Save the Brain
Concussion Campaign
Consensus Recommendations

Preamble

In May 2013 Montana passed the Dylan Steiger's Act¹ that requires any child exhibiting signs, symptoms or behaviors consistent with concussion to be removed from athletic events and prohibited from practice or play until a licensed health care provider has evaluated the child.

By late 2013 it became clear to Northwest Montana regional Neuroscience leaders that there was considerable variability within the region in the way that communities and clinicians were evaluating and managing people with concussion. Further, it was found that there was a general lack of consensus within the medical community regarding which guidelines should be used in addressing sports concussion. Several highly credible medical groups² have published guidelines or statements for concussion evaluation and treatment, and in many cases these guidelines/statements are not consistent with each other.

To address these issues, The Neuroscience and Spine Institute of Kalispell Regional Healthcare has established an expert group of clinicians to review and monitor the medical literature related to concussion and to apply the best available science in making consensus recommendations for our unique service area and beyond. The following consensus recommendations are intended to provide a consistent set of guidelines to the clinical, educational, and sports communities of Montana.

The consensus recommendations provide carefully considered evidence and guidance that can be applied and adapted to meet the diverse needs and resources of Montana communities. They are reviewed annually and revised, expanded and updated as deemed appropriate.

Consensus Recommendations

1. Individuals who are planning to participate in sports activities that have an elevated risk for concussion should undergo pre-participation evaluation of their baseline neuro-cognitive and balance status.
   
   a. The SCAT 3/Child SCAT 3 tool may be used for baseline neuro-cognitive and balance testing.
   
   b. Where available, the ImPact computerized neuro-cognitive evaluation system is recommended for obtaining baseline neuro-cognitive data.
   
   c. Where available, the Biodex computerized balance evaluation system is recommended.

2. Sideline evaluation for suspected concussion may be conducted using the Sideline Concussion Recognition card.

3. Post concussion evaluation should be completed using the original baseline tools where available. Where the original tool is not available, the SCAT 3 (for persons age 13 years and older), and the Child SCAT 3 (for children ages 5 to 12) is recommended for post concussion assessment.
   
   a. The SCAT 3/Child SCAT tool should be used by persons who have received training in use of the tool.

4. Return to Play decisions should be based on completion of the graduated 6 step Return to Play Protocol as described in the 2012 Zurich protocol.
   
   a. For children ages 5 to 12, the timeframe for moving from one step to the next is 72 hours.
   
   b. For persons 13 and older, the minimum timeframe for moving forward is 24 hours.
   
   c. The Return to Play Protocol should be monitored by a licensed healthcare provider who has been trained in concussion management.

5. Concussed students should undergo a period of cognitive rest and stimulation restriction followed by a gradual, staged increase in cognitive activity prior to resuming normal academic loads. The Return to Learn Plan protocol is recommended as a guide for successful return to learning following concussion.
   
   a. School personnel are encouraged to complete training sessions regarding recognition of concussion symptoms, principles of cognitive rest, stimulation control and gradual return to learning activities.
   
   b. School personnel should communicate with parents and healthcare providers regarding progress or lack thereof during the concussion recovery process.

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A concussion is a type of traumatic brain injury that changes the way the brain normally works. A concussion is caused by bump, blow, or jolt to the head or body that causes the head and brain to move rapidly back and forth. Even a “ding,” “getting your bell rung,” or what seems to be a mild bump or blow to the head can be serious.

What are the signs and symptoms of concussion?
Signs and symptoms of concussion can show up right after the injury or may not appear or be noticed until days or weeks after the injury.

<table>
<thead>
<tr>
<th>Signs Observed by Coaching Staff</th>
<th>Symptoms Reported by Athletes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appears dazed or stunned</td>
<td>Headache or “pressure” in head</td>
</tr>
<tr>
<td>Is confused about assignment or position</td>
<td>Nausea or vomiting</td>
</tr>
<tr>
<td>Forgets an instruction</td>
<td>Balance problems or dizziness</td>
</tr>
<tr>
<td>Is unsure of game, score, or opponent</td>
<td>Double or blurry vision</td>
</tr>
<tr>
<td>Moves clumsily</td>
<td>Sensitivity to light</td>
</tr>
<tr>
<td>Answers questions slowly</td>
<td>Sensitivity to noise</td>
</tr>
<tr>
<td>Loses consciousness (even briefly)</td>
<td>Feeling sluggish, hazy, foggy, or groggy</td>
</tr>
<tr>
<td>Shows mood, behavior, or personality changes</td>
<td>Concentration or memory problems</td>
</tr>
<tr>
<td>Can’t recall events prior to hit or fall</td>
<td>Confusion</td>
</tr>
<tr>
<td>Can’t recall events after hit or fall</td>
<td>Just not “feeling right” or “feeling down”</td>
</tr>
</tbody>
</table>

If an athlete reports one or more symptoms of concussion listed below after a bump, blow, or jolt to the head or body, s/he should be kept out of play the day of the injury and until a healthcare professional, experienced in evaluating for concussion, says s/he is symptom-free and it’s OK to return to play.

