

Name: _____

ID #: _____

Age: _____

Date of birth: _____

CONCUSSION SCREENING

A. If a traumatic force to the body has occurred, ask the following two triage questions to determine if further evaluation of a suspected concussion is warranted.

1. Was there a blunt force to the head and/or did the head move back and forth with a lot of force (like whiplash)?

No — No Trigger



Yes – Next Question

2. Was there a change in mental status (e.g., confusion; dazed, disoriented, or poor memory for events around the injury) or a change in the level of consciousness (seemed out of it, not responding as you normally do)?

No — No Trigger



Yes

B. Assess for Red Flags for Neurological Deterioration to determine if patient should go immediately to the Emergency Department.

RED FLAGS: Consider sending to the Emergency Department with sudden onset of any of the following (check all that apply).					
Headaches that <u>worsen</u>	<input type="checkbox"/>	Look <u>very</u> drowsy, can't be awakened	<input type="checkbox"/>	Can't <u>recognize</u> people or places	<input type="checkbox"/>
Seizures	<input type="checkbox"/>	<u>Repeated</u> vomiting	<input type="checkbox"/>	Increasing confusion	<input type="checkbox"/>
Neck pain	<input type="checkbox"/>	Slurred speech	<input type="checkbox"/>	Weakness or numbness in arms or legs	<input type="checkbox"/>
Significant irritability	<input type="checkbox"/>	Unusual behavior change	<input type="checkbox"/>	Loss of consciousness	<input type="checkbox"/>

If both questions, are answered "Yes" and No Red Flags are present, proceed with the Acute Concussion Evaluation (ACE).

ACUTE CONCUSSION EVALUATION (ACE)

PHYSICIAN/CLINICIAN OFFICE VERSION

Gerard Gioia, PhD¹ & Micky Collins, PhD²

¹Children's National Medical Center

²University of Pittsburgh Medical Center

Patient Name: _____

DOB: _____ Age: _____

Date: _____ ID/MR# _____

A. Injury Characteristics Date/Time of Injury _____ Reporter: Patient Parent Spouse Other _____

1. Injury Description _____

1a. Is there evidence of a forcible blow to the head (direct or indirect)? Yes No Unknown

1b. Is there evidence of intracranial injury or skull fracture? Yes No Unknown

1c. Location of Impact: Frontal Lt Temporal Rt Temporal Lt Parietal Rt Parietal Occipital Neck Indirect Force

2. **Cause:** MVC Pedestrian-MVC Fall Assault Sports (*specify*) _____ Other _____

3. **Amnesia Before (Retrograde)** Are there any events just BEFORE the injury that you/ person has no memory of (even brief)? Yes No Duration _____

4. **Amnesia After (Anterograde)** Are there any events just AFTER the injury that you/ person has no memory of (even brief)? Yes No Duration _____

5. **Loss of Consciousness:** Did you/ person lose consciousness? Yes No Duration _____

6. **EARLY SIGNS:** Appears dazed or stunned Is confused about events Answers questions slowly Repeats Questions Forgetful (recent info)

7. **Seizures:** Were seizures observed? No Yes Detail _____

B. Symptom Check List* Since the injury, has the person experienced any of these symptoms any more than usual today or in the past day?

Indicate presence of each symptom (0=No, 1=Yes).

**Lovell & Collins, 1998 JHTR*

PHYSICAL (10)		COGNITIVE (4)		SLEEP (4)	
Headache	0 1	Feeling mentally foggy	0 1	Drowsiness	0 1
Nausea	0 1	Feeling slowed down	0 1	Sleeping less than usual	0 1 N/A
Vomiting	0 1	Difficulty concentrating	0 1	Sleeping more than usual	0 1 N/A
Balance problems	0 1	Difficulty remembering	0 1	Trouble falling asleep	0 1 N/A
Dizziness	0 1	COGNITIVE Total (0-4) _____		SLEEP Total (0-4) _____	
Visual problems	0 1	EMOTIONAL (4)		<p>Exertion: Do these symptoms <u>worsen</u> with:</p> <p>Physical Activity <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Cognitive Activity <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Overall Rating: How <u>different</u> is the person acting compared to his/her usual self? (circle)</p> <p>Normal 0 1 2 3 4 5 6 Very Different</p>	
Fatigue	0 1	Irritability	0 1		
Sensitivity to light	0 1	Sadness	0 1		
Sensitivity to noise	0 1	More emotional	0 1		
Numbness/Tingling	0 1	Nervousness	0 1		
PHYSICAL Total (0-10) _____		EMOTIONAL Total (0-4) _____			
(Add Physical, Cognitive, Emotion, Sleep totals)					
Total Symptom Score (0-22)				_____	

C. Risk Factors for Protracted Recovery (*check all that apply*)

Concussion History? Y ___ N ___	✓	Headache History? Y ___ N ___	✓	Developmental History	✓	Psychiatric History
Previous # 1 2 3 4 5 6+		Prior treatment for headache		Learning disabilities		Anxiety
Longest symptom duration Days ___ Weeks ___ Months ___ Years ___		History of migraine headache ___ Personal ___ Family _____		Attention-Deficit/ Hyperactivity Disorder		Depression
If multiple concussions, less force caused reinjury? Yes ___ No ___				Other developmental disorder _____		Other psychiatric disorder _____

List other comorbid medical disorders or medication usage (e.g., hypothyroid, seizures) _____

D. RED FLAGS for acute emergency management: Refer to the emergency department with sudden onset of any of the following:

- * Headaches that worsen
- * Looks very drowsy/ can't be awakened
- * Can't recognize people or places
- * Neck pain
- * Seizures
- * Repeated vomiting
- * Increasing confusion or irritability
- * Unusual behavioral change
- * Focal neurologic signs
- * Slurred speech
- * Weakness or numbness in arms/legs
- * Change in state of consciousness

