Brain Health Report

🪪	OHWN-SAMPLE-00048	👤	Hector Sharp
🎂	01 Jan 1980	🧍	Male
📅	10 May 2014	📄	Testing Session # 1
📋	**Additional Clinical Insights:** Addiction		

Brain Health Score

Scores range from 1 (low) to 10 (high), and indicate ranked position among others of the same age and gender

3.8 Thinking

3.5 Emotion

3.8

4 Self Regulation

4 Feeling

Additional Clinical Insights

Addiction: Substance abuse screen   [**Yes** |]

Total Score: 11 – Moderate to high range likelihood

Indicators for program drop out or relapse   [**Yes** |]

▣ Clinical Insights: Addiction

Simple Screening Instrument for Substance Abuse (SSI-SA)

Total Score: 11 – Moderate to high range likelihood | **Yes** |

Score range 0 – 14:
0 – 1: Very low likelihood
2 – 3: Low range likelihood
4 – 14: Moderate to high range likelihood

Recognition of a substance abuse problem in the last 6 months — **Yes**

	YES	NO
Acknowledgement of a current problem with substance abuse	✔	
Acknowledgement of too much use of alcohol or other drugs	✔	
Making attempts to cut down or quit using alcohol or other drugs	✔	
Seeking help because of drinking or drug use (e.g. Alcoholics Anonymous, counselors or treatment program)		✔

Adverse consequences of substance abuse in the last 6 months — **Yes**

	YES	NO
Health problems	✔	
Problems with family or friends	✔	
Problems at work or school	✔	
Being arrested or having other legal problems		✔
Losing temper or getting into arguments or fights	✔	
Needing to drink or use drugs more and more to get the same effect	✔	
Spending a lot of time thinking about or trying to get alcohol or other drugs	✔	
Being more likely to do something you wouldn't normally do when drinking or using drugs, such as breaking rules, taking risks, selling personal possessions	✔	

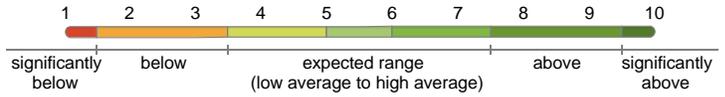### Feelings of guilt about substance abuse in the last 6 months — **Yes**

Having ever had a problem with substance abuse (now or in the past) — **No**

Clinical Insights: Addiction

Brain Health Indicators for Program Outcomes

STEN scores range from 1 to 10.
Higher scores always indicate better functioning.
See end of report for description of Brain Health Scores

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

significantly
below

below

expected range
(low average to high average)

above

significantly
above

Targeted training of poor functioning in these areas with MyBrainSolutions may benefit treatment efficacy.

Indicators for Program Drop Out — No

Greater risk of program drop out is linked to poorer performance on cognitive markers of Flexibility[1,4], Working Memory[1,2] and Executive Function[1,3], and at intake.

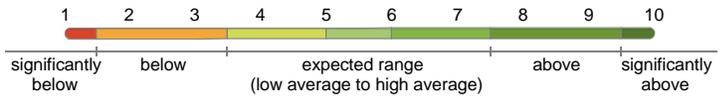| CAPACITY	SCALE	SCORE	
Flexibility	below	3	
Working Memory	expected range	3.5	
Executive Function	expected range	4	

Indicators for Relapse — Yes

Greater risk of relapse following program completion is linked to poorer emotional functioning (presence of Depressed Mood[5,6] and Anxiety[5]), and poor Resilience skills[7] at intake.

CAPACITY	SCALE	SCORE	
Anxiety Level	below	3	
Depressed Mood Level	expected range	4.5	
Resilience	below	2	

▤ Brain Health Scores

STEN scores range from 1 to 10.
Higher scores always indicate better functioning.
See end of report for description of Brain Health Scores

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

significantly below | below | expected range (low average to high average) | above | significantly above

Overall Brain Health Score   3.8

Thinking   3.8

CAPACITY	SCALE	SCORE	
Motor Coordination	expected range	4.5	
Processing Speed	expected range	4.5	
Sustained Attention	expected range	4	
Controlled Attention	expected range	3.5	
Flexibility	below	3	
Inhibition	below	2.5	
Working Memory	expected range	3.5	
Recall Memory	expected range	4.5	
Executive Function	expected range	4	

Emotion   3.5

CAPACITY	SCALE	SCORE	
Identifying Emotions	expected range	3.5	
Emotion Bias	expected range	3.5	

Feeling   4

CAPACITY	SCALE	SCORE	
Stress Level	expected range	4.5	
Anxiety Level	below	3	
Depressed Mood Level	expected range	4.5	

Self Regulation   4

CAPACITY	SCALE	SCORE	
Positivity-Negativity Bias	expected range	3.5	
Resilience	below	2	
Social Capacity	expected range	6.5	

Your Profile of Styles for Processing Information

Your brain seeks out interesting new input from your environment. You are likely to be at your best with active tasks, and have the energy to discover new things while keeping aware of the risks they may bring.

