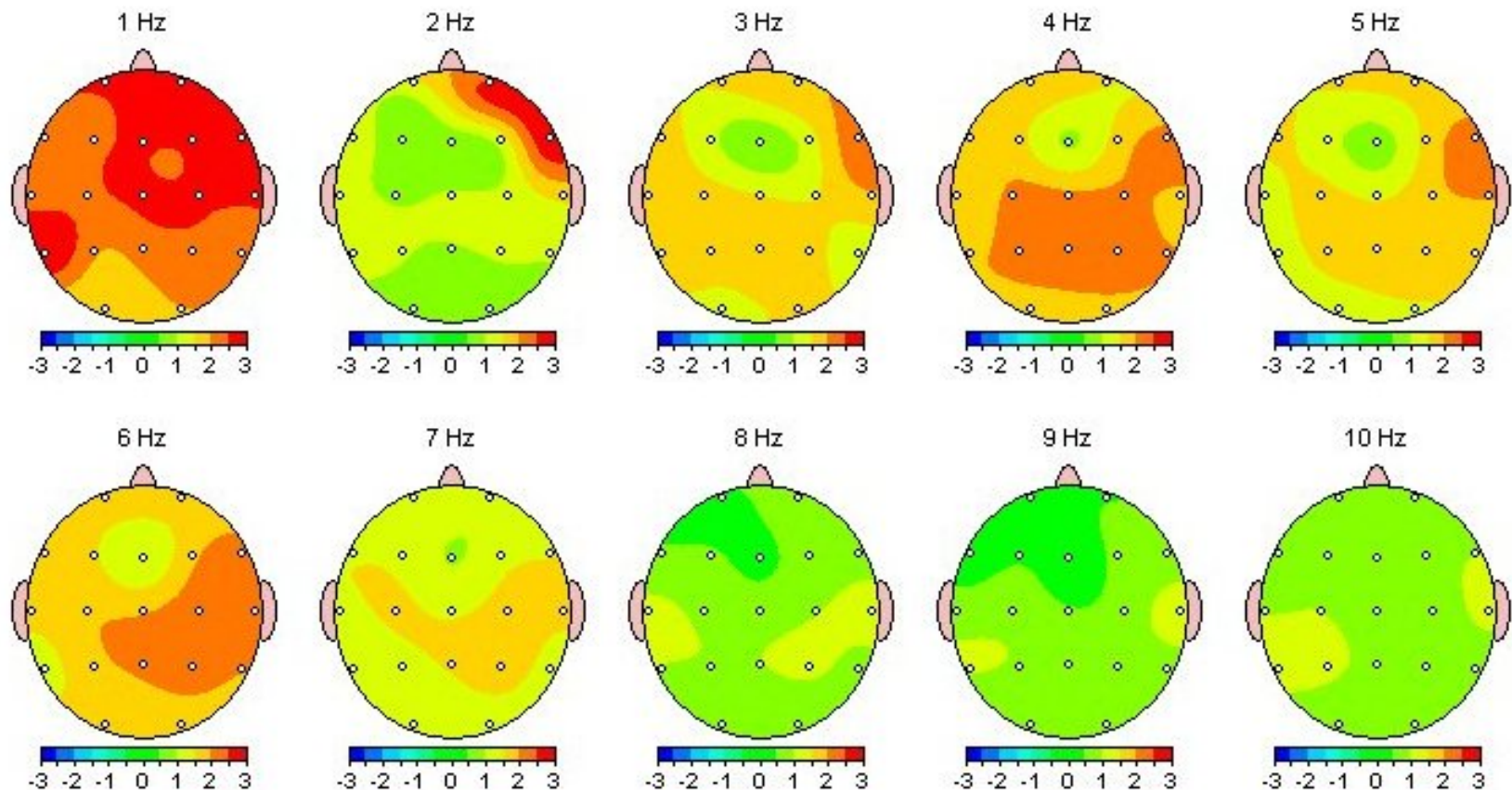
40 year old with anxiety & attention issues

Montage: LinkEars

EEG ID:

EC 2

Z Scored FFT Absolute Power



40 year old with anxiety & attention issues

Montage: LinkEars

EEG ID:

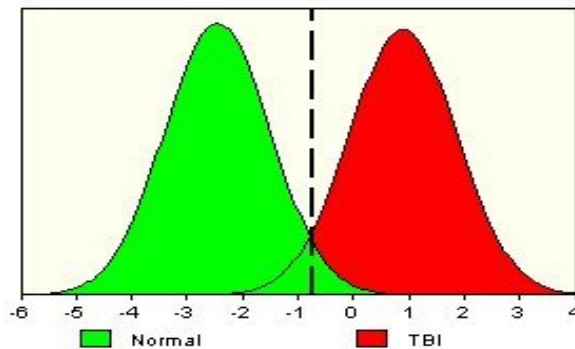
EC 2

Traumatic Brain Injury Discriminant Analysis*

TBI DISCRIMINANT SCORE = -0.77

TBI PROBABILITY INDEX = 70.0%

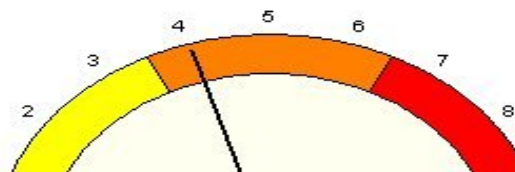
The TBI Probability Index is the subject's probability of membership in the mild traumatic brain injury population. (see Thatcher et al, EEG and Clin. Neurophysiol., 73: 93-106, 1989.)