Did You Know?

• Most concussions occur without loss of consciousness.

• Athletes who have, at any point in their lives, had a concussion have an increased risk for another concussion.

• Young children and teens are more likely to get a concussion and take longer to recover than adults.
Concussion danger signs

In rare cases, a dangerous blood clot may form on the brain in a person with a concussion and crowd the brain against the skull. If a person exhibits any of the following danger signs after a bump, blow or jolt to the head seek immediate medical attention:

- One pupil larger than the other
- Is drowsy or cannot be awakened
- A headache that not only does not diminish, but gets worse
- Weakness, numbness, or decreased coordination
- Repeated vomiting or nausea
- Slurred speech
- Convulsions or seizures
- Cannot recognize people or places
- Becomes increasingly confused, restless, or agitated
- Has unusual behavior
- Loses consciousness (even a brief loss of consciousness should be taken seriously)

Why should an athlete report their symptoms?

If an athlete has a concussion, his/her brain needs time to heal. While an athlete's brain is still healing, s/he is much more likely to have another concussion. Repeat concussions can in-crease the time it takes to recover. In rare cases, repeat concussions in young athletes can result in brain swelling or permanent damage to their brain. They can even be fatal.

It's better to miss one game than the whole season.

For more information on concussions, visit: www.cdc.gov/Concussion or www.krh.org/savethebrain

Do you have questions? Call the Brain Injury Helpline at 1-800-241-6442.

To find a healthcare provider trained in concussion management
Concussion Clinic: 758-7035 or www.krh.org/savethebrain
Appointments available M-F in the Flathead Valley

Remember

Concussions affect people differently. While most athletes with a concussion recover quickly and fully, some will have symptoms that last for days, or even weeks. A more serious concussion can last for months or longer.

What should you do if you think your athlete has a concussion?

If you suspect that an athlete has a concussion, remove the athlete from play and seek medical attention. Do not try to judge the severity of the injury yourself. Keep the athlete out of play the day of the injury and until a health care professional, experienced in evaluating for concussion, says s/he is symptom-free and it's OK to return to play.

Rest is key to helping an athlete recover from a concussion. Exercising or activities that involve a lot of concentration, such as studying, working on the computer, or playing video games, may cause concussion symptoms to reappear or get worse. After a concussion, returning to sports and school is a gradual process that should be carefully managed and monitored by a health care professional.

Adapted from the Centers for Disease Control at www.cdc.gov/concussion.
What is a concussion?
A concussion is a type of traumatic brain injury that changes the way the brain normally works. A concussion is caused by a bump, blow or jolt to the head or body that causes the head and brain to move rapidly back and forth. The damage to the brain occurs at a chemical level and normal brain cell function is disrupted. Additional injury is complicated by the restriction of blood flow to the damaged areas, and simultaneous increase in demand of blood flow that is necessary for repair. Diagnostic imaging studies are typically normal after a concussion.

What are signs and symptoms of concussion?
Signs and symptoms of concussion can show right after the injury or may not appear or be noticed until days or weeks after the injury.

If a person reports one or more symptoms of concussion listed below after a bump, blow, or jolt to the head or body, s/he should not return to normal activity until a health care professional, experienced in evaluating concussion, says s/he is symptom-free and can be released from all restrictions.

Symptoms:

Thinking
- Disorientation & confusion
- Feeling slowed down/in a fog
- Memory loss
- Difficulty concentrating/thinking clearly
- Difficulty retaining new information

Physical
- Prolonged headache
- Sensitivity to light or noise
- Vision disturbances
- Dizziness
- Nausea or vomiting
- Impaired balance (this is often the first symptom to recover)

Emotional
- Irritability
- Sadness
- Anxiety
- Personality Changes
- Behavioral Changes
- Depression
- Lack of motivation

Did you know?
- 90% concussions occur without loss of consciousness
- Severity of the injury is not determined by location of impact or loss of consciousness
- People who previously had a concussion have increased risk for additional concussions
- Young children take longer to recover

Sleep/Energy
- Fatigue
- Excess sleep
- Trouble Falling Asleep
- Drowsiness
- Sleeping less than usual
- Altered sleep pattern
How long do symptoms last?

