



2007

Interpretation Manual

ImPACT's Online Version

- Overview
- Background & History
- Memory Composite (Verbal)
- Memory Composite (Visual)
- Visual Motor Speed
- Reaction Time
- Impulse Control
- Total Symptom Score

Interpreting the ImPACT Clinical Report

ImPACT is a sophisticated neurocognitive screening tool that provides a great deal of diagnostic information regarding recovery from injury. Recovery from concussion cannot be accurately tracked through the evaluation of overly simplistic reaction time tests or through tests that are not structured to detect subtle memory dysfunction. The tracking of recovery following injury requires the analysis of test performance across a number of different neurocognitive domains. The ImPACT clinical report is structured to provide information regarding the athlete's current concussion in addition to his or her medical and developmental history. This report has been developed through consultation with hundreds of athletic trainers, neuropsychologists and physicians and will continue to evolve based on feedback and collaboration with our customers.

Breaking Down the Clinical Report

PAGE 1

Demographics, Background, and Concussion History



ImPACT™ Clinical Report

Test Taker's Name

Test Taker's Name

Organization: Company Name

Date of Birth: 12/26/1989

Age: 17

Gender: Male

Height: 77 inches

Handedness: Right

Weight: 234 lbs

Native Country: United States

Second Language:

Native Language: English

Years Speaking:

Years of education completed excluding kindergarten: 11

Repeated one or more years of school: No

Received speech therapy: No

Diagnosed learning disability: No

Attended special education classes: No

Problems with ADD/hyperactivity: No

Subject's Background Information and Native Language

The athlete should always be questioned regarding their fluency in other languages as this may affect test results.

Subject's Education, Special Needs

YEARS COMPLETED should be recorded along with any history of LD or ADD/ADHD.

Breaking Down the Clinical Report

PAGE 1, bottom

Demographics, Background, and Concussion History

Current sport:	Ice Hockey	Current level of participation:	Semi-Professional
Primary position/event/class:	D	Years of experience at this level:	2

Number of times diagnosed with a concussion (excluding current injury):	1
Concussions that resulted in loss of consciousness:	0
Concussions that resulted in confusion:	0
Concussions that resulted in difficulty remembering events that occurred immediately after injury:	0
Concussions that resulted in difficulty remembering events that occurred:	0
Total games missed as a result of all concussions combined:	0

Concussion history: October / 2006

Treatment for headaches by physician:	No	History of meningitis:	No
Treatment for migraine headaches by physician:	No	Treatment for substance/alcohol abuse:	No
Treatment for epilepsy/seizures:	No	Treatment for psychiatric condition (depression, anxiety):	No
History of brain surgery:	No		

Subject's Background Information and Native Language

The athlete should always be questioned regarding their fluency in other languages as this may affect test results.

Subject's Education, Special Needs

YEARS COMPLETED should be recorded along with any history of LD or ADD/ADHD.

Breaking Down the Clinical Report

PAGE 2

Memory Composite (Verbal)



ImPACT™ Clinical Report

Test Taker's Name

Exam Type	Baseline	Follow-Up 1	Follow-Up 2	Follow-Up 3	Follow-Up 4
Date Tested	09/19/2006	10/28/2006	10/30/2006	11/02/2006	11/05/2006
Last Concussion			10/27/2006	10/27/2006	10/27/2006
Exam Language	English	English	English	English	English
Test Version	1.0	1.0	1.0	1.0	1.0

Composite Scores										
Memory composite (verbal)	93	77%	96	86%	99	94%	93	77%	94	80%
Memory composite (visual)	94	91%	92	86%	79	51%	75	35%	90	81%
Visual motor speed composite	33.73	25%	33.55	24%	34.55	29%	27.88	6%	39.28	60%
Reaction time composite	0.53	49%	0.69	4%	0.58	25%	0.58	25%	0.55	38%
Impulse control composite	2		1		13		27		7	
Total Symptom Score	5		31		5		2		0	