E. Diagnosis (ICD): Concussion w/o LOC 850.0 Concussion w/ LOC 850.1 Concussion (Unspecified) 850.9 Other (854) _____
 No diagnosis

F. Follow-Up Action Plan Complete **ACE Care Plan** and provide copy to patient/family.

No Follow-Up Needed

Physician/Clinician Office Monitoring: Date of next follow-up _____

Referral:

Neuropsychological Testing

Physician: Neurosurgery ___ Neurology ___ Sports Medicine ___ Psychiatrist ___ Other _____

Emergency Department

ACE Completed by: _____

A concussion (or mild traumatic brain injury (MTBI)) is a complex pathophysiologic process affecting the brain, induced by traumatic biomechanical forces secondary to direct or indirect forces to the head. Disturbance of brain function is related to neurometabolic dysfunction, rather than structural injury, and is typically associated with normal structural neuroimaging findings (i.e., CT scan, MRI). Concussion may or may not involve a loss of consciousness (LOC). Concussion results in a constellation of physical, cognitive, emotional, and sleep-related symptoms. Symptoms may last from several minutes to days, weeks, months or even longer in some cases.

ACE Instructions

The ACE is intended to provide an evidence-based clinical protocol to conduct an initial evaluation and diagnosis of patients (both children and adults) with known or suspected MTBI. The research evidence documenting the importance of these components in the evaluation of an MTBI is provided in the reference list.

A. Injury Characteristics:

1. Obtain **description of the injury** – how injury occurred, type of force, location on the head or body (if force transmitted to head). Different biomechanics of injury may result in differential symptom patterns (e.g., occipital blow may result in visual changes, balance difficulties).
2. Indicate the **cause of injury**. Greater forces associated with the trauma are likely to result in more severe presentation of symptoms.
- 3/4. **Amnesia:** Amnesia is defined as the failure to form new memories. Determine whether amnesia has occurred and attempt to determine length of time of memory dysfunction – **before** (retrograde) and **after** (anterograde) injury. Even seconds to minutes of memory loss can be predictive of outcome. Recent research has indicated that amnesia may be up to 4-10 times more predictive of symptoms and cognitive deficits following concussion than is LOC (less than 1 minute).¹
5. **Loss of consciousness (LOC)** – If occurs, determine length of LOC.
6. **Early signs.** If present, ask the individuals who know the patient (parent, spouse, friend, etc) about specific signs of the concussion that may have been observed. These signs are typically observed early after the injury.
7. Inquire whether **seizures** were observed or not.

B. Symptom Checklist:²

1. Ask patient (and/or parent, if child) to report presence of the four categories of symptoms since injury. It is important to assess all listed symptoms as different parts of the brain control different functions. One or all symptoms may be present depending upon mechanisms of injury.³ Record “1” for Yes or “0” for No for their presence or absence, respectively.
2. For all symptoms, indicate presence of symptoms as experienced within the past 24 hours. Since symptoms can be present pre-morbidly/at baseline (e.g., inattention, headaches, sleep, sadness), it is important to assess **change** from their usual presentation.
3. **Scoring:** Sum total **number** of symptoms present per area, and sum all four areas into Total Symptom Score (score range 0-22). (Note: most sleep symptoms are only applicable after a night has passed since the injury. Drowsiness may be present on the day of injury.) If symptoms are new and present, there is no lower limit symptom score. Any **score > 0** indicates **positive symptom** history.
4. **Exertion:** Inquire whether any symptoms worsen with physical (e.g., running, climbing stairs, bike riding) and/or cognitive (e.g., academic studies, multi-tasking at work, reading or other tasks requiring focused concentration) exertion. Clinicians should be aware that symptoms will typically worsen or re-emerge with exertion, indicating incomplete recovery. Over-exertion may protract recovery.
5. **Overall Rating:** Determine how different the person is acting from their usual self. Circle “0” (Normal) to “6” (Very Different).

C. Risk Factors for Protracted Recovery:

Assess the following risk factors as possible complicating factors in the recovery process.

1. **Concussion history:** Assess the number and date(s) of prior concussions, the duration of symptoms for each injury, and whether less biomechanical force resulted in re-injury. Research indicates that cognitive and symptom effects of concussion may be cumulative, especially if there is minimal duration of time between injuries and less biomechanical force results in subsequent concussion (which may indicate incomplete recovery from initial trauma).⁴⁻⁸
2. **Headache history:** Assess personal and/or family history of diagnosis/treatment for headaches. Research indicates headache (migraine in particular) can result in protracted recovery from concussion.⁸⁻¹¹
3. **Developmental history:** Assess history of learning disabilities, Attention-Deficit/Hyperactivity Disorder or other developmental disorders. Research indicates that there is the possibility of a longer period of recovery with these conditions.¹²
4. **Psychiatric history:** Assess for history of depression/mood disorder, anxiety, and/or sleep disorder.¹³⁻¹⁶

D. Red Flags:

The patient should be carefully observed over the first 24-48 hours for these serious signs. Red flags are to be assessed as **possible signs of deteriorating neurological functioning**. Any positive report should prompt strong consideration of referral for emergency medical evaluation (e.g. CT Scan to rule out intracranial bleed or other structural pathology).¹⁷

E. Diagnosis:

The following ICD diagnostic codes may be applicable.

850.0 (Concussion, with no loss of consciousness) – Positive injury description with evidence of forcible direct/ indirect blow to the head (A1a); plus evidence of active symptoms (B) of any type and number related to the trauma (Total Symptom Score >0); no evidence of LOC (A5), skull fracture or intracranial injury (A1b).

