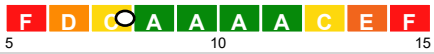
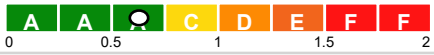
NeuralScan

NEURO FUNCTIONAL EVOKED RESPONSE TEST

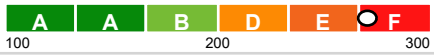
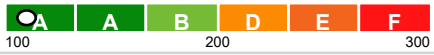
Memory Loss Demo
Gender: Male
Age: 80 (DOB: Dec 25 1938 12:00)
Weight: 189 lbs
BMI: 27.1
Height: 5 ft 10 in

Physician Only Report
Exam Date: May 1 2019 16:47

EEG Frequency Analysis

	Score	Norms	
Eyes Open: Posterior Peak Frequency	7.8 Hz	8 - 12	
Eyes Open: Theta/Beta Ratio	0.63	< 1	
Eyes Closed: Posterior Peak Frequency	9.4 Hz	8 - 12	

Evoked Potentials (ERPs)

	Score	Norms	
Visual Processing	270 ms	< 200	
Auditory Processing	110 ms	< 200	
Attention / Vigilance	435 ms	< 400	
Information Processing / Working Memory	460 ms	< 450	

Behavioral Motor Test

	Score	Norms	
Reaction Time	556 ms	350 - 550	
Reaction Time Variance	6.5 ms	< 10	
Missed Responses	1 %	<= 10	
Wrong Responses	2 %	<= 3	

Self-Assessment Questionnaire

Mix up letters in the spelling of a word that you previously knew: 1 of 5
Trip when walking on flat surfaces or steps: 3 of 5
Do things that result in isolation or distancing from others: 3 of 5
Experience muscle weakness: 3 of 5
Don't have enough energy to get moving in the morning and sustain: 3 of 5
Can't find your way in a new place: 2 of 5
Can't make an organized plan and follow it to complete tasks for the day or week: 3 of 5
Don't recall the meaning of a word that you previously knew: 1 of 5
Can't find items at work or home because my space is messy and disorganized: 1 of 5
Don't recall that you've been to a place before: 2 of 5
Get distracted by new ideas/thoughts that pull me away from the task at hand: 3 of 5
Bed covers are moved all over the place by morning or I kick my bed: 2 of 5
Don't fall asleep or stay asleep at night: 1 of 5
Can't pay attention to conversation without drifting off or thinking of something else: 3 of 5
Don't find enjoyment in previously enjoyable activities or events: 3 of 5
Get headaches, migraines or ringing in ears: 5 of 5
Don't recall the names of places I recognize from earlier in my life: 1 of 5
Interrupt others talking because I might forget what I want to say by the time the other person is finished.: 5 of 5
Get dizzy or easily lose my balance: 2 of 5
Sounds that are not loud to others do bother me: 1 of 5
Can sense strange and strong smells that others cannot smell: 4 of 5
Use incorrect words when speaking: 1 of 5
Don't know the spelling of a word that you previously knew: 3 of 5
Lose focus during tasks such that many are started and few are finished: 3 of 5

Physician Summary - Key Findings

Slowed response time to visual and cognitive stimulus. Hypervigilance or central nervous system and autonomic nervous system over arousal.;

Normal level of focus and cognitive processing capacity.;

Delayed N1 latency reduced neuronal capacity associated with visual processing.;

Normal P300 latency under go-nogo condition and neuronal capacity associated with attention and information processing.;

Delayed P3b latency under go-nogo condition. Reduced neuronal capacity associated with cognition and working memory.;

Normal peak alpha frequencies have been correlated with good information processing capacity and semantic memory.;

Normal level of slow frequencies brain activity;
Normal level of fast frequencies brain activity;
Alpha Interhemispheric asymmetry is in normal level.;
The 'Alpha Arrest Reaction (ARR)' was not clearly present at occipital electrode sites. This is caused by an absence of dominant Alpha activity during the Eyes Closed condition and the presence of dominant Alpha activity during the Eyes Open condition. The absence of a clear ARR can be related to impaired vigilance regulation: The patient is either hypo - aroused, resulting in abnormally high Alpha power during the Eyes Open condition, or the patient is hyper - aroused;

Physician Summary is provided by NeuroWave.com and is based solely on the NeuralScan electrophysiology biomarkers and existing medical literature. Clinical suggestions are made without knowledge of the patient's conditions, medications, or other medical lab values.

