"The Clinical Advantage"™

Play It S.A.F.E.®
Concussion Guidelines

Be **CLEAR** in your post-concussion assessments:

- **C**lear from the field
- **L**isten to their symptoms
- **E**xamine per Play It S.A.F.E.® protocol
- **A**ssess the findings
- **R**e-evaluate

PLAY IT S.A.F.E.® GUIDELINES

PLAY IT S.A.F.E.
Concussion Management Program

BIODEX
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Research shows that athletes demonstrate decreased stability up to three-five days post injury.[1] This can be a result of ineffective use of one or more their sensory systems.

Signs and symptoms will vary following head trauma. With some individuals, signs and symptoms may resolve immediately after a mild head injury (MHI) while others have persistent symptoms. In either case, the recovery period related to MHI appears to coincide with recovery of postural stability as well as normalization of eye-head coordination and return of cognitive function. While the signs and symptoms may not always be accurately reported, if used in conjunction with computerized testing, they can provide clinicians with a more detailed portrayal of injury[1].

Concussion in sports is an important public health issue in the United States because of the large number of people who incur these injuries each year, the generally young age of athletes at the time of injury (with possible long-term disability) and the potential cumulative effects and serious consequences of sports-related head trauma.[2]

Preseason Screening
The ability to quantify balance and cognitive function in athletes before an injury occurs is an important consideration in a comprehensive athletic program. The objective data provided by computerized assessments provides a performance baseline against which post-injury performance can be compared. It also serves to expose any existing deficits that may predispose an athlete to injury. For example, studies have shown that the chance for injury is higher in individuals with abnormal or pathological sway[3]. With data provided by pre-injury testing, preventative training can then be instituted to more effectively enhance performance and lower the risk of injury.

Post-Injury Testing
Traditionally, balance control has not been assigned a high priority in evaluating athletic injuries. Clinicians have focused mostly on musculoskeletal structures and pathologies or by subjective complaints (e.g., headaches)[1]. Recently, however, strong evidence has been presented demonstrating the impact of balance deficits on functional performance, and the importance of considering balance in the management of athletes is now more recognized[1,4,5,6] Balance deficits in athletes are often persistent, impede the return to normal function, and increase the risk of re-injury. [7,8]

DISCLAIMER: The information provided is not intended to be a substitute for professional medical advice but as a guideline to assessing athletes following a concussion. Always seek the care of a physician or other qualified healthcare provider with any questions or concerns you may have about a medical condition. If there is any question/concern about the athlete's status then recommend not returning to play.

References:
1.Guskiewicz, KM, et al (1997). Alternative approaches to the assessment of mild head injury in athletes. Med Sci Sports Exerc, Vol 29, No 7 Supplement, pp S213-221.
2.Allison, et al. Contemporary management of balance deficits. NeuroCom Intl., Clackamas, OR, 1994
3.Kauffman, et al. Balance is a critical parameter in orthopedic rehabilitation. Orthopedic Physical Therapy Clinics of North America; New Technologies in Physical Therapy 6:1 1059-1516, 1997
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5.Wyke. Cervical articular contributions to posture and gait: Their relation to senile disequilibrium. Age Aging 8:251-267, 1979
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PLAY IT S.A.F.E.® CONCUSSION GUIDELINES

SIDELINE ASSESSMENT & FOLLOW-UP EVALUATION

Experts agree that the diagnosis of a concussion involves a comprehensive examination and evaluation that includes a thorough history and measurement of symptoms, physical impairments, cognition and behavioral changes. The Play It S.A.F.E.® protocol provides the following guidelines to assess a concussion and assist in return to play (RTP) decisions:

"Be **CLEAR** in your post-concussion assessments:"

- **C**lear from the field (emergency medical guidelines, including clearing cervical spine injury)
- **L**isten to their symptoms (measure per the Graded Symptom Checklist)
- **E**xamine per Play It S.A.F.E.® protocol
- **A**ssess the findings
- **R**e-evaluate

Name:_____ Sport:_____

Age:_____ Gender: M F Date/Time of Injury:_____

Examiner:_____ Date/Time of Assessment:_____

Sideline Assessment

Once the athlete has been medically cleared from the field, measure their symptoms per a graded symptom checklist. The next step is to perform the Play It S.A.F.E.® protocol per cognitive testing and functional testing as described in this paper. The cognitive test includes an assessment of orientation, anterograde amnesia, retrograde amnesia, concentration and word list memory. An inability to answer any of the questions correctly is considered abnormal and further assessment as well as withholding from RTP is recommended. The functional testing includes static balance with eyes open/closed, assessment of eye movements (oculomotor), an exertion test and comparison of static visual acuity and dynamic visual acuity. Inability to perform any of the above or to have symptoms with any of the above is considered an abnormal (positive) finding, thus further assessment and withholding from play is recommended.