850.1 (Concussion, with brief loss of consciousness < 1 hour) – Positive injury description with evidence of forcible direct/ indirect blow to the head (A1a); plus evidence of active symptoms (B) of any type and number related to the trauma (Total Symptom Score >0); positive evidence of LOC (A5), skull fracture or intracranial injury (A1b).

850.9 (Concussion, unspecified) – Positive injury description with evidence of forcible direct/ indirect blow to the head (A1a); plus evidence of active symptoms (B) of any type and number related to the trauma (Total Symptom Score >0); unclear/unknown injury details; unclear evidence of LOC (A5), no skull fracture or intracranial injury.

Other Diagnoses – If the patient presents with a positive injury description and associated symptoms, but additional evidence of intracranial injury (A 1b) such as from neuroimaging, a moderate TBI and the diagnostic category of 854 (Intracranial injury) should be considered.

F. Follow-Up Action Plan:

Develop a follow-up plan of action for symptomatic patients. The physician/clinician may decide to (1) monitor the patient in the office or (2) refer them to a specialist. Serial evaluation of the concussion is critical as symptoms may resolve, worsen, or ebb and flow depending upon many factors (e.g., cognitive/physical exertion, comorbidities). Referral to a specialist can be particularly valuable to help manage certain aspects of the patient's condition. (Physician/Clinician should also complete the ACE Care Plan included in this tool kit.)

1. **Physician/Clinician serial monitoring** – Particularly appropriate if number and severity of symptoms are steadily decreasing over time and/or fully resolve within 3-5 days. If steady reduction is not evident, referral to a specialist is warranted.
2. **Referral to a specialist** – Appropriate if symptom reduction is not evident in 3-5 days, or sooner if symptom profile is concerning in type/severity.
 - **Neuropsychological Testing** can provide valuable information to help assess a patient's brain function and impairment and assist with treatment planning, such as return to play decisions.
 - **Physician Evaluation** is particularly relevant for medical evaluation and management of concussion. It is also critical for evaluating and managing focal neurologic, sensory, vestibular, and motor concerns. It may be useful for medication management (e.g., headaches, sleep disturbance, depression) if post-concussive problems persist.

ACE POST-CONCUSSION HOME/ SCHOOL INSTRUCTIONS



You have been evaluated for a suspected concussion.
Following these instructions can prevent further injury and help recovery.

WHEN TO SEEK CARE URGENTLY

Seek care quickly if symptoms worsen or if there are any behavioral changes.
Also, watch for any of the following Danger Signs:

Headaches that worsen	Very drowsy, can't be awakened	Can't recognize people or places
Seizures	Repeated vomiting	Increasing confusion
Neck pain	Slurred speech	Weakness/numbness in arms/legs
Unusual behavior change	Significant irritability	Less responsive than usual

If you observe any of the above Danger Signs, call your doctor
or return to the Emergency Department *immediately*.

COMMON SIGNS & SYMPTOMS

It is common to have one or many concussion symptoms. There are four types of symptoms: physical, cognitive, emotional, and sleep. Keep track of them and record them.

	Physical	Cognitive	Emotional	Sleep
Headache	Visual Problems	Feeling mentally foggy	Irritability	Drowsiness
Nausea/Vomiting	Fatigue/ Feeling tired	Feeling slowed down	Sadness	Sleeping less than usual
Dizziness	Sensitivity to light or noise	Difficulty remembering	More emotional	Sleeping more than usual
Balance Problems	Numbness	Difficulty concentrating	Nervousness	Trouble falling asleep

RETURNING TO DAILY ACTIVITIES

The key to recovery is sleeping, resting physically and mentally, and avoiding activities that *might* cause head injury.

- **Avoid:**
 - Physical activities that produce concussion symptoms, as this might increase the recovery time.
 - Lengthy mental activities requiring concentration (ie. Homework, schoolwork, job-related work, and extended video game playing) as these activities worsen symptoms and prolong recovery.
- **Sleep:** Get good sleep and take naps if tired. No late nights or sleepovers. It is NOT necessary to wake up periodically.
- The injured person should not participate in **ANY** high risk activities that might result in head injury until examined and cleared by a qualified health professional. High risk activities include sports, physical education (PE), climbing, or riding a bike.
- It is hard to change from the normal routine. The injured person will need help from parents, teachers, coaches, and athletic trainers to help manage their activity level.

DO'S AND DON'TS

It's OK to take prescribed pain medicine & sleep. You don't need to wake up every hour.
Don't play sports or exercise!

<u>IT IS OK TO:</u>	<u>THERE IS NO NEED TO:</u>	<u>DO NOT</u>
Take pain medicine as prescribed	Stay in bed	Drive while you have symptoms
Use ice pack on head and neck for comfort	Wake up every hour	Exercise or lift weights
Go to sleep		Drink alcohol
Rest		Participate in sports or high-risk activities

RETURNING TO SCHOOL

If symptoms are severe (cannot concentrate for more than 30-45 minutes without symptoms worsening), staying home and resting may be indicated until symptoms improve. If symptoms are less severe, rest breaks during school can help recovery.

- **Please take these Instructions and the Return to School Form to your school.**
- Inform the teacher(s), school nurse, school psychologist or counselor, and administrator(s) about your child/teenager's injury and symptoms. Accommodations should be put in place immediately.
- Students who experience symptoms of concussion often need extra help to perform school-related activities and may not perform at their best on classroom or standardized tests.
- As symptoms decrease, the extra supports (rest breaks during school) can be removed slowly.

