

NEUROPSYCHOLOGICAL ASSESSMENT BATTERY

Patient Name: [REDACTED]
Date of Birth: [REDACTED]
MR#: [REDACTED]
Date of Injury: [REDACTED]
Date of Service: [REDACTED]

Reason for Referral: [REDACTED] was referred by Dr. Huma Haider, M.D., of the National Brain Injury Institute, for a Neuropsychological Assessment Battery due to suspected cognitive decline secondary to Traumatic Brain Injury. The results will elucidate his current level of cognitive and emotional functioning, including memory and executive functioning. Information garnered from this battery will facilitate diagnostic decision making, management, and treatment planning.

Identification and Consent: [REDACTED] is a [REDACTED], [REDACTED] with a history of [REDACTED]. Upon presentation to the clinic, [REDACTED] identity was confirmed via two HIPAA identifiers; namely: full legal name and date of birth. [REDACTED] expressed understanding the limits of confidentiality, as well as the purpose of clinical evaluation following explanation.

Sources of information: Information contained within this report, and that which was used to facilitate its composition, were acquired from a review of medical records and a clinical interview with [REDACTED]

Event Background Information:

Medical Record Review:

- [REDACTED] - [REDACTED] **Emergency Department -**
 - **CC:** Hit in face with Maglite (assault/battery); swelling visible to right-side of jaw.
 - **PE:** GCS of 14 at 22:01, GCS of 15 at 22:22, Pain of 7, Right-sided jaw swelling, drooling in Triage unit, contusion to right-side of jaw with scant blood, bilateral erythematous eyes, abrasions and lacerations to face, puncture wound at (right) angle of mandible, bleeding at tooth #32 with inner cheek fullness, right angle of mandible deformed, broken tooth #17 with pain, mild tenderness to right proximal tibia.
 - **Assessment:** Closed head injury, assault, open fractured mandible, intoxication with alcohol.
 - **Plan:** Ampicillin-sulbactam 1.5 gm, sodium chloride, and morphine 2mg given; transfer for higher level of care. Ondasetron and iohexol administered intravenously.
 - **Imaging:**
 - **X-ray of right knee:** No fractures or dislocations.
 - **X-ray of chest:** No radiographic evidence of cardiopulmonary disease.

Neuropsychological Assessment Battery for [REDACTED] | 1 of 53

Houston: 6065 Hillcroft St, Ste 202, Houston, TX 77081

Dallas: 7800 N. Stemmons Fwy, Ste. 340, Dallas, TX 75247

Los Angeles: 3530 Wilshire Blvd, Ste 1180, Los Angeles, CA 90010

San Antonio: 8235 S New Braunfels Ave, Ste 101, San Antonio, TX 78223

- **CT of brain w/o contrast:** Comminuted fracture at angle of right mandible. No post traumatic findings within the head or cervical spine.
- **CT of the facial bones:** Comminuted fracture at angle of right mandible. No post traumatic findings within the head or cervical spine.
- **CT of cervical spine w/o contrast:** Comminuted fracture at angle of right mandible. No post traumatic findings within the head or cervical spine.
- **CT angiogram of neck:** No evidence of acute vascular injury.
- [REDACTED] - [REDACTED] **Emergency Department - Maxillofacial consult -**
 - **CC:** Trauma; transfer
 - **PE:** Moderate right mandibular swelling, slight right open bite, # 18 not intact
 - **Assessment:** Comminuted fracture at the angle of the right mandible post-battery.
 - **Plan:** OR for ORIF of comminuted fracture of right mandible, admit to OMFS as IP, continue unayn 3 g q6h, Peridex 0.12% S&S TID after meals x 10 days, multimodal pain relief, full liquid (no chew) diet x 7 days, and ambulate ad lib.
- [REDACTED] - [REDACTED] **Emergency Department - transfer note**
 - No changes noted from facility of origination.
- [REDACTED] - [REDACTED] **Emergency Department - Procedure Note -**
 - **Indication:** right comminuted right mandibular fracture.
 - **Planned procedure:** Right ORIF
 - [REDACTED] tolerated the procedure well and it was deemed complete.
- [REDACTED] - [REDACTED] **Emergency Department - Progress Note -**
 - **CC:** Post-op; pain was a 6/10 with multiple instances of vomiting recorded.
 - **Medications:** chlorhexidine topical, dexamethasone, Lovenox, mupirocin topical, ranitidine, acetaminophen-hydrocodone, Bendaryl, docusate sodium, ibuprofen, ondansetron, cefazolin, ephedrine, fentanyl, ketamine, lidocaine, metoclopramide, midazolam, phenylephrine, propofol, and succinylcholine.
 - **Labs:** Low CO2 and high glucose levels.
 - **Plan:** Continue management plan and contact OMFS if vomiting persists after promethazine.
 - Imaging -
 - **X-ray of full mouth; teeth:** Satisfactory postoperative appearance of the right angle of the fracture and wiring of the maxilla and mandible.
 - **CT of the face w/o contrast:** Interval postoperative changes of ORIF of right mandibular angle fracture now with mild overriding segments.
- [REDACTED] - [REDACTED] **Hospital -**
 - **Discharge Instructions:** Cleanse wounds with soap and water, prevent scab accumulation, and apply Vaseline or Aquaphor. Head wrap to remain until follow-up in one week. Liquid diet only.

- **Medications:** acetaminophen w/ codeine, amoxicillin 500 mg, chlorhexidine topical 0.12%, and ibuprofen 600 mg.
- [REDACTED] was provided with instructions and wound care information, gauze, and tape.
- [REDACTED] - [REDACTED] **Maxillofacial Surgical Clinic -**
 - **CC:** First follow-up post ORIF
 - **PE:** Pain of 4/10, MMF and wave bars with elastics, fair oral hygiene, jaw swelling improved, surgical site intact and without infection, right V3 hypoesthesia,
 - **Assessment:** Remain on no chew diet and improve oral hygiene. Normal postoperative course.
 - **Plan:** Sutures and elastics removed in clinic. Return in two weeks unless issue. Use a small headed toothbrush and monoject syringe. Continue no chew diet.
- [REDACTED] - [REDACTED] **Maxillofacial Surgical Clinic -**
 - **CC:** Follow-up post ORIF
 - **PE and Assessment:** Mild lower facial third edema, right Vs paresthesia, gingival overgrowth over the mandibular wave arch
 - **Plan:** Removal of maxillary and mandibular wave bars; successfully completed, return PRN.
- [REDACTED] - **National Brain injury Institute -**
 - **CC:** Initial Comprehensive Evaluation; headaches 9-10/10, neurocognitive deficits, alteration of speech, depression and anxiety, photophobia, excessive sleepiness, vestibular ataxia, visual deficits, facial paresthesia, and nausea.
 - **PE:** Gait and vestibular difficulties, fatigue, lateral blurry vision, paresthesia of chin and lips, occasional nausea with headaches, headaches, dizzy spells, memory loss, attention deficits, delayed processing, depression and anxiety, and some visual deficits upon acuity exam.
 - **Assessment:** Post-traumatic migraines, Traumatic Brain Injury with Neurocognitive deficits, speech abnormalities; mild apraxia for diadochokinetic rate, depressive disorder, generalized anxiety disorder, hypersomnia, post-traumatic vertigo and balance disorder, visual disturbances, lateral hearing abnormality, phonosensitivity, and nausea concurrent to headache.
 - **ImPACT:** 1st% verbal memory, <1st% visual memory, <1st% processing speed, and <1st% brain response time.
 - **Plan:** Topirmate and Emgality for migraine prophylaxis, Fioricet for acute abortion of migraines, environmental enrichment, neurorehabilitative excersizes, stress management, MRI of the brain and brainstem w/o contrast, DTI, NAB, speech excersizes, citalopram and busprione for depression and anxiety, VNG and CDP for vestibular issues, optometric evaluation for visual deficits, and audiological evaluation for hearing abnormality.
- [REDACTED] - **National Brain injury Institute -**

- **CC:** Follow-up, headaches 9/10, neurocognitive deficits, alteration of speech, depression and anxiety, excessive sleepiness, vestibular ataxia, visual deficits, facial paresthesia, and nausea. No medications as prescribed at the previous examination were initiated by [REDACTED].
- **PE:** Gait and vestibular difficulties, fatigue, lateral blurry vision, paresthesia of chin and lips, occasional nausea with headaches, headaches, dizzy spells, memory loss, attention deficits, delayed processing, depression and anxiety, and some visual deficits upon acuity exam.
- **Assessment:** Post-traumatic migraines, Traumatic Brain Injury with Neurocognitive deficits, speech abnormalities, depressive disorder, generalized anxiety disorder, hypersomnia, post-traumatic vertigo and balance disorder, visual disturbances, lateral hearing abnormality, phonosensitivity, and nausea concurrent to headache.
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Presenting Problems:

On [REDACTED] was involved in an assault. He was struck on the right side of the face (temple to jaw) multiple times with a Maglite metal flashlight. The top of the flashlight was even with his right earlobe, and the bottom of the flashlight hit his right jawline. The impact caused [REDACTED] to lose consciousness, and he is unable to remember if he hit his head to the ground. The assailant hit [REDACTED] multiple times with the same flashlight. When he woke up, he experienced confusion, disorientation, and severe dizziness. In addition, his jaw was broken and some teeth were cracked or missing. Right after the incident, witnesses attempted to intervene. At this time, [REDACTED] was in a state of mental fog, shock, and severe pain. When attempting to open his jaw, it elicited severe pain and a clicking sound. He also felt bits of his teeth floating freely in his oral cavity.

[REDACTED] drove him straight to [REDACTED] Hospital, but as soon as he got in the car, he lost awareness and does not remember what happened immediately afterwards. [REDACTED] has a patchy memory of the events that followed, but vaguely remembers that he awakened in a hospital. At the hospital, two police officers were there to obtain a police report, [REDACTED] fell in and out of consciousness and experienced nausea and vomiting. His next memory is that of waking up in an ambulance and being told that he was transferring to another hospital for jaw surgery. Hospital records reveal that he was in [REDACTED], and then

transferred to [REDACTED] Medical Center. Surgery (ORIF) to repair his jaw was completed and he was discharged three days later.

Months following the incident, [REDACTED] continued to experience severe headaches and jaw pain. He had three postoperative follow-up visits with his surgeon. [REDACTED] continues to suffer from traumatic brain injury symptoms, such as headaches, short-term memory loss, and delayed processing speed.

Summary of Presenting Problem:

- [REDACTED] acquired a brain injury as a result of a battery incident.
- He endorsed loss of consciousness and awareness.
- [REDACTED] endorsed brief posttraumatic amnesia following the incident.
- CT/MRI imaging performed following the sustained head injury revealed a fractured right [REDACTED]
- [REDACTED] was an inpatient briefly and underwent ORIF of his right mandible.
- No police report(s) have been provided for review.
- Witness status has not been made known.

Functional Status:

Activities of Daily Living:

| Activities | Before Accident | After Accident | Who Provides Assistance/ Compensatory Mechanisms | Capacity |
|-----------------------------------|--|--|--|----------|
| Ability to Handle Finances | Manages financial matters independently, collects and keeps track of income. | Manages financial matters independently, collects and keeps track of income. | | Stable |
| Ability to Use Telephone | Operates telephone on own initiative-looks up and dials numbers, etc. | Operates telephone on own initiative-looks up and dials numbers, etc. | | Stable |

| | | | | |
|-------------------------------|--|--|--|--------|
| Food Preparation | Plans, prepares and serves adequate meals independently. | Plans, prepares and serves adequate meals independently. | Girlfriend helps with cooking. | Stable |
| Housekeeping | Maintains house alone or with occasional assistance. | Maintains house alone or with occasional assistance | | Stable |
| Laundry | Does personal laundry completely. be done by others. | Does personal laundry completely. | | Stable |
| Mode of Transportation | Travels independently on public transportation or drives own car | Arranges own travel via taxi, but does not otherwise use public transportation. | Girlfriend drives when it's not for work. | Stable |
| Personal Hygiene | Bathes self completely and independently. | Bathes self completely and independently. He doesn't like to shave as often as he used to because of the scar on his neck from the accident. He has altered his physical appearance since the incident to obscure his scarring via facial hair. | | Stable |

| | | | | |
|---|--|--|-------------------|--------|
| Responsibility for Own Medications | Is responsible for taking medication in the correct dosages at the correct time | Takes responsibility if medication is prepared in advance in separate dosage. | | Stable |
| Shopping | Takes care of all shopping needs independently. | Takes care of all shopping needs independently. His girlfriend usually does the shopping, but can do it if needed. He has his girlfriend drive if they go together. | Girlfriend | Stable |
| Toileting | Goes to the toilet, gets on and off, arranges clothes, cleans genital area without help. | Goes to the toilet, gets on and off, arranges clothes, cleans genital area without help.f | | Stable |

ADL's Based on the [Lawton Scale and Katz Scale](#) (12)

General Medical

1. None not related to incident

Pertinent Medical History:

1. Hx of pain - patient denied
2. Hx of migraines/headaches - patient denied
3. Hxj of head injury w/ loss of consciousness - patient denied
4. Hxof head injury w/o loss of consciousness - patient denied
5. Hx of stroke - patient denied
6. Hx of heart disease - patient denied
7. Hx of diabetes - patient denied
8. Hx of seizure or seizure disorder - patient denied
9. Hx of hypoxia/anoxia - patient denied

Surgical and Procedural History:

1. ORIF of right mandible

Current Medications:

1. Buspirone HCl 5 MG Oral Tablet - *Patient reports self-cessation*

2. Butalbital-Acetaminophen-Caffeine (Butalbital-APAP-Caffeine) 50-325-40 MG Oral Capsule - *Patient reports self-cessation*
3. Citalopram Hydrobromide 20 MG Oral Tablet - *Patient reports self-cessation*
4. Galcanezumab-gnlm (Emgality) 120 MG/ML Subcutaneous Solution Prefilled Syringe - *Patient reports self-cessation*
5. Topiramate (Topiramate ER) 100 MG Oral Capsule ER 24 Hour Sprinkle

Relevant Recent Labs:

1. None available for review.

Family History:

1. Diabetes Mellitus - [REDACTED]

Imaging results: [REDACTED] underwent imaging studies during the course of his care. Please see his above medical record review.

