



# THE FACTS ABOUT CONCUSSIONS

Concussion awareness has become a central topic in mainstream media recently. Several sports leagues have garnered negative publicity regarding their attention to concussion awareness and treatment. Concussions occurring on the field of play have been linked to the decline in an effected person's attention, verbal learning, reasoning, and information processing, as well as depression and chronic traumatic encephalopathy (CTE). CTE is a form of tauopathy, a class of neurodegenerative diseases.

Education on prevention, signs and symptoms, action plans, and helmet safety is paramount to avoiding the repercussions of a potentially dangerous concussion. Athletes can find information about concussion safety at [USEF.org](http://USEF.org) or the Center for Disease Control and Prevention, [cdc.gov](http://cdc.gov).

## *What is a concussion?*

A concussion is a type of traumatic brain injury (TBI) caused by a bump, blow, or jolt to the head or a hit to the body that causes the head and brain to move rapidly back and forth. The sudden movement can cause the brain to bounce around or twist in the skull, stretching and damaging the brain cells and creating chemical changes in the brain.

Medical providers may describe a concussion as a “mild” brain injury because concussions are usually not life-threatening, but the effects can be serious.

## *What are signs and symptoms of a concussion?*

Athletes who show or report symptoms on the following page may have a concussion or a more serious injury.

Signs and symptoms usually show up soon after the injury but may not show up for hours or days.

Post-concussion syndrome (PCS) is a set of symptoms that may continue for weeks, months, or a year or more after a concussion – a minor form of TBI. A diagnosis may be made when symptoms resulting from concussion last for more than three months after the injury.

Though there is no treatment for PCS, symptoms can be treated; medications and physical and behavioral therapy may be used, and individuals can be educated about symptoms and provided with the expectation of recovery. The majority of PCS cases resolve after a period of time.



## GET THE FACTS

Allison Springer, the 2012 Rolex/USEF National CCI4\* Champion, was the first eventer to wear a helmet in dressage phase of the Rolex Kentucky Three-Day Event in 2010.

### WHAT YOU MIGHT WITNESS

- Can't recall events prior to or after a fall
- Appears dazed or stunned
- Forgets an instruction or is confused by an assignment
- Moves clumsily
- Answers questions slowly
- Loses consciousness (even briefly)
- Shows mood, behavior, or personality changes

### WHAT YOU MIGHT EXPERIENCE

- Headache or "pressure" in head
- Nausea or vomiting
- Balance problems or dizziness
- Double or blurry vision
- Bothered by light or noise
- Feeling sluggish, hazy, foggy, or groggy
- Confusion or concentration/memory problems
- Just not "feeling right," or "feeling down"

### WHAT YOU SHOULD DO

If you suspect that an athlete has a concussion, you should take the following steps:

- Remove the athlete from the horse; do not allow him/her to remount.
- Ensure athlete is evaluated by an appropriate health care professional. Do not try to judge the seriousness of the injury yourself.
- Allow athlete to return to practice/competition only with permission from the appropriate health care professional.

#### *What is baseline testing?*

Baseline testing is a pre-season exam conducted by a trained health care professional. Baseline tests are used to assess an athlete's learning and memory skills, ability to pay attention or concentrate, how quickly he or she thinks and solve problems, and tests the presence of any concussion symptoms.

#### *How can baseline testing be used?*

Results from baseline testing can be used if an athlete has a suspected concussion. Comparing post-injury test results to baseline test results can assist health care professionals in identifying the effects of the injury and making more informed return-to-competition decisions.

#### *What is ImPACT?*

ImPACT (Immediate Post-Concussion Assessment and Cognitive Testing) is the most-widely used and most scientifically validated computerized concussion evaluation system. ImPACT provides trained clinicians with neurocognitive assessment tools and services that have been medically accepted as state-of-the-art best practices as part of determining safe return-to-competition decisions.

Dr. Lola Chambless, MD, Assistant Professor of Neurological Surgery at the Vanderbilt University Medical Center, spoke to the USEF Board of Directors, staff, and members about the importance of concussion safety and the use of baseline testing, specifically ImPACT. Dr. Chambless is also a lifelong equestrian and was a USEF National Amateur Three-Day Event Champion. She believes all athletes should be encouraged to participate in baseline testing.