			RAW	Z
FP1-F3	COH	Theta	62.10	-2.98
T3-T5	COH	Beta	73.40	1.52
C3-P3	COH	Beta	87.85	1.45
FP2-F4	PHA	Beta	-0.23	-0.66
F3-F4	PHA	Beta	-0.11	-0.94
F4-T6	AMP	Alpha	-43.85	-0.41
F8-T6	AMP	Alpha	-73.10	0.06
F4-T6	AMP	Beta	22.52	0.52
F8-T6	AMP	Beta	7.28	1.61
F3-O1	AMP	Alpha	-87.18	-0.38
F4-O2	AMP	Alpha	-76.46	-0.12
F7-O1	AMP	Alpha	121.79	0.27
F4-O2	AMP	Beta	6.31	0.73
P3	RP	Alpha	52.06	-0.81
P4	RP	Alpha	47.53	-1.12
O1	RP	Alpha	56.96	-0.81
O2	RP	Alpha	56.72	-1.01
T4	RP	Alpha	39.63	-0.96
T5	RP	Alpha	58.42	-0.48
T6	RP	Alpha	51.35	-1.09

TBI SEVERITY INDEX = 4.05

This severity score places the patient in the MODERATE range of severity.



			RAW	Z
FP1-C3	COH	Delta	24.12	-2.45
FP1-FP2	COH	Theta	68.18	-2.89
O1-F7	COH	Alpha	19.99	-0.71
O2-T6	COH	Alpha	81.53	-0.22
P3-O1	COH	Beta	81.37	0.79
FP1-T3	PHA	Theta	-3.77	0.43

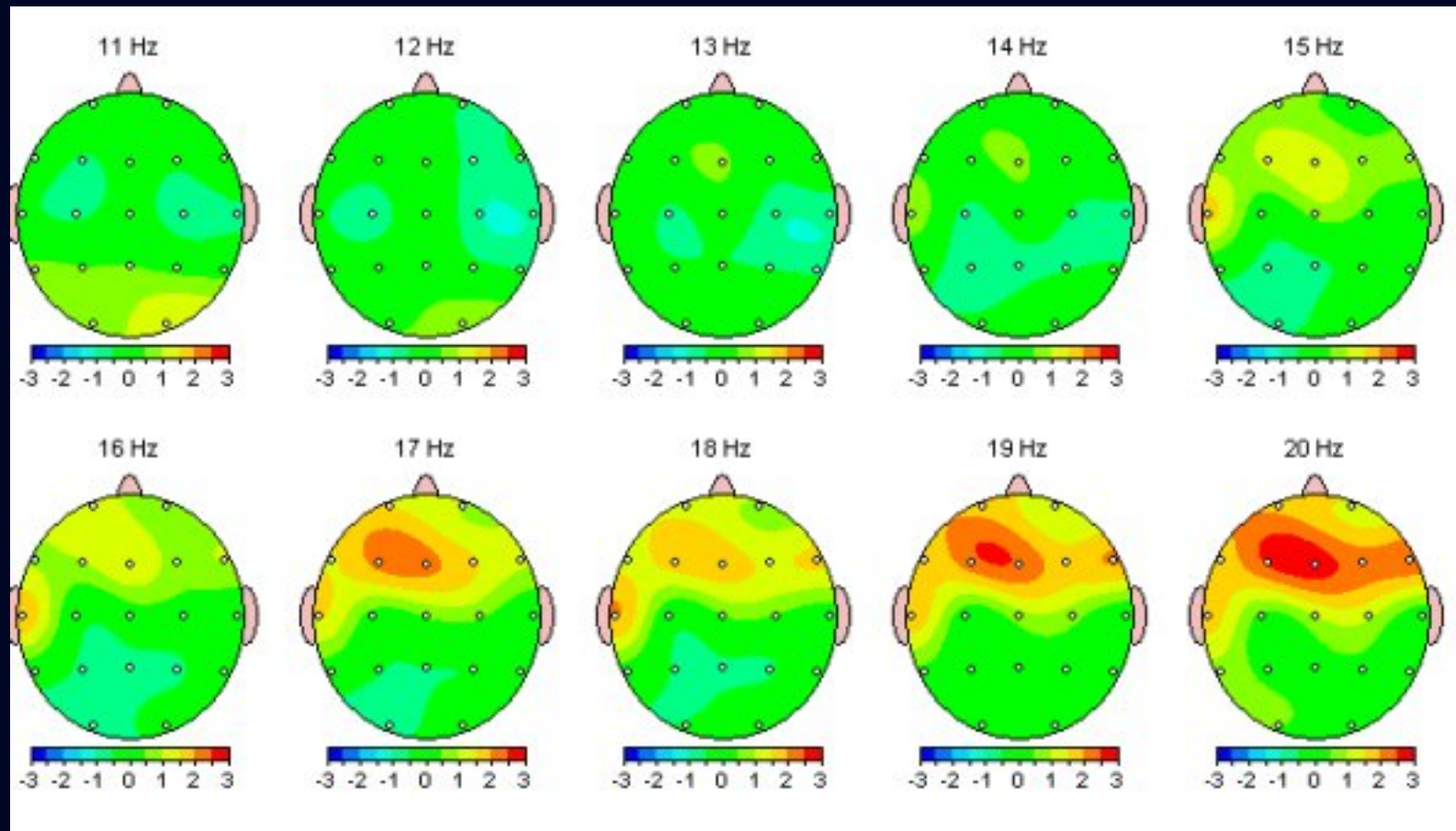
11 year old with head injury

- First Head injury: fell backwards
- Second Head injury: fell forward
- School diagnosis: ADD

- Poor concentration
- One hour for sleep onset
- Wakes during night with 1 hour + for sleep
- Night “terrors”