SCHOOL PERSONNEL

School personnel should watch for indications of worsening symptoms, specifically:

- Increased problems paying attention, concentrating, remembering or learning new information
- Needing longer time to complete a task
- Increased irritability or less of an ability to cope with stress

RETURNING TO SPORTS AND RECREATION:

The injured person should NEVER return to sports or active recreation with ANY symptoms unless directed by a health professional.

NO PE class, physical activity at recess, or sports practices or games.

- Tell the Physical Education teacher and all coaches of the injury and symptoms.
- When appropriate, have the student check in with a health care professional on the first day he/she returns.
- It is normal for the child/teenager to feel frustrated, sad, and even angry because they cannot return to sports or recreation right away. With an injury, a full recovery will lower the chances of getting hurt again. It is *better to miss one game than the whole season.*

STEPWISE RETURN TO ACTIVITY/PLAY:

Once the injured person's symptoms resolve at rest and a qualified healthcare professional clears the injured person to return to activity, increase physical and cognitive activity **SLOWLY**.

Pay attention to symptoms.

If symptoms return with increased activity, reduce the level of activity.

****The injured person should be evaluated and cleared by a qualified healthcare professional with training in concussion management before returning to contact sports.**

FOLLOW UP:

A follow up appointment should be scheduled with your primary care doctor.

- If the injured person is an athlete, has had significant or recurrent concussions, or the symptoms above persist beyond 10 days, evaluation by a specialist is recommended.
- Neuropsychological testing can be helpful to assist with return to academic and physical activity.

Physician's Signature _____

Date _____



Safe Concussion Outcome, Recovery & Education (SCORE) Program
 Children's National Medical Center www.childrensnational.org/score
 Adapted by Gerard Gioia, PhD; Micky Collins, PhD; Shireen Atabaki, MD, MPH; Noel Zuckerbraun, MD, MPH
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ACUTE CONCUSSION EVALUATION (ACE)

CARE PLAN

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TODAY'S DATE _____

INJURY DATE _____

You have been diagnosed with a concussion, also known as a traumatic brain injury. To prevent further injury, do not return to any high-risk activities (e.g., sports, physical education, driving, etc.) until cleared by a qualified healthcare professional. To promote recovery, **physical and cognitive activity must be carefully managed.** Pay attention to your symptoms (listed below) and avoid too much of any activity that makes your symptoms worse, as this may lengthen your recovery. As symptoms improve, you can increase the level of daily activity slowly and carefully. Children and teenagers will need the help of parents, teachers, coaches, or athletic trainers to help their recovery and return to activities.

Today the following post-concussive symptoms are present (Circle or check).

_____ No reported symptoms

Physical		Cognitive	Emotional	Sleep
Headaches	Sensitivity to light	Feeling mentally foggy	Irritability	Drowsiness
Fatigue	Sensitivity to noise	Problems concentrating	Sadness	Sleeping more than usual
Visual problems	Nausea	Problems remembering	Feeling more emotional	Sleeping less than usual
Dizziness	Vomiting	Feeling more slowed down	Nervousness	Trouble falling asleep
Balance Problems	Numbness/ tingling			

Neurocognitive Testing (if applicable)

Attention/ Working Memory: Appropriate ___ Impaired___ Variable___
Learning/Memory: Appropriate ___ Impaired___ Variable___
Response Speed: Appropriate ___ Impaired___ Variable___

Exertional Effects: Do Symptoms Worsen with Activities?

Physical Activity: Yes___ No___ No Opportunity___
Cognitive Activity: Yes___ No___ No Opportunity___

KEY POINTS

Returning to Daily Activities

Sleep: Be sure to get adequate sleep at night; no late nights or overnights; keep the same bedtime on weekdays and weekends. Take daytime naps or rest breaks when you feel tired or fatigued, unless they interfere with falling asleep at night.

Activity Level: Limit physical and cognitive (mental) activity: Symptoms typically worsen or return with too much activity.

Making symptoms worse may slow down recovery.

- Physical activity includes physical education, sports practices, weight-training, running, exercising, heavy lifting, etc.
- Cognitive activity includes heavy concentration, learning, reading or writing (e.g., schoolwork, job-related mental activity).

Symptoms as your Guide: Pay attention to your symptoms. As they get better, increase your activities gradually with careful monitoring for return or worsening of symptoms. Let the worsening and/or return of symptoms be your guide to slow down.

Food and Drink: Maintain adequate hydration (drink lots of fluids) and an appropriate diet during recovery.

Emotions: During recovery, it is normal to feel frustrated, nervous or sad because you do not feel right and your activity is reduced. Seek professional help if you feel unsafe or have thoughts of self-harm.

Driving: You are advised not to drive if you have significant symptoms or cognitive impairment, as these can interfere with safe driving.

KEY POINTS

Returning to School

• Students with symptoms and/or neuropsychological dysfunction after a concussion often need support to perform school-related activities. As symptoms decrease during recovery, these supports may be gradually removed.

• Inform the teacher(s), school nurse, school psychologist or counselor, and administrator(s) about your injury and symptoms.

• School personnel should be instructed to watch for:

- * increased problems paying attention or concentrating
- * longer time needed to complete tasks or assignments
- * increase in symptoms (e.g., headache, fatigue, etc.)
- * increased problems remembering or learning new information
- * greater irritability, less tolerance for stressors
- * difficulty managing and completing complex assignments

Based on the above symptoms, the following supports are recommended: (Check all that apply)

___ No return to school Return on (date) _____

___ Return to school with following supports. **Monitor above symptoms, as they may increase** with cognitive exertion (mental effort)

___ Shortened day. Recommend ___ hours per day until (date) _____

___ Shortened classes (i.e., rest breaks during classes). Maximum class length: ___ minutes

___ Rest breaks during school day. ___ rest breaks per day. ___ AM ___ PM ___ As needed/symptoms worsen. ___ minutes

___ Allowances for extended time to complete coursework/assignments and tests

___ Reduced homework load. Maximum length of nightly homework: ___ minutes. 20-30' study, 10-15' rest break.

___ No testing at this time / Modified classroom/ standardized testing - only as symptoms and preparation allow; allow breaks as needed.