Thinking Style	Novelty Engaged	Logically Focused
Emotion Style	Concretely Detailed	Nonconsciously Intuitive
Feeling Style	Stress Sensitive	Stress Mastery
Self Regulation Style	Risk Oriented	Positively Oriented

Learning and Work

Your Thinking style is Novelty Engaged. This means you may be suited to 'learning by doing'. You may do best in work and learning situations that focus on day-to-day tasks. Situations that rely on long hours of concentration and planning are usually optimal for your best work. In your work or learning environment, you may be distracted by changes around you, or by interruptions. In a busy work environment, you are likely to be the one with the energy to keep up. In combination with your Stress Sensitivity, you may gain support from being in a team.

Relationships and Communication

Your Emotion processing style is Concretely Detailed. With this style, you are likely to focus on what others say, rather than try and read their facial expressions and body language. This means you may prefer others to mean what they say, and be clear about their communication. Combined with your Stress Sensitivity and Risk Orientation, this will allow you to be the 'realist' at work and other situations.

Dealing with Life Events and Stress

Your profile shows you are Stress Sensitive. Your sensitivity to feelings helps you be aware of what others are experiencing. But, it can also mean you are vulnerable to the effects of daily stress. Being responsive to the environment, and Novelty Engaged in your Thinking style, can also create vulnerability to stress. This means you need to be clear about your own needs, and find your best ways to recover from stress. This will be helped by finding and tuning in to the things that give you your best healthy rewards, and positive emotional experiences. It will also be helped by learning ways to keep your focus so you can plan ahead to meet life's changes.

Quality of Life and Happiness

Your Self Regulation style is Risk Oriented. We all have a naturally more negative than positive bias in life. Because this negative orientation is stronger in your profile, it will be important to offset it by focusing every day on positive experiences and rewards. In this way, you will be able to develop habits for automatically tuning in to the positive. This is a way to enhance your happiness with life, the quality of your relationships with others, your health and wellbeing.

FURTHER DETAILS

Detailed breakdown of scores and reference
material for testing battery and scoring methods

Part A: Detailed Results

Z Score: -2 -1 0 +1 +2

Where you score compared to others:

| significantly below | below | expected range (low average to high average) | above | significantly above |
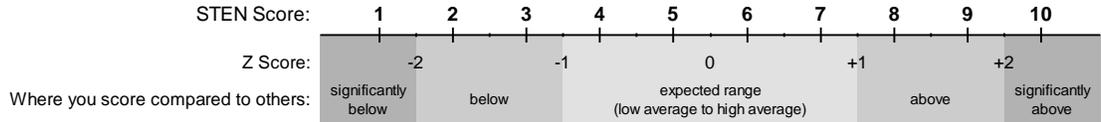
Thinking:

Motor Coordination
Number of Taps
Variability of Pause Between Taps

Processing Speed
Reaction Time

Sustained Attention
Accuracy
Errors of Commission
Errors of Omission
Reaction Time
Variability of Reaction Time

Controlled Attention
Trials Completed in 20 seconds (incongruent)
Reaction Time (incongruent)
Trials Completed in 20 seconds (congruent)
Reaction Time (congruent)
Reaction Time (interference)

Flexibility
Accuracy
Completion Time
Connection Time

Inhibition
Accuracy
Errors of Commission
Errors of Omission
Reaction Time
Variability of Reaction Time

Working Memory
Maximum Recall Span
Correct Trials

Recall Memory
Immediate Recall Accuracy
Delayed Recall Accuracy

Executive Function
Completion Time
Overall Accuracy
Overrun Errors
Paths Completed
Path Learning Time

Emotion:

Identifying Emotions
Happy Accuracy
Sad Accuracy
Anger Accuracy
Fear Accuracy
Disgust Accuracy
Neutral Accuracy