- 75% of the time symptoms resolve within 10 days
- 90% of the time, symptoms resolve within 3 weeks
- If symptoms persist greater than 3 months, a diagnosis of Post-Concussion Syndrome may be appropriate.

Recovery

The basis of concussion management is physical and cognitive REST until symptom-free, with gradual resumption of daily activities. The imbalance of energy is a key reason why patients are susceptible to worsening symptoms after an injury, if proper rest does not occur. Thus, premature activity, both cognitive and physical can worsen symptoms.

Steps to Recovery

1. Use the attached Cognitive Activity Monitoring Log as a tool for gradually reintroducing activities that involve thinking and stimulation.

2. Use the Symptom Evaluation forms to rate your symptoms every 72 hours

3. As activities are increasingly tolerated without symptom increase, one can use The Return to Play Protocol following concussion as a guideline for increasing activity.

Questions?

Please refer to the Resource List for additional information

Visit our website for more information and a list of healthcare professionals who are experienced in evaluating concussions: www.krh.org/savethebrain

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Save the Brain website
http://krh.org/savethebrain

Concussion Clinic
Appointments available Monday-Friday
406-758-7035

Centers for Disease Control
http://www.cdc.gov/concussion
Extensive resource for solid concussion information.

Moms Team
http://www.momsteam.com/health-safety/concussion-safety
Moms Team Concussion Safety Center has grown to be the largest, most comprehensive library of concussion safety information on the Internet.

Brain Injury Association of America
http://www.biausa.org
The country's oldest and largest nationwide brain injury advocacy organization.

Brain Injury Alliance Montana
http://biamt.org
Statewide resource for brain injury information, research, advocacy and Montana support groups. Brain Injury Helpline 1-800-241-6442

Kalispell Regional Healthcare, Neuroscience and Spine Institute
http://www.kalispellregional.org
Find local experts in evaluating and treating concussion.

REAP Concussion Management Program by Health ONE
A program based out of Colorado that seeks to reduce, educate, accommodate and pace concussion patients and help recovery.
Athlete/Parent Concussion Notice

The athlete named below has been removed from play due to a suspected concussion. You are being provided with a Parent/Athlete Concussion Information Sheet from the CDC. Please review this information. More information is available at www.cdc.gov/concussion/sports.

The athlete should not be left alone or allowed to drive for the next 24 hours and should be monitored for concussion danger signs. If danger signs develop, he/she should be taken for immediate medical attention.

The athlete should see a qualified healthcare provider within the next 24-48 hours. This can be a physician, nurse practitioner, physician’s assistant, chiropractor, certified athletic trainer, physical therapist, or school registered nurse. Call (406) 752-5170 to get a list of healthcare providers who have been trained in concussion care through the Save The Brain campaign.

Physical and mental rest is very important for recovery, especially in the first 24-72 hours. The concussed athlete should avoid all exercise and minimize mental tasks such as concentration, studying, video games, phone or computer work until all concussion symptoms have cleared and stay gone. Your healthcare provider will give additional instructions. The Brain Injury Alliance of Montana, www.biamt.org offers a free Brain Injury Help Line at 1-800-241-6442.

By Montana Law, the athlete will not be allowed to return to practice or play until cleared by a healthcare provider.

I have reviewed this notice and the Parent/Athlete Concussion Information Sheet:

Athlete
Name and signature
__________________________________________
Date _______________________

Parent/Guardian/Responsible adult
Name and signature
__________________________________________
Date _______________________

Person giving notice
Name and signature
__________________________________________
Date _______________________

SAVE THE BRAIN
Emergency Room/Urgent Care
Concussion Notice

Name: ____________________________ Date: ____________________________

The person named above has been diagnosed with a concussion. This is a brain injury that changes the way the brain normally works. The injury starts with a bump, blow or jolt to the head or body. Brain injury often continues for 48 to 72 hours (2 - 3 days) after the initial trauma.

The concussed person should not be left alone or allowed to drive for the next 24 hours, and should be monitored for RED FLAG signs or symptoms, until seen by a healthcare provider trained in managing concussions. If RED FLAGS are noticed, return to the emergency room. Otherwise plan to see a concussion trained healthcare provider within 3 days.