TESTING

Inability to answer any of the questions per the Cognitive Testing OR perform any of the above per the Functional Testing is considered abnormal and classified as a positive finding. Further assessment and withholding from play is recommended.

COGNITIVE TESTING

Source: 1. SCAT2,
2. ImPACT™ Concussion Management Software, www.imPACTtest.com

Orientation

Ask the athlete the following questions:

- What city is this?
- Who is the opposing team?
- What month is it?
- What day is it?
- What year is it?

Anterograde Amnesia

Ask the athlete to remember the following words:

- Girl, dog, green

Retrograde Amnesia

Ask the athlete the following questions:

- What happened in the prior quarter/period?
- What do you remember just prior to the hit?
- What was the score of the game prior to the hit?

Concentration

Ask the athlete to do the following:

- Repeat the days of the week backwards
- Repeat these numbers backwards
- 63 (36 is correct) 419 (914 is correct)

Word List Memory

Ask the athlete to repeat the three words from earlier:

- (Girl, dog, green)

FUNCTIONAL TESTING

Source: 360° Balance Concussion Management www.360balance.com

Romberg Sway Analysis

Ask the athlete to: stand with feet together and fold arms across the chest. Instruct to "close eyes and keep looking forward."

- **Negative (-) Test:** maintains the position for 20 seconds
- **Positive (+) Test:** exhibits excessive sway, feet move from the surface, arms move from starting position, eyes open, or loss of balance

Heel-to-Toe Stance

Ask the athlete to: stand with one foot in front of the other (heel-to-toe) and fold arms across the chest. Instruct to hold 20 seconds eyes open then 10 seconds eyes closed.

- **Negative (-) Test:** maintains the position
- **Positive (+) Test:** exhibits excessive sway, feet move from the surface, arms move from starting position, eyes open, or loss of balance

Oculomotor (Eye Movements)

Ask the athlete to: follow examiner's finger left and right at a SLOW constant speed (two feet away at eye level and 30 degrees to each side).

- **Negative (-) Test:** smoothly & timely follows the target
- **Positive (+) Test:** eye movements do not match the target speed and/or quick, corrective eye movements (saccades) are made in an effort to follow the target

20-Yard Jog or 20 Second Jog in Place

Ask the athlete to: jog 20 yards in a straight line or Jog 20 seconds in place

- **Negative (-) Test:** able to perform in a straight line and without an increase in symptoms
- **Positive (+) Test:** exhibits unsteadiness and/or an increase in symptoms with activity

Dynamic Visual Acuity (use vison card in Pocket Guide)

Ask the athlete to: hold the visual acuity card two feet away and at eye level. Read the lowest line possible then instruct the athlete to quickly shake head side to side (30 degrees each way at two times per second) and again read the lowest line possible while the head is moving.

- **Negative (-) Test:** able to read the same line or the line above without symptoms
- **Positive (+) Test:** ≥2 line difference above or has symptoms with the test.

FOLLOW-UP EVALUATION
REPEAT SIDELINE ASSESSMENT

It is recommended that the Sideline Assessment be repeated 15 minutes after the initial testing.

- If the athlete had no loss of consciousness, is asymptomatic for 15 minutes AND did not have (+) findings per the initial or repeated Sideline Assessment then return to play could be considered. **NOTE: The more conservative approach of no RTP is recommended in adolescent athletes and/or when medical personnel is not available.**

- If the athlete lost consciousness, is symptomatic for 15 minutes post injury OR had (+) findings per the Sideline Assessment then he or she should not return to play and further evaluation is recommended. **NOTE: The athlete should be retested everyday until asymptomatic, no concussive signs, and all testing is within normal limits.**

NOTE: A comprehensive neurological examination and evaluation is always recommended following any severity of head trauma.