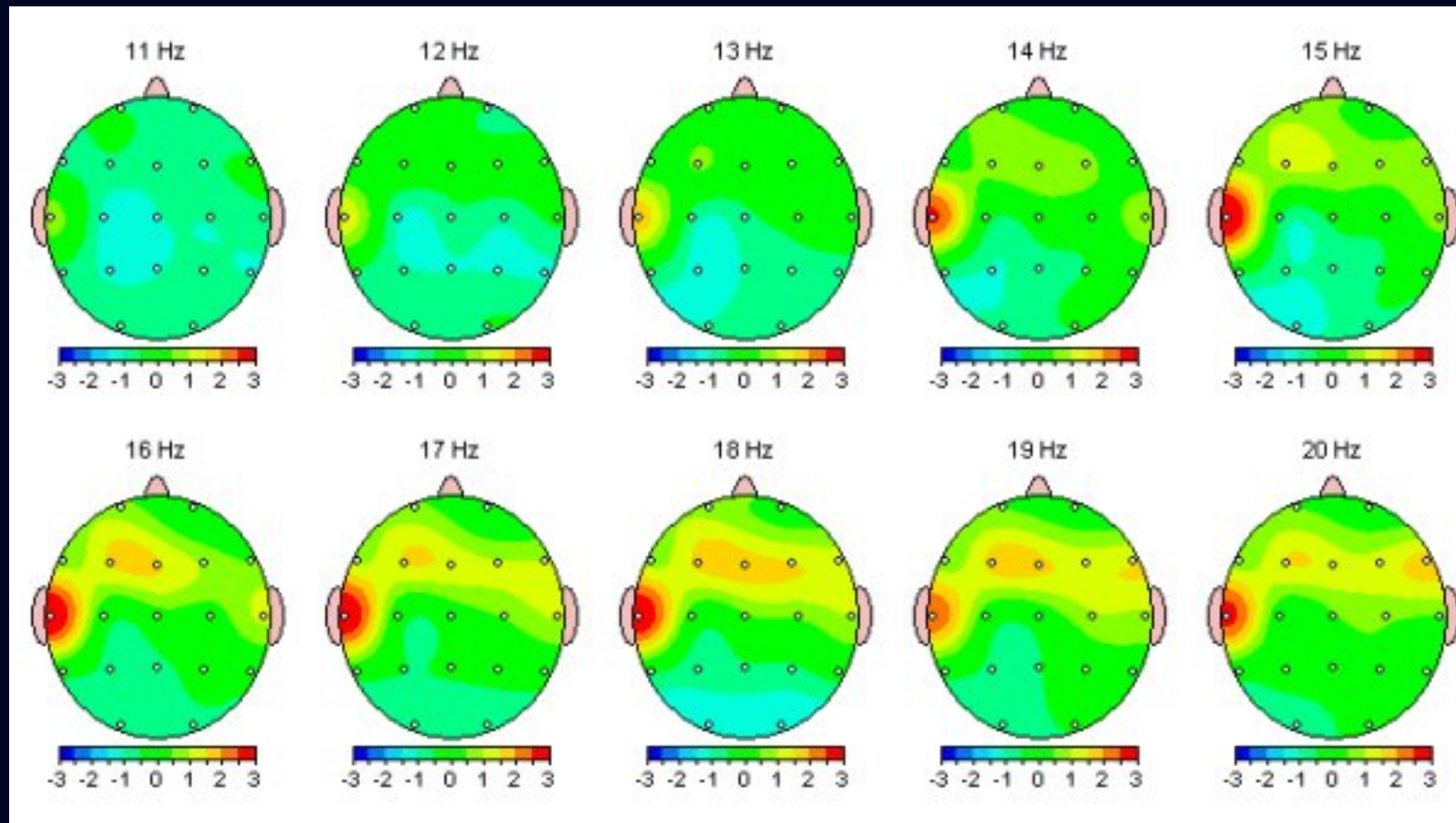
11 year old with head injury

- Eyes closed Absolute Power



11 year old with head injury

- Eyes open Absolute Power

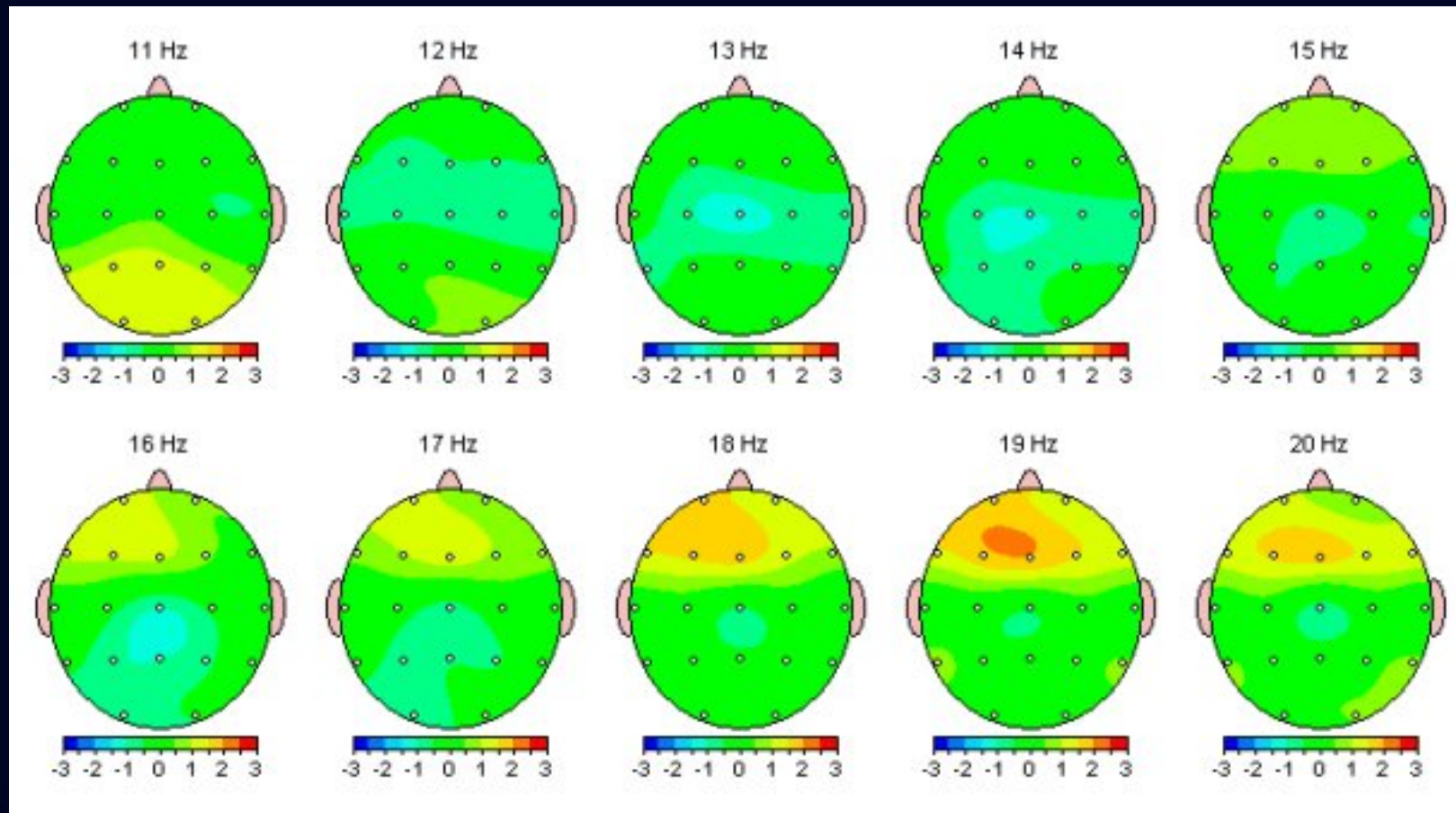


11 year old with head injury

- At 25 sessions, recommended 30 day break
- Went off of medication
- Parents called, not doing well
- Conversation: math class & bored
- 2 year older brother no problem, but “star”
- Recommended new EEG recording