Mental Health History: [REDACTED] denies any history of diagnosed mental health problems. [REDACTED] denies any psychiatric hospitalizations or inpatient treatment for psychological, emotional, or behavioral concerns.

Substance Use: [REDACTED] denies smoking and illicit drug use. He reports drinking socially and has a history of tobacco use. He denies any history of addiction or substance abuse, either inclusive or absent of treatment deemed either inpatient or outpatient, as well as detox programs.

Mood and Emotional Status at Presentation: [REDACTED] reported a positive mood today, and further reports feeling glad his headaches are not present as they were the previous day. His mood was evidenced by his patience and seemingly happy state.

Mood questions:

Symptoms of depression -

- ✓ Feelings of sadness, tearfulness, emptiness or hopelessness
- ✓ Angry outbursts, irritability or frustration
- ✓ Loss of interest in normal activities like hobbies, sports, or sex
- ✓ Sleeping too much or sleeping too little
- ✓ Fatigue or low energy
- ✓ Reduced or increased appetite or food cravings

- Anxiety, agitation or restlessness
- Slowed thinking, speaking, or body movements
- Feelings of worthlessness, guilt; obsessing over past failures
- Trouble thinking or concentrating
- Thinking of death or dying, making plans for death

Symptoms of anxiety -

- Nervousness, restlessness, or tenseness
- Feelings of danger, panic, or dread
- Rapid heart beat
- Rapid breathing
- Increased sweating
- Nausea or stomach distress

Symptoms of anger or irritability -

- 'On edge'
- Uptight and tightly wound
- Frustrated easily
- Filled with rage

Manic or hypomanic symptoms -

- More energy
- Can't sit still
- Need less sleep
- Racing mind; many new ideas and plans
- Talkative, unusually so
- Increased libido
- Engaging in risky behaviors; those that you know are poor choices
- Hallucinations, auditory or visual

Delusions

Paranoia

Suicidal ideation -

Thought of suicide in the past 24 hours

Thought of suicide in the last month

Thought of suicide this year

Feels the world would be better off if they were gone

Has thought of how or has a plan to follow through

Homicidal ideation -

Thought of killing someone

Plan considered or created to follow through

Auditory hallucinations -

Hear voices, music, sounds that others do not

Visual hallucinations -

See things others don't

See things the wrong size or shape

See things moving that aren't

Physical questions:

- a. [REDACTED] described his sleep as restless, though he obtained about 9 hours of sleep.
- b. His appetite was described as increased and he has experienced weight gain.
- c. His energy level was described as normal.

Educational History: [REDACTED] has an education equivalent to [REDACTED] and has achieved a [REDACTED]. He further reports having been an above average student and completing [REDACTED] of college.

Occupational History: [REDACTED] is a Rig Welder; a position he has held for [REDACTED] years. He has held other positions as a [REDACTED] and a [REDACTED] during his professional life. Since the incident, he struggles with fabrication duties as they result in an increased anxiety level and increased complication of tasks, to include those previously simple. Second guessing is now a normal part of his day where it didn't occur preceding injury. Ongoing headaches and neurocognitive deficits impede his ability to function as normal, leaving him feeling physically and emotionally drained.

Background and Developmental Information: Born in [REDACTED] to [REDACTED] as [REDACTED] children, [REDACTED] met all milestones on time. He remained relatively settled in his environment growing up and presently lives with his girlfriend and fifteen month-old [REDACTED]. Since the incident, he reports a significant decrease in social outings and enjoyment, as well as a loss of enjoyment for activities like fishing and watching football; his anxiety and headaches are crippling and prevent him from endeavoring to do so. Fortunately, he enjoys a strong support network and hasn't suffered the loss of relationships following injury.

Behavioral Observations: [REDACTED] arrived at 09:30 a.m. for his 9:00 a.m. appointment. He drove himself. He was appropriately attired in jeans and a hoodie jacket and his hygiene was seemingly adequate. [REDACTED] primary language is English. He understood the nature of the evaluation and fully consented. He was alert and oriented to time, place, situation, and self. There was no evidence of a thought disorder, such as hallucinations or delusions. He appeared to be interested and striving to perform at his best. There was no emotional lability observed and affect appeared appropriate. His vision and hearing were adequate for testing purposes. [REDACTED] was friendly and compliant throughout the entire assessment.

TESTS ADMINISTERED

American National Adult Reading Test (AMNART)

Test of Memory Malingering (TOMM)

Screening and Guidance Evaluation Self-Report (SAGE-SR)

Transparent English Proficiency Test

Dot Counting Test (DCT)

Wechsler Adult Intelligence Scale - Fourth Edition (WAIS-IV)

Neuropsychological Assessment Battery (NAB)

- Screening Module
- Attention Module
- Language Module

Neuropsychological Assessment Battery for [REDACTED] | 11 of 53

Houston: 6065 Hillcroft St, Ste 202, Houston, TX 77081

Dallas: 7800 N. Stemmons Fwy, Ste. 340, Dallas, TX 75247

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- Spatial Module
- Executive Function Module
- Memory Module

Administration course and testing notes:

The English Proficiency test started at 9:33 am and concluded at 9:36 a.m. SAGE began at 9:51 a.m and concluded at 10:15 a.m. The Dot Counting Test began at 10:15 a.m. and finished at 10:20 a.m. The AMNART was initiated at 10:20 a.m. and concluded by 10:23 a.m. The WAIS-IV assessments began at 10:24 a.m. and concluded at 11:19 p.m. His background interview was between 11:20 a.m. and 11:49 a.m. The NAB Screening Module was then started at 11:49 a.m. with completion by 12:20 p.m., the results of which were used to determine which portions of the full test were requisite. The mandatory 30 minute lunch break was given at 12:20 p.m. and testing resumed starting with TOMM at 1:01 p.m and ending at 1:29 pm. The NAB Attention Module began at 1:30 p.m. and concluded by 1:53 a.m. The NAB Language Module started at 1:54 p.m. and ended at 2:14 p.m. The NAB Memory Module was performed between 2:15 p.m. and 2:45 p.m. The NAB Spatial Module was then started at 2:45 p.m. with completion by 3:12 p.m. Throughout the assessment, the patient did not complain of pain, nor did he require instructions to be repeated. He followed instructions exactly and exhibited patience throughout.

English Proficiency: To assure a level of English proficiency adequate for the purposes of testing, [REDACTED] took the Transparent English Proficiency Assessment preceding the initiation of all other tests. This is an online, automatically graded test containing vocabulary, basic syntax and grammar, as well as English comprehension portions to give an overview via percentage and descriptive identifier of [REDACTED] present level of proficiency.

Transparent English Proficiency Test

| Percent Correct | Descriptive Rating of Proficiency |
|-----------------|-----------------------------------|
| 75% | Intermediate Learner |

Effort, Motivation, and Symptom Validity: Variability across test scores was normative and not suggestive of poor or fluctuating effort. His scores indicate adequate motivation, suggesting that the test results reflect an accurate representation of his cognitive functioning.

TOMM Score Summary Table - Effort

| TOMM TEST | Score |
|-----------|-------|
| Trial 1 | 44/50 |

| | |
|---------|-------|
| Trial 2 | 50/50 |
|---------|-------|

TOMM: Also known as the Test of Memory Malingering, this is a visual recognition test designed to help distinguish between malingered and true memory impairments. This test was administered to [REDACTED] preceding the Neurological Assessment Battery modules.

[REDACTED] scored 44/50 on Trial 1 and 50/50 on Trial 2 on the TOMM Test. The TOMM Test is the test of memory malingering. His TOMM Test results fall within the valid range. [REDACTED] was fully oriented to place, situation, and person, though struggled with time. The results of several embedded and free-standing performance validity measures fell within normal limits, indicating that [REDACTED] baseline cognitive capacity renders the results of the subsequent testing valid. In other words, the present data provide an accurate representation of his current level of neuropsychological functioning.

I make these statements with a reasonable degree of medical probability, and caring for patients with various brain disorders, including TBI. Should any additional information become available to me in this case other than what I have received, I reserve the right to alter or adjust the opinions expressed above.

Dot Counting Testing: Designed to detect malingered cognitive complaints, this test entails the showing of a series of twelve cards, each printed dots upon them. The first half of the cards displayed dots in a random array, while the second half were shown in grouped order. Instructions provided to count the dots as quickly as possible started the process, and both completion and errors were recorded. [REDACTED] was placed in the normal interpretive range, indicating effort was present.

Dot Counting Test

| Comparison Group | E-Score Credit | Base Rate | Sensitivity | Specificity | PPA | NPA | Interpretive Range |
|-------------------------------|----------------|-----------|-------------|-------------|------|------|--------------------|
| Normal Effort Groups combined | 19 | 45% | 71.8 | 94.7 | 91.8 | 80.4 | Normal |

General Intellectual Functioning: Intellectual functioning refers to [REDACTED] general cognitive ability, inclusive of reasoning, abstract thinking, learning propensity and speed, problem solving, planning and organization, as well as comprehending more complex ideas and information.

On the WAIS-IV, he obtained a Full Scale Intelligence Quotient (FSIQ) of 84; such a score falls into the low average range. This score, when compared to his AMNART score of 112.53, falls below anticipated results in regards to premorbid IQ functioning.

His Full Scale Intelligence Quotient (FSIQ) is an accurate, unitary measure of his overall intellectual capacities as he also obtained the following consistent global indices:

WAIS-IV SUMMARY

| Verbal Comprehension Index | Perceptual Reasoning Index | Working Memory Index | Processing speed Index |
|----------------------------|----------------------------|----------------------|------------------------|
| 89 | 88 | 80 | 89 |
| Low Average | Low Average | Low Average | Low Average |

AMNART Test of Premorbid Functioning Score Summary

| AMNART Errors | AMNART est. IQ |
|---------------|------------------------|
| 15 | 112.53 (Above Average) |

AMNART Test of Premorbid Functioning: The Test of Premorbid Functioning estimates an individual's premorbid cognitive and memory functioning.

NAB SCREENING SUMMARY TABLE

| Screening Module Index | Standard Score | Percentile Rank | Confidence interval | Interpretive Category |
|------------------------|----------------|-----------------|---------------------|-----------------------|
| Attention Index (ATT) | 90 | 25 | 81-99 | Below Average |
| Language Index (LAN) | 92 | 30 | 72-112 | Average |
| Memory Index (MEM) | 98 | 45 | 85-11 | Average |
| Spatial Index (SPT) | 104 | 61 | 88-120 | Average |
| Executive | 69 | 2 | 58-80 | Moderately |

| | | | | |
|--------------------------------|----|----|-------|----------------------|
| Functions Index(EXE) | | | | Impaired |
| TOTAL NAB INDEX (T-NAB) | 85 | 16 | 72-98 | Below Average |

Attention, Concentration, and Working Memory: Attention is a basic part of the cognitive system, present from birth, that helps internal dictation as to which stimuli must be attended to and processed. This key cognitive function is utilized throughout each day to varying degrees. Deficits here demonstrate problems in auditory attentional capacity, working memory for visually presented information, working memory for orally presented information, visual scanning, attention to detail, sustained attention, selective attention, divided attention, information processing speed, and psychomotor speed. WAIS-IV was utilized to quantify areas including: working memory, attention, encoding, auditory processing, quantitative reasoning, concentration, and mental manipulation. The tests administered elucidated below average results, as shown here.

