

CNS Vital Signs and Pearson:
A complete Concussion
Management System.

Concussion
Vital Signs™

CONCUSSION WEBINAR SERIES

PEARSON

Concussion Vital Signs

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Webinar

Football season is almost here and so is baseline testing for your athletes. This webinar will provide a "how to" of administering baseline testing for student athletes using Concussion Vital Signs online neuro-cognitive test.


In this webinar, we will walk you through the basics of how to administer this online test, including how to:

- register an organization as an administrator
- login an athlete for testing
- establish a good testing environment and administer the test
- maneuver within the administrator panel
- login and maneuver within the Clinician's Portal.

Pragmatic issues such as creating different "teams" or "sports" within an administrator panel will be covered as well as simple ways to create user names so they are easy to find and then how to search for test results.

We will also review the tests in the battery and the Basic Overview of CVS scores that are obtained. We will review how to view reports especially the efficiency with which you can identify whether a test is valid or not and which subtest(s) is not valid.

If you are interested in online neuro-cognitive concussion assessments, in particular, the CVS tool, this one- hour session will help you understand the unique aspects of this concussion management tool.



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Webinar

- **Meeting Description:**
 This one-hour session will help you understand the unique aspects of Concussion Vital Signs, an online neuro-cognitive test that provides baseline and post-injury assessments for student athletes. This webinar will provide a "how to" of the test, starting with a walk-through of administering the test and including how to:
 - register an organization as an administrator
 - log in an athlete for testing
 - establish a good testing environment and administer the test
 - maneuver within the administrator panel; and
 - log in and maneuver within the Clinician's Portal
 Other pragmatic issues will be addressed, including:
 - creating different "teams" or "sports" within an administrator panel
 - simple ways to create user names so they are easy to find
 - searching for test results
 In addition, we will review the tests in the battery, the scores, and reports, emphasizing the efficiency with which you can identify the validity of a test and/or subtest(s).

Concussion

- What is concussion?
- How do you get one?
- What are the consequences?
- How do you assess and monitor concussion?
- Who should do an evaluation if you think you had one?
- Can you get more than one? Is there any harm?

Concussion

How do you define it?

Definition

- A concussion is a mild type of traumatic brain injury, (mTBI).
- It can occur as a result of a fall, a motor vehicle accident, or a blow to the head.
- A concussion is the brain's reaction to a jolt or blow to the head.
- It is caused by the brain moving back and forth or twisting in the skull.

Management of Concussion

How do you manage concussion and return to play decisions?