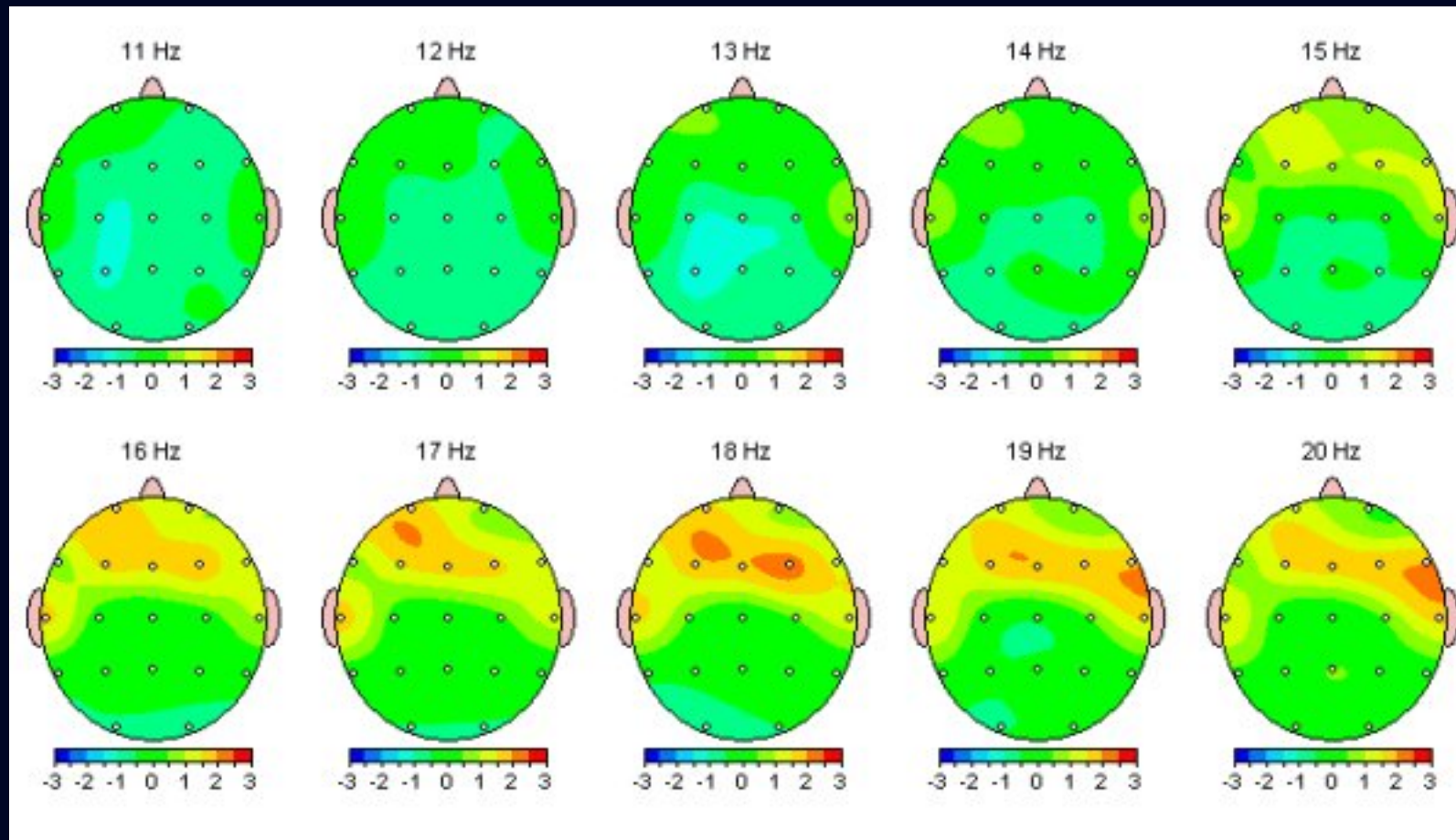
11 year old with head injury

- EC Absolute Power
- Off medication now, excess Lo Beta higher than First



11 year old with head injury

- EO Absolute Power
- Again, Lo Beta higher than before on medication



11 year old with head injury

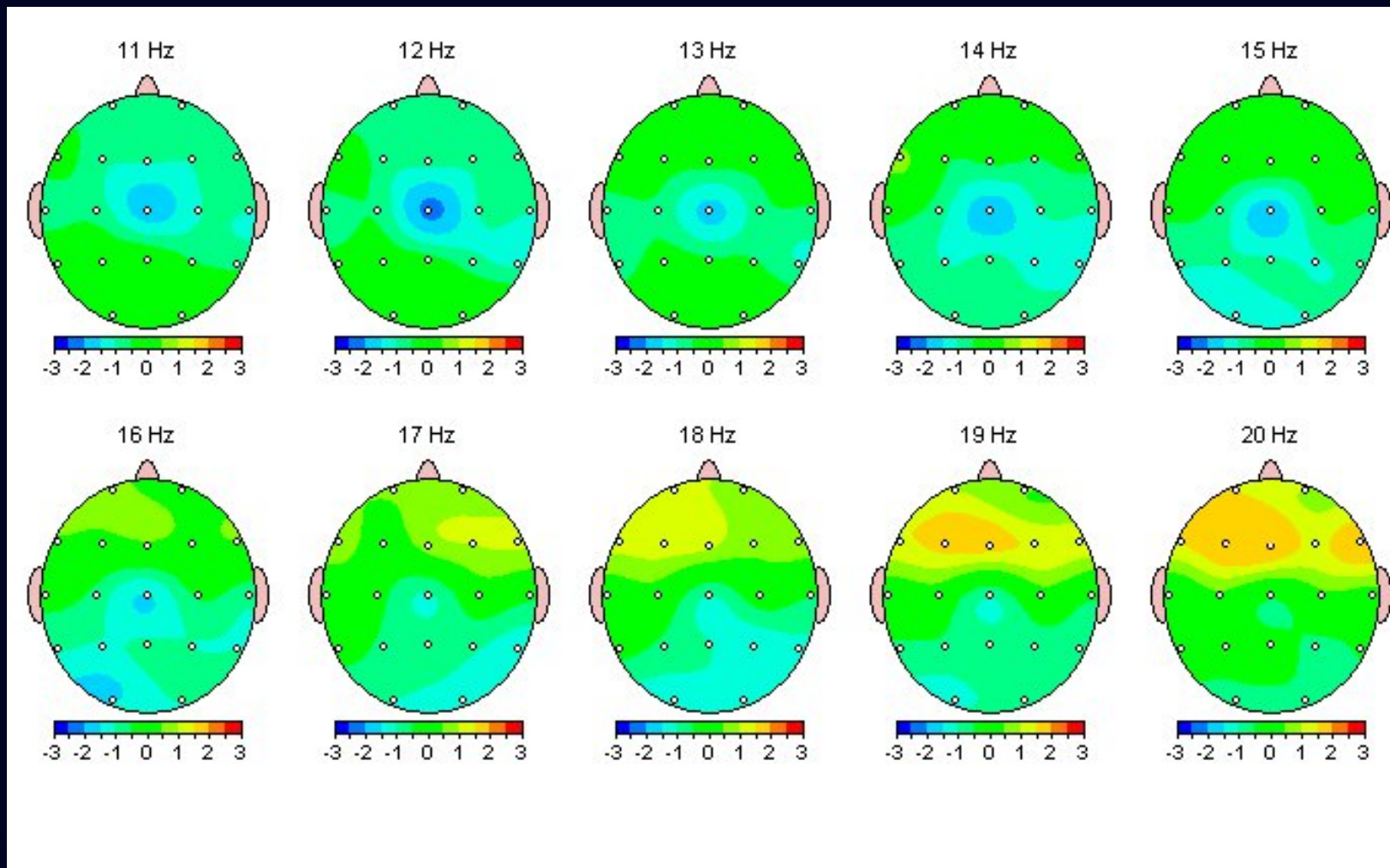
- Between session 25-30, Beta spindles began disappearing
- After session 30, parents reported no awakenings, or night terrors
- Sleep onset 5 minutes
- After session 35, no apparent Beta spindles
- Entered ADVANCED math class
- Parents, “ We have a wonderful son!”
- 12th birthday

Now 12 year old with head injury “playing”



