

EEG/EP Patient Report

Physician/Practice Information: <div style="background-color: black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <div style="background-color: black; width: 100%; height: 20px; margin-bottom: 5px;"></div> Study Technician: Ordering Physician: 	Patient Information: Name: ID: 3 Birth Date:
Signature	Study Information: Order Notes: Data-Set ID: Date Uploaded: 06/03/2019

Test Notes:
 The test was stopped several times to instruct the patient to only press the buttons on the high pitched sound. After about 170 epochs the patient began only pressing for the high sound.

Study Findings:
 Test notes state that the test was stopped several times to instruct the patient to only press the buttons on the high pitched sound. After about 170 epochs, the patient began only pressing for the high sound.
 An audiogram was performed and a mild hearing deficit was noted in the left ear. This hearing deficit was within the compensation capabilities of the Cognision System. In the context of Traumatic Brain Injury (TBI), it could be the consequence of the trauma. Task Performance Results demonstrated low Button Press Accuracy and prolonged Median Reaction Time, consistent with impaired focal attention, stimulus processing and executive function. Although the Button Press Accuracy is low, it is adequate enough to result in reliable N200 and P3b measures. False alarms were significantly high. This may reflect prefrontal pathology that results in observable deficits in behavioral inhibition.
 The P50 Standard Average Amplitude is increased, consistent with impaired language function and suggests possible pre-frontal disinhibition. The P50 Latency is prolonged, which has been shown to be associated with concussion.
 The N100 Standard Peak Amplitude and Average Amplitude are decreased, consistent with impaired attention and memory.
 P200 Standard Peak Amplitude is decreased, which contributes to slow reaction times and reduced accuracy of stimulus classification.
 The N200 Target Peak Amplitude has significantly increased negative amplitude and the Average Amplitude is decreased. The Latency is normal. This is consistent with impaired executive function and attention.
 The P3b Target Peak Amplitude is decreased and the Average Amplitude is normal. The Latency is normal. This is consistent with impaired stimulus evaluation and classification speed.
 The Slow Wave Target Latency is normal.
 The P3a Distractor Peak Amplitude and Average Amplitude are decreased, consistent with impaired executive function.
 Peak Alpha Frequency is normal.
 There is mild right-left asymmetry noted in the P3b Parietal lobe amplitudes, with the left side being decreased compared to the right. In the context of Traumatic Brain Injury (TBI), it likely indicates a mild localized trauma in the left parietal region.
 There is significant right-left asymmetry noted in the P3b Frontal lobe amplitudes, with the left side being decreased compared to the right. In the context of Traumatic Brain Injury (TBI), this likely indicates a localized trauma in the left frontal region.

 Clinical information provided by the referring healthcare provider indicates the 21-year-old female patient was involved in a motor vehicle accident on 4/4/2019, in which the patient was the driver of a vehicle that was hit on the left rear end by a vehicle that ran a red light. The other vehicle was reportedly traveling at approximately 45 mph. The patient hit her head on the steering wheel. The patient sustained a whiplash injury. There was no loss of consciousness or symptoms of amnesia following the accident. No airbags deployed during the accident, Post injury, the patient reports continuing headaches, neck pain, sleep disorder and cognitive impairment/difficulty concentrating. The patient is also having difficulty at school, where she has failed several classes since the injury. There is no previous history of these symptoms. No cranial nerve abnormalities or other focal neurological symptoms were noted on examination.

CLINICAL IMPRESSION:The EEG/ERP Study demonstrates that this patient has significantly impaired brain function with impairment of focal attention, stimulus processing, executive function, attention, memory, language function, stimulus evaluation, classification speed, reaction times and reduced accuracy of stimulus classification, as well as possible pre-frontal dis-inhibition. These findings and the presence of both a delayed median reaction time and an asymmetry of P3b amplitude in the frontal and parietal region combined with a history of head trauma and/or whiplash are consistent with traumatic brain injury (TBI). Based on the available history, this has been present only after the injury on 4/4/2019 and is most likely due to a traumatic brain injury that occurred in the accident on the above indicated date.

 David W. Brandes, MS, MD, FAAN, FAHA

Study Protocol:
 Auditory_Oddball_Active_3_03

<i>Test Name</i>	<i>Test Description</i>	<i>Patient Instructions</i>
Auditory_Oddball_Training_2_01		Press button with your dominant hand (red button for right-handed and blue button for left-handed) when you hear the high-pitched tone.

