



A healthy transition after concussion

UNDERSTANDING CONCUSSIONS



South Shore
Hospital

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UNDERSTANDING CONCUSSIONS

HeadSmart™ is a recovery protocol developed by physicians and school nurses to facilitate a student's healthy return to school and sports following a concussion. The protocol is designed to engage students — as well as their families, friends, health care providers, teachers and coaches — in the recovery process.

HeadSmart outlines four color-coded stages of recovery that students experience after a concussion. The four stages help to create a common language and understanding among students, family members, friends, school and health professionals throughout the recuperation process.

The HeadSmart handbook is an easy-to-use guide for middle, high school and college age students who have experienced a concussion. It is recommended that students review the handbook with family members, teachers, coaches and school health professionals. Handbook users will find:

- Information about concussions
- Descriptions of the four color-coded stages of recovery
- Resources, programs and additional readings for students, families and teachers

The handbook also includes a helpful tool called the Recovery Action Plan that can serve as a valuable checkpoint through each stage of recovery.

HeadSmart is the outcome of a unique collaboration among Scituate Pediatrics, Scituate High School and three South Shore Hospital programs: Sports Concussion Clinic, Youth Health Connection, and Reading Partnership.

Protocol contributors include three members of South Shore Hospital's medical staff — David Morin, MD of Scituate Pediatrics; Janet Kent, MD, medical director/Sports Concussion Clinic; and Michael McManus, MD, executive director of pediatric medicine — and school nurse leaders from Braintree, Canton, Framingham, Quincy, Scituate Walpole and Weymouth.

Handbook reviewers include Barbara J. Green, PhD, medical director/South Shore Hospital Youth Health Connection; Marge Rossi, RN, BSN, MEd, school nurse leader/Scituate Public Schools; Kimberly Noble, RN, MBA, coordinator/South Shore Hospital Youth Health Connection; Jean Ciborowski-Fahey, PhD, coordinator/South Shore Hospital Reading Partnership, and Caitlin Little, intern/South Shore Hospital Youth Health Connection.



High school teacher: *"As a teacher, I greatly appreciated learning the parameters and intricacies of students with concussions. With this new knowledge of color coding student conditions, teachers will be able to develop learning accommodations to successfully transition students back into the classroom."*



A **traumatic brain injury (TBI)** is a **blow or jolt to the head** that can temporarily or permanently impair a student's physical abilities and change how the student thinks, acts and learns in school. A concussion is a type of TBI that also is referred to as a "closed head injury."

How can a concussion affect you?

A **concussion may impact a student's academic performance.** You may learn more slowly, have trouble remembering, and have a hard time concentrating or staying organized. The effects of a concussion may interfere with listening in class, learning new skills, taking notes, studying for and completing tests, and organizing long-term projects.

A **concussion may impact a student's physical and emotional well-being.** You may experience headaches or nausea, be sensitive to bright lights and loud noises. You could be more tired, feel dizzy or out of balance. You may feel depressed or sad, experience nervousness or anxiety or feel impulsive, angry or aggressive.

Post-concussion life can be frustrating.

When you return to school after a concussion, your needs may be different than before your injury. Your injury happened suddenly and, often, traumatically. Adjusting to school again may be difficult and will take time. It can be frustrating to remember how things were before you got hurt. You'll need to adjust your expectations — and so will your family, friends and teachers.

What seemed simple before now may be challenging.

Often what is most affected by a concussion is a student's speed of processing information.

The faster and easier you can do some tasks, the more resources are freed up to perform more complex tasks. Reading is an example of a complex task that requires you to simultaneously recognize, understand and remember the meaning of words and ideas. Taking notes is another complex task that requires you to listen, understand and write words both quickly and accurately.



Student — football: "Having a concussion is totally frustrating. I hated missing games and thought I should be back on the field with my team. Looking back, I realize that I wasn't thinking right and probably wouldn't have made the right choice."



Recovery from concussion

- Young people recover **more slowly** than adults.
- You will recover more quickly with rest from both physical activity and school work.
- Because you do not want to fall behind in your classes or sports, you may not give your brain and body the necessary time to heal.
- Returning to school too early may make your symptoms worse and slow the healing process.

Physical symptoms that may continue during recovery:

- Headache
- Nausea
- Light and noise sensitivity
- Fatigue, sluggishness
- Dizziness
- Changes in sleep patterns
- Blurred vision
- Reduced/impaired concentration

Changes in emotional well-being during recovery:

- Higher irritability
- Withdrawn
- More defiant
- Inappropriate behavior
- Argumentative
- Inappropriate emotional reactions
- Emotional ups and downs
- Lack of energy
- Easily annoyed/“short fuse”



Parent of a field hockey player: “My daughter is a very conscientious student. Without the school plan I would have had to tie her to the bedpost to make her turn off her computer and rest.”