Emotion Bias
Reaction Time for Sad Emotions
Reaction Time for Anger Emotions
Reaction Time for Fear Emotions
Reaction Time for Disgust Emotions

📰 Part B: Description of Brain Health Scores

Thinking[1]

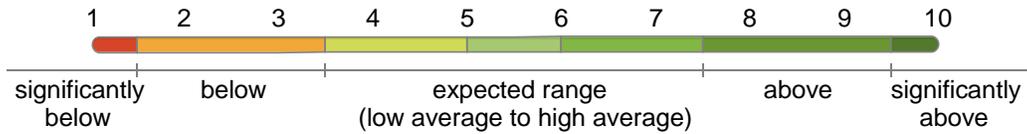| CAPACITY	DESCRIPTION	TASK DESCRIPTION
Motor Coordination	Capacity to quickly execute movements	*Motor Tapping* – Repeatedly tap the keyboard space bar with the index finger of their dominant hand as fast as possible for 60 seconds.
Processing Speed	Capacity to rapidly process information	*Choice Reaction Time* – Respond to 1 of 2 circles that light up, using the left and right arrow keys on the keyboard. There are 20 trials.
Sustained Attention	Capacity to maintain focus while resisting distractions	*Continuous Performance Test* – 1 of 4 letters (B,C,D,G) are presented one at time. Participants respond when the same letter appears twice in row (an n-back task).
Controlled Attention	Capacity to stop automatic reactions and thoughts as needed	*Verbal Interference* – Colored words with incongruent color-word combinations (e.g. the word BLUE in red font color) are presented on the screen. In part 1, participants identify the word name (e.g. blue). In part 2, participants identify the font color (e.g. red). Comparable to the Stroop test.
Flexibility	Capacity to effectively switch attention	*Switching of Attention* – 13 digits (1-13) and 12 letters (A-L) are presented spatially across the screen. Participants select responses in ascending sequential order, alternating between digits and letters (e.g. 1-A-2-B).
Inhibition	Capacity to suppress an inappropriate response	*Go/No-Go* – The word "press" appears repeatedly on the screen. Respond as quickly as possible when the word is presented in green font color, and inhibit this response when presented in red font color.
Working Memory	Capacity to hold information 'online' in the moment	*Digit Span* – Participants recall in sequential order a series of digits that are presented one at time on the screen, using a 9-digit number pad.
Recall Memory	Capacity to remember information in the short term	*Verbal Memory Recall* – A list of 20 words is presented one at a time on the screen. Participants then recall the words by selecting 1 of 3 word buttons presented on the screen (1 list word and 2 new words), in consecutive trials, one for each list word.
Executive Function	Capacity to plan and organize behaviour to meet a goal	*Maze* – Identify by trial and error a hidden path within an 8 x 8 grid of circles. Task ends with two consecutive error-free path completions, or times out after 5 minutes.

Emotion[2,3]

CAPACITY	DESCRIPTION	TASK DESCRIPTION
Identifying Emotions	Capacity to identify emotions in others and yourself (such as fear and happiness)	*Explicit Emotion Identification* – Participants identify the emotional expression of faces presented on the screen, selecting 1 of 6 word labels presented below the face (Happy, Fear, Sad, Anger, Disgust, Neutral).
Emotion Bias	The degree to which your nonconscious negative biases impact your thinking	*Delayed Emotion Recognition* – Sets of two faces are presented on the screen, one face is repeated from the previous task, and one face is new. Participants select which of the two faces they remember from the previous task. Reaction time for each emotion compared to Neutral reflects the impact of emotions on decision making.

Feeling[4,5]

CAPACITY	DESCRIPTION	TASK DESCRIPTION
Stress Level	Current stress level, ranging from worry or panic to the complete absence of worry	Stress questions from the Depression, Anxiety and Stress Scale (DASS).
Anxiety Level	Current anxiety level, ranging from very anxious to feeling calm	Anxiety questions from the Depression Anxiety and Stress Scale (DASS).
Depressed Mood Level	Current mood level, ranging from extremely low to an absence of sadness	Depression questions from the Depression Anxiety and Stress Scale (DASS).