___ Meet with guidance counselor/ academic advisor to establish reasonable timeline for make-up work (as symptoms permit).

___ Request meeting of 504 or School Management Team to discuss this plan and coordinate accommodations.



KEY POINTS

Returning to Physical Activities

- **Return to exercise carefully.** Ask your healthcare provider whether you are ready to begin exercise. Some exercise may be helpful, while too much may slow down your recovery. Do not engage in any exercise that causes a significant return or worsening of symptoms.
 - Be sure that the PE teacher, teacher at school recess, coach, and/or athletic trainer are aware of your injury and symptoms and that you are not asked to do activities that put you at risk for additional injury or cause you to over-exert.
- No physical exercise at this time.**
- Begin physical exercise** as indicated below (stop all activities if symptoms return or significantly worsen):

Day/ date*	Physical Exertional Activity (NON-CONTACT ONLY)
	1. Low levels of physical exertion that may include walking, light stationary biking, light weightlifting (lower weight, higher reps, no bench, no squat).
	2. Moderate levels of exercise with body/ head movement <u>as tolerated</u> . Includes moderate jogging/ brief running, moderate-intensity stationary biking, moderate-intensity weightlifting (reduced time and/or weight from typical routine).
	3. Heavy exertion. You may return to your typical, full level of exercise. This includes sprinting/running, high-intensity stationary biking, regular weightlifting routine, non-contact sport-specific drills (in 3 planes of movement).

* Pay careful attention to your symptoms/ cognitive skills at each stage of exertion. Move to the next level of exertion only if symptoms remain absent at the current level. If your symptoms return, let your health care provider know, and reduce activities to the previous level..

KEY POINTS

Returning to Sports/ Physical Education

- **You should NEVER return to play if you still have ANY symptoms.** There is no return to activities involving risk of re-injury until you are symptom-free and fully recovered. In many states it is the law that you must be cleared by a licensed healthcare provider to return.
- **Do not play sports in PE or at recess** until you are fully recovered and cleared by your healthcare provider.
- It is normal to feel frustrated, sad and even angry because you cannot return to sports right away. With any injury, a full recovery will reduce the chances of getting hurt again. It is better to miss one or two games than the whole season.

Do not return to physical education (PE) class Return to Physical Education on _____

Do not return to sports practices/games at this time Restrictions _____

Complete the Gradual Return to Play Protocol under the supervision of an appropriate health care provider (e.g., athletic trainer).

This is typically a 5 step process, involving stages 1, 2, 3 of increasing exercise (described above) and stages 4 and 5 (described below). Allow 24 hours between each stage and assure that you remain symptom free before progressing. Full clearance for return to play requires a careful evaluation by a licensed healthcare provider with knowledge and training in concussion management. Cognitive functions, balance, and symptoms must return to 'normal' before it is safe to return to play.

Referral: Based on today's evaluation, the following referral plan is made:

Return to this office for re-evaluation and monitoring Date/Time _____

Neurology _____ Behavioral Medicine _____ Psychiatry/ Psychology _____ Other: _____

Athletic Trainer/ Physical Therapist – Typical Gradual Return to Play Evaluation and Treatment

Atypical Recovery: Physical Rehabilitation: Subsymptom Threshold Physical Activity Program ___ days per week, ___ weeks

Other _____

Clinician Signature _____

RED FLAGS: Call your doctor or go to your Emergency Department with sudden onset of any of the following

Headaches that worsen	Look very drowsy, can't be awakened	Can't recognize people or places	Unusual behavior change
Seizures	Repeated vomiting	Increasing confusion	Significant irritability
Neck pain	Slurred speech	Weakness or numbness in arms or legs	Loss of consciousness

The SCORE Program wishes to thank The Child Health Center Board for making this publication possible and for its continuing support.

ACE POST-CONCUSSION RETURN TO SCHOOL LETTER

Dear School Staff:

_____ sustained a concussion on _____. Every concussion is different and recovery typically can take between several days to several weeks. While it is important for the student to return to school as soon as they can tolerate, the key to assisting recovery is to manage their physical and cognitive activity. Too much cognitive or physical activity can make symptoms worse and possibly prolong recovery, while too little activity can unnecessarily create anxiety and cause him/her to fall behind in their school work. As symptoms resolve and the student's learning/cognitive functioning returns to normal, they can gradually progress to their normal school day.

The student is currently reporting the following symptoms. They should be viewed as the targets for classroom adjustments using the **Symptom Targeted Accommodation & Management Plan**.

PHYSICAL				
Headaches	Visual problems	Balance Problems	Sensitivity to noise	Vomiting
Fatigue	Dizziness	Sensitivity to light	Nausea	Numbness/ tingling
THINKING/COGNITIVE				
Feeling mentally foggy	Problems remembering	Feeling slowed down	Problems concentrating	
SOCIAL/EMOTIONAL				
Irritability/ easily angered	Nervousness	Sadness	Feeling more emotional	

Do any of the symptoms worsen with: Physical activity __Yes __No __N/A
Cognitive activity __Yes __No __N/A

Based on the current symptoms, he/she is ___ permitted to return to school. OR ___ is excused for ___ days. Please see the Gradual Return to School (RTS) guide (on back) for guidance on recommended levels of activity in school and criteria to move to the next stage. As general guidance, the student can return to school when:

- (1) They can concentrate on school work for 30 minutes before symptoms worsen significantly, AND
- (2) Symptoms reduce or disappear with cognitive rest breaks, allowing return to activity.