Concussion Management Tool

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    graph LR
      A[Pre-Season Baseline Testing] --> B[Sideline Assessment]
      B --> C[Post-Injury Assessment]
  
```

Pre-Season Baseline Testing

- Neurocognitive Evaluation
- Concussion History
- Symptom Scale
- Balance Testing

Key Advantage: Parents can login and complete Concussion History

Sideline Assessment

- Pocket SCAT 2
- Emergency Procedures e.g., Call 911

Key Advantage: "During Play" Mobile Assessment Tool

Post-Injury Assessment

- Rest brain-Monitor recovery with Symptom Scale
- After symptom free with graduated exercise then re-administer the Neurocognitive Test
- Update Concussion History
- Balance Testing

Devices: iPad, iPhone, Xoom, Droid, Blackberry Enabled

- Symptoms and History** (Includes Pocket SCAT 2, Baseline /Post-Injury)
- Brain Function** (Includes Computerized Neuropsychological Tests, Paper and Pencil)
- Balance Testing** (Includes various testing scenarios)
- Brain imaging** (Includes MRI and CT scan images)
- Lab Values**

Student-Athlete Concussion Management

← Pre-Participation or Pre-Season Exam & Activity | Evaluation & Management of Concussed Athlete →

Prevent	Concussion Education	Pre-Season Baseline Testing	Sideline and Post-Injury Assessment	Academic Support During Recovery	Return to Play Decision
<ul style="list-style-type: none"> Policy Plan Protocol 	<ul style="list-style-type: none"> Athletic Trainer School Nurse Coaches 	<ul style="list-style-type: none"> Athletic Trainer Coaches School Staff Parent Directed 	<ul style="list-style-type: none"> Athletic Trainer Team Physician Coaches Athletes (Observe Teammate Signs) 	<ul style="list-style-type: none"> Parent Teachers School Nurse Athletic Trainer School Psychologist Guidance Counselor 	<ul style="list-style-type: none"> Team Physician Personal Physician Neuropsychologist Sports Medicine

Systematic Documentation of Relevant Clinical Endpoints to Help Make Informed Return-to-Play Decisions

OPTIMIZED for Easier Management
Concussion Vital Signs Product Training

Add USERS... e.g. One University Account with Multiple Users

Easy Roster Set-Up

Easy to Retire Graduated Athletes

Easy to EDIT or UPDATE Account Information

Easy to VIEW and SEARCH REPORTS

Easy to TRACK Account Activity

Easy Roster Reports e.g. List Invalid Retest, Baseline, Etc.

Easy EDIT Demography Function

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Sideline Assessment...mobile enabled for efficiency
Concussion Vital Signs Product Training

Pocket Scat 2

requires internet connectivity

iPad, iPhone
Xoom, Droid
Blackberry Enabled

Collect your sideline exam information on a handheld device or a clipboard (transfer the data when convenient)...

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Concussion Sideline Assessment: Pocket SCAT 2

Athlete Reference/ID: _____ Test Date/Time: _____

Full Name: _____ Test Administrator Name/Position: _____

Concussion should be suspected in the presence of any one or more of the following: symptoms (such as the physical signs (such as unsteadiness), or impaired brain function (e.g. confusion) or abnormal behavior.

1. Symptoms: The presence of any of the following signs and symptoms may suggest a concussion.
Check the SYMPTOMS exhibited by the athlete.

	Yes	No		
1 Loss of consciousness	<input type="checkbox"/>	<input type="checkbox"/>	13 Feeling slowed down	<input type="checkbox"/>
2 Seizure or convulsion	<input type="checkbox"/>	<input type="checkbox"/>	14 Feeling like "in a fog"	<input type="checkbox"/>
3 Amnesia	<input type="checkbox"/>	<input type="checkbox"/>	15 "Don't feel right"	<input type="checkbox"/>
4 Headache	<input type="checkbox"/>	<input type="checkbox"/>	16 Difficulty concentrating	<input type="checkbox"/>
5 "Pressure in head"	<input type="checkbox"/>	<input type="checkbox"/>	17 Difficulty remembering	<input type="checkbox"/>
6 Neck Pain	<input type="checkbox"/>	<input type="checkbox"/>	18 Fatigue or low energy	<input type="checkbox"/>
7 Nausea or vomiting	<input type="checkbox"/>	<input type="checkbox"/>	19 Confusion	<input type="checkbox"/>
8 Dizziness	<input type="checkbox"/>	<input type="checkbox"/>	20 Drowsiness	<input type="checkbox"/>
9 Blurred vision	<input type="checkbox"/>	<input type="checkbox"/>	21 More emotional	<input type="checkbox"/>

2. Memory function: Failure to answer all questions correctly may suggest a concussion.

	Incorrect	Correct	Additional comments:
At what venue are we at today?	<input type="checkbox"/>	<input type="checkbox"/>	