"The NFL, NHL, MLB, NCAA, and the NBA are all using baseline cognitive testing and subsequent post-concussive testing to allow return to play. They're all using a single provider called ImPACT, which is an online test. You do a baseline assessment at the beginning of the season and then if you've had a concussion, when your symptoms resolve, you go back to take the test again and the test tells you whether you're cleared to return. It's very good. It's well-validated; people are using it across the board in a huge variety of sports. To really do that well, it's not just doing a computerized test, you actually need to take a concussion history from those athletes. I think that is the Holy Grail, for sure. I think we should be moving in that direction."

Dr. Chambless also noted that the ImPact test must be used properly. "The key thing about it is that you need to wait until your symptoms have resolved. The test is designed so that, once you feel completely back to normal, you take the test to see if there's something you're missing. The issue is when you have people that try to take the test over and over again; you can kind of learn the test. You can also intentionally flunk your baseline, which I doubt many equestrians are going to do, but it's an issue in the football world. So it's not perfect, but the key is people need to understand that is your final step of clearance after everything else has improved. You don't just start taking it the next day. It becomes less and less valid the more times athletes take it."

ImPACT is a USEF-approved service. Visit [impacttest.com](http://impacttest.com) for more information.



### How can I prevent a concussion?

One of the most effective ways to prevent concussion in equestrian sport is to wear a helmet. It is very important that the helmet is fit properly and worn correctly. The following are helmet tips from Riders4Helmets.

- Always fasten the safety harness on your helmet. A helmet will not protect you if it comes off your head before you hit the ground.
- Do not wear other riders' helmets. Your helmet is designed to fit your head. An incorrectly fitting helmet offers no protection.
- If you have a hard blow impact accident while wearing your helmet, immediately replace it with a new model. There may be damage to the helmet that is not visible to the naked eye.
- Helmet manufacturers generally recommend replacing your helmet every five years. Helmets take a beating over time from sweat, heat, dust, rain, etc.
- If you purchase your helmet online, check the date of manufacture. Purchasing a used helmet can be very risky and is not recommended. The helmet may have sustained previous damage not visible to the naked eye.
- A ponytail or different hairstyle can affect the fit of your helmet. When you try on helmets prior to purchase, wear your hair in the style that you expect to wear it when riding.
- Do not tilt up your helmet. Helmets should be worn with the visor parallel to the ground.

• Do not wear a helmet designed for use in other sports when riding, i.e. a bike helmet. Equestrian helmets are specifically designed and tested for a fall from a horse.

2016 U.S. Olympic Games Dressage Team member Laura Graves has been a pathfinder for wearing a helmet in the dressage arena.

"I do choose to wear a helmet; not just in competition, but every day, on every horse I ride," said Graves. "There is no reason to be taking a chance. Even the most honest, quiet horse can lose its balance or stumble. Even the more experienced, strongest rider can be thrown from a horse. New helmets (I ride in a Samshield) look fantastic and also comply with the strictest safety regulations. For me, there is no other choice."

### Riders4Helmets and Charles Owen & Co. (Bow) Ltd

Riders4Helmets is a non-profit helmet awareness group based in the U.S. It was founded as a result of international dressage rider Courtney King-Dye's traumatic brain injury incurred while she was riding without a helmet. The group's mission is to educate equestrians about the benefits of wearing a helmet and to promote the helmet-wearing campaign on an international level by involving leading equestrians in various disciplines to encourage increased use of helmets.

One of Riders4Helmets' biggest advocates, 2012 Rolex/USEF National CCI4\* Champion Allison Springer, has been

sharing her message supporting helmet use for several years.

“In 2010, I was the first person to wear an approved helmet in the dressage phase at the Rolex Kentucky Three-Day Event. I got a lot of positive response from this action, but there were still many people that resisted the change from tradition and told me I looked stupid wearing a helmet. Today, in both eventing and dressage, it is very unusual to see someone wearing a top hat; we have a new norm for show attire. I am also an avid skier and you can see a very similar trend on the slopes with helmet use; helmets are the norm, very few people ski in just their winter hats. I don’t think people choose to wear a helmet to look more like everyone else, they choose to wear their helmet because they understand the serious implications of head injury. People recognize that freak accidents happen to everyone and every horse, be it in competition or just at home in your normal routine; it’s not a question of if something is ever going to happen to you, but when. Recently, I had a fall in competition and landed directly on my head. I did not have a concussion because I was wearing my Charles Owen 4Star Eventer helmet. I cannot thank the various helmet manufacturers enough for continually improving the safety, comfort, and style of helmets.”