Physician`s Notes:

Memory Loss Demo
Gender: Male
Age: 80 (DOB: Dec 25 1938 12:00)
Weight: 189 lbs
BMI: 27.1
Height: 5 ft 10 in

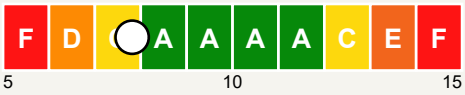
Physician Only Report
Exam Date: May 1 2019 16:47

The electroencephalogram (EEG) has been a medical standard for the evaluation of general brain health and overall function. This test detects abnormalities in the brain waves, or in the electrical activity. The brain is the most important organ in the body at the center of the nervous system and controls all parts of the body. An EEG can detect minuscule abnormalities the occur as a result of the normal ageing process, mental diseases or disorders, brain insults due to trauma, and abnormal changes due to exposure to toxins, substance abuse, and acute or chronic events.

Eyes Open: Posterior Peak Frequency: 7.8 Hz

Marker of Cognitive Performance

Reference: 8 - 12 Hz



Eyes Open: Theta/Beta Ratio: 0.63

Marker of Inattention

Reference: < 1



Eyes Open: Central Asymmetry: 5.93 %

Reference: -10 - 10 %



Eyes Closed: Posterior Peak Frequency: 9.4 Hz

Reference: 8 - 12 Hz



Eyes Open / Closed Alpha Ratio: 0.99

Marker of Impaired vigilance regulation

Reference: < 0.8



Eyes Open: Brain Map Source - Deviations from normality

Brodmann Area (BA)	Frequency (Z-score)	Function
BA Right 40 (39)	8-10 Hz (2.9 SD)	Sustained attention
BA 7, 23, 31	6-8 Hz (2.2 SD)	Verbal construction & comprehension; Verbal short-term memory

Eyes Closed: Brain Map Source - Deviations from normality

Brodmann Area (BA)	Frequency (Z-score)	Function
BA 7, 23, 31	6-8 Hz (3.8 SD)	Verbal construction & comprehension; Verbal short-term memory

Deviations < 1.5 +-SD are in normal range; Deviations > 6 +-SD are not considered due to likelihood of artifact.

Normal peak alpha frequencies have been correlated with good information processing capacity and semantic memory.;

Normal level of slow frequencies brain activity;
Normal level of fast frequencies brain activity;

Physician`s Notes:

Memory Loss Demo
Gender: Male
Age: 80 (DOB: Dec 25 1938 12:00)
Weight: 189 lbs
BMI: 27.1
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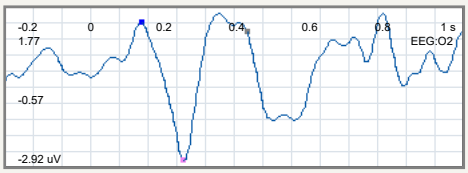
Physician Only Report
Exam Date: May 1 2019 16:47

Event-related potentials (ERP) are also referred to as evoked potentials (EP) and are a measurement of the brain's direct response to a specific sensory, cognitive, or motor event. EPRs have the ability to measure (to the millisecond) the speed in which the brain is able to process this information. This fast-paced processing is what allow us as humans to receive, filter, and process billions of pieces of information in order to make split-second decision every second of every day. Due to the sensitivity of ERP testing, we are able to detect changes in this processing speed that is related to cognitive decline. If this testing is performed early enough, these changes can be seen before they become physically noticeable. The ERP can detect slowing in physical reaction times and decision-making skills, as well as stress disorders, memory loss, and other neurological disorders.

Visual Processing: 270 ms



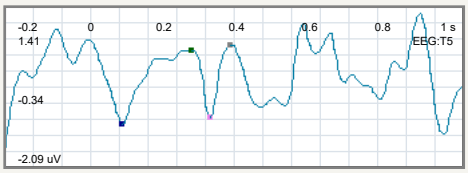
Reference: < 200 ms



Auditory Processing: 110 ms



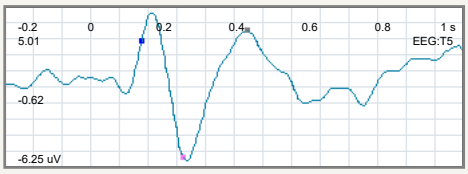
Reference: < 200 ms



Attention / Vigilance: 435 ms



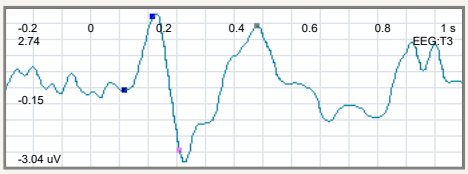
Reference: < 400 ms



Information Processing / Working Memory: 460 ms



Reference: < 450 ms



Delayed N1 latency reduced neuronal capacity associated with visual processing.;

Normal P300 latency under go-nogo condition and neuronal capacity associated with attention and information processing.;

Delayed P3b latency under go-nogo condition. Reduced neuronal capacity associated with cognition and working memory.;

Physician`s Notes:

Memory Loss Demo
Gender: Male
Age: 80 (DOB: Dec 25 1938 12:00)
Weight: 189 lbs
BMI: 27.1
Height: 5 ft 10 in

Physician Only Report
Exam Date: May 1 2019 16:47

A natural process of ageing includes the decline in neuro physical and cognitive abilities. Behavior performance can be measured as it relates to the daily stressors that everyone faces, including neuro-physical, emotional and mental challenges. The observable changes can include changes in reaction time, errors in commission (how often you make mistakes), and errors in omission (how often you miss information). These performance measures can provide an accurate snapshot and an objective assessment of a patient's ability to effectively perform general or routine daily tasks and can indicate the level of decline.