The student requires the following physical restrictions until cleared by a health professional:

- * No physical activity during recess
- * No PE class
- * No Contact Sports
- Other _____

Health Care Provider Signature _____ Date _____

Contact information: _____

SCHOOL SUPPORTS

Students with post-concussion symptoms and/or neuropsychological dysfunction often need support to perform school related activities. The following adjustments to the student's school program may be helpful to support the specific targeted symptoms.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Shortened day • Shortened classes • Rest breaks during the day as needed • Reduced/modified homework | <ul style="list-style-type: none"> • Support for prioritizing, organization and planning coursework • No significant classroom or standardized testing • Extended time to complete coursework, assignments, tests • Alternative/modified grading or reduced make up work |
|---|--|

ACE Post-Concussion Gradual Return to School (RTS) Guide

Use of the Gradual Return to School Guide: Every student's recovery from concussion is different. The five progressive stages were designed to give the medical provider and school team general guidance to assist the student's gradual return to school. The stages should not be viewed as absolute for every student if their symptoms do not warrant it. What is important is to strike a balance between providing the student with the necessary supports for symptom relief while progressing to their normal school schedule. Students with faster recoveries may skip a stage or two. Use of the **Symptom Targeted Accommodation & Management Plan** should accompany this guide.

Stage	Description	Level of Activity	Move to stage 2 when:
1	Return to School, Partial Day (1-3 hours)	<ul style="list-style-type: none"> • Attend 1-3 classes. Intersperse rest breaks. • Scheduled rest breaks: ____ Rest breaks/ day in quiet area. ____ AM ____ PM ____ When symptoms worsen ("flash pass") ____ min. • Expectations for productivity: Minimal. • No classroom/ standardized tests. No homework. • Attendance is primary goal • Excused from Physical Education (PE) class. No recess. 	<ul style="list-style-type: none"> ▪ Symptom status improving ▪ Tolerates 4-5 hours of activity-rest cycles ▪ 2-3 cognitive rest breaks built into school day

Stage	Description	Level of Activity	Move to stage 3 when:
2	Full Day, Maximal Supports (required throughout day)	<ul style="list-style-type: none"> • Attend most classes with 2 – 3 rest breaks (20-30 min). • Scheduled rest breaks: ____ Rest breaks/ day in quiet area. ____ AM ____ PM ____ When symptoms worsen ("flash pass") ____ min. • Expectations for productivity: Minimal – moderate. • No classroom/ standardized tests. • Homework < 60 minutes. • Excused from Physical Education (PE) class. No recess. 	<ul style="list-style-type: none"> ▪ Symptom number & severity improving ▪ Needs 1-2 cognitive rest breaks built into school day.

Stage	Description	Level of Activity	Move to stage 4 when:
3	Return to Full Day, Moderate Supports (provide in response to symptoms)	<ul style="list-style-type: none"> • Attend all classes with 1 – 2 rest breaks (20-30 min). • Scheduled rest breaks: ____ Rest breaks/ day in quiet area. ____ AM ____ PM ____ When symptoms worsen ("flash pass") ____ min. • Expectations for productivity: Moderate. • No classroom/ standardized tests. Begin quizzes. • Moderate homework 60 - 90 minutes. • Design schedule for make-up work. Consider reducing or waiving missing/ outstanding work. Assign essential learning tasks. • Excused from Physical Education (PE) class. No recess. 	<ul style="list-style-type: none"> ▪ Continued symptom improvement ▪ Needs no more than 1 cognitive rest break per day

Stage	Description	Level of Activity	Move to stage 5 when:
4	Return to Full Day, Minimal Supports (Monitor final recovery)	<ul style="list-style-type: none"> • Attend all classes with 0 - 1 rest breaks (20-30 min) OR when symptoms worsen ("flash pass") • Expectations for productivity: Moderate – maximum. • Begin modified classroom tests (allow breaks, extra time, alternate formats). Number of classroom tests per day ____. • Homework 90+ minutes. • Begin to address make-up work. • Excused from Physical Education (PE) class. No recess. 	<ul style="list-style-type: none"> ▪ No active symptoms ▪ No exertional effects across the full school day.

Stage	Description	Level of Activity	Date of full return:
5	Full Return, No Supports Needed	<ul style="list-style-type: none"> • Full class schedule, no rest breaks. • Maximum expectations for productivity. • Address make-up work. 	

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Post-Concussion Symptom Inventory for Children (PCSI-C)

Pre/Post Version 5 to 12

Name: _____ Today's date: _____ Birthdate: _____ Age _____ Grade: _____

Instructions: We would like to know if you have had any of these symptoms before your injury. Next, we would like to know if these symptoms have changed after your injury.

I am going to ask you to tell me about your symptom at two points in time - Before the Injury and Yesterday / Today. Interviewer: Please circle only one answer.