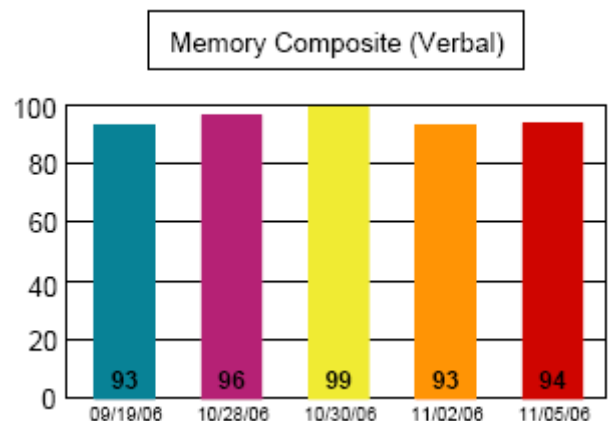
Scores in **bold RED** type exceed the Reliable Change Index (RCI) when compared to the baseline score. However, scores that do not exceed to RCI index may still be clinically significant. Percentile scores if available are listed in small type.

Memory Composite (Verbal)

This composite score represents the average performance on the Word Memory (Module 1), the Symbol Match (Module 4) and the Three letters (Module 6), expressed in percent correct. Scores are also represented in age-referenced percentile (Version 3.0 or higher). This athlete did not demonstrate a significant decline from baseline at the time of any of the follow-up assessments.

ImPACT provides a graphic representation of scores across multiple neurocognitive domains. This allow for direct graphic comparison of performance on testing across different evaluation periods.

This graph can be found on page 5 of the ImPACT Clinical Report.



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Breaking Down the Clinical Report

PAGE 2

Memory Composite (Visual)



ImPACT™ Clinical Report

Test Taker's Name

Exam Type	Baseline	Follow-Up 1	Follow-Up 2	Follow-Up 3	Follow-Up 4
Date Tested	09/19/2006	10/28/2006	10/30/2006	11/02/2006	11/05/2006
Last Concussion			10/27/2006	10/27/2006	10/27/2006
Exam Language	English	English	English	English	English
Test Version	1.0	1.0	1.0	1.0	1.0

Composite Scores										
Memory composite (verbal)	93	77%	96	86%	99	94%	93	77%	94	80%
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Reaction time composite	0.53	49%	0.69	4%	0.58	25%	0.58	25%	0.55	38%
Impulse control composite	2		1		13		27		7	
Total Symptom Score	5		31		5		2		0	

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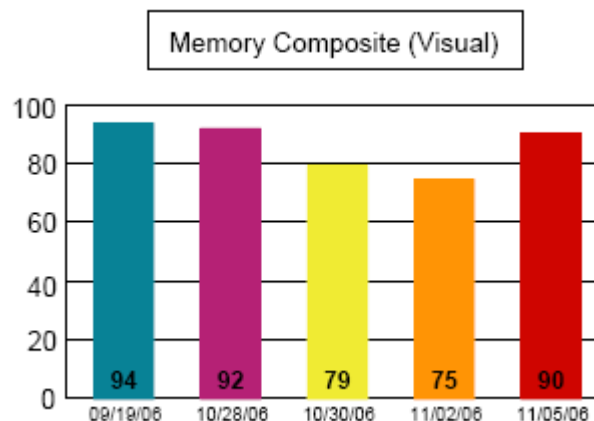
Memory Composite (Visual)

This section measures visual attention, scanning, visual learning, and attention. This score represents a new composite score for ImPACT 2.0 or higher. This athlete shows a significant drop from baseline for follow-ups 2 and 3 but not for follow-ups 1 or 4.

This score in its current form is comprised of the average of:

- Total percent correct score from module 2 (Design Memory).
- Total correct-memory score from module 3 (X's & O's).