Do NOT:
- Drive
- Drink alcohol
- Stay alone
- Try to work, play or think hard

It is okay to:
- Take Tylenol for headaches
- Ice the head/neck
- Eat a light diet
- Rest and sleep

See a healthcare provider trained in concussion management within 3 days.

BY MONTANA LAW A CONCUSSED ATHLETE MAY NOT RETURN TO PLAY UNTIL CLEARED BY A QUALIFIED HEALTHCARE PROVIDER

RED FLAGS
- Increasing Confusion or Irritability
- Repeated Vomiting
- Seizure or convulsion
- Weakness or tingling/burning in arms or legs
- Deteriorating consciousness
- Severe or increasing headache
- Unusual behavior changes
- Double Vision

Neuroscience Concussion Clinic
(406) 758-7035

For more information and listings of concussion trained clinicians, go to www.krh.org/savethebrain

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What is childSCAT3?!

The childSCAT3 is a standardized tool for evaluating children for concussion and can be used in children aged from 5 to 12 years. It supersedes the original SCAT and the SCAT2 published in 2005 and 2009, respectively. For older persons, ages 13 years and over, please use the SCAT3. The childSCAT3 is designed for use by medical professionals. If you are not qualified, please use the Sport Concussion Recognition Tool. A baseline testing with the childSCAT3 can be helpful for interpreting post-injury test scores.

Specific instructions for use of the ChildSCAT3 are provided on page 3. If you are not familiar with the childSCAT3, please read through these instructions carefully. This tool may be freely copied in its current form for distribution to individuals, teams, groups and organizations. Any revision and any reproduction in a digital form require approval by the Concussion in Sport Group.

NOTE: The diagnosis of a concussion is a clinical judgment, ideally made by a medical professional. The childSCAT3 should not be used solely to make, or exclude, the diagnosis of concussion in the absence of clinical judgement. An athlete may have a concussion even if their childSCAT3 is "normal".

What is a concussion?

A concussion is a disturbance in brain function caused by a direct or indirect force to the head. It results in a variety of non-specific signs and/or symptoms (like those listed below) and most often does not involve loss of consciousness. Concussion should be suspected in the presence of any one or more of the following:

- Symptoms (e.g., headache), or
- Physical signs (e.g., unsteadiness), or
- Impaired brain function (e.g., confusion), or
- Abnormal behavior (e.g., change in personality).

SIDELINE ASSESSMENT

Indications for Emergency Management

NOTE: A hit to the head can sometimes be associated with a more severe brain injury. If the concussed child displays any of the following, then do not proceed with the ChildSCAT3, instead activate emergency procedures and urgent transport to the nearest hospital:

- Glasgow Coma score less than 15
- Deteriorating mental status
- Potential spinal injury
- Progressive, worsening symptoms or new neurologic signs
- Persistent vomiting
- Evidence of skull fracture
- Post-traumatic seizures
- Cerebrospinal fluid
- History of Neurosurgery (e.g. Shunt)
- Multiple injuries

1. Glasgow coma scale (GCS)

Best eye response (E)

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No eye opening</td>
</tr>
<tr>
<td>2</td>
<td>Eye opening in response to pain</td>
</tr>
<tr>
<td>3</td>
<td>Eye opening to speech</td>
</tr>
<tr>
<td>4</td>
<td>Eyes opening spontaneously</td>
</tr>
</tbody>
</table>

Best verbal response (V)

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No verbal response</td>
</tr>
<tr>
<td>2</td>
<td>Incomprehensible sounds</td>
</tr>
<tr>
<td>3</td>
<td>Inappropriate words</td>
</tr>
<tr>
<td>4</td>
<td>Confused</td>
</tr>
<tr>
<td>5</td>
<td>Oriented</td>
</tr>
</tbody>
</table>

Best motor response (M)

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No motor response</td>
</tr>
<tr>
<td>2</td>
<td>Extension to pain</td>
</tr>
<tr>
<td>3</td>
<td>Abnormal flexion to pain</td>
</tr>
<tr>
<td>4</td>
<td>Flexion/Withdrawal to pain</td>
</tr>
<tr>
<td>5</td>
<td>Localizes to pain</td>
</tr>
<tr>
<td>6</td>
<td>Obeyes commands</td>
</tr>
</tbody>
</table>

Glasgow Coma score (E + V + M)

GCS should be recorded for all athletes in case of subsequent deterioration.

Potential signs of concussion?

If any of the following signs are observed after a direct or indirect blow to the head, the child should stop participation, be evaluated by a medical professional and should not be permitted to return to sport the same day if a concussion is suspected.