Recovery

Concussions may cause changes in school performance

- Slower processing speed
- Lapses in short-term memory
- Reduced/impaired concentration
- Slower to learn new concepts
- Shorter attention span
- More difficulty organizing
- More difficulty completing assignments and studying for tests

It is important to allow time for recovery to prevent:

Post Concussion Syndrome: A disorder that may occur after head injury. Symptoms include dizziness, fatigue and headache well after the initial injury. It may be prevented by strict adherence to your recovery plan.

Second Impact Syndrome: A rare but catastrophic occurrence that may lead to severe debilitation or even death. It involves a second injury to the brain before the first injury is fully healed. It can be prevented by immediate removal from play following a blow to the head and strict adherence to your recovery plan.



School nurse: “Over the years I have seen so many students attempting to be in the classroom and back on the field before they were fully recovered from a concussion. Having ImPACT testing has given us a tool to assess the healing progress and individualize a recovery plan. I would never want to go back!”





Michael's experience

Michael is 15, a high school sophomore. His concussion happened while on a routine practice run with his high school ski team, during the first skiing warm-up run of the day.

Michael says, “I remember going up the lift and getting off at the top of the mountain.”

“I remember riding to the emergency room, not sure what happened to my equipment. I thought I face-planted on the mountain — that’s what some teammates saw me do.” Two days after the event, Michael checked out his helmet for the first time and noted it was fractured in back. It is assumed that he fell, hitting the back of his head, then got up to continue skiing, but fell forward instead. This was the only part of the event that he remembered.

“It bothered me at first that I couldn’t remember what happened. I remember going on the ski lift and then after the fall being at the base of the mountain — I have never remembered how I fell.”

Michael's symptoms included:

- Nausea — only immediately after the injury
- Light sensitivity — for the first four days
- Headache — constant all day long, for about a week
- Dizziness — when going downstairs, bending over, lowering his head or changing his position too quickly (such as from sitting to standing).

Michael's school participation after his concussion was challenging. He was out of school for two days (Thursday and Friday, then rested over the weekend). “It helped to rest and be quiet,” he says. When he went back to school, he had a headache that was constant all day for the early part of the following week. He found it hard to concentrate or think — and this was very frustrating. Processing math problems was slower, and he had to pace himself when completing homework. He rested during off periods and checked in with the school nurse during the day. “She was my best support,” Michael says. “I had midterms two weeks after the fall. I talked with my teachers and just did the best I could.”

Michael wants to share some suggestions that he learned from his post-concussion experience. “Ask your teachers to lighten your load,” he stresses, “and allow more time to complete your work. Advocate for neurocognitive testing, such as ImPACT (see page 11), to assess how your brain is functioning. And make sure that you, your friends, your school team and your parents agree about your treatment plan.”



Michael (student): *“I had headaches and sensitivity to light for about a week. I had to remember not to bend over to pick anything up, it made me dizzy and brought back my headache.”*



Treatment



Treatment for a concussion: Rest, rest and more rest.

- The “rest, rest, rest” process can be a real challenge for you! You will be tempted to be more active than you should be. Remember that you will *only* heal with rest.
- You and your parents need to learn about the critical importance of rest for your healing, as well as the changeable nature of the symptoms and the various stages of recovery.
- Your recovery team includes you, your family, your teachers, school nurse and doctor — *and* your friends. Make sure to include them in the recovery process so they can be a strong support system for you.
- Make sure everyone understands that your injury may be invisible — but it is **very serious**. A concussion needs to be treated as carefully as any other injury. Follow the doctor’s plan exactly.
- Remember the importance of your long-term goal: to protect your brain.
- Note that even in professional sports these days, coaches are more aware of the danger of concussions and no longer say “just play through it.”
- Be patient when explanations and warnings are repeated to you over and over. Your recovery depends on you!



Parent of a football player: *“Having a school concussion protocol already in place for my son was terrific. Everything worked the way it was supposed to. It took pressure off us as parents to have so much support from the school.”*

The four stages of recovery



RECOVERY: RED STAGE Usually 2-4 days, but could last weeks

School attendance: Students typically do not attend school.