Auditory_Oddball_Active_3_01		Press button with your dominant hand (red button for right-handed and blue button for left-handed) when you hear the high-pitched tone.
EEG	EEG capture	
Pure Tone Audiometry		

Physician/Practice Information: [REDACTED]	Patient Information: Name: [REDACTED] ID: [REDACTED] Birth Date: [REDACTED]
Study Technician: [REDACTED] Treating Physician: [REDACTED]	Study Information: Order Notes: Date Uploaded: 06/03/2019

Test Name:
Auditory_Oddball_Active_3_01

TASK PERFORMANCE

<i>Feature</i>	<i>Value</i>
Button Press Accuracy (%)	65.0
False Alarms (%)	35.3
Median Reaction Time (ms)	496.0

ERP FEATURES

<i>Feature</i>	<i>Stimulus</i>	<i>Amplitude (μV)</i>	<i>Latency (ms)</i>	<i>Avg Amplitude (μV)</i>
P50	Standard	1.35	61.7	0.71
N100	Standard	-4.42	99.4	-2.42
P200	Standard	1.55	195.4	-0.05
N200	Target	-9.44	202.3	-2.13
P3b	Target	5.45	324.0	2.26
SW	Target	-3.43	433.1	-1.58
P3a	Distractor	6.94	237.3	1.42

ERP WAVEFORMS

<i>Electrode</i>	<i>Standard (55)</i>	<i>Target (36)</i>	<i>Distractor (38)</i>
Fz			
Cz			
Pz			
F3			
P3			
F4			
P4			

Physician/Practice Information:

[Redacted]

Study Technician: [Redacted]

Treating Physician: [Redacted]

Patient Information:

Name: [Redacted]

ID: [Redacted]

Birth Date: [Redacted]

Study Information:

Order Notes:

Date Uploaded: 06/03/2019

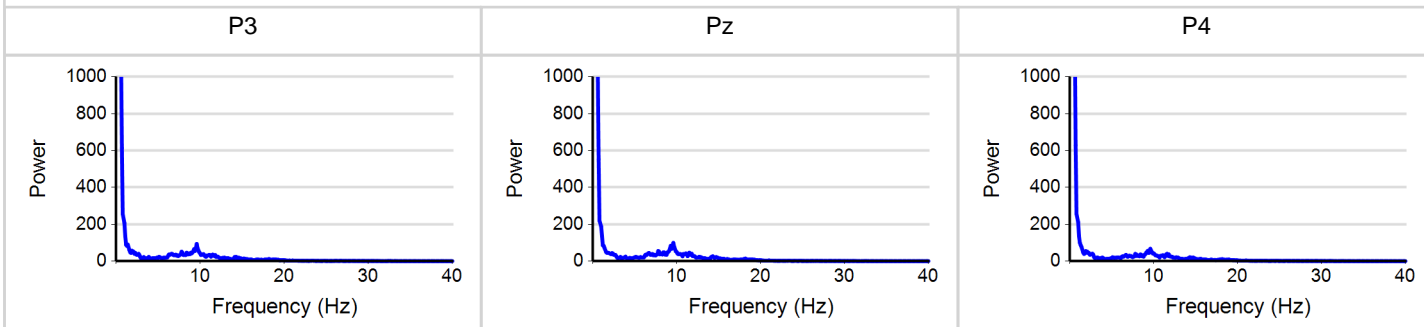
Test Name:

Pure Tone Audiometry

EEG FEATURES

<i>Feature</i>	<i>Peak Frequency</i>	<i>Power</i>
Peak Alpha	9.64	86.6

EEG POWER SPECTRUM

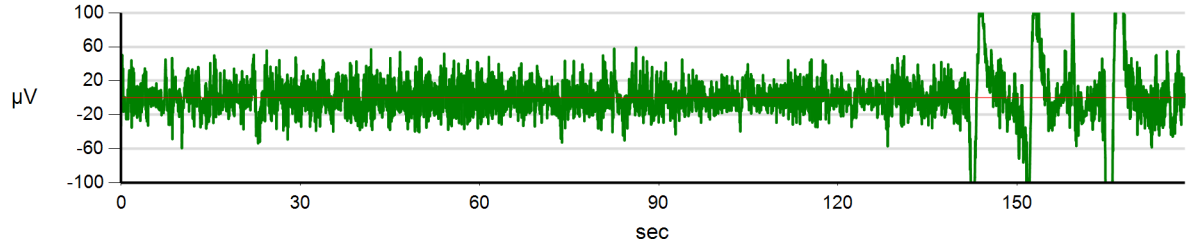


EEG WAVEFORMS

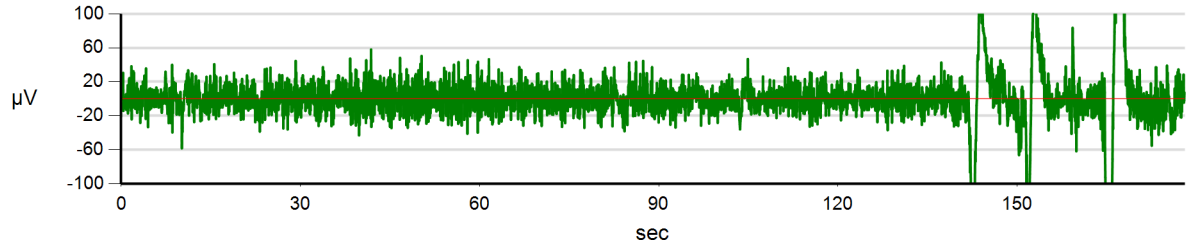
Electrode

Standard

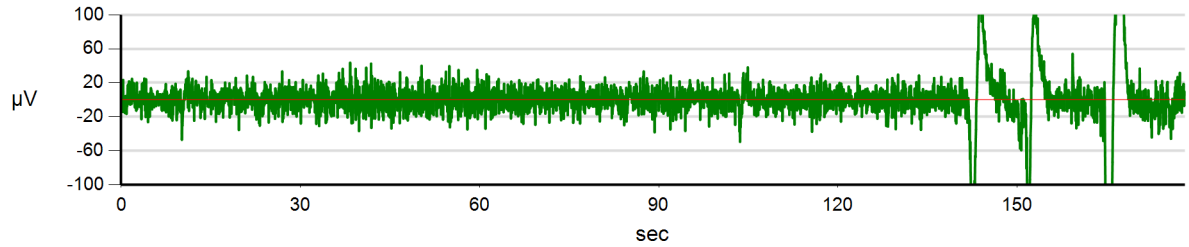
Fz



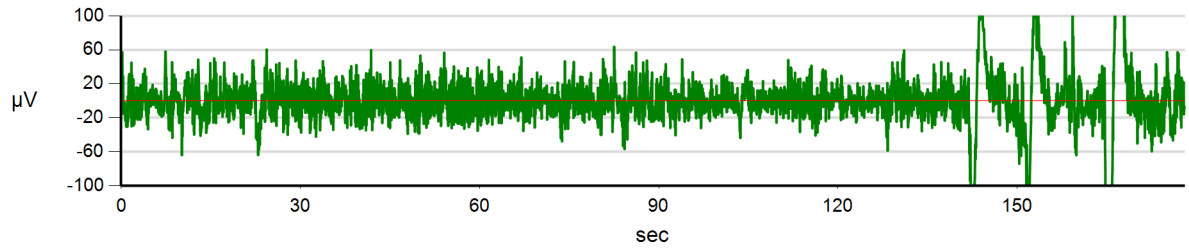
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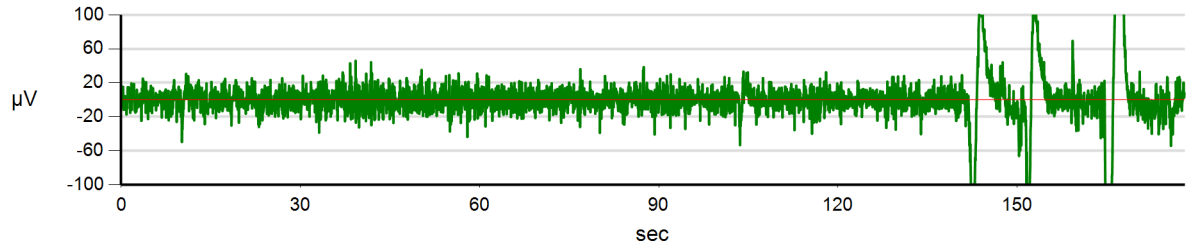
Pz



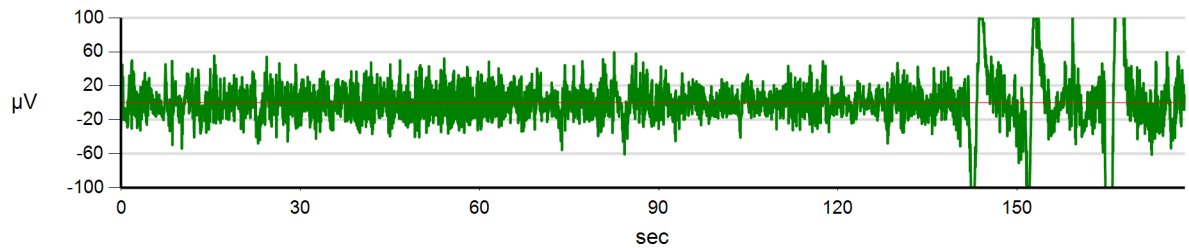
F3



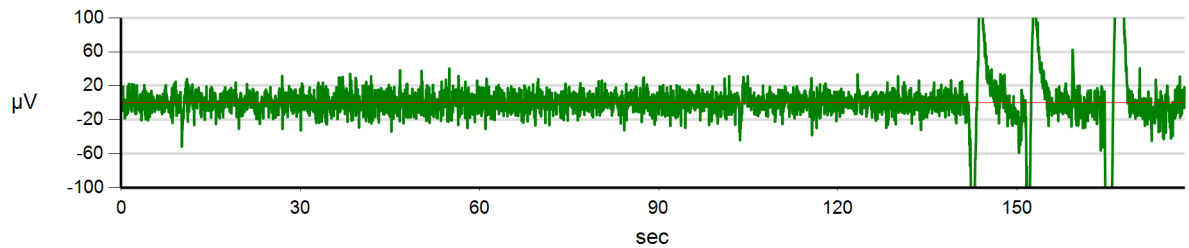
P3



F4



P4



Physician/Practice Information:

[Redacted]

Study Technician: [Redacted]

Treating Physician: [Redacted]

Patient Information:

Name: [Redacted]

ID: [Redacted]

Birth Date: [Redacted] 8

Study Information:

Order Notes:

Date Uploaded: 06/03/2019

Test Name:

Pure Tone Audiometry

AUDIOGRAM