NAB SCREENING ATTENTION INDEX SCORE

| Score | Sum of T Scores | ATT Standard Scores | Percentile Rank | Confidence Interval 95% |
|------------------------------|-----------------|---------------------|-----------------|-------------------------|
| Attention Index (ATT) | 182 | 90 | 25 | 81-99 |

WORKING MEMORY SUBTESTS SUMMARY (WAIS-IV)

| Subtest | Raw Score | Scaled Score | Percentile Rank | Reference Group Scaled Score | SEM |
|------------|-----------|--------------|-----------------|------------------------------|-----|
| Digit Span | 23 | 7 | 16 | 7 | 0.9 |
| Arithmetic | 9 | 6 | 9 | 6 | 1.2 |

WORKING MEMORY PROCESS SUBTESTS SUMMARY

| Subtest | Raw Score | Scaled Score | Percentile Rank | Base Rate | SEM |
|------------------------------|-----------|--------------|-----------------|-----------|------|
| Digit Span Forward | 10 | 9 | 37 | - | 1.34 |
| Digit Span Backwards | 6 | 7 | 16 | - | 1.34 |
| Digit Span Sequencing | 7 | 7 | 16 | - | 1.27 |
| Longest Digit Span Forward | 6 | - | - | 82 | - |
| Longest Digit Span Backwards | 3 | - | - | 99 | - |
| Longest Digit Span Sequence | 5 | - | - | 87.5 | - |

- a. **Digit Span (WAIS-IV):** Three tasks are performed during this portion: Digit Span Forward, Digit Span backward, and Digit Span Sequencing, in that order, with two trials for each piece. For each aspect of this sub assessment, the test administrator read a string of two to nine numbers aloud in a natural pace to [REDACTED] before asking him to repeat the same numbers, first in the same order, then in the reverse order, and finally in ascending order. Scores are accumulated across trials and sections to comprise a score. Each of the forty-eight total possible points are awarded in single point increments for correct answers. [REDACTED] was given 23 points for a 16th percentile ranking, indicating the same number of correct responses were made.
- b. **Arithmetic (WAIS-IV):** To test [REDACTED] mental manipulation, concentration, attention, short memory, numerical reasoning ability, and mental alertness, he was asked to mentally solve several arithmetic problems as visualized pictorially. During this timed assessment, pencil and paper are forbidden and items may only be repeated a single time. Displaying a picture of a specified number of images, the test administrator imparts the limits of their involvement before beginning the time clock's countdown. Pictures presented include simple images such as three red flowers or a group of dogs with a group of leashes. Only intended answers are scored and are done so at one point per correct response within the provided time. Twenty-two points total were possible in this portion, of which, [REDACTED] scored 9 and was given an assignment to the 9th percentile.

- c. **Digits Backward** - This is an assessment of working memory for orally presented information. During this three minute test, the patient is read a series of numbers aloud by the test administrator. Number sequences have a span of three to nine digits and are read clearly and at a regular pace to the patient. Following instruction to do so, the patient attempts to orally repeat the numbers in reverse sequence. Seven trials are each given twice, barring the incapacity to proceed with such. [REDACTED] scored 3 for digits backward. This places him in the below average interpretive category. Working memory for orally presented information is the ability to perceive and attend information obtained orally for use in the short term, or a "right now" capability. Decision making, problem solving, planning and execution of information received orally is lacking.
- d. **Numbers and Letters** - Four complimentary tests combine to provide information regarding the patient's selective attention, divided attention, sustained attention, processing speed, attention to detail, and psychomotor speed. The patient showed areas of concern in the following:

I. Part A - This 5-10 minute assessment reflects the patient's sustained attention, selective attention, and psychomotor speed abilities. A paper is provided to the patient consisting of rows of printed numbers and letters. Instructions to begin at the upper left corner and move only in a left to right motion are clearly stated by the test administrator. Following the additional instructions to do so, the patient attempts to draw a slash through as many "X"s appearing in the rows as they are able to in the allotted time. Scores are calculated for both correct and erroneously commissioned selections. [REDACTED] correctly identified and marked inaccurately slashed 8 figures for a rating in the below average category. Sustained attention relates to the capacity to focus or direct cognitive effort towards specific stimuli. Selective attention is the capacity for or process of reacting to certain stimuli selectively when several occur simultaneously. Psychomotor speed indicates the level at which complex visual-perception information is perceived, attended, and responded to with simple fine-motor coordination. Results of this assessment elucidate the ability to maintain focus upon and select desired information from among non-desired information, and subsequently turn that information into fine-motor physical action. Negative implications span daily life and work functions to include: intentional tool selection and meaningful usage, following printed or graphic instruction for construction, music reading for song performance, and similarly demanding activities.

II. Part B - This three minute assessment examines selective attention and information processing speed capabilities. Similar to Part A, the patient is given a paper containing rows of numbers and letters printed on it, this time with the addition of a line at the end of each row. Instructions are provided in a clear and concise manner by the test administrator. Upon conclusion of directions to do so, the patient begins to count the number of "X"s appearing within each row, moving

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from left to right, before writing the amount counted in the line at the end. Only “X”s counted will be scored as correct. [REDACTED] scored 74 on this portion of the assessment, placing him in the below average interpretive category. Selective attention is the capacity for or process of reacting to certain stimuli selectively when several occur simultaneously. Information processing speed is the rapidity with which information presenting can be recognized and processed for meaning. This sub-assessment tests the speed with which a patient can selectively identify and subsequently process said information for the desired meaning. This combination of cognitive skills allows for numerous tasks, from safety measures, such as danger avoidance, to clerical skills, such as error identification and understanding from research undertaken. Similar skills will be obstructed or impaired.

III. Part D - Appraising a patient’s selective attention, divided attention, and psychomotor speed, this three minute segment is the most cognitively challenging of the Numbers and Letters tests. Patients are given a paper consisting of four rows of seemingly random numbers and letters. Instructions to both slash “X”s and write mathematical sums of the numerical digits simultaneously are explicated clearly before commencement. Directions to work from the upper left corner and maintain a left to right progression are provided preceding the onset of the time allowed. Scores are compiled from both commissions and omissions, as well as speed of completion. [REDACTED] scored 47 for efficiency and 36 for disruption. He falls in the below average and mildly impaired interpretive categories, respectively. Selective attention is the capacity for or process of reacting to certain stimuli selectively when several occur simultaneously. Divided attention is a higher-level skill where you have to perform two or more tasks at the same time, and attention is required for the performance of both, or all, of the tasks. Psychomotor speed indicates the level at which complex visual-perception information is perceived, attended, and responded to with simple fine-motor coordination. This assessment component appraises the capacity for selectively focusing on more than one desired stimuli equally and simultaneously. Information garnered is then transmitted physically via fine-motor skills coordination. Examples of this in daily life include note taking during lectures, eating intended food while conversing during dinner, and talking with a passenger regarding necessary directions while driving. Activities with similar cognitive processes will be diminished.

Processing Speed: Cognitive processing speed signifies the time expended upon identifying, working through, and reacting or responding to stimuli. Requiring internal dissemination and subsequent integration, these skills indicate the automaticity of such actions and elucidate the speed with which they occur.

PROCESSING SPEED SUBTESTS SUMMARY (WAIS-IV)

| Subtest | Raw Score | Scaled Score | Percentile Rank | Reference Group Scaled Score | SEM |
|---------------|-----------|--------------|-----------------|------------------------------|------|
| Symbol Search | 31 | 9 | 37 | 9 | 1.31 |
| Coding | 55 | 7 | 16 | 7 | 1.16 |

- a. **Symbol Search:** Completing this subassessment requires short-term visual memory, visuomotor coordination, cognitive flexibility, visual discrimination, psychomotor speed, mental operational speed, attention, and concentration, as well as speedy processing. A pencil without an eraser and a paper booklet were given to [REDACTED] at the initiation of this portion of testing. Drawn upon the paper booklet was a series of abstract shapes in rows, with two segregated to the left (target pair), and an additional five and a box containing the word 'NO' to the right (search group). After instruction and demonstration, [REDACTED] was asked to mark through the symbol from the search group that was identical to one of the target pair; if no match was seen, the box containing the word 'NO' was to be selected. One point per row with a correctly marked symbol was given, with [REDACTED] achieving a score of 31 out of the sixty possible, placing him in the 37th percentile.
- b. **Coding:** In addition to testing processing speed, this portion elucidates the level of short-term visual memory, learning ability, psychomotor speed, visual perception, visual-motor coordination, visual scanning, cognitive rigidity, attention, concentration, and motivation. To complete this section, [REDACTED] was provided a paper booklet and a pencil without an eraser. At the top of the paper booklet, a key is written, in which a series of shapes are assigned a designated number from one to nine. The same boxed format is continued below the key, this time absent the designated number. When prompted and the time had begun, [REDACTED] attempted to fill in as many of the empty boxes with the correct shape from the key as possible within the time allotted. Each correct answer was awarded one point, and one-hundred thirty-five points were possible. At the conclusion of this area, [REDACTED] had correctly filled 55 boxes for an equivalent score and a ranking in the 16th percentile.

Language and Verbal Reasoning: Language is a way in which we communicate, typically consisting of words with assigned meanings to be utilized in a specified structure. Verbal reasoning expands upon that, using words to think and problem solve in a constructive and effective manner. The NAB Language Module was used to test [REDACTED] ability to both

produce and comprehend spoken and/or written words. WAIS-IV testing was used to quantify abstract verbal reasoning, semantic knowledge, verbal comprehension and expression, as well as the degree of accumulated or acquired knowledge. [REDACTED] results are as below.

NAB SCREENING LANGUAGE INDEX SCORE

| Score | Sum of T Scores | LAN Standard Scores | Percentile Rank | Confidence Interval 95% |
|----------------------------|-----------------|---------------------|-----------------|-------------------------|
| Language Index Score (LAN) | 100 | 92 | 30 | 72-112 |

VERBAL COMPREHENSION SUBTESTS SUMMARY (WAIS-IV)

| Subtest | Raw Score | Scaled Score | Percentile Rank | Reference Group Scaled Score | SEM |
|--------------|-----------|--------------|-----------------|------------------------------|------|
| Similarities | 19 | 7 | 16 | 7 | 1.16 |
| Vocabulary | 31 | 9 | 37 | 9 | 0.73 |
| Information | 9 | 8 | 25 | 8 | .09 |

- a. **Writing** - Initiation of this sub-exam is the handing of a paper and a pen to the patient. Then, the picture of a family scene, shown before during a previous portion (Oral Production), is placed before the patient. Aprising for narrative writing, verbal fluency, spelling, and graphomotor skills, this component is completed in under five minutes. Instructions are issued to write, in either cursive or print, in the way to which the patient is accustomed, and describe what is happening in the scene before them. Scoring is based upon legibility, spelling, syntax, and thought conveyance. These are then accumulated for a total writing percentile ranking in addition to individual rankings. [REDACTED] scored average or better in all but spelling wherein he scored a 2 and was placed in the mildly-to-moderately impaired category. Narrative writing is a skill in which connected events, real or imaginary, are presented in a sequence of written words. Verbal fluency within the realm of psychology is a cognitive function that facilitates information, or word, retrieval from memory. Spelling is the process or activity of writing or naming the letters of a word. Graphomotor skills are a combination of cognitive, perceptual, and motor skills which enable a person to write and frequently integrate previously discoursed skills. Writing and the need to formulate words, sentences, and narratives permeates daily life. From email

and text composition to check writing and note taking, these skills are fundamental for success in most trades.

- b. Similarities (WAIS-IV):** To elucidate [REDACTED] level of verbal concept formation and reasoning, he was presented with two printed words representative of common items or objects and asked in what ways they were alike. For example, word pairs such as ‘tiger’ and ‘horse’ or ‘badge’ and ‘crown’ were shown. Repetition was proffered as many times as [REDACTED] requested. Scoring was given in regards to the pertinence of the responses on a 0 - 2 scale, with a ‘2’ being a response that pertained to both stimuli, and a ‘0’ being an unrelated or incorrect response. Of the 36 total possible points, [REDACTED] was awarded 19, which equates to a percentile ranking of 16th percent.
- c. Vocabulary (WAIS-IV):** Mr. Rocha’s word knowledge and verbal concept formation were tested via visually and orally provided stimuli and based upon his oral response. [REDACTED] was first shown a series of pictures containing common objects, such as a basket, an airplane, and an open book, and asked to verbalize the name of each seen. Next, pages containing two to five increasing challenging printed words were shown to him with the directive to define the terms upon the page. For the pictorial section, scores are based on the accuracy of the word chosen, with one point for each correct identification. In the following section, scoring was on a 0 - 2 scale in relation to the appropriateness and/or correctness of responses given. A score of ‘2’ means an exact or near exact response, with a ‘0’ meaning the answer was not related or was generalized too far from concision. Of the maximum 57 points, [REDACTED] was given 31, which places him in the 37th percentile.
- d. Information (WAIS-IV):** Ascertaining the level of verbal reasoning and conceptualization, verbal comprehension and expression, as well as the ability to integrate past experiences and utilize practical knowledge and judgement for present use, [REDACTED] was posited a broad range of general knowledge topics and prompted to respond. Questions included ‘What day comes after Monday?’ and ‘What is a thermometer used for?’ and ‘How many seconds are there in one minute?’. Scoring is based upon the accuracy of answers and is issued in single point increments with no points issues for erroneous answers. Twenty-six potential points exist in this subtest, of which, [REDACTED] earned 9, which amounts to a ranking in the 25th percentile.

Visuospatial, Visuomotor or Visuoconstructional Functioning: Necessary for movement, depth and distance perception, as well as spatial navigation, these skills are requisite for relational understanding. Visuomotor skills integrate said visual skills and spatial awareness with motor skills, enabling replication of visual stimuli. Additionally, visuospatial processing, reasoning, and problem solving, as well as visual motor construction, nonverbal abstract problem solving, and inductive reasoning were assessed. Difficulty in these areas may relate to

a decreased aptitude for mechanical, technical, and/or artistic occupations or abilities. These abilities were tested via the NAB Spatial Module and the WAIS-IV Perceptual Reasoning Subtests; results are as follows.