- Any loss of consciousness? (e.g., "I don't know how long")
- "If so, how long?"
- "If so, how long?"
- Balance or motor incoordination (stumbles, slow movement, etc.)
- Disorientation or confusion (inability to respond appropriately to questions)
- Loss of memory:
- "If so, how long?"
- Blink or vacant look:
- Visible facial injury in combination with any of the above:

2. Sideline Assessment - child-Maddocks Score

"I am going to ask you a few questions, please listen carefully and give your best effort."

Modified Maddocks questions (1 point for each correct answer)

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where are we at now?</td>
<td>0</td>
</tr>
<tr>
<td>Is it before or after lunch?</td>
<td>0</td>
</tr>
<tr>
<td>What did you have last lesson/class?</td>
<td>0</td>
</tr>
<tr>
<td>What is your teacher's name?</td>
<td>0</td>
</tr>
</tbody>
</table>

child-Maddocks score

Child-Maddocks score is for sideline diagnosis of concussion only and is not used for serial testing.

Any child with a suspected concussion should be REMOVED FROM PLAY, medically assessed and monitored for deterioration (i.e., should not be left alone). No child diagnosed with concussion should be returned to sports participation on the day of injury.

BACKGROUND

Name: ____________________________ Date/Time of Injury: ____________________________
Examiner: ________________________ Date of Assessment: ____________________________
Sport/team/school: ________________________ Age: ____________________________
Gender: ____________________________ Date: ____________________________
Current school year/grade: ____________________________ Gender: ____________________________
Dominant hand: left right neither
Mechanism of injury ("tell me what happened"): ____________________________

For Parent/carer to complete:

How many concussions has the child had in the past? ____________________________
When was the most recent concussion? ____________________________
How long was the recovery from the most recent concussion? ____________________________
Has the child ever been hospitalized or had medical imaging done (CT or MRI) for a head injury? ____________________________
Has the child ever been diagnosed with headaches or migraines? ____________________________
Does the child have a learning disability, dyslexia, ADD/ADHD, seizure disorder? ____________________________
Has the child ever been diagnosed with depression, anxiety or other psychiatric disorder? ____________________________
Has anyone in the family ever been diagnosed with any of these problems? ____________________________
Is the child on any medications? Yes, please list: ____________________________

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Page 1 of 3
**SYMPTOM EVALUATION**

**Child report**

<table>
<thead>
<tr>
<th>Name:</th>
<th>never</th>
<th>rarely</th>
<th>sometimes</th>
<th>often</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have trouble paying attention</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I get distracted easily</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I have a hard time concentrating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I have problems remembering what people tell me</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I have problems following directions</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel confused</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I forget things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I have problems finishing things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I have trouble figuring things out</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>It's hard for me to learn new things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I have headaches</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel dizzy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel like the room is spinning</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel like I'm going to faint</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Things are blurry when I look at them</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I see double</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I feel sick to my stomach</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I get tired a lot</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I get tired easily</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Total number of symptoms (Maximum possible 20)

Symptom severity score (Maximum possible 20x3 = 60)

---

**Parent report**

The child

<table>
<thead>
<tr>
<th>has trouble sustaining attention</th>
<th>never</th>
<th>rarely</th>
<th>sometimes</th>
<th>often</th>
</tr>
</thead>
<tbody>
<tr>
<td>is easily distracted</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has difficulty concentrating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has problems remembering what he/she is told</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has difficulty following directions</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>tends to daydream</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>gets confused</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>is forgetful</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has difficulty completing tasks</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has poor problem solving skills</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has problems learning</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has headaches</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>feels dizzy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has a feeling that the room is spinning</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>feels faint</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has blurred vision</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>has double vision</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>experiences nausea</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>gets tired a lot</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>gets tired easily</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Total number of symptoms (Maximum possible 20)

Symptom severity score (Maximum possible 20x3 = 60)

---

**COGNITIVE & PHYSICAL EVALUATION**

**Cognitive assessment**

Standardized Assessment of Concussion – Child Version (SAC-C)^4

<table>
<thead>
<tr>
<th>Orientation (1 point for each correct answer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>What month is it?</td>
</tr>
<tr>
<td>What is the date today?</td>
</tr>
<tr>
<td>What is the day of the week?</td>
</tr>
<tr>
<td>What year is it?</td>
</tr>
</tbody>
</table>

Orientation score of 4

**Immediate memory**

<table>
<thead>
<tr>
<th>List</th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Trial 3</th>
<th>Alternative word list</th>
</tr>
</thead>
<tbody>
<tr>
<td>elbow</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>apple</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>carpet</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>saddle</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>bubble</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Immediate memory score total of 15