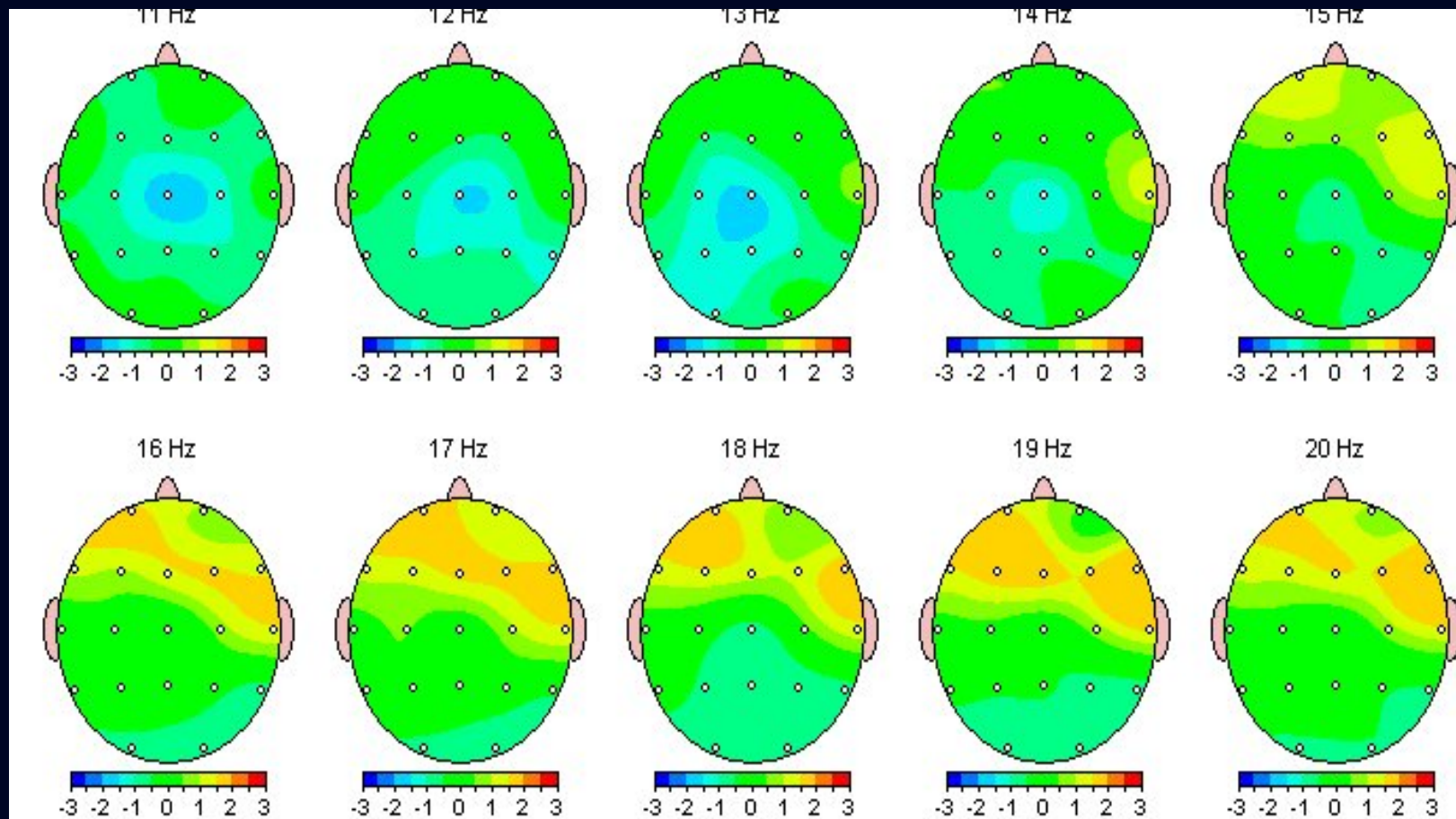
Now 12 year old with head injury

- 3rd recording w/ Eyes Closed: Absolute Power