For student at home

- Keep strict limits on TV, reading, gaming, cell phone use, texting, face-to-face socializing and computer use.
- No sports.
- Rest, rest, rest and more rest! This means lying in bed with minimum noise and low or no lights.
- *An option that can really help:* Review and sign your Recovery Action Plan (see page 14).

For parents/guardians

- Enforce strict limits on your child's use of electronics and screen time.
- Use home-school email or phone to inform the school of concussion injury..
- Request the school to assign a contact person ("Team Captain") with whom you may communicate about your child's progress.
- *An option that can really help:* Develop a Recovery Action Plan with your child, to cope with the lessened activity necessary to facilitate recovery (see page 14).
- Enlist the support of family and friends in completing and following through on the Recovery Action Plan.

For school personnel

- Once the school is informed of the student's concussion, assign a contact person ("Team Captain").



High school teacher: *"It allows me to be more sensitive to the needs of students who have an injury that is not obvious. To have a concussion plan is critical considering the rapid pace of today's education environment."*



The four stages of recovery



RECOVERY: ORANGE STAGE

School attendance: Half days to full days.

For student at home

- **Rest, rest, rest and more rest!**
- Limit TV, video games, use of computers, cell phones and texting.
- Go to bed early.
- Avoid the school bus; don't carry books or heavy back packs.
- During weekends, allow yourself one hour at a time for videos, TV or computer (two hours total per day).
- Limit your physical activity! No working out aerobically or weight training — this will slow down your recovery.
- Review and adjust your Recovery Action Plan with your parents, siblings and friends.

For student at school

- You may audit classes — listening, no note taking.
- Keep teachers updated as often as possible.
- Keep current copies of assignments and handouts.
- Be patient with your “slow” recovery.
- Have your lunch or rest in the nurse's office, if you need to.
- Find audio books and textbooks on tape or CD.
- No band, no chorus, no physical education (due to high noise levels). No sports.
- Review and adjust your Recovery Action Plan when needed.

For parents/guardians

- Maintain communications and advocacy with the school staff, the school nurse and your child.
- Share and reinforce the Recovery Action Plan with your child, the school staff and the nurse.
- Keep your child's schedule very light.

For school personnel

- Work with assigned Team Captain (e.g., the guidance counselor, school psychologist, teacher).
- With the student, sort work assignments into three categories:
 - a. Excused — not to be made up
 - b. Accountable — student is responsible for the assignment but may work with another student
 - c. Responsible — must be completed by the student
- No tests at this stage.
- No homework at this stage.





The four stages of recovery



RECOVERY: YELLOW STAGE

School attendance: Full-time attendance if possible. **No** sports.

For student at school

- Tell your teachers if you are having difficulty with your class work (“self advocate”).
- See the school nurse for pain management and if you need to rest.
- Complete as much homework as possible in 15-minute blocks of time, rather than all at once.
- Update your teachers and parents about what is possible and what is not.
- Limit yourself to one test a day by notifying teachers when you already have a test scheduled.
- Immediately communicate with your teachers and nurse if your symptoms reappear.
- Decide with your team about band and chorus (due to noise levels).
- Review and adjust your Recovery Action Plan with your parents, siblings and friends.

For parents/guardians

- Monitor and document symptoms (both physical and emotional).
- Support and reinforce structures and routines for recovery.
- Advise your child, as needed, on time management for school work completion.
- Continue to advocate for your child at school.

For school personnel

- Support the student in making up the most important school work with deadlines agreed-upon in writing.
- Assign a reduced homework load.
- Consider *un-timing* the tests — and administer them in a quiet area.
- Consider a reader and/or a transcriber for tests.
- Decrease the work load if symptoms reappear.
- Limit the student to one quiz or test per day.



Physician: “Parents, if your child is text messaging constantly use the 15 minute rule: give your child their cell phone and allow them to text for 15 minutes twice a day, then take the phone away.”



The four stages of recovery



RECOVERY: GREEN STAGE

School attendance: Full time.

For student at school

- Resume your normal activities.
- Provide your school nurse or Team Captain with your ImPACT scores.
- Return to sports *only* if cleared by a physician *and* when you are managing your school work well.
- Slowly ramp-up your level of physical activity.
- Do not transition quickly from sitting on the sidelines to immediately playing a game (“graduated return to play protocol”).
- Self-monitor your physical well-being and report any symptoms — and **never** “play through” symptoms!
- Continue to be your own strong advocate.

For parents/guardians

- Continue to observe, monitor and support your child.
- Support return to sports once medically cleared *and* school work is being handled.
- Advocate for tutoring and extended make-up time.