Which half is it now?	<input type="checkbox"/>	<input type="checkbox"/>	
Who scored last in this game? Incorrect	<input type="checkbox"/>	<input type="checkbox"/>	
What team did you play last week/game?	<input type="checkbox"/>	<input type="checkbox"/>	
Did your team win the last game?	<input type="checkbox"/>	<input type="checkbox"/>	

3. Balance testing: Instructions for tandem stance "Now stand heel-to-toe with your non-dominant foot in front of your dominant foot. Your weight should be evenly distributed across both feet. You should try to maintain stability for 20 seconds with your hips and your eyes closed. I will be counting the number of times you move out of this position. If you move out of this position, open your eyes and return to the start position and continue balancing. I will start timing when you have closed your eyes."

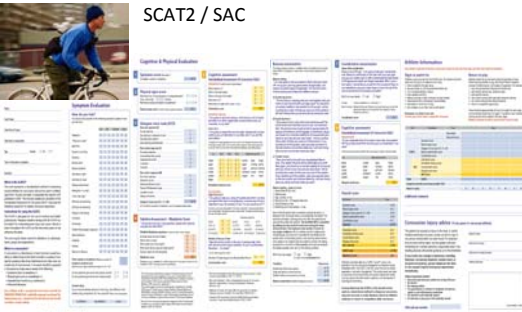
Athlete was observed for 20 seconds. If they make more than 5 errors (such as lift their hands off their hips; open their eyes; lift their forefoot or heel; step, stumble, or fall; or remain out of the start position for more than 5 seconds) then this may suggest a concussion.

Number of Errors:

Any athlete with a suspected concussion should be IMMEDIATELY REMOVED from play, urgently assessed medically, should not be left alone and should not drive a motor vehicle.

Sideline or abbreviated testing is designed to assist with the immediate assessment or screening of sports related concussion (e.g. SIDELINE) and is not intended to replace computerized or comprehensive neuropsychological testing. The Concussion Sideline Assessment should not be used as a stand alone management tool. The Concussion Sideline Assessment is designed to be a support for recognizing sports related concussions and to document them. It may assist a qualified health professional in their return-to-play decision making.

Concussion Evaluation:
SCAT2 / SAC



Computerized neuropsychological testing increases the likelihood of consistent inter-rater reliability across sites. It also helps with accountability/risk management documentation vs. paper-pencil

CVS can assist with your Return-to-Play protocol...

Concussion Vital Signs Product Training

Athletes should not be returned to play the same day of injury. When returning athletes to play, they should follow a stepwise symptom-limited program, with stages of progression. For example:

1. Rest until asymptomatic (physical and mental rest)
Document with Concussion Vital Signs Symptom Scale
2. Light aerobic exercise (e.g. stationary cycle)
Document with Concussion Vital Signs Symptom Scale
3. Sport-specific exercise
Document with Concussion Vital Signs Symptom Scale
4. Non-contact training drills (start light resistance training)
Document with Concussion Vital Signs Symptom Scale
5. Full contact training after medical clearance
Document with Concussion Vital Signs Neurocognitive Testing, Symptom Scale
6. Return to competition (game play)

There should be approximately 24 hours (or longer) for each stage and the athlete should return to stage 1 if symptoms recur.

*****Medical clearance necessary before returning to play.**

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Concussion Symptom Scale- computerized

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Used in all Phases

Graded (1-Mild to 6- Severe)

CSI - Concussion Symptom Inventory

SCAT 2

Neurobehavioral Symptom Inventory

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Concussion History- can be obtained from reliable source- does not have to be from student athlete

Concussion Vital Signs Product Training

Demographic and Background Information - Education

- *Years of Education Completed (e.g. high school senior is 11 years); SCAT - ACE Score;
- *Received Speech Therapy;
- *Attended Special Education Classes;
- *Repeated One or More Years of School;
- *Diagnosed Attention Deficit Disorder (ADD) or (ADHD);
- *Diagnosed Learning Disability;

Demographic and Background Information - Sports

- *Primary Sport;
- *Primary Sport Position;
- *Years you have played this primary sport at current level;
- *Total number of years you have played this primary sport;
- *Secondary Sport;
- *Secondary Sport Position;
- *Years you have played this secondary sport at current level;
- *Total number of years you have played this secondary sport;

Concussion & Medical History

- *Number of times diagnosed with a concussion;
- *Injury 1 (to 2 Injury's can be reported)
- *Approximate Date of Injury;