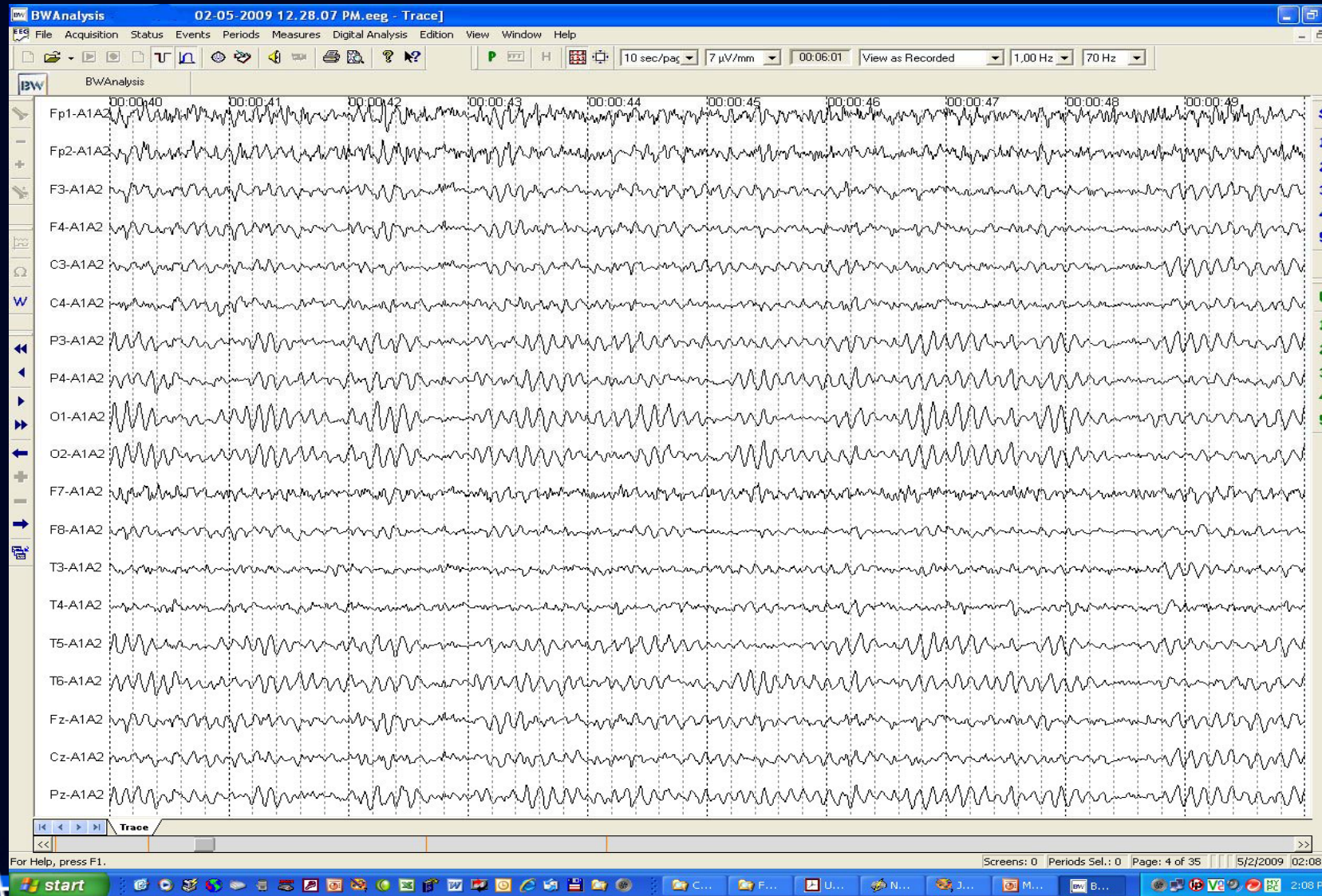


12 year old with head injury

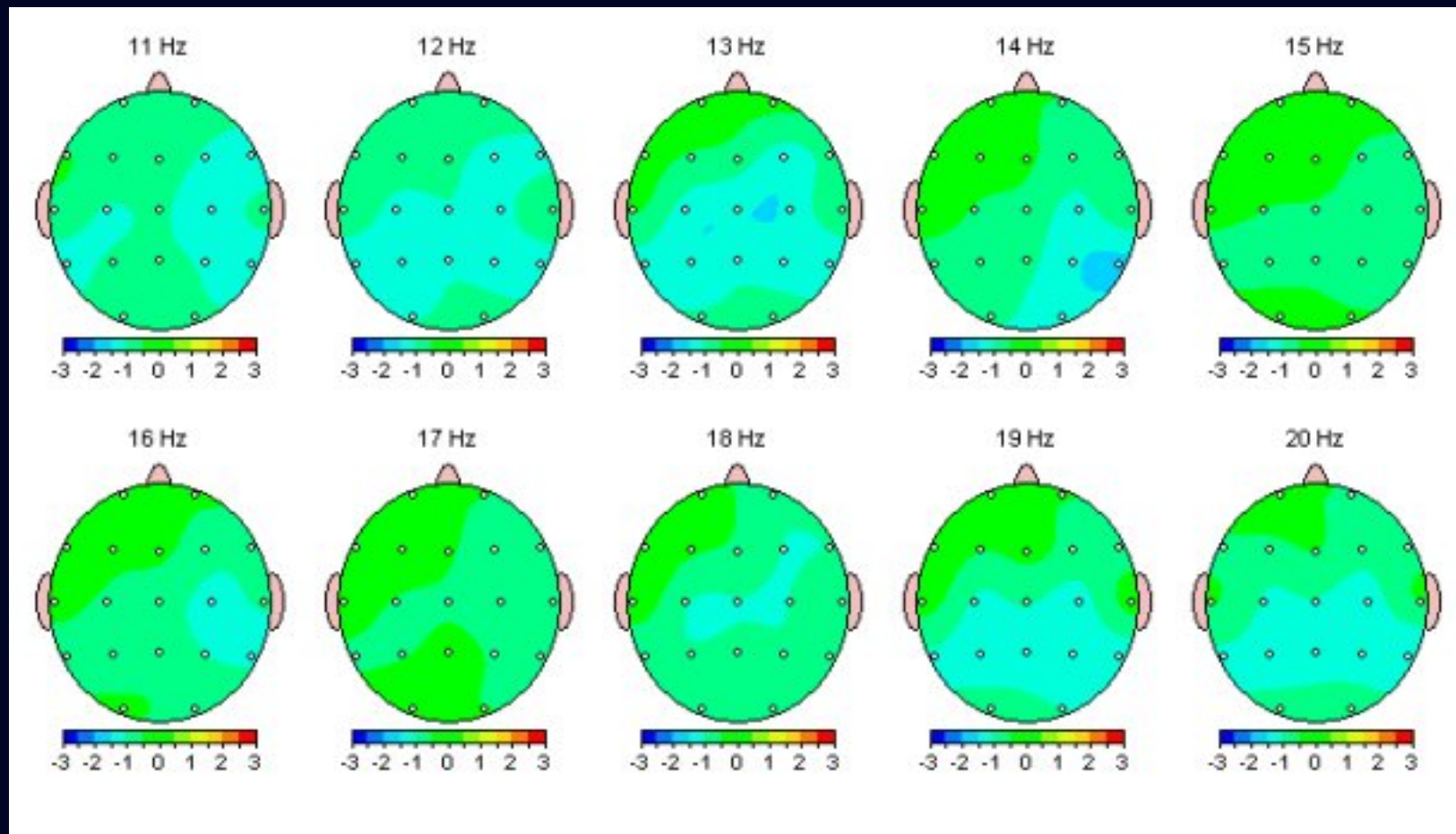
- 3rd recording w/ Eyes Open Absolute Power