For school personnel

- Recognize that returning students often do better in the morning.
- Recognize that a student’s ability to perform complex math equations may be different from the ability to write a composition, depending on the location of the concussion in the brain.
- Request tutoring to help the student to make up what was missed.
- Find out if ImPACT neurocognitive test scores are available.
- Reinstate the student’s sports program *if* cleared by his/her physician and *if* he/she is keeping up with school work.



Student (cheerleader): *“It is hard to describe. It was like I was in another zone. I knew what I should be doing. I just couldn’t make my brain do it.”*

Summary: Stages of Recovery

RECOVERY: RED STAGE Usually 2-4 days, but could last weeks

- REST
- Students typically do not attend school
- Strict limits on screen time/use of electronics/reading
- Parent/guardian: Inform school of injury and request a Team Captain
- Review and sign your Recovery Action Plan
- No sports/rough housing
- REST

RECOVERY: ORANGE STAGE

- Attend school half to full days
- REST at home
- Continue limits on screen time/use of electronics/reading
- Avoid school bus and heavy backpacks
- Work with school Team Captain regarding school accommodations
- No tests in school
- No sports, band, chorus, PE
- Review and adjust your Recovery Action Plan
- REST

RECOVERY: YELLOW STAGE

- Attend school full-time if possible
- Work with your teachers regarding homework deadlines (“self advocate”)
- See school nurse for pain management or if rest is needed
- Limit one quiz/test per day — consider un-timed testing
- Work in 15 minute blocks, complete as much homework as possible
- No sports
- Decide with your team about band, chorus, PE
- Review and adjust your Recovery Action Plan

RECOVERY: GREEN STAGE

- Attend school full-time
- Self advocate at school (staggered due dates for assignments, tutor if needed)
- Resume your normal activities
- Resume sports once school work is back on track *and* symptom free *and* cleared by a physician



ImPACT®

Immediate Post-Concussion Assessment and Cognitive Testing or ImPACT is a sensitive test that measures recovery of cognitive functions such as memory, attention and speed of thinking that are often affected by a concussion. Use of ImPACT testing during recovery and again when symptom-free, gives parents and physicians a more accurate way to determine a student's readiness to return to school and sports. Please call South Shore Hospital's Sports Concussion Clinic at **781-624-8162** for more information about ImPACT.

South Shore Hospital's Sports Concussion Clinic

South Shore Hospital's Sports Concussion Clinic is headed by Janet Kent, MD. Dr. Kent, a credentialed ImPACT consultant, is board certified in physical medicine and rehabilitation and has ten years of experience working with brain injuries. Dr. Kent evaluates the concussed student, explains the proper management of the injury to students and parents, prescribes medication to improve symptoms, and medically clears students for return to play when they are fully recovered. A concussion rehabilitation program may be prescribed. If needed, Dr. Kent will work with the student's school to modify academic demands until the student is fully recovered. Please call the clinic coordinator at **781-624-8162** for an appointment.

South Shore Hospital's Reading Partnership

South Shore Hospital's Reading Partnership helps to minimize the risk of reading difficulties in young children by encouraging parents-to-be to nurture their newborns and toddlers through reading. The Reading Partnership supports an online, research-based, early literacy screening tool developed by the National Center for Learning Disabilities for use by pediatricians, parents and teachers of preschool aged children. Please contact Jean Ciborowski-Fahey, Ph.D., education director, at **781-624-4331** for information.

South Shore Hospital's Youth Health Connection

South Shore Hospital's Youth Health Connection is dedicated to the positive mental health and physical well-being of youth. The program advances positive youth health outcomes through knowledge, risk prevention, collaboration, respect, connectedness and coalition building. The Youth Health Connection speakers' bureau provides schools and communities with access to experts in physical and emotional youth development. Please contact Barbara J. Green, PhD, medical director, at **781-748-9227** ext. 3; Kim Noble, RN, MBA, program coordinator, at **781-794-7415**; or Karin Farrell, BS, administrative secretary at **781-794-7849** for more information. You also may visit www.southshorehospital.org/yhc.