NAB SCREENING SPATIAL INDEX SCORE

| Score | Sum of T Scores | SPT Standard Scores | Percentile Rank | Confidence Interval 95% |
|----------------------------------|-----------------|---------------------|-----------------|-------------------------|
| Spatial Index Score (SPT) | 105 | 104 | 61 | 88-120 |

PERCEPTUAL REASONING SUBTESTS SUMMARY (WAIS-IV)

| Subtest | Raw Score | Scaled Score | Percentile Rank | Reference Group Scaled Score | SEM |
|------------------|-----------|--------------|-----------------|------------------------------|------|
| Block Design | 39 | 8 | 25 | 9 | 1.2 |
| Matrix Reasoning | 16 | 8 | 25 | 8 | 1.04 |
| Visual Puzzles | 13 | 8 | 25 | 8 | 0.95 |

PERCEPTUAL REASONING PROCESS SUBTESTS SUMMARY (WAIS-IV)

| Subtest | Raw Score | Scaled Score | Percentile Rank | SEM |
|------------------------------|-----------|--------------|-----------------|------|
| Block Design (no time bonus) | 2 | 1 | .01 | 1.31 |

- a. **Figure Drawing** - Requiring five minutes to complete, this aspect appraises visuoconstruction and visuospatial skills, visual organization, and encoding of visuospatial material. Completion of this test required the patient to draw a series of moderately complex figures utilizing immediate recall abilities. The patient is given a sheet of paper for drawing upon and a series of colored pens with the order and assignment dictated by protocol. Once shown a picture containing the targeted shape construction, patients are directed to begin drawing, making no attempt to erase errors. For trial one, the picture of the targeted outcome remains visible to the patient. Trial two removes the visual aid and the patient repeats the process from memory alone. Several aspects of the activity are scored and used

cumulatively to form the final scores. [REDACTED] scored 4 for organization (mildly-to-moderately impaired), 3 for fragmentation (mildly impaired) , 1 for planning (severely impaired), 4 immediate recall organization (mildly impaired) , 3 for immediate recall fragmentation (mildly impaired), and a 1 for immediate recall planning (severely impaired). Visuospatial skills are those denoting the ability to comprehend and conceptualize visual representations and spatial relationships in learning and task performance. Visuoconstruction abilities involve the coordination of fine motor skills with spatial abilities to allow for design creation or replication. Visual organization pertains to the skills in creating a visual field which seems to be orderly and significant or connotative. Visual encoding refers to the process by which we remember visual images. Artists, designers, creators, architects, engineers, electricians, heavy machinery operators, and multitudes of other trades all rely on this combination of skills for task completion and job performance.

- b. Block Design (WAIS-IV):** Analyzation and synthesization of abstract visual stimuli ability and motor functioning were tested via this sub assessment. [REDACTED] [REDACTED] was shown a model and a picture, or a picture alone, and provided a set of red and white blocks. After performing the task as an example, the test administrator then gave a directive to emulate the design pictured with the blocks provided in a stated time frame. Scoring is done on a 0 - 7 scale dependent upon portion and difficulty, and based upon the accuracy of block display in relation to emulation of the designated picture. Exceeding the time limit and/or a thirty degree deviance results in points lost, as does a gap of one-quarter inch or more. Bonus points may be awarded for accurate completion of the design in smaller time increments, allowing for two separate scoring maximums: 66 total when bonus points are awarded; 48 when not. Scoring 19, [REDACTED] was placed in the 25th percentile.
- c. Matrix Reasoning (WAIS-IV):** Fluid intelligence, broad visual intelligence, classification and spatial ability, part-whole relationships, perceptual organization, and simultaneous processing were assessed during this sub test. [REDACTED] viewed two types of items during this component, some being a series of four to six boxes in linear fashion; some the same amount of boxes formed into a square shape. The contents of the boxes were differing arrays of shapes in a variety of colors and formed a pattern or progressive movement. Within one row of the two groups of squares per page, one contained only a question mark, indicating the space to be filled. After being shown how to perform the test and given examples, [REDACTED] was asked to choose which amongst the alternative group of squares would complete the other. One point is awarded for each correct identification, with no points for an incorrect or absent response. At the completion of this section, 16 points of a potential 26 were assigned to [REDACTED], for placement in the 25th percentile.

- d. **Visual Puzzles (WAIS-IV):** [REDACTED] ability to analyze and then synthesize abstract visual stimuli and his capacity for nonverbal reasoning were measured. Working within a specified time limit, he was shown a page with pictures of abstract, solid colored puzzle pieces and asked which three of the pieces would connect to form an identical shape to the completed one, pictured at the bottom of each page. Selections were made via pointing after being asked ‘Which of these pieces go together to make this puzzle?’. Scoring was on a correct or incorrect basis, with one point granted for correctly identifying all three requisite pieces within the allotted time parameters. At the conclusion of this portion, [REDACTED] had scored 13 out of a possible 26 points for a ranking in the 25th percentile.

Memory and Learning: Memory is a series of steps or processes by which the brain encodes, stores, and subsequently retrieves information. Testing was done to reveal the capacity at which episodic, visual, immediate and delayed recall, as well as recognition, are functioning. Perseverance following distraction and semantic encoding were also assessed, both of which impact the memory process. Learning and memory are closely related and rely upon one another for success, and both affect the learning curve or rate at which progress is made in relation to the acquisition of new skills. Below, the results of assessments pertaining to these areas are explicated.

NAB MEMORY INDEX SCORE

| Score | Sum of T Scores | MEM Standard Scores | Percentile Rank | Confidence Interval 95% |
|---------------------------------|-----------------|---------------------|-----------------|-------------------------|
| Memory Index Score (MEM) | 396 | 86 | 18 | 74-94 |

- a. **List Learning Immediate Recall** - Allowing for the measurement of learning curve, sensitivity to interference, the use of semantic encoding strategies, intrusion, perseveration, and difference between free recall and forced-choice recognition, this piece of the assessment requires about eleven minutes. Patients are instructed to listen carefully to a list of words, read aloud at a pace of one-and-a-half seconds per word utterance, for later recall purposes. Immediately upon completion of reading the list of twelve words, the test administrator prompts the patient to repeat back as many of the words as they can remember. A score for this initial trial is calculated, as are each of the subsequent trials, at one point per correct word utterance. A second time, the initial instructions to listen for recall purposes are issued, and the twelve words

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are read aloud by the test administrator at the same pace. Upon an urging to do so, the patient again tries to recall as many words from the list as they are able to, and a second trial score is calculated. For a third time, the list is repeated orally for the patient with the directive to listen with the intent to recall. For the last trial of this section, the patient again states as many words as they can retrieve, and a final immediate recall score is calculated. A cumulative score is then compiled from these three trials. [REDACTED] scored 4 (mildly-to-moderately impaired) on trial one, 8 (below average) on trial two, and 10 (average) on trial three, for a cumulative score of 22. A score of this value in the Immediate Recall section results in placement in the below average interpretive category.

Completion of the initial list's tasks sees the introduction of a new list of equal proportions and rules, but of new words. Read aloud just as in previous trials, the same process is followed once for this new list and a score is tallied for this piece. Learning curve denotes a graphical representation of the rate at which you make progress learning new information, with repetition essential to improving efficiency and efficacy. Interference occurs when information that is similar in format gets in the way of the information that someone is trying to recall; this test measures the sensitivity of the patient to such a force. Semantic encoding is the processing and encoding of sensory input that has particular meaning or can be applied to a context. Strategies such as mnemonics and chunking may be employed to aid in optimal retrieval. Intrusion, in psychology, is the disruption of the stream of consciousness by undesired cognitive contents. Perseveration, according to psychology, psychiatry, and speech-language pathology, is the repetition of a particular response (such as a word, phrase, or gesture) regardless of the absence or cessation of a stimulus. Free recall is, when used in this context, essentially the decision of *whether* the object or item was encountered. Forced-choice, in this same context, represents the selection *which of* the objects or items were encountered. This skill set represents the propensity for short-term episodic memory. Examples of this skill set in action include: the ability to recall a second-year college roommate, remembering the birth of a child, a first day at a new job, or even a movie seen on a first date with a spouse.

- b. **List Learning Long Delayed Recall/Recognition** - After a time period of twelve minutes has elapsed, the patient is then asked to speak aloud any words they can retrieve from memory from among the list read to them three times earlier. No cues or other directives are given; utilization of free recall to achieve as high of a score as possible is required. With a combined score of 91, [REDACTED] falls into the below average interpretive category for retention. Several additional capacities are measured during this assessment. A forced-choice recognition false alarms score of 10 (mildly impaired) for the same was issued.
- c. **Shape Learning Immediate Recognition** - Appraising explicit learning across trials and delayed recognition of visually presented, non-verbal information this

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visual learning task is composed of three initial trials. To begin this test, the test administrator informs the patient that they will be shown some designs, one at a time, and to remember them as best they can. This look and remember task requires the patient to select the target design, shown to them from amongst an array of four designs. Each of the three trials consists of nine design selections, with the target displayed for five seconds and selection time limited to ten seconds. Correct commissions are given one point each and combined for a cumulative immediate recognition score. [REDACTED] scored 6 during trial two (below average), though average or higher in other trials. Explicit learning is that which is intentional and sought with awareness of that intention, such as when taking a class to learn specific information or skills. This is learning on purpose. Delayed recognition is a form of remembering characterized by a feeling of familiarity when something previously experienced is again encountered after the passage of immediacy has occurred. In this test, patients seek to recognize the expression of ideas about some matter presented visually, without the aid of verbal cues or aids.

- d. **Shape Learning Delayed Recognition** - A repeat of the initial shapes exam, this test is performed eleven minutes after its predecessor. Once again, a page with an array of four designs are shown to the patient with instruction to select the one that was previously shown to them and identified as the target design. This single trial is repeated for the nine pages of arrays, as during previous trials, and a score is given for delayed shape recognition. [REDACTED] scored a 5 for delayed recognition forced choice, placing him in the mildly-to-moderately impaired category. His discriminability index was determined to be 5 for a ranking in the mildly-to-moderately impaired category.
- e. **Story Learning Recall** - Explicit learning and delayed free recall of logically organized verbal information capacity are elucidated via this story telling sub-exam. Seven minutes are required for this piece of the module, during which, a five sentence, simply constructed and concisely read story are orally presented to the patient. Natural syntax and structure are utilized for reading utterance across the two trials. Directives to use the same verbiage as the administrator are provided to the patient and at the completion of the reading aspect, the patient is prompted to repeat back as many details as they can recall. Details related back to the examiner are screened for relationship to the original story vernacular for scoring purposes. For example, the word “threw” may be correctly identified by the utterance of similar words or phrases such as “throw or “had thrown”, allowing for full credit to be awarded. However, for the word “toddler”, for instance, “baby” or “child” or “infant” would be excluded from the correct commission column. Points are given in increments related to the accuracy of the given answer. Two phases of this exam are administered with two segregated trials each; one for each of the phrase and thematic units. [REDACTED] scored 12 (mildly impaired) on trial one, and 18 (mildly impaired) on trial two, resulting in a

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cumulative score of 30 for the phrase unit immediate recall. A ranking of mildly impaired on the interpretive category list is appropriate. [REDACTED] scored 3 (mildly impaired) on trial one, and 4 (mildly-to-moderately impaired) on trial two, resulting in a cumulative score of 7 (mildly impaired) for the thematic unit immediate recall section. Explicit learning is that which is intentional and sought with awareness of that intention, such as when taking a class to learn specific information or skills. This is learning on purpose. Free recall is, when used in this context, essentially the decision of *whether* the object or item was encountered. In this exam, it refers to the ability to decide whether words were a part of the information previously presented orally and in a structurally logical presentation. Examples of this in a typical daily life include a classroom or meeting environment where information is presented by a speaker, with the intention of the listener recalling it at a later time for the purpose of learning.

- f. **Story Learning Delayed Recall** - Utilizing the same, five sentence story read aloud to the patient during the previous immediate recall portion, this exam begins ten minutes following the conclusion of said component. A simple statement regarding the story previously read is made before directions to again repeat it using the same verbiage as the administrator. Scoring is identical to that of the initial exam, with points issued at varying increments dependent upon utterance accuracy. The process is scored for both phrasing and thematic aspects, with a score given for each, before accumulation is done. [REDACTED] scored 14 (mildly impaired) for the phrase unit and 3 (mildly impaired) for the thematic unit. Combining these scores, his retention score of 78 and the associated ranking of mildly impaired on the interpretive category list is revealed.

Executive Functioning: This domain relates to the ability or propensity to regulate cognitive, behavioral, and emotional responses. Executive functions are those which guide and select appropriate or acceptable actions throughout daily life. The group of skills encompasses areas such as attentional control, cognitive inhibition, inhibitory control, working memory, and cognitive flexibility, sequencing, planning, and fluid intelligence. Rule recognition, categorization, and management or navigation with rapid decision making, as well as successful completion of tasks requiring foresight, judgment, and/or self-regulation are influenced by impairments of this domain. Testing produced results as documented below.