Reaction Time: 556 ms

Reference: 350 - 550 ms



Reaction Time Variance: 6.5 ms

Reference: < 10 ms



Missed Responses: 1 %

Reference: <= 10 %



Wrong Responses: 2 %

Reference: <= 3 %



Slowed response time to visual and cognitive stimulus. Hypervigilance or central nervous system and autonomic nervous system over arousal.;

Normal level of focus and cognitive processing capacity.;

Physician`s Notes:

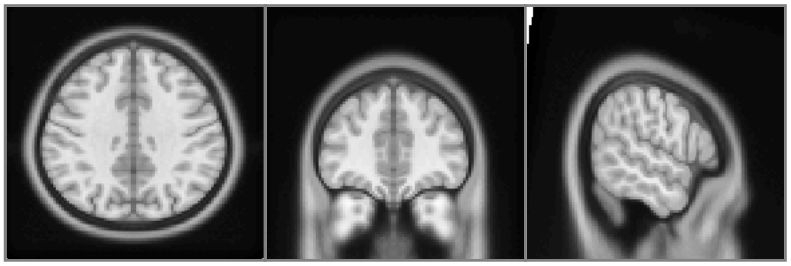
NeuralScan

EYES OPEN: BRAIN MAP LORETA 3D

Memory Loss Demo
Gender: Male
Age: 80 (DOB: Dec 25 1938 12:00)
Weight: 189 lbs
BMI: 27.1
Height: 5 ft 10 in

Physician Only Report
Exam Date: May 1 2019 16:47

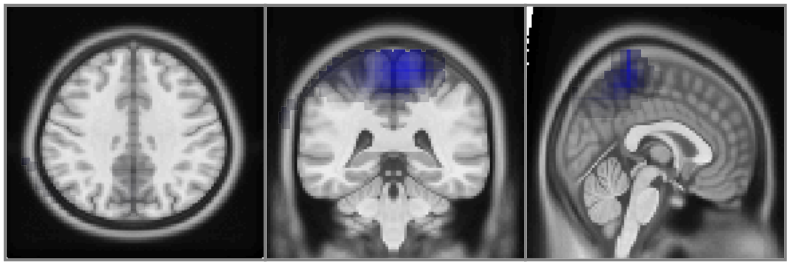
Frequency: 4 - 6 Hz
Min ZScore: 1.127
Max ZScore: 1.127



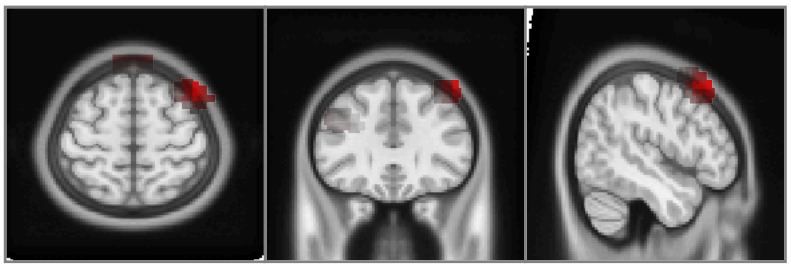
Frequency: 6 - 8 Hz
Min ZScore: -1.4
Max ZScore: -1



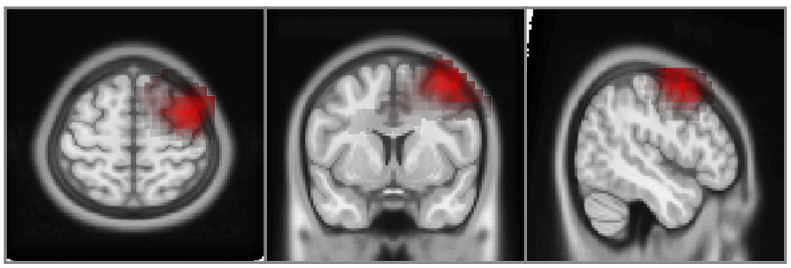
Frequency: 8 - 10 Hz
Min ZScore: -1.369
Max ZScore: -1.082