This graph can be found on page 5 of the ImPACT



Breaking Down the Clinical Report

PAGE 2

Visual Motor Speed Composite



ImPACT™ Clinical Report

Test Taker's Name

Exam Type	Baseline	Follow-Up 1	Follow-Up 2	Follow-Up 3	Follow-Up 4
Date Tested	09/19/2006	10/28/2006	10/30/2006	11/02/2006	11/05/2006
Last Concussion			10/27/2006	10/27/2006	10/27/2006
Exam Language	English	English	English	English	English
Test Version	1.0	1.0	1.0	1.0	1.0

Composite Scores										
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Reaction time composite	0.53	49%	0.69	4%	0.58	25%	0.58	25%	0.55	38%
Impulse control composite	2		1		13		27		7	
Total Symptom Score	5		31		5		2		0	

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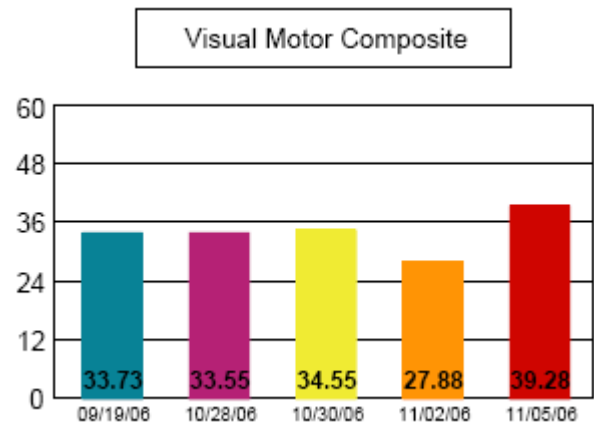
Visual Motor Speed Composite

This athlete demonstrated no significant drop in performance (follow-ups 1 and 2) but did show a significant drop in performance on follow-up 3. Her performance at follow-up 4 was better than baseline.

Is comprised of the average of following scores:

- Total number correct /4 during interference of module 3 (X's & O's).
- Average counted correctly x3 from countdown phase of module 6 (3 Letters).

This graph can be found on page 5 of the ImPACT Clinical Report.



Breaking Down the Clinical Report

PAGE 2

Reaction Time Composite



ImPACT™ Clinical Report

Test Taker's Name

Exam Type	Baseline	Follow-Up 1	Follow-Up 2	Follow-Up 3	Follow-Up 4
Date Tested	09/19/2006	10/28/2006	10/30/2006	11/02/2006	11/05/2006
Last Concussion			10/27/2006	10/27/2006	10/27/2006
Exam Language	English	English	English	English	English
Test Version	1.0	1.0	1.0	1.0	1.0

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Impulse control composite	2		1		13		27		7	
Total Symptom Score	5		31		5		2		0	

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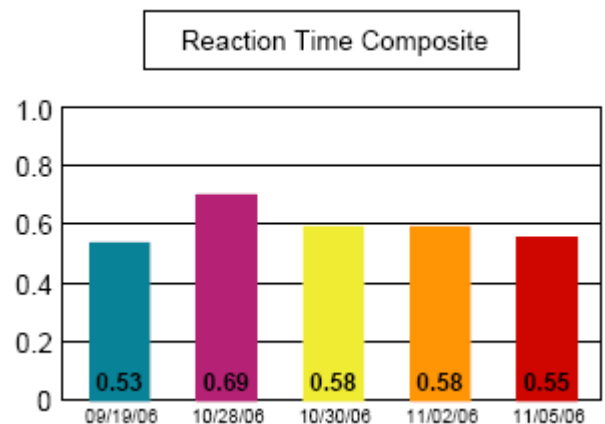
Reaction Time Composite

This athlete demonstrated a significant increase in reaction time (a poorer score) at follow-up 1. Although his scores were still poorer than baseline for follow-ups 2, 3 and 4, these scores did not reach the level needed to exceed the RCI.

The Reaction Time Composite Score is comprised of the average of the following scores:

- Average Correct RT of interference stage of module 3 (X's & O's).
- Average Correct RT/3 of module 4 (Symbol Match).
- Average Correct RT of module 5 (Color Match).