NAB SCREENING EXECUTIVE FUNCTION INDEX SCORE

| Score | Sum of T Scores | EXE Standard Scores | Percentile Rank | Confidence Interval 95% |
|--------------------------------------|-----------------|---------------------|-----------------|-------------------------|
| Executive Function Index Score (EXE) | 65 | 69 | 2 | 58-80 |

- a. **Mazes** - Determining planning, impulse control, and psychomotor speed, this eight minute portion begins with handing the patient a packet of seven blank paper mazes. Mazes increase in complexity in progression to the mazes completed, with each timed for such. Directives to not lift their pen or pencil are stated before the test administrator points to and names both the 'start' and 'finish' spaces. Concluding instructions, the test administrator initiates the exam and the patient proceeds to navigate the maze while adhering to the directions as swiftly as possible. Accurate navigation and time taken to do so are used to compute the scores for this exam aspect. ██████ scored 6 on provided mazes tests, thus he resides in the mildly-to-moderately impaired interpretive category. Planning is central to human behavior and illustrates the aptitude to formulate an action in advance of performance or intended performance. Impulse control is the degree to which instant gratification may be controlled. Psychomotor speed indicates the level at which complex visual-perception information is perceived, attended, and responded to with simple fine-motor coordination. To successfully demonstrate this trio of cognitive skills, the patient must plan a course of action for navigation through the maze, while preventing the urge to take erroneous or seemingly simpler paths, all while issuing commands to their hands to physically manifest this decision making. Tasks involving multitasking and subsequent physical action will be reduced. Sports, writing essays or creating standardized documents, and adhering to financial institutional regulations (such as ledger maintenance), will show reduced proficiency.
- b. **Word Generation** - Administered to interpret verbal fluency and generativity, this five minute piece of the module asks the patient to create as many three-letter words as possible from a list provided. The test administrator begins by giving the patient the mentioned list, which contains eight seemingly random printed, lowercase letters in a row. Each word can be counted only once, which is delineated to the patient, along with forbiddance of acronyms. A sample list, shown by the test administrator to the aptinet is then withdrawn with examples of acceptable word selections given. After obtaining assurances regarding clarification, the test commences and is subsequently scored. The number of correct words from a previously generated list are accounted for and differentiating scores for pre-severations and generation are established. ██████

■■■■■ scored 2 for generation, placing him in the mildly-to-moderately impaired interpretive category. Verbal fluency is the ability to form and express words compatible with required criteria. Generativity is the creativity or production of ideas or objects. Merging these capabilities allows for the production of desired expressions via words, both spoken and written. In a modern society, many everyday and work-related tasks depend upon proficiency with such. A simple memo for office distribution, or the oral formation of a new idea to co-workers, both rely on homogenization of these areas. Clerical positions and those in which the creation of communication will be difficult at best. Attorneys, public speakers, or similar titles where formation of words to present ideas is necessitated will be impaired. Creative jobs such as in architecture, cabinetry, or as a writer or illustrator may be precluded.

Daily Living: Each module of the NAB contains one or more subassessments specifically related to and intended to purport activities or tasks utilized in daily life. These tests require multiple skills and the combination of said skills in meaningful and useful ways to accomplish the intended or stated goal; results are as follows.

DAILY LIVING SCORES

| Test | Driving Scenes | Bill Payment | Immediate Recall | Delayed Recall | Retention | Delayed Recognition | Recall vs. Recognition |
|---------------------------|--|--------------------------|----------------------|--------------------------------------|------------------------|------------------------|------------------------|
| Categorical Rating | Moderately-to severely Impaired | Severely impaired | Below Average | Mildly-to-moderately Impaired | Mildly Impaired | Mildly Impaired | Mildly Impaired |

- a. **Driving Scenes** - Created to reflect situational daily living and patient proficiency with such, this assessment ascertains a combination of visual working memory, visual scanning, attention to detail, and selective attention. A drawing of a driving scene, as seen from the driver's perspective behind the steering wheel, is handed to the patient. Concurrently, the test administrator instructs the patient to look closely at the picture as more will follow and to anticipate differences between them. After thirty seconds, the picture is replaced with an altered version of the same drawing. The patient is directed to point out as many newly appearing, missing, or divergent areas as they are able to. Four drawings are presented, with the second and subsequent images displayed at sixty second intervals. Correctly identified deviations are credited to the patient's score. ■■■■■ scored 30 on this piece of the assessment, resulting in his placement in the moderately-to-severely impaired interpretive category. Visual working

memory is the ability to recognize, remember, and then retrieve visually presented information for use in the short-term. Visual scanning is the ability to use vision to search in a systematic manner. Selective attention is the capacity for or process of reacting to certain stimuli selectively when several occur simultaneously. Attention to detail is the ability to achieve thoroughness and accuracy when accomplishing a task. A combination of these cognitive processes enable daily functioning. As this exam demonstrates, the ability to scan surroundings, take notice of selectively important visual details, and then quickly recall such for use in applicable situations, such as when driving, is integral to modern human independence. Below average scores reflect limited ability to safely and proficiently perform tasks associated with typical daily life.

- b. Bill Payment** - Purporting a necessary daily living function, this piece of the module evaluates auditory language comprehension, bill payment skills, simple calculation ability, and speech output. The patient is handed a bill statement, a check with accompanying check ledger, and an envelope. Questions are posed orally by the test administrator regarding the presented materials. Following the question and answer portion, patients are then given more complex, multi-step commands involving physically responding to directives. For instance, during this phase, directions to adhere to and complete the billing instructions as they appear on the billing statement are given, complete with the need to fill out the check and assure the bill would be paid. Each requisite step, when explicitly performed, is awarded one point. Thus, [REDACTED] score of 8 shows that he accurately completed the same number of steps towards bill payment achievement. This score leads to placement in the severely impaired interpretive category. Auditory comprehension is the ability to understand what is heard, including the tone of voice, pauses between words, emphasis used, and the rhythm and pattern of speech, and attach meaning to it. This is a foundational skill originating in early infancy that, ideally, builds with exposure and learning processes. Bill payment skills refer to the wherewithal to complete the processes surrounding proper bill satisfaction and related financial responsibility. Calculation is a deliberate process that transforms one or more inputs into one or more results. In this instance, simple calculation relates to the capacity to accurately and effectively use numerical information to maintain financial balance and responsibility utilizing only basic mathematical skills. Speech output is simply defined as the ability to put thoughts to words. The nature of this exam exhibits the potential negative ramifications in these cognitive functions. Not only will fiscal responsibility suffer deleteriously, similar or related tasks required for independent living and satisfactory life stability will also show negative effects.
- c. Memory:**
- **Memory Name, Address, and Phone Number Immediate Recall** - Designed to simulate a necessary life skill, this verbal learning exam spans three trials over seven minutes. Patients are instructed to look at a

page shown by the examiner, on which, a name, address, and six-digit phone number are printed, for the purposes of memory recall. The information is read aloud by the test administrator with silent reading on behalf of the patient acceptable and stated as such, before the visual aid is removed. Following this, the patient is asked to recall as much of the information as possible. Scoring is based upon correct recollection of segmented pieces of the name, address, and phone number. After scoring trial one, this process is repeated an additional two times with an issued statement by the examiner that this information will be asked for again at a later time. Trials are scored individually before summing to enumerate a total score and categorical rating. [REDACTED] scored a total of 16 and earned a categorical assignment of mildly impaired. Verbal learning is the process of actively memorizing new material using mental pictures, associations, and other activities. On both a conscious and subconscious level, this is done throughout each day to facilitate the acquisition of information for accurate and timely recall when later required or demanded by the situation. A deficiency in this vital skill reflects a diminished propensity for following orally presented directives for independent daily living. As shown, medication compliance will be negatively impacted, as will instructions issued by a superior at work or oral task designation proffered by a spouse.

- **Memory Name, Address, and Phone Number Delayed Recall/Recognition** - Six minutes after the completion of the immediate recall component of this daily living assessment, the patient is asked to repeat, from memory alone, as many pieces of the name, address, and six-digit phone number previously read and recalled, as possible. One point is awarded for correctly recalling information, leading to a delayed recall score. After recall is evaluated, recognition is assessed by showing a card containing four written phrases, words, or numerical series to the patient. Upon prompting, the patient then selects which among the groups were part of the originally exhibited name, address, and six-digit phone number. For example, a page containing the words “Diana”, “Dan”, “Daisy”, and “Leana” might be shown, from which the patient must choose the first name from the document first shown. Scoring is identical to preceding attempts, with one point for correct responses. [REDACTED] scored 3 for delayed recall, and 7 for delayed recognition capacities. Categorically, he was placed into the severely impaired and mildly-to-moderately impaired interpretive areas, respectively. Free recall is, when used in this context, essentially the decision of *whether* the object or item was encountered. Forced-choiced, in this same context, represents the selection *which* of the objects or items were encountered.

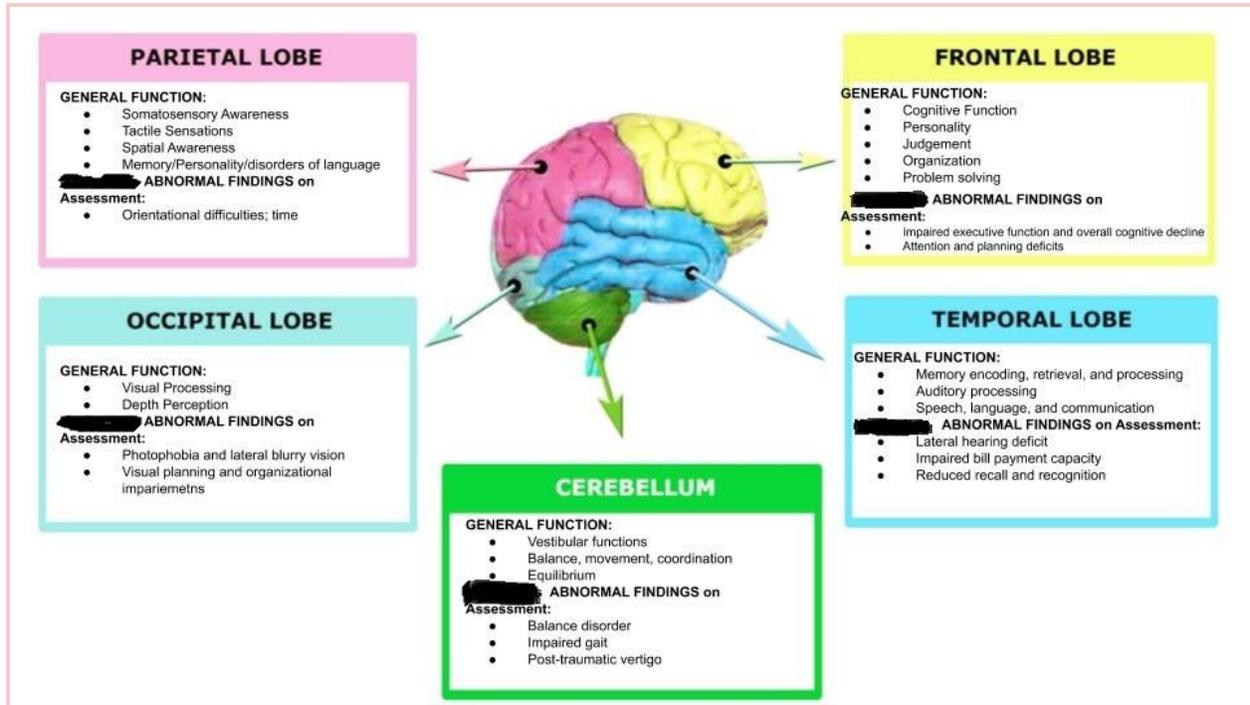
- **Total Memory Scores-** Final scores are calculated from the results enumerated across the sections in this module identified as relating to daily living functions. Aiming to give a broad understanding of the patient's current capacity for independent living and functionality, the scores for this patient are as follows:
 - **Immediate recall** - A score of 42 resulting in placement in the below average interpretive category.
 - **Delayed recall** - A score of 12 resulting in placement in the mildly-to-moderately impaired interpretive category.
 - **Retention** - A score of 80 resulting in placement in the mildly impaired interpretive category.
 - **Delayed Recognition** - A score of 9 resulting in placement in the mildly impaired interpretive category.
 - **Recognition vs. Recall** - A score of 133 resulting in placement in the mildly impaired interpretive category.

Emotional and Personality Functioning: To assess [REDACTED] behavioral health, he completed a seventy question, multiple choice, screening test. Questions stem from established DSM-5 criteria for diagnosis, and branch into more diagnosis-specific content as thresholds are met. Neuropsychiatric illness is prevalent following brain injury, with disproportionately high presentation of emotional dysregulation and higher rates of depression, anxiety, and other types of psychopathology. Assessing this area of well-being is imperative to progress.

SAGE-SR Results: [REDACTED] completed a self-report questionnaire based upon DSM-5 criteria. On this test, he endorsed symptoms consistent with and meeting the criteria for a diagnosis of [REDACTED]

In summary, [REDACTED] was a normally functioning individual until he suffered an injury on 11/22/17. He now suffers from numerous deficits -- cognitive, psychiatric, psychological, emotional, and physical. He has neurocognitive deficits, and while improvements may be made (see Assessment and Plan below), a majority of these deficits can become permanent.

Personalized Brain Injury Mapping



ASSESSMENT AND PLAN:

1. [REDACTED] needs neurocognitive rehabilitation to improve his deficits and areas if concerned as outlined within this document. It is known that cognitive rehabilitation is the most effective immediately after sustaining a Traumatic Brain Injury with multidisciplinary team approach. Multidisciplinary team approach encompasses TBI specialist, Neuropsychologists, Speech-Language Pathologists, Occupational Therapists, Physical Therapists, and Social Workers. [REDACTED] would benefit from outpatient therapy with a Rehabilitation Psychologist, who can teach him additional coping mechanisms and compensatory strategies on how to live with residual Cognitive Impairment, Post-Traumatic Brain Injury.
2. Cognitive rehabilitation consists of diverse interventions; however, there is a consensus in the literature that cognitive rehabilitation must be tailored to individual needs. Cognitive rehabilitation therapy is divided into two components: restorative and compensatory approaches. The restorative approach aims to reinforce, strengthen, or restore the impaired skills. It includes the repeated exercise of standardized cognitive tests of increasing difficulty, targeting specific cognitive domains (e.g., selective attention, memory for new information). The compensatory approach teaches ways of bypassing or compensating for the impaired function. Various authors have reported the

effective use of assistive technologies (AT), calendars, electronic memory devices, alarms, or reminders as compensatory techniques.