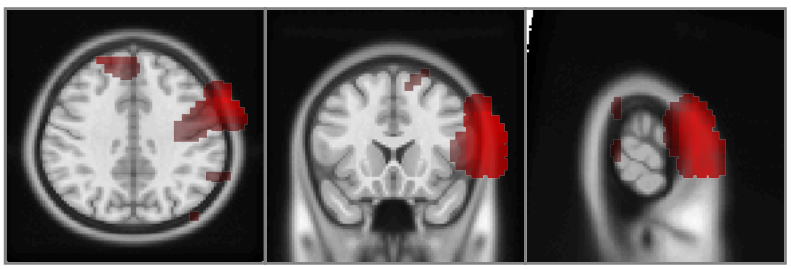
Frequency: 10 - 12 Hz
Min ZScore: 1.004
Max ZScore: 1.557



Frequency: 12 - 14 Hz
Min ZScore: 1.009
Max ZScore: 1.691



Frequency: 14 - 16 Hz
Min ZScore: -1.014
Max ZScore: 1.958



Deviations < 1.5 +-SD are in normal range; Deviations > 6 +-SD are not considered due to likelihood of artifact.

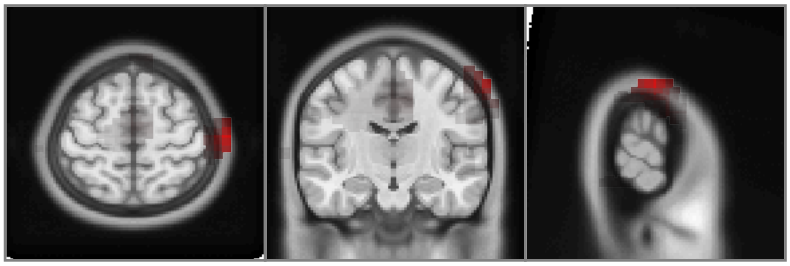
Physician`s Notes:

EYES CLOSED: BRAIN MAP LORETA 3D

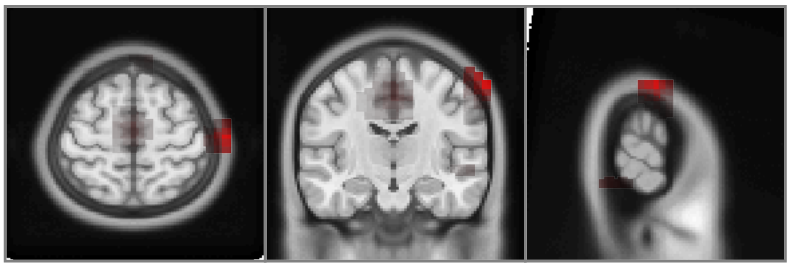
Memory Loss Demo
Gender: Male
Age: 80 (DOB: Dec 25 1938 12:00)
Weight: 189 lbs
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Height: 5 ft 10 in

Physician Only Report
Exam Date: May 1 2019 16:47

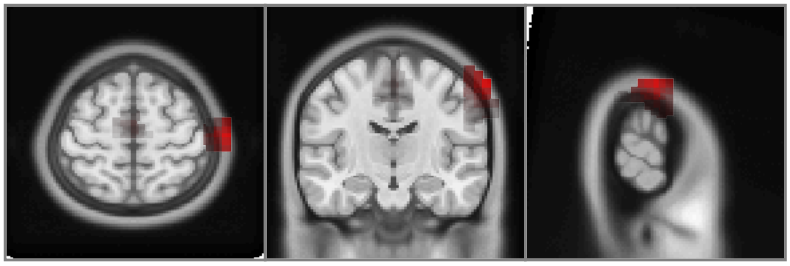
Frequency: 4 - 6 Hz
Min ZScore: 1.194
Max ZScore: 4.058



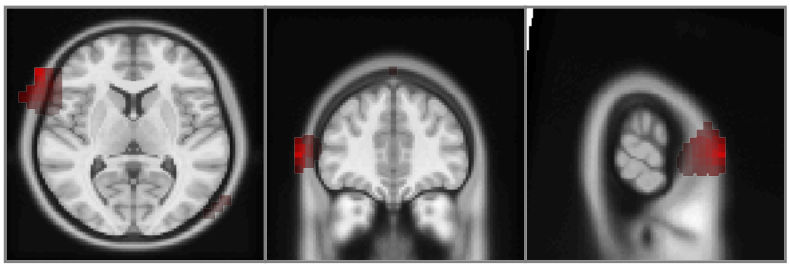
Frequency: 6 - 8 Hz
Min ZScore: 1.001
Max ZScore: 2.443