FOLLOW-UP EVALUATION
ADVANCED

Below is a list of advanced computerized testing that provides more comprehensive information in return to play decisions and is highly recommended if warranted:

- Cognitive Testing (e.g., ImPACT, CogSport, etc.)
- Balance Testing (e.g., Biodex)
- Oculomotor Testing (e.g., ENG, VNG, etc.)
- Eye and Head Coordination Testing (e.g., VAT, VORTEQ, etc.)
- Imaging (e.g., MRI, CT scan, etc.)

"RED FLAGS" - include but are not limited to:

- Any loss of consciousness
- Inability to answer questions per the Sideline Cognitive Testing[1]
- Inability to perform activities per the Sideline Functional Testing
- Athlete remains symptomatic
- Any worsening in athlete's status
- Athlete appears dazed, sluggish and/or has personality changes

Disclaimer: The information in this brochure is not intended to be a substitute for professional medical advice but as a guideline to assessing athletes following a concussion. Always seek the care of a physician or other qualified healthcare provider with any questions or concerns you may have about a medical condition.

Symptom Checklist

NAME: _____

Scoring Instructions: Grade the severity of each symptom on a scale of 0 to 5.
Where: 0=not present, 1=mild, 3=moderate and 5=severe

Date/Time of incident: _____/_____

SYMPTOM	SCORE
Changes in Vision	
Dizziness	
Unsteadiness	
Foggy Headed	
Headache	
Nausea	
Ringing in Ears	
Sensitivity to Light	
Sensitivity to Noise	
Any weakness	
Total Score	/50 (max. score)

Note: The **Play It S.A.F.E. Symptom Checklist** should be used not only for the initial evaluation, but for each subsequent follow-up assessment until all signs and symptoms have cleared at rest and during physical exertion.

Symptom Checklist

NAME: _____

Scoring Instructions: Grade the severity of each symptom on a scale of 0 to 5.
Where: 0=not present, 1=mild, 3=moderate and 5=severe

Date/Time of incident: _____/_____

SYMPTOM	SCORE
Changes in Vision	
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Headache	
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Ringing in Ears	
Sensitivity to Light	
Sensitivity to Noise	
Any weakness	
Total Score	/50 (max. score)

Note: The **Play It S.A.F.E. Symptom Checklist** should be used not only for the initial evaluation, but for each subsequent follow-up assessment until all signs and symptoms have cleared at rest and during physical exertion.

Athlete Summary Report Card

Name_____ DOB_____

Date of Initial Exam_____ Date of Injury_____ Sport_____

Previous concussion Y or N If yes, how many?_____

Test	Baseline	Time of Incident	1st Follow-up	2nd Follow-up	3rd Follow-up	4th Follow-up
Symptom Checklist Score (from card)			____hrs	____hrs	____hrs	____hrs

Cognitive Testing
(circle + if any positive findings or circle – if any negative findings)

1) Orientation	+ –	+ –	+ –	+ –	+ –	+ –
2) Anterograde Amnesia	N/A	N/A	N/A	N/A	N/A	N/A
3) Retrograde Amnesia	N/A	+ –	+ –	+ –	+ –	+ –
4) Concentration	+ –	+ –	+ –	+ –	+ –	+ –
5) Word List Memory	+ –	+ –	+ –	+ –	+ –	+ –

Functional Testing
(circle + if any positive findings or circle – if any negative findings)

6) Oculomotor (smooth tracking)	+ –	+ –	+ –	+ –	+ –	+ –
7) Romberg Sway Analysis	+ –	+ –	+ –	+ –	+ –	+ –
8) Heel-to-Toe Stance eyes open	+ –	+ –	+ –	+ –	+ –	+ –
Heel-to-Toe Stance eyes closed	+ –	+ –	+ –	+ –	+ –	+ –
9) 20 Yard Jog or 20 Sec. Jog in Place	+ –	+ –	+ –	+ –	+ –	+ –
10) Dynamic Visual Acuity	+ –	+ –	+ –	+ –	+ –	+ –