3. I also recommend Diffusion Tensor Imaging of the brain to map the damaged white matter tracts after the traumatic brain injury to provide targeted neurocognitive rehabilitation. The DTI scan also serves as a prognostic biomarker for the clinical outcome and grades the severity of tissue damage.
4. [REDACTED] is currently utilizing pharmacological treatment for his post-traumatic headaches under the guidance of his treating physician.
 - a. **Physician Managed Medical Management:** I recommend continuing him on a regimen of topiramate and galcanezumab-glnm for prophylaxis of headaches. Additionally, butalbital-acetaminophen-caffeine can serve as an abortive treatment for acute headache onset headaches, as is presently prescribed by his treating physician.
5. [REDACTED] is receiving pharmacological treatment for his anxiety and depression. I recommend continuing him on citalopram hydrobromide and buspirone as prescribed by his treating physician.
6. Regular physical exercise is recommended for its beneficial effects on brain health, mood, and overall wellness. Physical activity enhances memory and learning, promotes neurogenesis and protects the nervous system from injury and neurodegenerative disease.
7. Vision is the most important source of sensory information, consisting of a sophisticated complex of subsystems. The visual process involves the flow and processing of information to the brain. The visual system is really a relationship of sensory-motor functions, which are controlled and organized in the brain. After TBI, there is frequently a shifting of visual midline, vitreous hemorrhaging, and macular or retinal abnormalities. The patient reports blurred vision and photophobia. I recommend he follows up with an Ophthalmologist.
8. [REDACTED] is suffering from post-traumatic vestibular dysfunction. I will order an MRI of the temporal bone and internal auditory canal, with and without contrast, to rule out abnormal anatomy or lesions. I recommend vestibular rehabilitation and the Epley maneuver to differentiate Central vs. Peripheral Vertigo, as well as performance of the exercises within the handout previously provided. If vestibular rehabilitation does not provide relief, then I recommend a Meniett device. I also recommend that she undergo Videonystagmography (VNG) and Computerized Dynamic Posturography (CDP) for the diagnosis and rehabilitation of her imbalance and dizziness. The following can also help improve balance, and can be performed at home in addition to those within the provided handout:

The following can also help improve balance:

- Increasing strength and flexibility, specifically in the ankle and hip muscles. Activities such as mini-squats, toe-raises, and/or standing leg lifts, when physical functioning allows, are beneficial.
- Many practitioners are utilizing Wii and other physically interactive gaming systems to aid in vestibular rehabilitation. This can be a fun, simple way to build and restore damaged systems.
- Single-leg balancing while maintaining proper posture, initially for thirty seconds can be done first with the eyes open, and then with the eyes closed with improvement. This can be done anywhere where safety is not a concern and when fall risk is minimal. Waiting in line, while cooking, etc.
- Practicing standing or walking in different conditions, when capable, will build physical ability and confidence, while giving the visual system a workout, as well.

Resources available to aid in recovery and/or provide informational assistance can be found online. Some include:

- **aVOR** - A free app tool, useful for those with vestibular ocular reflex system disorders. Benign Positional Paroxysmal Vertigo education is provided.
- **BalanceandMobility.com** - Education regarding causation and treatments available.
- **Vestibular Rehabilitation Therapy for Patients** - Created by Physiotherapist Dr. Jordan Tucker, this video discourses vestibular rehabilitation. https://www.youtube.com/watch?v=pkA75_RWHYA. (Googling his name also works).
- **VertiGo Exercise** - A comprehensive app that provides video instruction of exercises to improve balance. Progress and time spent are built-in for ease of use.
- **Vertigo Exercises** - Visual renderings of causation, along with video demonstrations of relieving exercises, are free in this app.

9. It is important that [REDACTED] continues to follow up with his providers, who can assist in addressing the array of complex injuries he received in the tragic and life-altering injury. There is a correlation between pain and cognitive symptom presentation; hence, it is critical to note that his pain could be serving to aggravate the neurocognitive impairments present in this evaluation.

10. In addition to a diet filled with antioxidant foods, such as berries, carrots, tea, nuts, and a variety of vegetables, as part of a low saturated fat and reduced refined sugar diet, the following have been shown to be of benefit to those recovering from traumatic brain injury:

- **Vitamin D 3000 IU daily with food** - supports the growth of new brain cells.
- **Fish Oil / Omega 3 Supplements 2-3 grams with food daily** - may improve brain function.
- **Probiotics** - improves gut health and, via the vagus nerve and production of neurotransmitters, brain health, too.
- **Magnesium L Threonate 1-2 grams daily** - boosts brain levels of magnesium and associated benefits for sleep, anxiety, and cognition.
- **Vitamin B12 1000 micrograms daily** - may prevent brain atrophy.
- **CoEnzyme Q10 100 mg daily** - protects brain cells from oxidative damage.
- **N-Acetyl Cysteine 150 mg daily** - regulates glutathione and glutamate levels to improve brain health.
- **Zinc 20 mg daily** - aids in brain signal transmission and cell growth.
- **Alpha Lipoic Acid (ALA) 100 mg daily** - fights free radicals, reduces inflammation, and offers protective benefits.
- **Phosphatidylserine (PS) 100 mg daily** - protects the brain and aids in messaging between cells.
- **Glucoraphanin 15 mg daily** - prevents damage, even delayed, and aids in cognitive restoration.
- **Curcumin (Turmeric) 2 gm daily** - reduces oxidative stress and protects the brain; reduces the overall effects of concussive injury on cognition.

11. Neurorehabilitative exercises are recommended to create new neural pathways and bolster the recovery process. [REDACTED] is advised to perform these exercises for a minimum of thirty minutes daily, with preference for an hour or more. Logging time spent to bring with them to future visits is advised for monitoring progress and encouraging compliance. The following sites are recommended:

- a. BrainHQ: www.brainhq.com
- b. Happy Neuron: <http://www.happy-neuron.com/>
- c. Lumosity: <https://www.lumosity.com/>
- d. Tactus Therapy: <https://tactustherapy.com/therapy/>
- e. Web Sudoku: <https://www.websudoku.com/>

Android and Apple both have numerous free apps with puzzles and similar content that are great to play when riding in a car, waiting in lines, etc. While there are several, some of the preferred apps include:

- **Lumosity:** a free app version of the full site with mobile compatibility. Tailored goal format allows for working on specific areas of concern, including memory, attention, problem solving, processing speed, and cognitive flexibility.
- **Eidetic:** Utilizes spaced repetition to improve memory recall and recognition. Different from many training apps as it utilizes contextual knowledge, thus bolstering the same.
- **Elevate:** After an initial quiz to assess baseline, daily tasks are set for personal goals to improve in areas of weakness. Brief but thorough games exhibit progress via visual maps.
- **Fit Brains Trainer:** Increasingly complex and challenging tasks build upon each other to expand brain prowess.
- **Personal Zen:** Focuses on anxiety reduction and emotional stability.
- **Brain Trainer Special:** Varied levels for several concepts such as sequencing, calculations and numerical capacity, and memory.
- **Brain Fitness:** Series of memory training exercises to increase focus, problem-solving skills, attention, memory, and overall cognitive capacity. Please note, there is both a free and a paid version.
- **Happify:** Emotional intelligence and training for behavior adaptation; beneficial for adjusting to life after traumatic brain injury.
- **Positive Activity Jackpot:** For those with Post-traumatic Stress Disorder or depression; coping skills and behavioral therapy via apps and a reward system.
- **ReliefLink:** an app created by Dr. Kaslow for those suffering with depression to track and monitor symptoms, response, etc. and find assistance near-by.

12. Brain stimulation via physical and social surroundings is known to increase psychological and physiological well-being. When provided with a richer, more stimulating environment, higher rates of synaptogenesis and more complex dendrite arbors are actualized as brain plasticity increases. Essentially, the brain's network grows and strengthens, creating new and/or rebuilding damaged pathways. Environmental enrichment therapies inclusive of physical, cognitive, and social stimulation, have been proven to improve both functional and histological outcomes in those who have suffered from a traumatic brain injury. [REDACTED] has suffered a traumatic brain injury; he would

benefit from an enriched environment to aid in the recovery process and overall well-being. The following should be implemented in [REDACTED] home environment to bolster his recovery and work towards regaining his cognitive capacity:

- Mirrors, pictures, photographs, books, and interesting things to look at.
- Varied lighting from lava lamps or colored bulbs or neon signs. Christmas lights or those meant for outdoor use will work.
- Items of comfort for relaxing such as rugs, large pillow, bean bags, and/or blankets.
- Chairs and seating of varied types such as rocking chairs, hammocks, etc.
- Calming music or sounds such as those similar to the ocean or rain sounds. Classical or instrumental music will work well.
- Pleasant scents; lavender, clary sage, and peppermint have calming or attentional properties.
- Textures of all varieties. Include varied materials from wood to fuzzy pillows.
- Opportunities to exercise, as able. Treadmills, stationary bikes, rowing machines, yoga mats, etc.
- Aesthetically interesting with height variations and surface changes throughout. Ensure that the environment is pleasing and provides opportunity for inquiry and contemplation.
- Opportunities for socializing in a limited or controlled capacity such as volunteering, coffee 'dates', library outings, and mall-walking.
- Creative outlets and the supplies needed for painting, coloring, journaling and the like.
- Cognitively challenging tasks or materials; word-finds or crosswords, newspapers, documentaries, or even local classes will serve well.

13. General stress management techniques including meditation, yoga, and massage therapy may be helpful. Compensatory strategies that may be useful for [REDACTED] to implement in his daily living include:

- Allowing more time to complete tasks to avoid time pressures.
- Utilizing a day planner/calendar to record appointments and important future tasks.
- Writing down and organize information to be remembered by carrying a small notebook and pen.
- Breaking up longer tasks into multiple, shorter tasks, and avoid multitasking.
- Completing tasks in a quiet room, turning off televisions, or other distracting sources.

Neuropsychological Assessment Battery for [REDACTED] | 38 of 53

Houston: 6065 Hillcroft St, Ste 202, Houston, TX 77081

Dallas: 7800 N. Stemmons Fwy, Ste. 340, Dallas, TX 75247

Los Angeles: 3530 Wilshire Blvd, Ste 1180, Los Angeles, CA 90010

San Antonio: 8235 S New Braunfels Ave, Ste 101, San Antonio, TX 78223

- If becoming fatigued or losing focus, stopping to take a break before returning to the task.
14. Sensitivity to sound and/or loud sounds is reported. I have counseled [REDACTED] in regards to avoidance of exposure to such when possible, as well as the use of earplugs or noise-cancelling headphones for mitigation of that which is unavoidable. Additionally, we have discussed coping mechanisms and tactics to enable him to deal with this concern as it arises.
 15. During a previous examination, a lateral hearing abnormality was revealed. Evaluation by an audiologist is prudent.
 16. Waves of nausea and subsequent emesis recur with headaches. I have counseled [REDACTED] in regards to eating small, frequent meals and the need for proper nutrition as a tool for brain recovery. At this time, pharmacotherapy is not indicated.
 17. [REDACTED] will also benefit from psychotherapy to encourage him to comply with medical management, practice coping techniques, and learn problem-solving skills applicable to his newly altered life.

Impressions from the Neuropsychologist: During the phases of recovery from a mTBI, patients generally report symptoms that fall into three symptom clusters: somatic (e.g., physical and/or sensory), cognitive, and affective (e.g., emotional). Commonly reported somatic symptoms include headache, sleep disruptions, dizziness, nausea, visual disturbance, photophobia, and phonophobia. Common cognitive symptoms include problems with attention and memory, slow processing speed, difficulty multitasking, increased distractibility, losing one's train of thought, and feeling foggy. Affective symptoms often reported by patients with mTBI include increased irritability, emotional lability, anxiety, and depression. Fatigue is a frequent complaint after mTBI. Research regarding fatigue suggests that it is a multidimensional symptom, with many factors contributing to and exacerbating fatigue, including somatic symptoms, sleep disturbance, cognitive exertion, chronic situational stress, and mental health.

After a mTBI, cognitive dysfunction is often seen in the domains of attention, processing speed, executive functions, and/or memory, although there is differential recovery across these domains over time.

[REDACTED] reported a history of a head injury (2017) after being struck in the head with a metal flashlight. He endorsed loss of consciousness and brief posttraumatic amnesia; he denied intracranial bleeding. He endorsed symptoms consistent with post-concussion syndrome, including sleep disturbance, anxiety, depression, and sensory sensitivity. Results of the current evaluation are interpreted in the context of adequate performance validity and Average

estimated baseline functioning. He is generally independent for ADL functioning, though requires assistance for aspects of IADL functioning. His overall performance on this battery of tests shows a performance level within the Mildly Impaired range with specific impairments across tasks of attention, working memory, retrieval and aspects of executive functioning. Regarding psychiatric signs and symptoms, [REDACTED] endorsed symptoms of anxiety and depression and met criteria for [REDACTED]

[REDACTED] Taken together, [REDACTED] neurocognitive profile and functional abilities are most consistent with a Mild Neurocognitive Disorder due to Traumatic Brain Injury (mTBI).

Regarding treatment, the existing literature provides support for a number of behavioral interventions for management and amelioration of symptoms following mTBI. Given the complexity and variability of presenting problems after mTBI as detailed above, treatment must account for multiple factors including cognitive, emotional, and somatic symptoms.