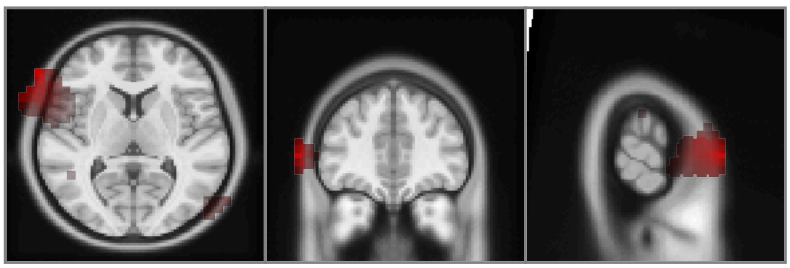
Frequency: 8 - 10 Hz
Min ZScore: 1.004
Max ZScore: 2.386



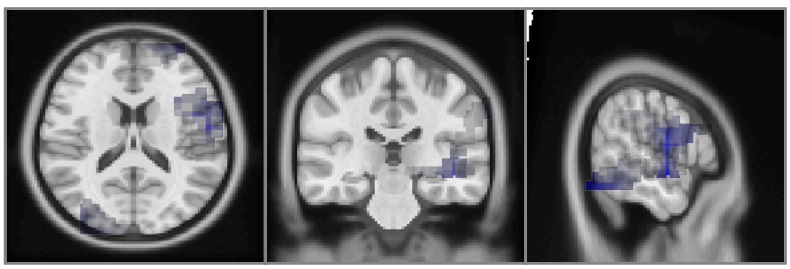
Frequency: 10 - 12 Hz
Min ZScore: -1.292
Max ZScore: 3.114



Frequency: 12 - 14 Hz
Min ZScore: -1.138
Max ZScore: 3.066



Frequency: 14 - 16 Hz
Min ZScore: -1.688
Max ZScore: -1.472



Deviations < 1.5 +-SD are in normal range; Deviations > 6 +-SD are not considered due to likelihood of artifact.

Physician`s Notes:

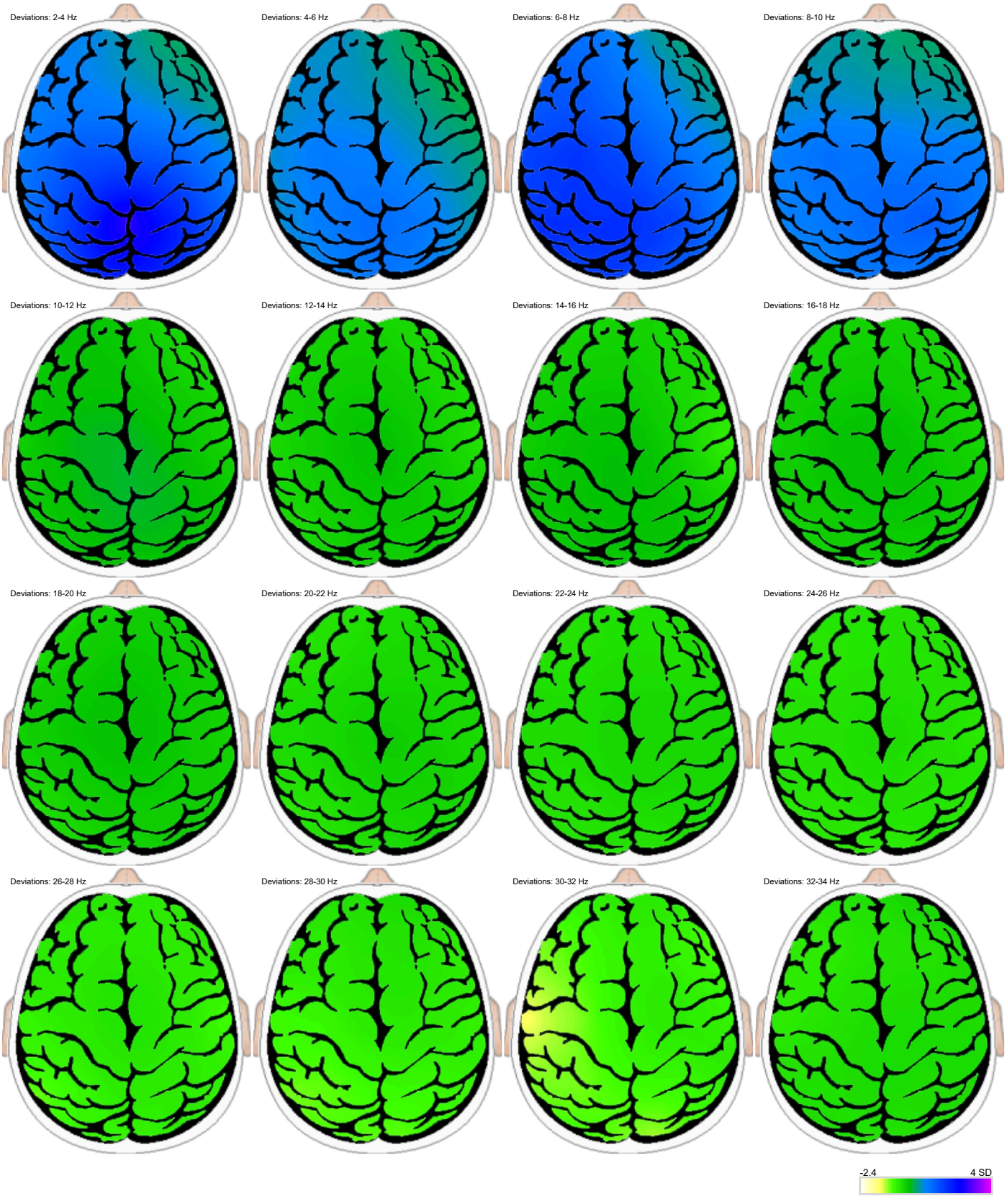
All results and analysis should be considered in the context of persons/candidate`s case history, symptoms, diagnosis, current medications, treatment plans and therapies.
Final diagnosis is the sole responsibility of the licensed medical practitioner after persons examination, lab tests and/or other clinical findings as necessary.