**Concentration:**

Digits Backward

<table>
<thead>
<tr>
<th>List</th>
<th>Trial 1</th>
<th>Alternative digit list</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-2</td>
<td>0</td>
<td>1 5-2</td>
</tr>
<tr>
<td>4-9-3</td>
<td>0</td>
<td>1 6-2-9</td>
</tr>
<tr>
<td>3-8-1-4</td>
<td>0</td>
<td>1 3-2-7-9</td>
</tr>
<tr>
<td>6-2-9-7-1</td>
<td>0</td>
<td>1 5-2-8-6</td>
</tr>
<tr>
<td>7-1-8-4-6-2</td>
<td>0</td>
<td>1 3-9-1-4-8</td>
</tr>
</tbody>
</table>

Total of 5

**Concentration score** of 6

**Neck Examination:**

Range of motion Tenderness Upper and lower limb sensation & strength

Findings:

**Balance examination**

Do one or both of the following tests.

Footwear (shoes, barefoot, braces, tape, etc.)

Modified Balance Error Scoring System (BESS) testing

Which foot was tested (i.e. which is the non-dominant foot)

Testing surface (hard floor, field, etc.)

Condition

Double leg stance: Errors

Tandem stance (non-dominant foot at back): Errors

Tandem gait^4

Time taken to complete (best of 4 trials) seconds

If child attempted, but unable to complete tandem gait, mark here

**Coordination examination**

Upper limb coordination

Which arm was tested:

Coordination score of 1

**SAC Delayed Recall^4**

Delayed recall score of 5

Since signs and symptoms may evolve over time, it is important to consider repeat evaluation in the acute assessment of concussion.

---

Scoring on the ChildSCAT3 should not be used as a stand-alone method to diagnose concussion, measure recovery or make decisions about an athlete's readiness to return to competition after concussion.
SCAT3 to be done in resting state. Best done 10 or more minutes post exercise.

SYMPTOM EVALUATION

How do you feel?

*You should score yourself on the following symptoms, based on how you feel now.*

<table>
<thead>
<tr>
<th>Symptom</th>
<th>none</th>
<th>mild</th>
<th>moderate</th>
<th>severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Pressure in head</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Neck Pain</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Dizziness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Blurred vision</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Balance problems</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Sensitivity to light</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Sensitivity to noise</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Feeling slowed down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Feeling like &quot;in a fog&quot;</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Don't feel right&quot;</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Difficulty concentrating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Difficulty remembering</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fatigue or low energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Confusion</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Drowsiness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Trouble falling asleep</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>More emotional</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Irritability</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Sadness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Nervous or Anxious</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Total number of symptoms (Maximum possible 22)

Symptom severity score (Maximum possible 122)

Do the symptoms get worse with physical activity? | Y | N | Y | N

Do the symptoms get worse with mental activity? | Y | N | Y | N

Self rated | Self rated and clinician monitored | Clinician interview | Self rated with parent input

Overall ratings: If you know the athlete well prior to the injury, how different is the athlete acting compared to his/her usual self? | No different | Very different | Unsure | N/A

Scoring on the SCAT3 should not be used as a stand-alone method to diagnose concussion, measure recovery or make decisions about an athlete's readiness to return to competition after concussion. Since signs and symptoms may evolve over time, it is important to consider repeat evaluation in the acute assessment of concussion.
Return to Play Protocol following Concussion

Athlete’s Name __________________________ Licensed Healthcare Provider ______________________

Date of concussion ______________________ Concussion Monitor/Tester ______________________

The key to recovery from a concussion is 24-72 hours of rest followed by a gradual increase in brain and body activity, but only if the increased activity does not make symptoms come back.

To advance to the next stage of recovery the concussed person needs to be symptom-free (normal) without any new medications for headache, pain or sleep.