Psychoeducational early interventions have the strongest empirical support of any post-mTBI interventions, with several systematic reviews concluding they are well supported. In addition, cognitive rehabilitation and psychotherapy have shown reduction in symptoms. For [REDACTED] cognitive rehabilitation should focus on attention and executive functioning.

Deficits in attention regulation (e.g., working memory, multi-tasking, distractibility) are among the most common features of PCS. Based on systematic reviews of the cognitive rehabilitation literature, cognitive remediation of attention deficits after TBI as a “practice standard”. Specifically, “remediation of attention deficits after TBI should include direct attention training and metacognitive training to promote development of compensatory strategies and foster generalization to real world tasks”. Computer-based interventions are classified as a “practice option” in conjunction with therapist-guided treatment to promote functional application of skills. Evidence-based treatments for remediation of attention include Attention Process Training, n-back working memory remediation, and Time Pressure Management. These interventions should be implemented with explicit focus on the development of proactive compensatory strategies to manage attentional resources.

Remediation of executive functions may have especially far-reaching effects, as executive skills (e.g., planning, prioritizing, problem-solving) are applicable across rehabilitation disciplines and to all aspects of daily living. Reviews recommend metacognitive strategy training, including self-monitoring and self-regulation skills, as a practice standard; this approach may be applied to self-regulation of cognition, emotion, and behavior, and is useful as a component of other rehabilitation interventions. Training in problem-solving strategies is a “practice guideline” for executive dysfunction after TBI, and group-based interventions are a “practice option”. Most

structured treatments for executive functions follow a four-step sequence: building awareness; anticipation of difficulties and planning accordingly; task execution and self-monitoring; and self-evaluation following the task. Structured interventions include goal management training, problem-solving training, and the Cognitive Orientation to Occupational Performance (Co-Op). The specific elements within each of these steps vary, but the process of anticipation, execution, and evaluation is common across interventions.

I make these statements with a reasonable degree of medical probability and from experience caring for patients with various brain disorders, including TBI. Should any additional information become available to me in this case other than what I have received, I reserve the right to alter or adjust the opinions expressed above.

Thank you for allowing me to participate in [REDACTED] care after his Traumatic Brain Injury. If I can be of further assistance, please don't hesitate to contact me.



Lauren A. Gavron, Ph.D.
Neuropsychologist
License #: PY10232

ORDER FORM FOR ADDITIONAL DIAGNOSTIC STUDIES AND SERVICES

| | |
|---------------------------|-----------------------------|
| Patient Name: ██████████ | MR#: ██████████ |
| Date of Birth: ██████████ | Date of Injury: ██████████ |
| Phone Number: ██████████ | Date of Service: ██████████ |

| Diagnosis | ICD-10 Codes | CPT Codes | Recommendation |
|-----------------------------------|---|--|--|
| Imaging | | | |
| Traumatic Brain Injury | S06.2 | 70551 | <input type="checkbox"/> MRI of the Brain and Brain Stem w/out contrast |
| | | 70552 | <input type="checkbox"/> MRI of the Brain and Brain Stem with contrast |
| | | 70553 | <input type="checkbox"/> MRI of the Brain and Brain Stem with + w/out contrast |
| | | 70480 | <input type="checkbox"/> MRI of the Temporal Bone and Internal Auditory Canal w/out Contrast |
| | | 73221 | <input type="checkbox"/> MRI of the Left/Right Shoulder w/out contrast |
| | | 73223 | <input type="checkbox"/> MRI of the Left/Right Shoulder with and w/out contrast |
| | | 72141 | <input type="checkbox"/> MRI of the Cervical Spine w/out contrast |
| | | 72156 | <input type="checkbox"/> MRI of the Cervical Spine with and w/out contrast |
| | | 72146 | <input type="checkbox"/> MRI of the Thoracic Spine w/out contrast |
| | | 72157 | <input type="checkbox"/> MRI of the Thoracic Spine with and w/out contrast |
| | | 72148 | <input type="checkbox"/> MRI of the Lumbar Spine w/out contrast |
| | | 72158 | <input type="checkbox"/> MRI of the Lumbar Spine with and w/out contrast |
| | | 76498 | <input checked="" type="checkbox"/> Diffusion Tensor Imaging (DTI) of the Brain with measurement of Fractional Anisotropy (FA), Mean Diffusivity (MD), Radial Diffusivity (RD) and Axial Diffusivity (AD) <input checked="" type="checkbox"/> Areas of interest for tractography are: Head Injury, Cognitive Dysfunction, and Psychiatric |
| | <input checked="" type="checkbox"/> DTI of the Brain Imaging review by Specialist Neuroradiologist Dr. Filler MD, PhD | | |
| | 78607 | <input type="checkbox"/> SPECT Scan of the Brain | |
| Tremors/ seizure disorders | G40.909 | 95951 | <input type="checkbox"/> Electroencephalogram - Routine (72 Hour VEEG) |
| Neuralgia/ neuritis | M79.2 | 95855, 95856 | <input type="checkbox"/> Electromyogram Routine |
| Syncopal Episodes | R55 | 93880 | <input type="checkbox"/> Bilateral carotid doppler |
| | | | <input type="checkbox"/> Other: |

Neuropsychological Assessment Battery for ██████████ | 42 of 53

Houston: 6065 Hillcroft St, Ste 202, Houston, TX 77081

Dallas: 7800 N. Stemmons Fwy, Ste. 340, Dallas, TX 75247

Los Angeles: 3530 Wilshire Blvd, Ste 1180, Los Angeles, CA 90010

San Antonio: 8235 S New Braunfels Ave, Ste 101, San Antonio, TX 78223

| IV Infusion Therapy for Headache Management | | | |
|---|-------------------|----------------|---|
| Post-traumatic Headaches (Intractable) | G44.301 | 96374 & J1110 | <input type="checkbox"/> IV Infusion Therapy with Dihydroergotamine (DHE) |
| | | 96374 & J3490 | <input type="checkbox"/> IV Infusion Therapy with Valproic Acid |
| | | 96374 & J3490 | <input type="checkbox"/> IV Infusion Therapy with Ketamine |
| Posttraumatic Headache Procedures | | | |
| Post-traumatic Headaches (Intractable), Occipital Neuralgia | G44.301, M54.81 | 64615 | <input type="checkbox"/> 33 Points Botox Injection |
| | | 64450 & 77002 | <input type="checkbox"/> Third Occipital Nerve Block under Fluoroscopic guidance |
| | | 64405 & 76942 | <input type="checkbox"/> Greater Occipital Nerve Block under Ultrasound guidance |
| | | 64450 & 76942 | <input type="checkbox"/> Lesser Occipital Nerve Block under Ultrasound guidance |
| Other | | | |
| Dysphasia/Aphasia | R47.0 | 92506 & 92507 | <input type="checkbox"/> Speech Therapy |
| Benign Paroxysmal Positional Vertigo/ Disequilibrium | H81.93, H81.10 | 97110 & 97112 | <input checked="" type="checkbox"/> Vestibular Therapy [Balance and Gait Rehab and Canalith Repositioning for BPPV] |
| | | 92547 92548 | <input checked="" type="checkbox"/> Videonystagmography (VNS) <input checked="" type="checkbox"/> Computerized Dynamic Posturography (CDP) |
| Depression, Anxiety, PTSD | F32.9,F41.9,F43.1 | 90837 | <input checked="" type="checkbox"/> Psychotherapy <input checked="" type="checkbox"/> CBT |
| Traumatic Brain Injury w/ Neurocognitive Deficits | G31.84 | 97127 | <input checked="" type="checkbox"/> Neurocognitive Rehabilitation (Outpatient) |
| Bruxism | G47.63, F45.8 | D9940 | <input type="checkbox"/> Evaluation for Occlusal Guard by a Dental Professional |
| Hearing Loss | H91.90 | 92551, 92552 | <input checked="" type="checkbox"/> Audiology |
| Blurred/Impaired Vision | H53.8, H54.7 | 92102 | <input checked="" type="checkbox"/> Optometry/Neuro-Ophthalmology |
| Neck Pain, Lower Back Pain | M54.2, M54.5 | 97162, 97166 | <input type="checkbox"/> Physical Therapy/ Occupational Therapy |
| Shoulder Muscle Tear | M75.102 | 99205 | <input type="checkbox"/> Consultation with an Orthopedic Surgeon |
| Cervical Spine Disc Herniation, Thoracic Spine Disc Herniation | M50.10, M51.24 | 99205 | <input type="checkbox"/> Consultation with Spine Surgeon |
| Pain, acute or chronic, due to trauma | G89.11, G89.21 | 99201 | <input type="checkbox"/> Evaluation by Pain Management Specialist |

Preferred Ancillary Service Providers - Houston, TX

| Provider | PoC with whom to coordinate referral and arrange payment |
|--|---|
| National Brain Injury Institute Services Offered <ul style="list-style-type: none"> ● MRI and DTI Scan of the Brain ● Certified Physician Life Care Plans ● Videonystagmography (VNG) ● Neuro-optometry | Juan Hernandez jhernandez@nationalbii.com P:281-769-3906 |
| Memorial MRI 7 locations in Houston Services Offered <ul style="list-style-type: none"> ● MRI of Temporal Bone ● EMG - Electromyogram ● Greater and Lesser Occipital Nerve Block (With Dr. Lee) ● Third Occipital Nerve Block (With Dr.Lee) | Imaging Referral Form 713-554-3200 OR Pain Procedure Referral Form Nita Arroyo Narroyo@texasregionalclinic.com 281-529-6629 |
| CereScan 9701 Richmond Ave., #122, Houston, TX 77042 Services Offered <ul style="list-style-type: none"> ● SPECT Scan | Referral Form Lisa Teitelman lteitelman@cerescan.com 720-439-3920 866-433-3965 (fax) |
| Balance and Neurological Physical Therapy 4141 SW Freeway Service Rd Suite 100, Houston, TX 77027 Services Offered <ul style="list-style-type: none"> ● Vestibular Therapy | Referral Form Kristin Puhl kristin@balancedidiagnostic.com P:713-223-1800 |
| NeuroRestorative Services Offered <ul style="list-style-type: none"> ● Speech Therapy ● Psychotherapy ● Vestibular Therapy ● Neurocognitive Rehabilitation | David Wall dwall@mentisneuro.com C:281-254-0515 O:713-331-0259 F:832-202-0899 |
| Eye Wellness Center Better Eye Care, 1701 Sunset Blvd Houston, TX 77005 Services Offered <ul style="list-style-type: none"> ● Neuro-Optometric Exam | Julie Prusmack jprusmack@neuroeye.com 713-842-0803 |
| Alliance Neurodiagnostics (LoP only for auto accidents) Services Offered <ul style="list-style-type: none"> ● Continuous Video EEG monitoring for 72 hours | John Puzyk john@afcompanies.com |

| | |
|--|---|
| <ul style="list-style-type: none"> • Continuous EKG monitoring for 72 hours | P:281-744-9735 F:888-982-8442 |
| <p>Dr. Remi Nader Texas Center for Neurosciences <u>Services Offered:</u></p> <ul style="list-style-type: none"> • Neurosurgical Evaluation | Carmen Flores MedAssist@texasneuroscience.net P:832-932-9300 |
| <p>Out-patient Harris County Mental Health Care facilities</p> | 1: 7200 Northloop east Houston Tx 77028, 713-970-8700. 2: 1504 Ben Taub loop, Houston, 77030, 713-970-4640 |
| <p>Apnix Sleep Diagnostics</p> <p>4003-B Bellaire Blvd Houston, Texas 77025</p> | info@apnix.com P:713-349-9767 |
| <p>The Center for Audiology</p> <p>4544 Post Oak Place Dr., Suite 380 Houston, TX 77027</p> | P:713-255-0035 |

Please forward any reports for services obtained to info@nationalbii.com so that we may incorporate them into our care of the patient. Thank you.