NeuralScan

EYES CLOSED

Memory Loss Demo **Gender:** Male **Age:** 80 (DOB: Dec 25 1938 12:00) **BMI:** 27.1

Exam Date: May 1 2019 16:47



Physician`s Notes:

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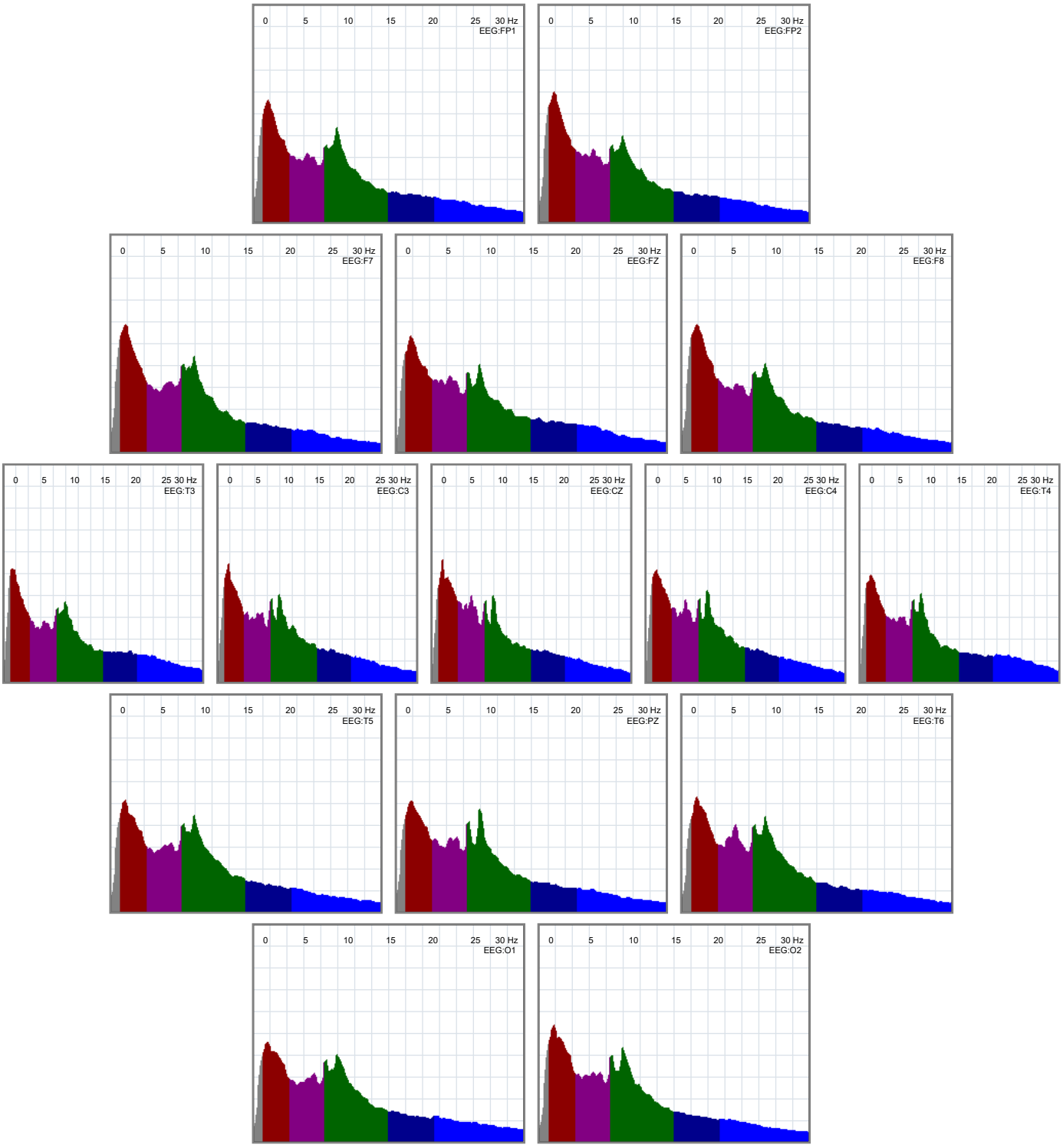
Printed: May 10 2019 13:36