<table>
<thead>
<tr>
<th>For children 12 and under</th>
<th>Minimum of 72 hours before advancing to the next stage.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For people 13 and older</td>
<td>Minimum of 24 hours before advancing to the next stage.</td>
</tr>
</tbody>
</table>

If symptoms return after advancing to the next stage, the athlete should go back one stage and follow the activity level for that stage. If symptoms are getting worse or not going away, see your licensed healthcare provider.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activity</th>
<th>Monitor</th>
</tr>
</thead>
</table>
| 1. Rest and Recovery | No exercise. No thinking. No work or school. No media. | Date cleared: ____________________  
By: ____________________ |
| 2. Light aerobic exercise | Walking, stationary bike, or elliptical. Pulse <70-80% of max. No lifting. | Date cleared: ____________________  
By: ____________________ |
| 3. Moderate aerobic exercise and drills | Non-contact drills at reduced speed. Light lifting. | Date cleared: ____________________  
By: ____________________ |
| 4. Non-contact training drills | Full speed non-contact drills. Full aerobic exercise. Heavier lifting. | Date cleared: ____________________  
By: ____________________ |
| 5. Full-contact training | Full participation in practice. Full contact. Full exercise. Full lifting. | Date cleared: ____________________  
By: ____________________ |
| 6. Full Return to Play | Game ready! | See backside of this sheet. |

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v7.17.15
SAVE THE BRAIN

Release to
Return to Play

Athlete’s Name __________________________ Licensed Healthcare Provider __________________________

Date of concussion __________________________ Concussion Monitor/Tester __________________________

I certify that I have consulted with the licensed healthcare provider and received information about monitoring this athlete's recovery from concussion. I accept responsibility for monitoring the athlete and will consult with the licensed healthcare provider if I have any questions or concerns.

Name and signature of Concussion Monitor ______________________ Date ____________

Name and signature of Concussion Monitor # 2 ______________________ Date ____________

By signing this form I certify that I am a licensed healthcare provider in the state of Montana and that, per Montana law, I have evaluated this athlete, and in my opinion this athlete is capable of resuming participation in sports activities.

Licensed Healthcare Provider Signature ______________________ Date ____________

Printed Healthcare Provider Name ______________________ Office Phone ______________________

Office Address

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v7.17.15
To advance to the next stage of recovery, the concussed person needs to be symptom-free (normal) without any new medications for headache, pain, or sleep.

### Return to Learn Plan

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activity</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Rest</td>
<td>Complete cognitive rest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No activity of any kind, no school, no texting, no video games, no computer work</td>
</tr>
<tr>
<td>II</td>
<td>Gradually integrate cognitive activity</td>
<td>Add cognitive activity for short periods of time, 5-15 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAM log may be helpful</td>
</tr>
<tr>
<td>III</td>
<td>Continue integration of cognitive activities AND Begin light aerobic exercise</td>
<td>Cognitive activities in longer increments of time, 20 to 30 minutes. Add light aerobic exercise if activities are tolerated. Walking, stationary bike or elliptical, pulse &lt;70-80% max. No lifting.</td>
</tr>
<tr>
<td>IV</td>
<td>School Re-entry</td>
<td>Partial day of school with 1 to 2 hours cumulative homework</td>
</tr>
<tr>
<td>V</td>
<td>Integrate into school setting</td>
<td>Gradually increase to full day of school Moderate aerobic exercise as tolerated</td>
</tr>
<tr>
<td>VI</td>
<td>Resume full cognitive workload</td>
<td>Introduce testing and catch up on essential work missed.</td>
</tr>
</tbody>
</table>

I have monitored the above student as he/she has recovered from a concussion. He/she is now cleared to resume full academic participation.

Name and signature of concussion monitor

Date

Adapted from Master, Gioia, Leddy, and Grady v7.29.15
**SAVE THE BRAIN**

**School Recommendations Following Concussion**

*This form must be filled in by a Licensed Healthcare Provider*

<table>
<thead>
<tr>
<th>Attendance</th>
<th>Breaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>No school for ___ school day(s)</td>
<td>Allow the student to go to the nurse’s office if symptoms increase</td>
</tr>
<tr>
<td>Attendance at school ____ days per week</td>
<td>Allow student to go home if symptoms do not subside</td>
</tr>
<tr>
<td>Partial School days as tolerated by the student</td>
<td>Allow other breaks during school day as deemed necessary and appropriate by</td>
</tr>
<tr>
<td>Full Schools days as tolerated by the student</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visual Stimulus</th>
<th>Audible Stimulus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allow student to wear sunglasses/hat in school</td>
<td>Lunch in a quiet place with a friend</td>
</tr>
<tr>
<td>Pre-Printed notes for class material or have a note taker</td>
<td>Avoid music or shop class</td>
</tr>
<tr>
<td>Limited computer, TV screen, bright screen use</td>
<td>Allow to wear earplugs as needed</td>
</tr>
<tr>
<td>Reduce brightness on monitor/screen</td>
<td>Allow class transitions before bell</td>
</tr>
<tr>
<td>Change classroom seating as necessary</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workload/Multi-Tasking</th>
<th>Physical Exertion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce overall amount of makeup work, class work and homework</td>
<td>No physical exertion/athletics/gym/recess</td>
</tr>
<tr>
<td>Prorate workload when possible</td>
<td>Walking in gym class only</td>
</tr>
<tr>
<td>Reduce amount of homework given each night</td>
<td>Begin return to play protocol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Testing</th>
<th>Additional Recommendations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional time to complete tests</td>
<td></td>
</tr>
<tr>
<td>No more than one test a day</td>
<td></td>
</tr>
<tr>
<td>No standardized testing until ____</td>
<td></td>
</tr>
<tr>
<td>Allow for scribe, oral response, and oral delivery of questions if available</td>
<td></td>
</tr>
</tbody>
</table>