0 = No		1 = A little		2 = A lot		Before the Injury /Pre-Injury			Current Symptoms/ Yesterday and Today		
1	Have you had headaches? Has your head hurt?					0	1	2	0	1	2
2	Have you felt sick to your stomach or nauseous?					0	1	2	0	1	2
3	Have you felt dizzy? (like things around you were spinning or moving)					0	1	2	0	1	2
4	Have you felt grumpy or irritable? (like you were in a bad mood)					0	1	2	0	1	2
5	Has it been hard for you to pay attention to what you are doing? (like homework or chores, listening to someone, or playing a game)					0	1	2	0	1	2
<i>Continue if age 8 or older</i>											
6	Have you felt more drowsy or sleepy <u>than usual</u> ?					0	1	2	0	1	2
7	Have bright lights bothered you <u>more than usual</u> ? (like when you were in the sunlight, when you looked at lights, or watched TV)					0	1	2	0	1	2
8	Have loud noises bothered you <u>more than usual</u> ? (like when people were talking, when you heard sounds, watched TV, or listened to loud music)					0	1	2	0	1	2
9	Have you had any balance problems or have you felt like you might fall when you walk, run or stand?					0	1	2	0	1	2
10	Have you felt sad?					0	1	2	0	1	2
11	Have you felt nervous or worried?					0	1	2	0	1	2
12	Have you felt like you are moving more slowly?					0	1	2	0	1	2
13	Have you felt like you are thinking more slowly?					0	1	2	0	1	2
14	Has it been hard to think clearly?					0	1	2	0	1	2
15	Have you felt more tired <u>than usual</u> ?					0	1	2	0	1	2
16	Has it been hard for you to remember things? (like things you heard or saw, or places you have gone)					0	1	2	0	1	2
17	Have things looked blurry?					0	1	2	0	1	2

All Ages- Do you feel "different" than usual? (Circle one) 0=No 1=A little 2=A lot

PCSI Total Symptom Score

Pre=	Post=
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Subscale scores (Age 8-12) Pre/Post	Physical	Cognitive	Emotional	Fatigue
	/	/	/	/



**Post-Concussion Symptom Inventory (PCSI)
Self-Report Assessment Form
Pre and Post-Injury Report
Ages 13-18**



Patient Name: _____

Today's date: _____

Birthdate: _____

Age: _____

Instructions: We would like to know if you have had any of these symptoms before your injury. Next, we would like to know if these symptoms have changed after your injury. Please rate the symptom at two points in time- Before the Injury/Pre-Injury and Currently.

Please answer all the items the best that you can. Do not skip any items. Circle the number to tell us how much of a problem this symptom has been for you.

0 = Not a problem 3 = Moderate problem 6 = Severe problem

		Before the Injury/ Pre-Injury							Current Symptoms/ Yesterday and Today							
1	Headache	0	1	2	3	4	5	6		0	1	2	3	4	5	6
2	Nausea	0	1	2	3	4	5	6		0	1	2	3	4	5	6
3	Balance problems	0	1	2	3	4	5	6		0	1	2	3	4	5	6
4	Dizziness	0	1	2	3	4	5	6		0	1	2	3	4	5	6
5	Fatigue	0	1	2	3	4	5	6		0	1	2	3	4	5	6
6	Sleep more than usual	0	1	2	3	4	5	6		0	1	2	3	4	5	6
7	Drowsiness	0	1	2	3	4	5	6		0	1	2	3	4	5	6
8	Sensitivity to light	0	1	2	3	4	5	6		0	1	2	3	4	5	6
9	Sensitivity to noise	0	1	2	3	4	5	6		0	1	2	3	4	5	6
10	Irritability	0	1	2	3	4	5	6		0	1	2	3	4	5	6
11	Sadness	0	1	2	3	4	5	6		0	1	2	3	4	5	6
12	Nervousness	0	1	2	3	4	5	6		0	1	2	3	4	5	6
13	Feeling more emotional	0	1	2	3	4	5	6		0	1	2	3	4	5	6
14	Feeling slowed down	0	1	2	3	4	5	6		0	1	2	3	4	5	6
15	Feeling mentally "foggy"	0	1	2	3	4	5	6		0	1	2	3	4	5	6
16	Difficulty concentrating	0	1	2	3	4	5	6		0	1	2	3	4	5	6
17	Difficulty remembering	0	1	2	3	4	5	6		0	1	2	3	4	5	6
18	Visual problems (double vision, blurring)	0	1	2	3	4	5	6		0	1	2	3	4	5	6
19	Get confused with directions or tasks	0	1	2	3	4	5	6		0	1	2	3	4	5	6
20	Move in a clumsy manner	0	1	2	3	4	5	6		0	1	2	3	4	5	6
21	Answer questions more slowly than usual	0	1	2	3	4	5	6		0	1	2	3	4	5	6
22	In general, to what degree do you feel "differently" than before the injury (not feeling like yourself)?	No Difference 0 1 2 3 4 Major Difference <i>Circle your rating with "0" indicating "Normal" (No Difference) and "4" indicating "Very Different" (Major Difference)</i>														



Post-Concussion Symptom Inventory (PCSI-P) Parent Report Form Pre and Post-Injury