NeuralScan

EYES CLOSED

Memory Loss Demo
Gender: Male
Age: 80 (DOB: Dec 25 1938 12:00)
Weight: 189 lbs
BMI: 27.1
Height: 5 ft 10 in

Physician Only Report
Exam Date: May 1 2019 16:47



Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate`s case history, symptoms, diagnosis, current medications, treatment plans and therapies.
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Printed: May 10 2019 13:36

NeuralScan

ECG ANALYSIS REPORT

Memory Loss Demo
Gender: Male
Age: 80 (DOB: Dec 25 1938 12:00)
Weight: 189 lbs
BMI: 27.1
Height: 5 ft 10 in

Physician Only Report
Exam Date: May 1 2019 16:47

Recorded time	
Start Date	2019-05-01 16:47:50
Duration	5 min 0 sec (266 beats)
High Pass Filters	3.4 Hz

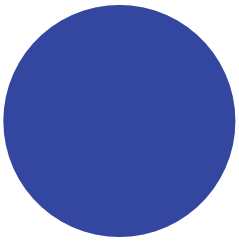
Heart Rate	
Average Heart Rate	53 bpm
Fastest rate	70 bpm
Slowest rate	50 bpm

Ventricular Details	
PVC - Ventricular Ectopy	0 beats (0%)
Ventricular Couplet	0 episodes

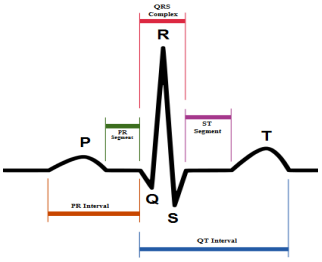
Supraventricular Details	
PAC - Supraventricular Ectopy	0 beats (0%)
Supraventricular Couplet	0 episodes

HRV Analysis	
SDNN	21 ms

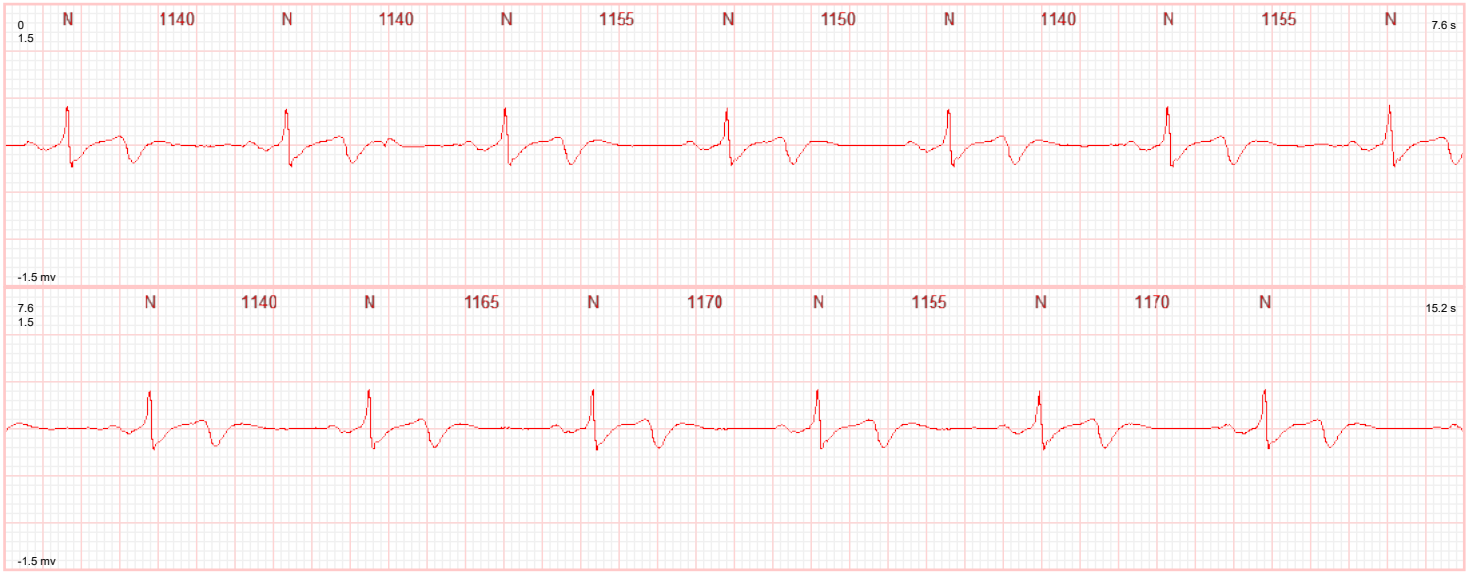
QRS Analysis	
QRS	88 ms
QT / QTc	370 ms / 349 ms
PR int / seg	168 ms / 97 ms
ST int / seg	275 ms / 150 ms