Self Regulation[6]

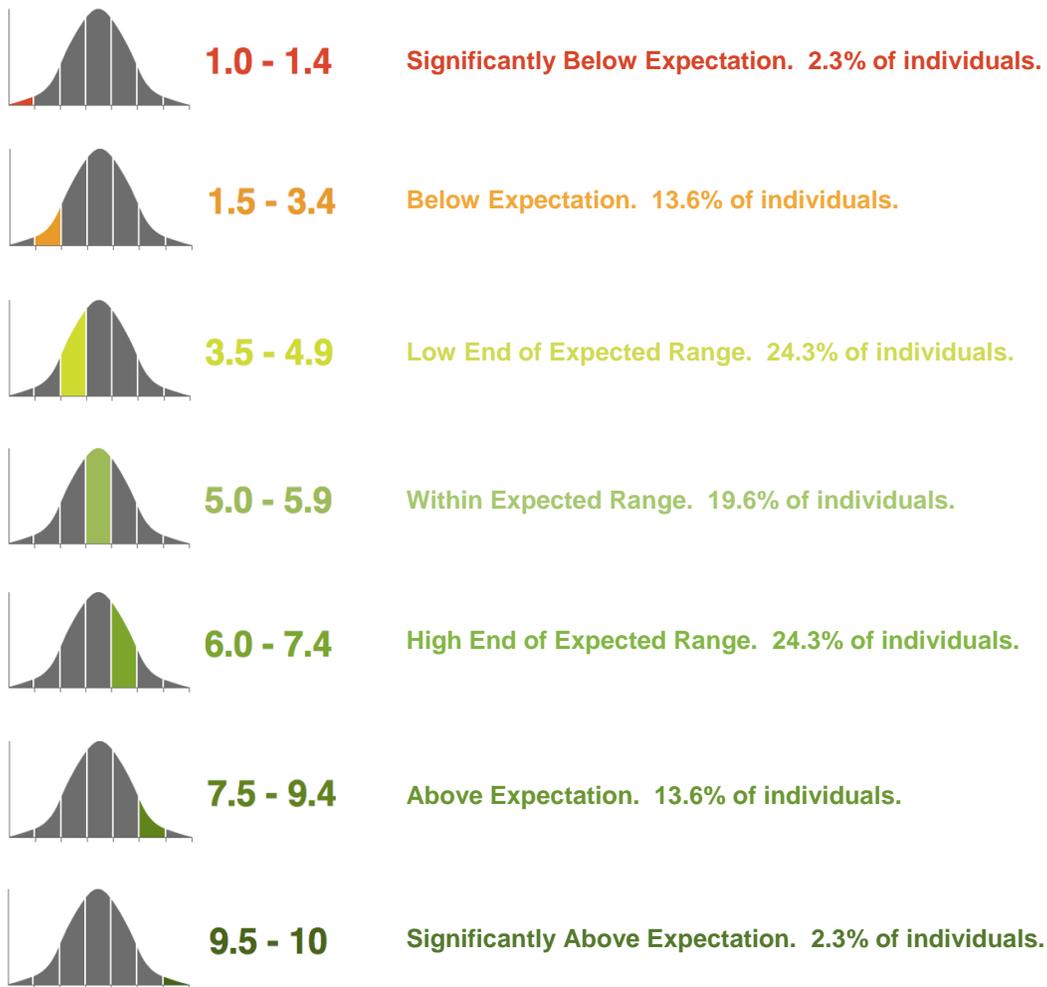| CAPACITY	DESCRIPTION	TASK DESCRIPTION
Positivity-Negativity Bias	Capacity for enhancing positivity and not magnifying threat	Positivity-Negativity Bias questions from the Brief Risk and Resilience Scale (BRISC).
Resilience	Capacity for coping and feeling confident during times of adversity	Resilience questions from the Brief Risk and Resilience Scale (BRISC).
Social Capacity	Capacity for building connections and keeping relationships	Social Capacity questions from the Brief Risk and Resilience Scale (BRISC).

⊞ Part C: Description of STEN scores

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

significantly below   below   expected range (low average to high average)   above   significantly above

STEN (Standard Ten) scores are commonly used in psychological tests to provide a score scale that ranges from 1 to 10 (poorer to better performance), with a mid-point average score of 5.5. The 5.5 mid-point average is the most common score, and scores that fall farther from the mid-point average (in either direction) are considered less common the further out they fall.

STEN scores are calculated by multiplying the normative z-score by 2 and adding 5.5, such that each STEN score interval is equivalent to a 0.5 z-score interval.