Charles Owen & Co. (Bow) Ltd is celebrating its 100-year birthday as a leading British manufacturer of riding helmets. When Charles Owen himself founded the company in 1911, his mission was to make products for a safer world. Now under the direction of Charles Owen’s grandson, Roy Burek, the mission has remained the same.

“The key to solving concussion is to understand the mechanism of concussion,” said Burek, Managing Director of Charles Owen & Co. (Bow) Ltd. “Charles Owen has invested many years into looking at how the brain reacts to impact so they can design and produce a better riding helmet. As part of the largest European equestrian research project, we are focused on increased rider safety and, as a first-round winner of the NFL Head Health Challenge III, we are bringing fresh ideas to head protection across several sports. It is not by chance that Charles Owen is one of the first to have their helmets certified to the most recent updates in helmet standards across the globe. Visit [riders4helmets.com](http://riders4helmets.com) or [charlesowen.com](http://charlesowen.com) and for more information.

### Action Plan for Parents and Trainers

If you suspect that an athlete has a concussion, you should take the following steps:

1. Remove the athlete from the horse; do not allow him/her to remount.
2. Ensure the athlete is evaluated by an appropriate health care professional. Do not try to judge the seriousness of the injury yourself.

3. Allow the athlete to return to practice/competition only with permission from the appropriate health care professional.

An examination by a healthcare professional will likely include a physical examination, covering cognition, neurology, balance, and most importantly, any signs of deteriorating neurological function.

When managing an athlete with concussion, a health care professional’s management plan should cover both returning to school or work as well as to play, and should monitor both physical and cognitive activities, consider concussion history, and be individualized to the athlete.

For health care professionals working in an emergency department, an athlete should be referred for follow-up care from a health care professional who can help him or her gradually return to school or work and to play when fully recovered. An athlete should not leave an emergency department and return to riding the same day, nor should a future return-to-riding date be given at the time of an emergency department visit.

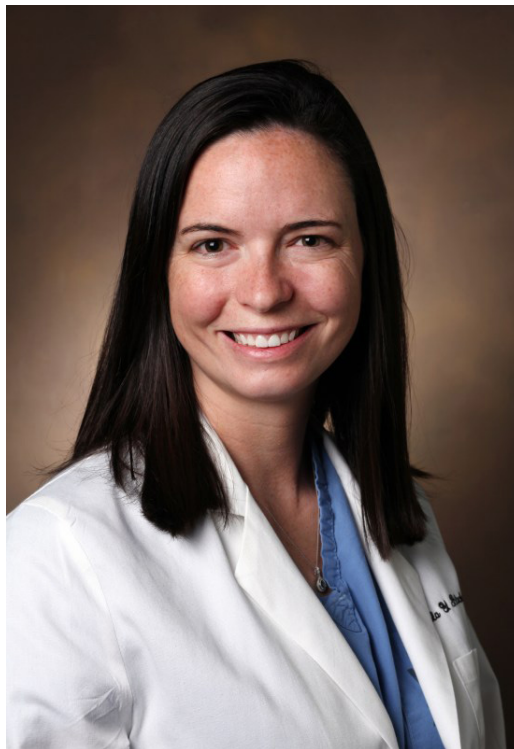
Dr. Chambless recognizes that the equestrian community needs to make several changes to the way it reacts to falls and possible concussions.

“I think one aspect is changing the culture that just says get back on the horse, come back to the fence; lower the jump a little bit and try again right away so the horse doesn’t learn a bad habit. Part of it is changing that culture, even in training, and saying take 10 minutes, sit on the side of the ring, get back on, walk around, and make sure you feel okay. That

alone would probably change things significantly. We need to help riders understand that’s the way we want to react when we have a fall – take time to assess the situation and make sure you’re feeling okay. Most of the time, if you have a concussion, you’re going to develop some symptoms that worry you in ‘hat period and you’re going to be a lot more likely to say to you trainer, ‘I don’t feel very well,’ if the mentality is not hop right back on and be tough.”

Athletes competing in USEF competitions should refer to General Rule 1316 for the USEF rules on returning to competition.

For more information on concussion and helmet safety, visit [cdc.gov](http://cdc.gov) and [riders4helmets.com](http://riders4helmets.com). ■



Dr. Lola Chambless, Assistant Professor of Neurological Surgery at the Vanderbilt University Medical Center, spoke to the USEF Board of Directors and members about the importance of concussion safety at the 2016 Mid-Year Board Meeting.