- The NBII Team

APPENDIX

Full Results of Neuropsychological Assessment Battery (NAB®)

Attention

| Test | Raw Score | Z Score | T Score | % ile | Interpretive Category | Cognitive Domain Measured |
|-------------------------------------|-----------|---------|---------|-------|--------------------------------------|---|
| Orientation | 28 | | | 3 | Mildly-to-moderately Impaired | Attention and Delayed Recall |
| Orientation to Self | 14 | | | 100 | | Attention and Delayed Recall |
| Orientation to Time | 9 | | | 6 | | Attention and Delayed Recall |
| Orientation to Place | 4 | | | 100 | | Attention and Delayed Recall |
| Orientation to Situation | 1 | | | 100 | | Attention and Delayed Recall |
| Digits Forward | 8 | 0.18 | 47 | 38 | Average | Evaluates auditory attentional capacity and working memory for orally presented information |
| Digits Forward Longest Span | 7 | | | 50 | Average | Evaluates auditory attentional capacity and working memory for orally presented information |
| Digits Backward | 3 | -03.9 | 42 | 21 | Below Average | Evaluates auditory attentional capacity and working memory for orally presented information |
| Digits Backward Longest Span | 5 | | | 50 | Average | Evaluates auditory attentional capacity and working memory for orally presented information |
| Dots | 9 | 1.28 | 54 | 66 | Average | Delayed recognition span for visual working memory |
| Numbers & Letters Part A Speed | 226 | 0.67 | 47 | 38 | Average | Evaluates deficits in attention, inhibition, and impulsivity |
| Numbers & Letters Part A Errors | 8 | -0.36 | 41 | 18 | Below Average | Evaluates deficits in attention, inhibition, and impulsivity |
| Numbers & Letters Part A Efficiency | 102 | 0.67 | 47 | 38 | Average | Evaluates deficits in attention, inhibition, and impulsivity |
| Numbers & Letters Part B Efficiency | 74 | 0.18 | 42 | 21 | Below Average | Evaluates deficits in attention, inhibition, and impulsivity |
| Numbers & Letters | 79 | 0.81 | 54 | 66 | Average | Evaluates deficits in attention, |

Neuropsychological Assessment Battery for [REDACTED] | 46 of 53

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| | | | | | | |
|-------------------------------------|----|-------|----|----|--|---|
| Part C Efficiency | | | | | | inhibition, and impulsivity |
| Numbers & Letters Part D Efficiency | 47 | 0.33 | 43 | 24 | Below Average | Evaluates deficits in attention, inhibition, and impulsivity |
| Numbers & Letters Part D Disruption | 36 | -1.34 | 35 | 7 | Mildly Impaired | Evaluates deficits in attention, inhibition, and impulsivity |
| Driving Scenes | 30 | -1.48 | 24 | <1 | Moderately-to-severely Impaired | Related to everyday living, Measures working memory, visual scanning, attention to detail and selective attention |

Language

| Test | Raw Score | Z Score | T Score | % ile | Interpretive Category | Cognitive Domain Measured |
|--|-----------|---------|---------|-------|-----------------------|---|
| Oral Production | 28 | .39 | 54 | 66 | Average | Speech output and Verbal Fluency |
| Auditory Comprehension | 56 | -0.77 | 51 | 54 | Average | Assess language impairments, aphasia, and deficits in auditory comprehension |
| Auditory Comprehension Colors | 13 | | | 100 | | Assess language impairments, aphasia, and deficits in auditory comprehension |
| Auditory Comprehension Shapes | 22 | | | 100 | | Assess language impairments, aphasia, and deficits in auditory comprehension |
| Auditory Comprehension Colors/Shapes/Numbers | 21 | | | 100 | | Assess language impairments, aphasia, and deficits in auditory comprehension |
| Auditory Comprehension Pointing | 6 | | | 100 | | Assess language impairments, aphasia, and deficits in auditory comprehension |
| Auditory Comprehension Yes/No | 10 | | | 100 | | Assess language impairments, aphasia, and deficits in auditory comprehension |
| Auditory Comprehension Paper Folding | 17 | | | 100 | | Assess language impairments, aphasia, and deficits in auditory comprehension |
| Naming | 30 | 0.28 | 54 | 79 | Above Average | Evaluates an individual's naming abilities and facilitate identification of aphasia |

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| | | | | | | |
|--|----|-------|----|-----|-------------------------------|---|
| Naming Percent Correct After Semantic Cueing | 0 | | | 58 | | Evaluates an individual's naming abilities and facilitate identification of aphasia |
| Naming Percent Correct After Phonemic Cueing | 0 | | | 24 | | Evaluates an individual's naming abilities and facilitate identification of aphasia |
| Reading Comprehension | 13 | | | 50 | Average | Interpret and analyze information, Apraxia of speech |
| Reading Comprehension Words | 6 | | | 100 | | Interpret and analyze information, Apraxia of speech |
| Reading Comprehension Sentences | 7 | | | 100 | | Interpret and analyze information, Apraxia of speech |
| Writing | 10 | 0.81 | 60 | 84 | Above Average | Difficulty with writing or Agraphia |
| Writing Legibility | 2 | | | 50 | Average | Difficulty with writing or Agraphia |
| Writing Spelling | 2 | | | 3 | Mildly-to-moderately impaired | Difficulty with writing or Agraphia |
| Writing Syntax | 3 | | | 50 | Average | Difficulty with writing or Agraphia |
| Writing Conveyance | 3 | | | 75 | Above Average | Difficulty with writing or Agraphia |
| Billing Payment | 8 | -2.33 | 19 | <1 | Severely Impaired | Ecological Validity, Difficulty with writing or Agraphia |

Memory List Learning

| Test | Raw Score | Z Score | T Score | % ile | Interpretive Category | Cognitive Domain Measured |
|---|-----------|---------|---------|-------|--------------------------------------|--|
| List Learning List A Trial 1 Immediate Recall | 4 | | | 5 | Mildly-to-moderately Impaired | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A Trial 2 Immediate Recall | 8 | | | 19 | Below Average | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A Trial 3 Immediate Recall | 10 | | | 25 | Average | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A | 22 | -0.18 | 42 | 21 | Below Average | Short-Term Episodic Memory. Checks the recall improvement with |

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| | | | | | | |
|--|----|------|----|----|------------------------|--|
| Immediate Recall | | | | | | repetition trials |
| List Learning List B Immediate Recall | 5 | 0.64 | 50 | 50 | Average | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A Short Delayed Recall | 11 | 0.84 | 58 | 79 | Above Average | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A Long Delayed Recall | 10 | 0.50 | 52 | 58 | Average | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A Percent Retention | 91 | | | 19 | Below Average | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A Long Delayed Forced-Choice Recognition | 12 | | | 50 | Average | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A Long Delayed Forced-Choice Recognition False Alarms | 1 | | | 10 | Mildly Impaired | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A Discriminability Index | 11 | | | 50 | Average | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning List A Recall vs. Recognition Index | 83 | | | 50 | Average | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning Semantic Clusters | 7 | | | 24 | | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning Perseverations | 0 | | | 39 | | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| List Learning Intrusions | 0 | | | 51 | | Short-Term Episodic Memory. Checks the recall improvement with repetition trials |

Memory Shape Learning

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| Test | Raw Score | Z Score | T Score | % ile | Interpretive Category | Cognitive Domain Measured |
|---|-----------|---------|---------|-------|--------------------------------------|--|
| Shape Learning Trial 1 Immediate Recognition | 6 | | | 75 | Above Average | Visual Memory, Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| Shape Learning Trial 2 Immediate Recognition | 6 | | | 19 | Below Average | Visual Memory, Short-Term Episodic Memory. Checks the recall improvement recall with repetition trials |
| Shape Learning Trial 3 Immediate Recognition | 7 | | | 25 | Average | Visual Memory, Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| Shape Learning Immediate Recognition | 19 | 0.77 | 50 | 50 | Average | Visual Memory, Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| Shape Learning Delayed Recognition | 7 | 0.95 | 52 | 58 | Average | Visual Memory, Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| Shape Learning Percent Retention | 100 | | | 50 | Average | Visual Memory, Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| Shape Learning Delayed Forced-Choice Recognition | 5 | | | 5 | Mildly-to-moderately impaired | Visual Memory, Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| Shape Learning Delayed Forced-Choice Recognition False Alarms | 0 | | | 50 | Average | Visual Memory, Short-Term Episodic Memory. Checks the recall improvement with repetition trials |
| Shape Learning Discriminability Index | 5 | | | 5 | Mildly-to-moderately impaired | Visual Memory, Short-Term Episodic Memory. Checks the recall improvement with repetition trials |

Memory Story Learning

| Test | Raw Score | Z Score | T Score | % ile | Interpretive Category | Cognitive Domain Measured |
|------------------------------------|-----------|---------|---------|-------|------------------------|------------------------------|
| Story Learning Trial 1 Phrase Unit | 12 | | | 11 | Mildly Impaired | Immediate and delayed recall |

| | | | | | | |
|---|----|-------|----|----|--------------------------------------|------------------------------|
| Story Learning Trial 2 Phrase Unit | 18 | | | 10 | Mildly Impaired | Immediate and delayed recall |
| Story Learning Phrase Unit Immediate Recall | 30 | -1.34 | 35 | 7 | Mildly Impaired | Immediate and delayed recall |
| Story Learning Thematic Unit Immediate Recall | 7 | | | 7 | Mildly Impaired | Immediate and delayed recall |
| Story Learning Trial 1 Thematic Unit | 3 | | | 7 | Mildly Impaired | Immediate and delayed recall |
| Story Learning Trial 2 Thematic Unit | 4 | | | 5 | Mildly-to-moderately Impaired | Immediate and delayed recall |
| Story Learning Phrase Unit Delayed Recall | 14 | -1.17 | 35 | 7 | Mildly Impaired | Immediate and delayed recall |
| Story Learning Thematic Unit Delayed Recall | 3 | | | 6 | Mildly Impaired | Immediate and delayed recall |
| Story Learning Phrase Unit Percent Retention | 78 | | | 9 | Mildly Impaired | Immediate and delayed recall |

Daily Living Memory

| Test | Raw Score | Z Score | T Score | % ile | Interpretive Category | Cognitive Domain Measured |
|--|-----------|---------|---------|-------|--------------------------------------|--|
| Daily Living Memory Immediate Recall | 42 | -0.18 | 42 | 21 | Below Average | Ecological Validity for Immediate and delayed recall |
| Daily Living Memory Delayed Recall | 12 | -0.67 | 30 | 2 | Mildly-to-moderately Impaired | Ecological Validity for Immediate and delayed recall |
| Daily Living Memory Retention | 80 | | | 7 | Mildly Impaired | Ecological Validity for Immediate and delayed recall |
| Daily Living Memory Delayed Recognition | 9 | | | 11 | Mildly Impaired | Ecological Validity for Immediate and delayed recall |
| Daily Living Memory Recall vs. Recognition | 133 | | | 7 | Mildly Impaired | Ecological Validity for Immediate and delayed recall |
| Medication Instructions Immediate Recall | 26 | | | 75 | Above Average | Ecological Validity for Immediate and delayed recall |
| Medication Instructions Delayed Recall | 9 | | | 50 | Average | Ecological Validity for Immediate and delayed recall |

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| | | | | | | |
|---|----|--|--|----|--------------------------------------|--|
| Medication Instructions Delayed Recognition | 2 | | | 50 | Average | Ecological Validity for Immediate and delayed recall |
| Name/Address/Phone Immediate Recall | 16 | | | 9 | Mildly Impaired | Ecological Validity for Immediate and delayed recall |
| Name/Address/Phone Delayed Recall | 3 | | | <1 | Severely Impaired | Ecological Validity for Immediate and delayed recall |
| Name/Address/Phone Delayed Recognition | 7 | | | 5 | Mildly-to-moderately Impaired | Ecological Validity for Immediate and delayed recall |

Visuospatial Functions

| Test | Raw Score | Z Score | T Score | % ile | Interpretive Category | Cognitive Domain Measured |
|--|-----------|---------|---------|-------|--------------------------------------|--|
| Visual Discrimination | 16 | 0.28 | 49 | 46 | Average | Evaluates visual perceptual accuracy |
| Design Construction | 21 | 0.92 | 52 | 58 | Average | Evaluates difficulties with visuoconstruction, Attention, Motor Ability and Executive Function |
| Figure Drawing Copy | 30 | 1.17 | 57 | 76 | Above Average | Spatial, Visuoconstructional Dysfunction, Attention, Working Memory, Motor Ability and Executive Functions |
| Figure Drawing Copy Organization | 4 | -1.75 | 30 | 2 | Mildly-to-moderately Impaired | Spatial, Visuoconstructional Dysfunction, Attention, Working Memory, Motor Ability and Executive Functions |
| Figure Drawing Copy Fragmentation | 3 | | | 11 | Mildly Impaired | Spatial, Visuoconstructional Dysfunction, Attention, Working Memory, Motor Ability and Executive Functions |
| Figure Drawing Copy Planning | 1 | | | <1 | Severely Impaired | Spatial, Visuoconstructional Dysfunction, Attention, Working Memory, Motor Ability and Executive Functions |
| Figure Drawing Immediate Recall | 27 | 1.48 | 58 | 79 | Average | Spatial, Visuoconstructional Dysfunction, Attention, Working Memory, Motor Ability and Executive Functions |
| Figure Drawing Immediate Recall Organization | 4 | | | 3 | Mildly-to-moderately Impaired | Spatial, Visuoconstructional Dysfunction, Attention, Working Memory, Motor Ability and Executive Functions |

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| | | | | | | |
|---|----|------|----|----|--------------------------|--|
| | | | | | | Functions |
| Figure Drawing Immediate Recall Fragmentation | 3 | | | 11 | Mildly Impaired | Spatial, Visuoconstructional Dysfunction, Attention, Working Memory, Motor Ability and Executive Functions |
| Figure Drawing Immediate Recall Planning | 1 | | | <1 | Severely Impaired | Spatial, Visuoconstructional Dysfunction, Attention, Working Memory, Motor Ability and Executive Functions |
| Figure Drawing Percent Retention | 90 | | | 50 | Average | Spatial, Visuoconstructional Dysfunction, Attention, Working Memory, Motor Ability and Executive Functions |
| Map Reading | 8 | 0.23 | 46 | 34 | Average | Ecological Validity, Spatial, Attention, Working Memory, Motor Ability and Executive Functions |

Executive Functions

| Test | Raw Score | Z Score | T Score | % ile | Interpretive Category | Cognitive Domain Measured |
|--------------------------------|-----------|---------|---------|-------|--------------------------------------|---|
| Mazes | 6 | 0.36 | 32 | 4 | Mildly-to-moderately Impaired | Evaluates an individual's planning, foresight, and organizational abilities |
| Word Generation | 2 | -1.34 | 33 | 4 | Mildly-to-moderately Impaired | Spontaneous generation of words, Executive Function |
| Word Generation Perseverations | 0 | | | 50 | Average | Executive Function |

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