© 2015 Kalispell Regional Healthcare
Current Symptoms List Today:

<table>
<thead>
<tr>
<th>Headache</th>
<th>Visual Problems</th>
<th>Sensitivity to noise</th>
<th>Memory Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>Balance Problems</td>
<td>Feeling Foggy</td>
<td>Fatigue</td>
</tr>
<tr>
<td>Dizziness</td>
<td>Sensitivity to Light</td>
<td>Difficulty Concentrating</td>
<td>Irritability</td>
</tr>
</tbody>
</table>

Student is reporting most difficulty in:

<table>
<thead>
<tr>
<th>All Subjects</th>
<th>Reading</th>
<th>Foreign Language</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>Music</td>
<td>History</td>
<td>Using Computers</td>
</tr>
<tr>
<td>Focusing</td>
<td>Listening</td>
<td>Other: __________________________</td>
<td></td>
</tr>
</tbody>
</table>

The patient will be reassessed for revision of the recommendations in ________________ weeks. This patient has been diagnosed with a concussion (brain injury) and is currently under our care. Please excuse the patient from school today due to the medical appointment. Flexibility and additional supports are needed during recovery. The above are recommendations for academic adjustments to be individualized for the student as deemed appropriate in the school setting. Feel free to apply/remove adjustments as needed, as the student's symptoms improve/worsen.

I, ________________________________, give permission for ________________________________ to share the following information with my child's school and for communication to occur between the school and the healthcare provider listed above.

__________________________  __________________________
Parent Signature Date

Provider Information: ________________________________

__________________________  __________________________
Office Phone: __________________ Fax: __________________

Visit www.krh.org/savethebrain for a list of SAVE THE BRAIN Healthcare Providers.

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SIDELINE CONCUSSION RECOGNITION

SAVE THE BRAIN
When in doubt, take 'em out!

For any injury, remember:
Apply basic first aid (Airway, Breathing, Circulation)
Do not move the athlete (other than to open the airway) unless trained to do so.

RED FLAGS
If any of the following are present the athlete should immediately and safely be removed from the field by a qualified medical professional or emergency personnel and brought to the nearest Emergency Medical Facility for urgent assessment.

- Witnessed loss of consciousness
- Athlete complains of neck pain
- Increasing confusion or irritability
-Repeated vomiting
- Seizure or convulsion
- Weakness or tingling/burning in arms or legs
- Deteriorating consciousness
- Severe or increasing headache
- Unusual behavior change
- Double Vision
Suspect concussion and REMOVE from play if any ONE or more of the following is present: *(items in red are RED FLAGS)*

**Visible clues**
- Loss of consciousness or responsiveness
- Lying motionless on the ground/Slow to get up
- Unsteady on feet/balance problems/falling/coordination
- Grabbing/clutching of head
- Dazed/blank or vacant stare
- Confused/not aware of plays or events

**Signs or symptoms**
- Loss of consciousness
- Seizure or convulsion
- Balance problems
- Nausea or vomiting
- Dizziness
- Increased emotionality
- Irritability
- Sadness
- Fatigue or low energy
- Nervousness or anxiousness
- ‘Don’t feel right’
- Difficulty with memory

- Headache
- Dizziness
- Confusion
- Feeling slowed down
- ‘Pressure in head’
- Blurred vision
- Sensitivity to light
- Amnesia
- ‘In a fog’
- Neck pain
- Sensitivity to noise
- Difficulty with concentration

**Memory function**
Ask the following questions. Failure to correctly answer any of these correctly should result in immediate removal from play.

*Where are we now?*
*Which half/period is it now?*
*Who scored last in this game?*
*What team did you play before this game?*
*Did your team win the last game?*

Any athlete with a suspected concussion should be immediately removed from play and not allowed to return until they have been assessed by a qualified medical provider. They should not be left alone or allowed to drive a vehicle.