- **BrowseAloud**

BrowseAloud is a software program that reads aloud all website content. As you move the cursor over words, they are spoken aloud. Free download. www.browsealoud.com

- **“Heads Up” on Concussion**

The Centers for Disease Control (CDC) has created free tools for youth and high school sports coaches, parents, athletes and health care professionals that provide important information on preventing, recognizing and responding to a concussion. www.cdc.gov/concussion

- **ImPACT Concussion Management**

ImPACT provides computerized neurocognitive assessment tools and services that are used by coaches, athletic trainers, doctors and other health professionals to assist them in determining an athlete’s fitness to return to lay after a concussion. www.impacttest.com

- **Keep Every Youth Safe**

Keep Every Youth Safe (KEYS) is an hour-long seminar created by the Brain Injury Association of Massachusetts that educates and empowers new drivers to make smart driving decisions to avoid injury when on the road. This award-winning program explores the link between dangerous driving behaviors and the risk of sustaining a traumatic brain injury (TBI), the most common cause of death and disability among adolescents and young adults. www.biama.org/whatdoes/keys

- **Kurzweil Educational Systems**

If long-term assistance is needed, this program may be of benefit, as it helps read text and allows for highlighting and note-taking, with printouts for use as study guides. Documentation of a learning disability may be required. Families can send for a 30-day free trial CD. www.kurzweilededu.com

- **Peer tutoring and support**

Kindle is now available as a free download for MAC/PC, iPhone, iPad, Android and Blackberry. www.amazon.com, Kindle section. iBooks is also available for use on MAC, iPhone and iPad. www.apple.com/itunes

- **Play Smart**

Play Smart: Understanding Sports Concussion is an exciting and informative video series produced by the Brain Injury Association of Massachusetts for parents, coaches and student athletes. The video series includes two twelve-minute videos, one specifically designed for coaches and parents and another for student athletes. Play Smart includes the essential knowledge on sports concussions, personal testimonies of student and professional athletes, and expert advice. Play Smart educates audiences on the signs and symptoms of concussion, emphasizes the importance of proper management and best methods for follow-up, and highlights this important public health issue. www.biama.org/whatdoes/playsmart

- **Project Gutenberg**

Project Gutenberg is the place where you can download over 30,000 free ebooks to read on your PC, iPhone, iPad, Kindle, Sony Reader, etc. A great resource for free books. Option: Use BrowseAloud to “read” the books. www.gutenberg.org/wiki/Main_Page

- **Texthelp Systems**

Similar to kurzweil, but less expensive for personal purchase. For a list of upcoming free webinars visit www.texthelp.com/page.asp?pg_id=10180#windows



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Psychologist: "Keep in mind, this too shall pass, meaning the emotional repercussions, as your child's brain recovers from the impact."



Recovery Action Plan (RAP)

The Recovery Action Plan (RAP) is a helpful tool that can be a valuable checkpoint for you and your team during your recovery. Please photocopy the original so you may update your plan throughout the healing process.



Recovery Action Plan (RAP)

Between

name of student

And

names of family, friends, school nurse, teacher(s), coach(es)

Recovering from a head injury involves a support team including family members, friends, school nurse, teachers, coaches and physician.

The goal of the head-injured student is to heal completely.

The goal of the team is to empower the student — to get the healing job done.

DATE _____ I (student signature) _____

AGREE TO:

- Follow my doctor's recommendations and ask clarifying questions when necessary.
- Always know which color recovery stage I am in. Presently I am in _____ color stage
- Communicate with my family, friends, health and education team.
- (Other) _____

WE (team member signatures) AGREE TO SUPPORT THESE ACTIONS:

Notes



You are encouraged to use this page to note symptoms, activities, questions and other comments throughout the recovery process.



Parent of a hockey player: *“The ImPACT testing that was available through the Scituate Public School system was extremely beneficial to my son. His concussion injury was treated seriously by the school staff and his family. He sustained a significant injury that we were not able to see and therefore did not respect until the testing was performed at SPS. He was allowed to heal fully and finish the school year successfully.”*



HeadSmart is a South Shore Hospital community benefits program.

South Shore Hospital is the leading regional provider of acute, outpatient, home health, and hospice care to the approximately 600,000 residents in southeastern Massachusetts. South Shore Hospital's home health care division includes South Shore Visiting Nurse Association, Hospice of the South Shore, and Home & Health Resources.

As a not-for-profit, tax-exempt, charitable organization, South Shore Hospital serves all in medical need, regardless of ability to pay. The primary way that South Shore Hospital benefits the community is through clinical programs that meet our region's most prevalent medical needs, such as maternal/newborn care, heart and stroke care, cancer care, trauma care, orthopedic care and home health care. We also offer community benefits programs that advance our charitable mission by focusing on initiatives that support the principles of Massachusetts health care reform, improve the management of chronic diseases, reduce disparities in the provision of care, promote wellness in vulnerable populations, and sustain vital health services. Please visit www.southshorehospital.org for more information.



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