PAC - Atrial Extrasystole: 0%
PVC - Ventricular Extrasystole: 0%
Normal: 100%



Interpretations: Bradycardia;



Physician`s Notes:

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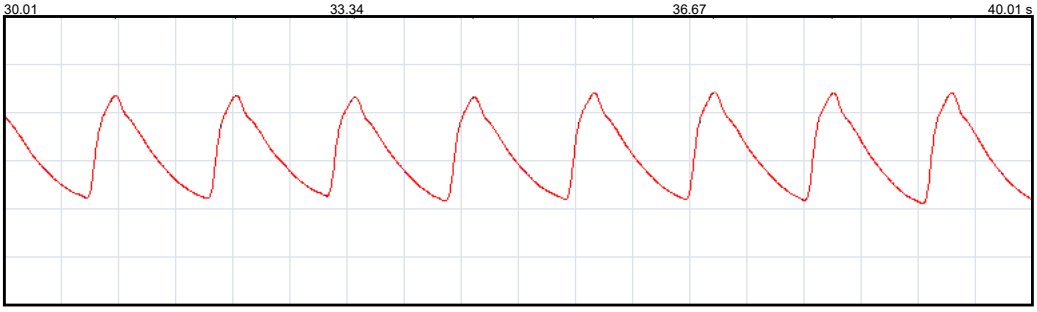
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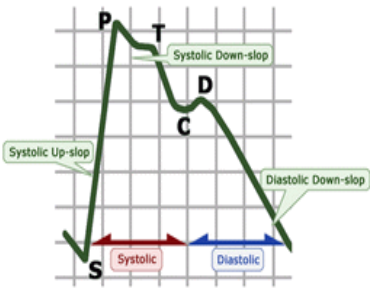
NeuralScan

Arterial Stiffness Assessment - Pulse Wave Velocity

Memory Loss Demo
Gender: Male
Age: 80 (DOB: Dec 25 1938 12:00)
Weight: 189 lbs
BMI: 27.1
Height: 5 ft 10 in

Physician Only Report
Exam Date: May 1 2019 16:47





Ejection Elasticity Index (EEI) = 0.141

EEI is an indicator for left ventricle ejection power and elasticity of large arteries.

Possible reduced left ventricular ejection fraction / atherosclerosis. Possible causes: hypertension / hypercholesterolemia / obesity / metabolic syndrome / diabetes.

Dicrotic Dilation Index (DDI) = 0.474

DDI indicates the contractility, tension and stiffness in the small arteries.

Normal Blood Circulation

Dicrotic Elasticity Index (DEI) = 0.373

DEI represents the reflection of arterial elasticity and blood flow in the venous system.

Borderline Normal Blood Circulation

Augmentation Index (AI) = 0.43

Augmentation Index (AI) is a useful marker for cardiac risk. AI increases with age and a sedentary lifestyle.

AI is a measure of arterial stiffness and it provides general information about the arteries. AI is positively correlated with pulsewave velocity, blood pressure and hypertension.

Reflection Index (RI) = 0.6

RI is an indicator of the vascular tone of the small arteries. Both vasodilation and vasoconstriction play important roles in determining vascular tone.

Stiffness Index (SI) = 14.82 m/s

SI is a measure of large artery stiffness determined by time. SI calculation gives a value similar to aortic pulse wave velocity.

APG Pattern

An indication of the biological, (rather than chronological) age of arteries

APG Type = G

Heart Rate = 53 (bpm)

C1 - Capacitive Arterial Compliance = 5.67 ml/mmHg

C2 - Oscillatory or Reflective Arterial Compliance = 6.21 ml/mmHg

Diastolic/Systolic Pressure Time Index (DPTI/SPTI) = 0.57

Physician`s Notes:

All results and analysis should be considered in the context of persons/candidate`s case history, symptoms, diagnosis, current medications, treatment plans and therapies.
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