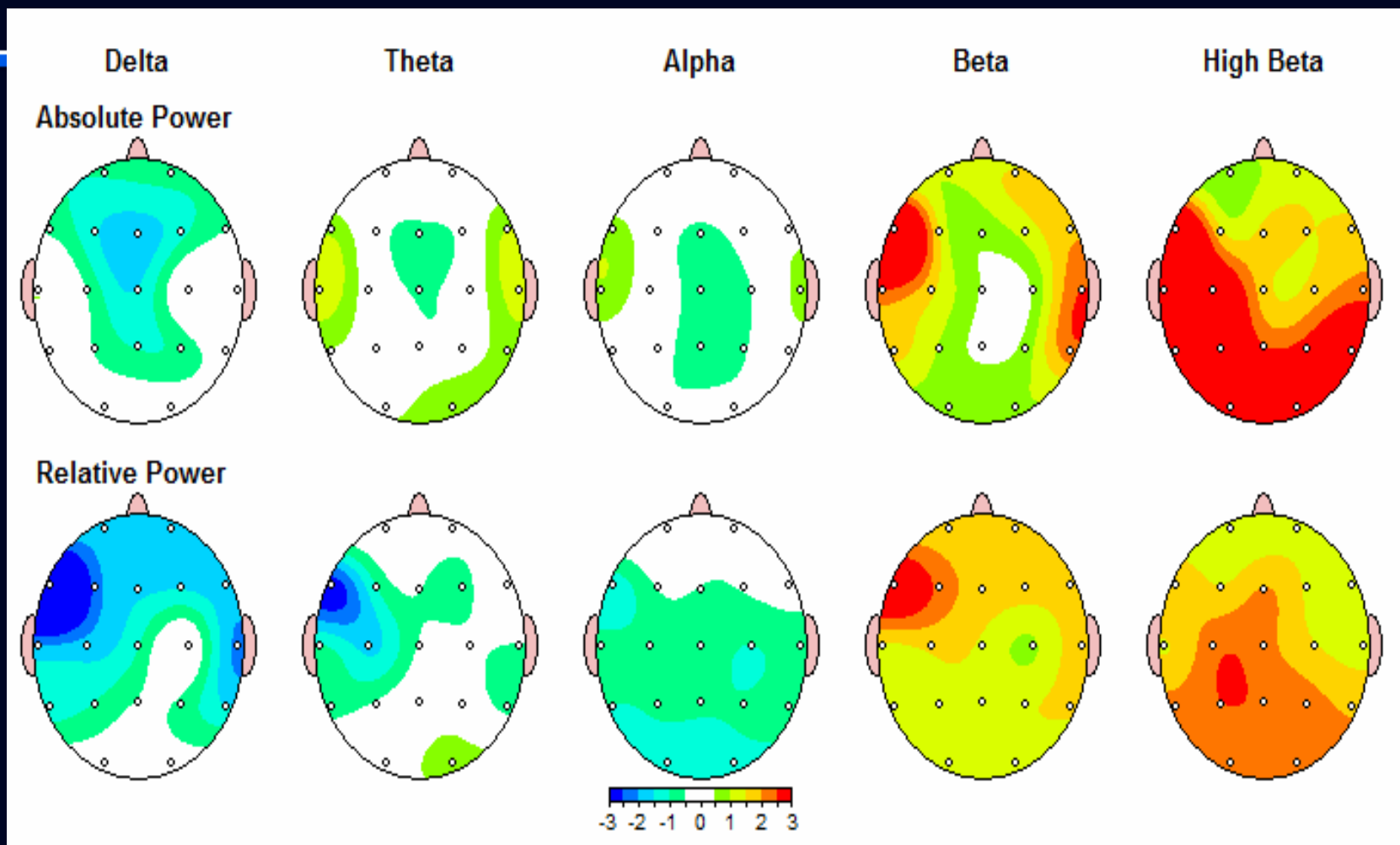
66 year old with aging issue



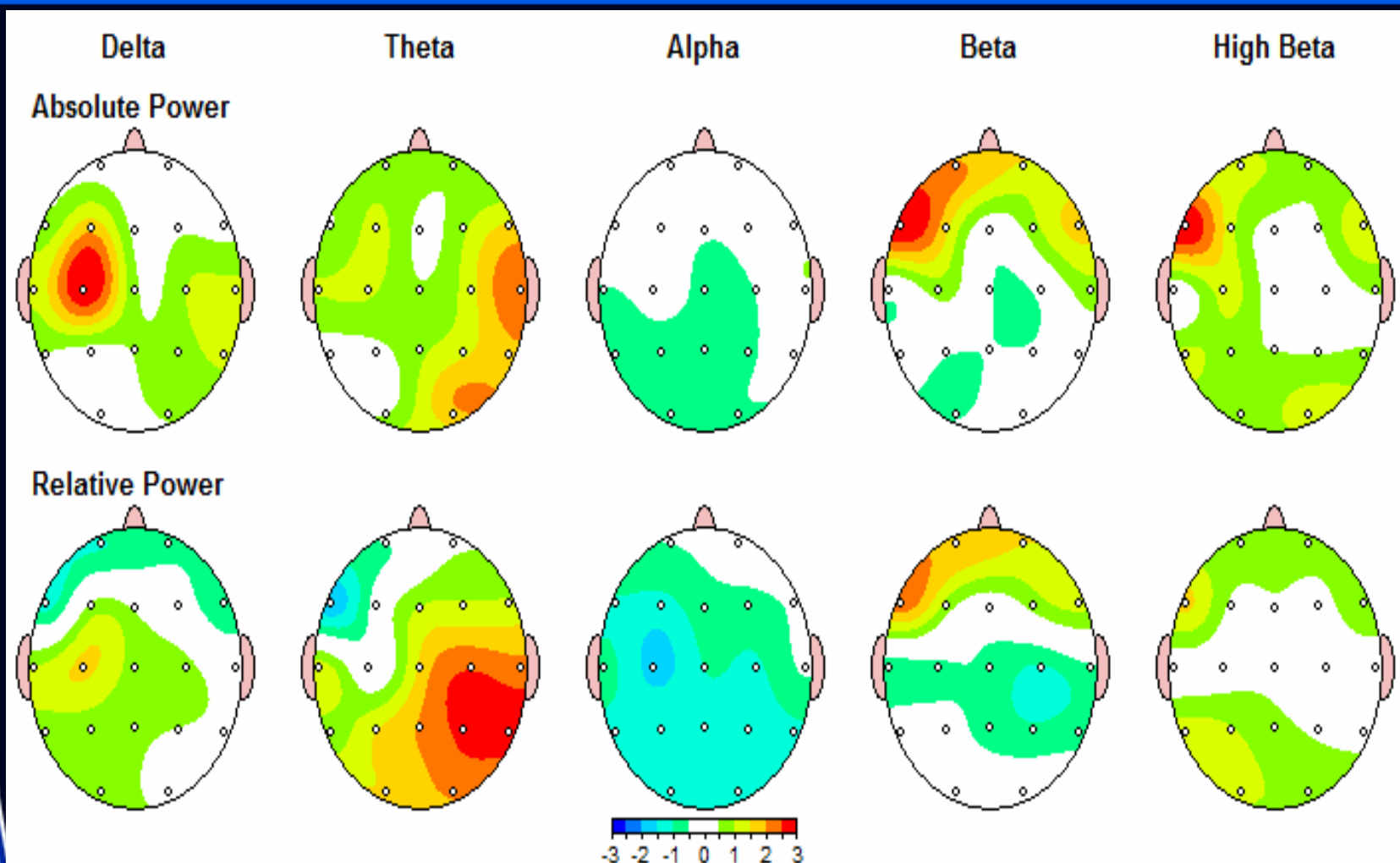
28 year old with history of drug usage



71 year old with Memory Issues



73 year w/some memory Improvement



Conclusions

- Listen to person and significant others
- Listen to EEG
- Listen for clues
- Re-assess plan
- Adjust plan
- Listen for clues
- Adjust plan

Final Point...and Dick Tracy
will be proud

Be willing to ...

Send them home with a hearty "Well Done!"?

(Even if the map is NOT PERFECT)