- *Overs Level;
- *Was this concussion sports related?
- *Did this concussion result in a loss of consciousness?
- *Did this concussion result in confusion?
- *Difficulty remembering events immediately before injury?
- *Difficulty remembering events immediately after injury?

Indicate whether you have experienced the following:

- *Treatment for Headaches by Physician;
- *Treatment for Migraine Headaches by Physician;
- *Treatment for Epilepsy / Seizures;
- *History of Brain Surgery;
- *History of Meningitis;
- *Treatment for Substance / Alcohol abuse;
- *Treatment for Psychiatric Condition (depression / anxiety etc.);

*Current Medications:

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Athlete Testing

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User Name:

Password:

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Demographics

Neurocognitive tests include:

- Verbal Memory (Immediate)
- Visual Memory (Immediate)
- Finger Tapping
- Symbol Digit Coding
- Stroop Test
- Shifting Attention
- Continuous Performance
- Verbal Memory (Delayed)
- Visual Memory (Delayed)

Concussion History
 Concussion Symptoms

Testing Time 25 to 30 Minutes

Concussion Symptom Checklist & History are independent from the Neurocognitive test

What is included? What subtests are there?

Concussion Vital Signs

- Verbal Memory
- Visual Memory
- Finger Tapping
- Symbol Digit Coding
- Stroop Test
- Shifting Attention
- Continuous Performance

Widely Recognized Measure of Motor Speed

Strong Executive Function Tests

Testing Tips?

What is helpful to know?

Room set up?

How do you set the room up to ensure test results can be used?

Brief introduction to interpretation

What do you need to know?
When do you repeat baseline testing?
When do you do post injury testing?

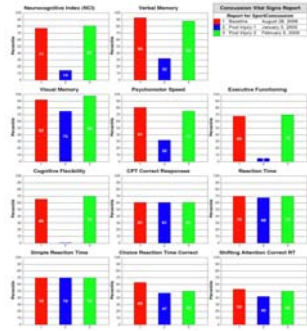
Concussion Vital Signs Test Report

Post-Concussion Example: First Retest

Concussion Vital Signs Report				Test Date Local: January 5, 2009 14:43:28				
Post Injury for: SportConcussion				Test Date GMT: January 5, 2009 18:37:59				
Age: 20				Administrator: Athletic Trainer				
Total Test Time: 39:40 (min:secs)				Language: English (United States)				
Testing Supervision: Supervised by clinician or medical technician				Testing Environment: Alone				
Domain Scores	Baseline (Aug 28, 2008)			Post Injury			At Baseline or Better	Within 5% of Baseline
	Subject Score	Percentile	Valid Score	Subject Score	Percentile	Valid Score		
Neurocognitive Index (NCI)	77		Yes	14		Yes	No	No
Verbal Memory	59	93	Yes	51	32	Yes	No	No
Visual Memory	55	92	Yes	51	75	Yes	No	No
Psychomotor Speed	205	81	Yes	174	32	Yes	No	No
Executive Functioning	55	68	Yes	34	5	Yes	No	No
Cognitive Flexibility	54	66	Yes	26	1	Yes	No	No
CPT Correct Responses	40	61	Yes	40	61	Yes	Yes	Yes
Reaction Time*	549	70	Yes	555	68	Yes	No	Yes
Reaction Time Detail								
Simple Reaction Time*	229	70	Yes	231	70	Yes	No	Yes
Choice Reaction Time Correct*	381	63	Yes	400	47	Yes	No	Yes
Shifting Attention Correct RT*	967	53	Yes	1003	42	Yes	No	Yes

Concussion Vital Signs Test Report

Post-Concussion Example:
Second Retest



Concussion Vital Signs

- Add Administration Rights**
- Easy Roster Set-Up**
- Easy to Retire Graduated Athletes**
- Easy to EDIT or UPDATE Account Information**
- Easy to VIEW and SEARCH REPORTS**
- Easy to TRACK Account Activity**
- Easy Roster Reports e.g. List Invalid Retest, Baseline, Etc.**
- Easy EDIT Demography Function**

Continuity of Care – Clinician Portal

Concussion Vital Signs Test Report (circled)
Form Label: June 12, 2012 12:15 (circled)

Organization Type	High School
VAR Code(s)	CVS
Phone Code	
Address	123 Anywhere, Raleigh NC 27615
Orig Phone	919-555-5555
Fax	919-555-5556
Contact	Athletic Trainer
Site	ATC
Email	concvital@management.com
Phone	919-555-5555
Cell Phone	
Total Shared Results	1,190

Organization Information:
 Organization Type: High School
 VAR Code(s): CVS
 Phone Code:
 Address: 123 Anywhere, Raleigh NC 27615
 Orig Phone: 919-555-5555
 Fax: 919-555-5556
 Contact: Athletic Trainer
 Site: ATC
 Email: concvital@management.com
 Phone: 919-555-5555
 Cell Phone:
 Total Shared Results: 1,190

Registration Form:
 Full Name:
 Email Address:
 Phone Number:
 Medical License Number:
 Concussion Reference Code:
 Athlete Reference ID:

Demo

- Schools Platform, Assessments, Reports, Data Management
- Clinician Portal



CVS

- Technical Support: telephone: 1- 800 249 0659 #7
- Insides sales: Kent Willette
- Presenters: Peter C. Entwistle & Charles Shinaver

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