This graph can be found on page 5 of the ImPACT Clinical Report



Breaking Down the Clinical Report

PAGE 2

Impulse Control Composite



ImPACT™ Clinical Report

Test Taker's Name

Exam Type	Baseline	Follow-Up 1	Follow-Up 2	Follow-Up 3	Follow-Up 4
Date Tested	09/19/2006	10/28/2006	10/30/2006	11/02/2006	11/05/2006
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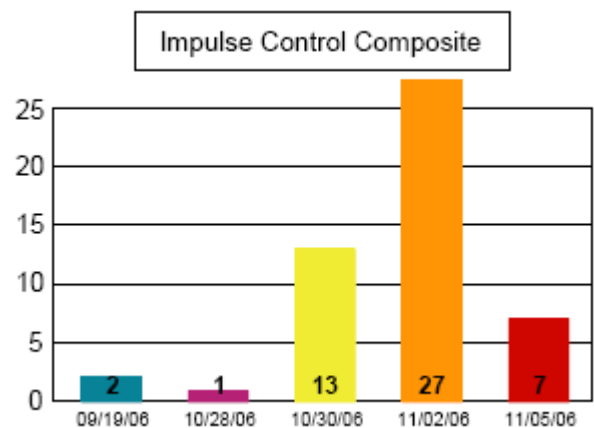
Impulse Control Composite

This provides a measure of errors on testing and is useful in determining test validity. For this athlete, errors are within acceptable levels. Scores above 20 should be viewed as invalid.

This score indicates the sum of errors committed during different phases of the test, and while clinical decisions should not be based on this composite, its inclusion may help in the interpretation of other composites.

This score is obtained by adding:

- Total errors on the interference phase of module 3 (X's & O's).
- Total commissions from module 5 (Color Match).



Very high scores (e.g. greater than 20) are often the result of confusion regarding left and right on the interference phase of module 3, particularly for versions of the test prior to ImPACT 5.0.

This graph can be found on page 5 of the ImPACT Clinical Report.

Breaking Down the Clinical Report

PAGE 2

Total Symptom Score



ImPACT™ Clinical Report

Test Taker's Name

This score presents summary information regarding the athlete's self reported symptom data. A higher score reflects a higher symptom total. See page 4 for Symptom detail. Any new symptoms following a concussion can be significant and even an

increase in symptoms that does not exceed the RCI score may be relevant.

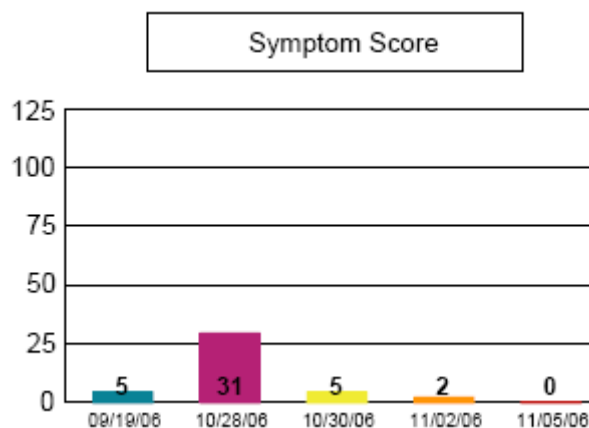
This score represents the total for all 22-symptom descriptors:

- Headache
- Vomiting
- Dizziness
- Trouble falling asleep
- Sleeping less than usual
- Sensitivity to light
- Irritability
- Nervousness
- Feeling more emotional
- Numbness or tingling
- Feeling slowed down
- Feeling mentally foggy
- Difficulty concentrating
- Difficulty remembering
- Visual problems
- Nausea
- Balance Problems
- Fatigue
- Sleeping more than usual
- Drowsiness
- Sensitivity to noise
- Sadness

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Hours slept last night	7.5	6	8	6	8
Medication	*				

* Lavothyroxine 0.37MG

The sleep and medication sections of the ImPACT report may provide valuable information regarding the current medication regimen of the athlete and also provides the opportunity to document additional issues that may affect test performance such as sleep difficulties or computer/environment issue (e.g. noise in exam room, interruption of testing session). This information is provided on page two directly below the Composite Score grid.