Student's Name: _____

Today's date: _____

Birthdate: _____

Age/ Grade: _____

Person Completing Form: _____

Relation: Mother ___ Father ___ Other ___

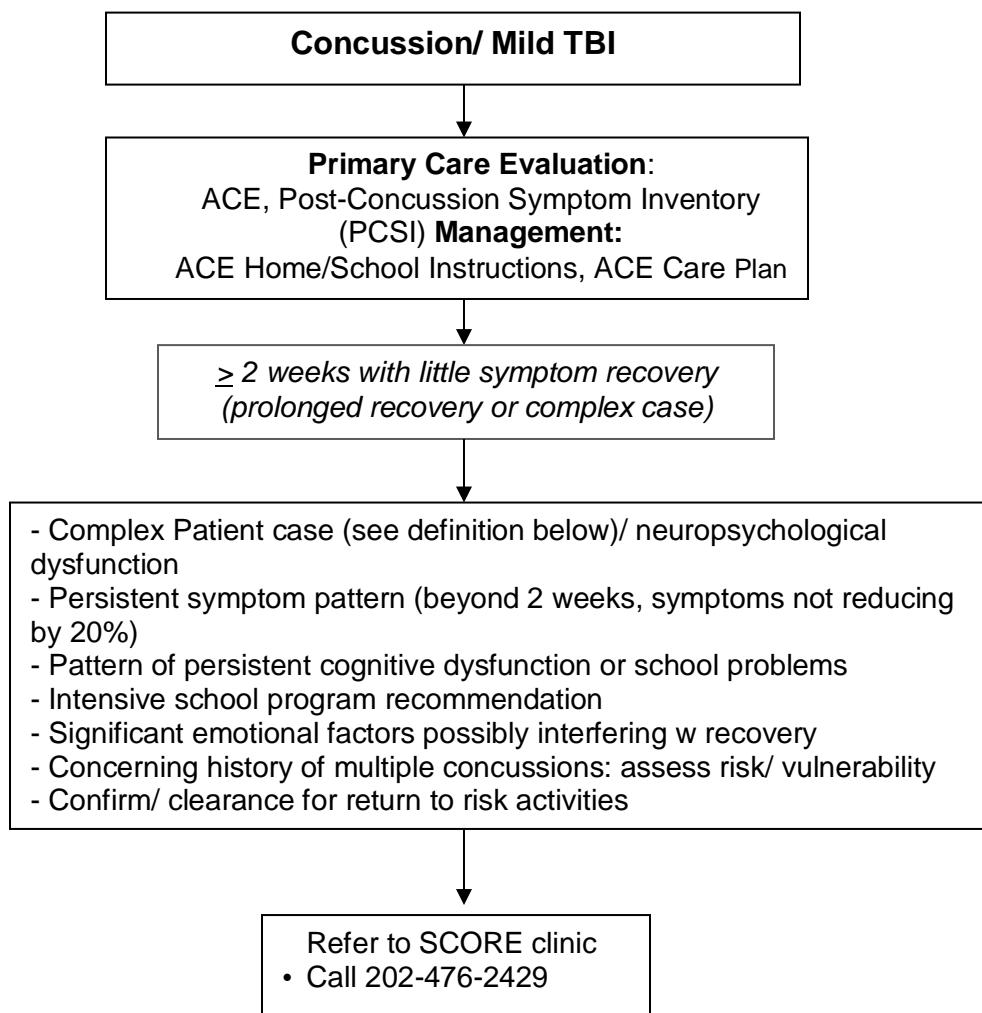
Instructions: We would like to know if your child had problems with these symptoms before their injury. Next, we would like to know if these symptoms have changed after the injury. Please rate the problem at two points in time- **Before the Injury/ Pre-Injury** and **Current Symptoms/ Yesterday and Today**.

Please answer all the items the best that you can. Do not skip any items. Circle the number to tell us how much of a problem this symptom has been for your child.

0 = Not a problem 3 = Moderate problem 6 = Severe problem

		Before the Injury/ Pre-Injury		Current Symptoms/ Yesterday and Today
1	Complains of headaches	0 1 2 3 4 5 6		0 1 2 3 4 5 6
2	Complains of nausea	0 1 2 3 4 5 6		0 1 2 3 4 5 6
3	Has balance problems	0 1 2 3 4 5 6		0 1 2 3 4 5 6
4	Appears or complains of dizziness	0 1 2 3 4 5 6		0 1 2 3 4 5 6
5	Appears drowsy	0 1 2 3 4 5 6		0 1 2 3 4 5 6
6	Sleeping <u>more than usual</u>	0 1 2 3 4 5 6		0 1 2 3 4 5 6
7	Sensitivity to light	0 1 2 3 4 5 6		0 1 2 3 4 5 6
8	Sensitivity to noise	0 1 2 3 4 5 6		0 1 2 3 4 5 6
9	Acts irritable	0 1 2 3 4 5 6		0 1 2 3 4 5 6
10	Appears sad	0 1 2 3 4 5 6		0 1 2 3 4 5 6
11	Acts nervous	0 1 2 3 4 5 6		0 1 2 3 4 5 6
12	Acts more emotional	0 1 2 3 4 5 6		0 1 2 3 4 5 6
13	Acts or appears mentally "foggy"	0 1 2 3 4 5 6		0 1 2 3 4 5 6
14	Has difficulty concentrating	0 1 2 3 4 5 6		0 1 2 3 4 5 6
15	Has difficulty remembering	0 1 2 3 4 5 6		0 1 2 3 4 5 6
16	Has or complains of visual problems (blurry, double vision)	0 1 2 3 4 5 6		0 1 2 3 4 5 6
17	Appears more tired or fatigued	0 1 2 3 4 5 6		0 1 2 3 4 5 6
18	Becomes confused with directions or tasks	0 1 2 3 4 5 6		0 1 2 3 4 5 6
19	Appears to move in a clumsy manner	0 1 2 3 4 5 6		0 1 2 3 4 5 6
20	Answers questions more slowly <u>than usual</u>	0 1 2 3 4 5 6		0 1 2 3 4 5 6
PCSI Total Symptom Score		Pre-Injury _____		Post-Injury _____
In general, to what degree is your child acting "differently" than before the injury (not acting like himself or herself)?		No Difference 0 1 2 3 4 Major Difference <i>Circle your rating with "0" indicating "Normal" (No Difference) and "4" indicating "Very Different" (Major Difference)</i>		

Concussion Referral Guideline



Definition of Complex Concussion Case

- Complex injury (e.g., multiple blows within a game, possible rotational / neck injury, significant injury characteristics including types / severity of signs and symptoms)
- Persistent symptom pattern (greater than 2 weeks) without significant improvement (< 20% symptom improvement)
- No change in neurocognitive functioning (ImPACT performance)
- Presence of risk factors (e.g., medical/ neurological, psychiatric, learning/ attention disorders) possibly related to prolonged recovery
- History of multiple concussions