ADDITIONAL NOTES: _____

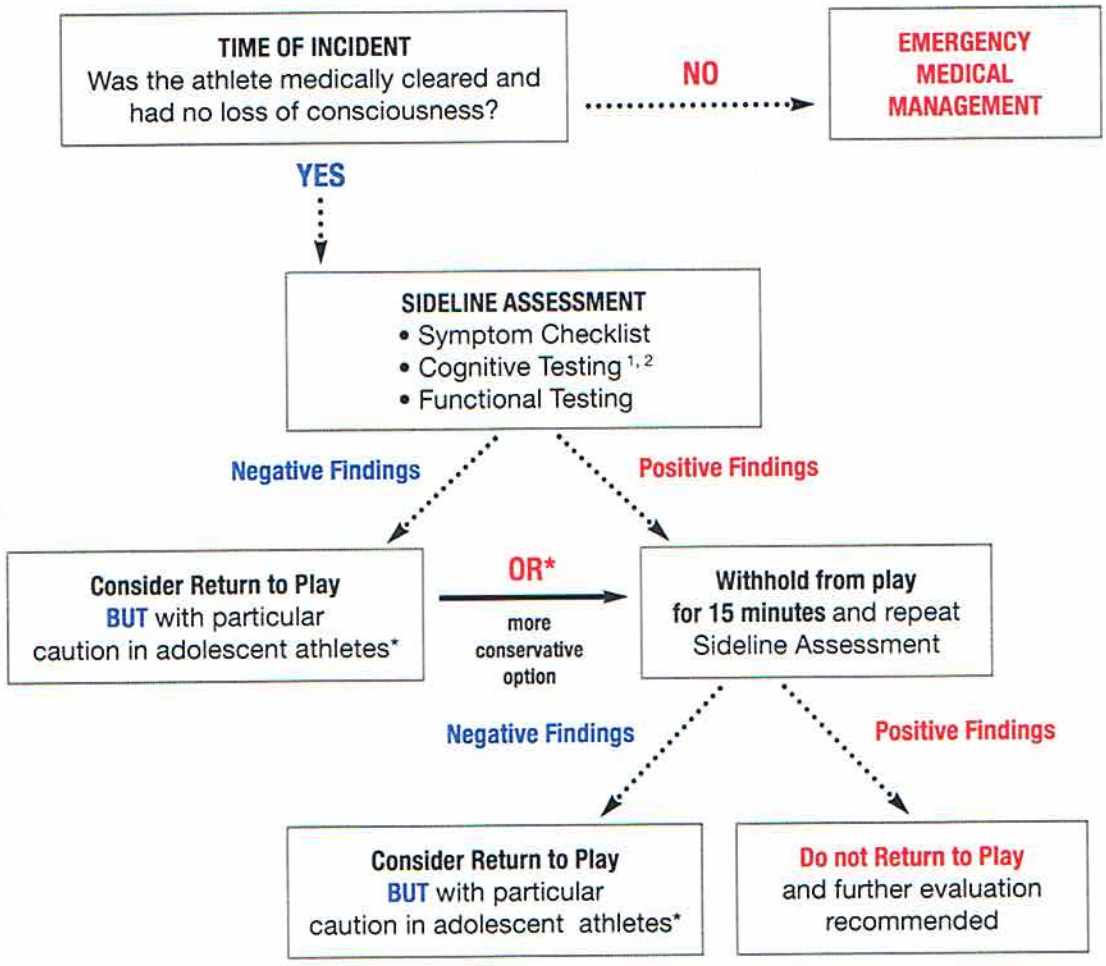
_____

_____

Attending Clinician: _____ Date:_____

Follow the **Play it S.A.F.E.®** Algorithm

Sideline Assessment & Follow-up Evaluation



RED FLAGS - include but not limited to:

- Any loss of consciousness
- Inability to answer questions per Sideline Cognitive Testing [1,2]
- Inability to perform activities per Sideline Functional Testing
- Athlete remains symptomatic
- Any worsening of athletes status
- Athlete appears dazed, sluggish and/or has personality changes

*** NOTE:** When qualified medical personnel is not available or when working with adolescent athletes, it is recommended to use the more conservative approach. As stated by the NCAA, "when in doubt, sit them out."

Source: 1. SCAT2.
2. ImPACT™ Concussion Management Software, www.imPACTtest.com®

Play It S.A.F.E.® developed by

360° BALANCE
We care and we can help

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