1.0 - 1.4   **Significantly Below Expectation. 2.3% of individuals.**

1.5 - 3.4   **Below Expectation. 13.6% of individuals.**

3.5 - 4.9   **Low End of Expected Range. 24.3% of individuals.**

5.0 - 5.9   **Within Expected Range. 19.6% of individuals.**

6.0 - 7.4   **High End of Expected Range. 24.3% of individuals.**

7.5 - 9.4   **Above Expectation. 13.6% of individuals.**

9.5 - 10   **Significantly Above Expectation. 2.3% of individuals.**

◼ Part D: References

Clinical Insights: Addiction

1. Teichner G, Horner MC, Roitzsch JC, Herron J, Thevos A (2002). Substance abuse treatment outcomes for cognitively impaired and intact outpatients. Addictive Behaviors, 27(5): 751-763 (II).

2. Aharonovich E, Hasin DS, Brooks AC, Liu X, Bisaga A, Nunes EV (2006). Cognitive deficits predict low treatment retention in cocaine dependent patients. Drug and Alcohol Dependence, 81(3): 313-322 (II).

3. Moeller GF, Dougherty DM, Barratt ES, Schmitz JM, Swann AC, Grabowski J (2001). The impact of impulsivity on cocaine use and retention in treatment. J Subst Abuse Treat, 21(4): 193-198 (II).

4. Turner TH, LaRowe S, Horner MD, Herron J, Malcom R (2009). Measures of cognitive functioning as predictors of treatment outcome for cocaine dependence. J Subst Abuse Treat. 37(4): 328-334 (II).

5. Charney DA, Palacois-Boix J, Negrete JC, Dobkin PL, Gill KL (2005). Association between concurrent depression and anxiety and six-month outcome of addiction treatment. Psychiatr Serv, 56(8): 927-933 (I).

6. Hasin D, Liu X, Nunes E, McCloud S, Samet S, Endicott J (2002). Effects of major depression on remission and relapse of substance dependence. Arch Gen Psychiatry, 59(4): 375-380 (I).

7. Tate SR, Wu J, McQuaid JR, Cummins K, Shriver C, Krenek M, Brown SA (2008). Comorbidity of substance dependence and depression: role of life stress and self-efficacy in sustaining abstinence. Psychol Addict Behav, 22(1): 47-57 (II).

Brain Health Scores

1. Silverstein SM, Berten S, Olson P, Paul R, Williams LM, Cooper N, Gordon E (2007). Development and validation of a World-Wide-Web based neurocognitive assessment battery: WebNeuro. Behav Res Methods, 39 (4): 940-949 (I).

2. Williams LM, Mathersul D, Palmer DM, Gur RC, Gur RE, Gordon E (2009). Explicit identification and implicit recognition of facial emotions: I. Age effects in males and females across 10 decades. Journal of Clinical and Experimental Neuropsychology, 31(3), 257-277 (I).

3. Mathersul D, Palmer DM, Gur RC, Gur RE, Cooper N, Gordon E, Williams LM (2009). Explicit identification and implicit recognition of facial emotions: II. Core domains and relationships with general cognition. Journal of Clinical and Experimental Neuropsychology, 31(3), 278-291 (I).

4. Henry JD, Crawford JR (2005). The 21-item version of the Depression Anxiety Stress Scales (DASS–21): Normative data and psychometric evaluation in a large non-clinical sample. British Journal of Clinical Psychology, 44, 227-239 (I).

5. Ng F, Trauer T, Dodd S, Callaly T, Campbell S, Berk M (2007). The validity of the 21-item version of the Depression Anxiety Stress Scales as a routine clinical outcome measure. Acta Neuropsychiatrica. 19, 304-310 (I).

6. Williams LM, Cooper NJ, Wisniewski SR, Gatt J, Koslow SH, Kulkarni J, Devarney S, Gordon E, Rush JA (2012). Sensitivity, specificity, and predictive power of the "Brief Risk-relience Index for SCreening", a brief pan-diagnostic web screen for emotional health. Brain Behav, 2(5): 576-589 (I).

Grading

References were classified according to an accepted hierachy of evidence adapted from the US Agency for Healthcare Policy and Research Classification summarized in the table below.

US AHCPR Guidelines Agency for Health Care Policy & Research	
Level	**Type of evidence**
I	Evidence from large, representative samples.
II	Evidence from small, well-designed but not necessarily representative samples of studies which have been published but do not meet Level I criteria.
III	Evidence from non-representative surveys and case reports.
IV	Evidence from expert committee reports or opinions and/or clinical experience of respected authorities.