

# Agreement Statement From the 1st International Rodeo Research and Clinical Care Conference

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This agreement statement is intended to form a set of guidelines and recommendations for the prevention and clinical management of concussions arising out of rodeo events and the use of protective head gear in bull and steer riding. These guidelines and recommendations are not intended and should not be relied upon as a substitute for timely advice,

supervision, and treatment from competent medical professionals; nor should these guidelines be considered as definitive with respect to the circumstances to which they are intended to apply, as this is a developing area requiring additional research. No organizer, presenter, or participant of the International Rodeo Research and Clinical Care Conference and no individual or entity who participated in formulating or drafting this agreement shall have any liability whatsoever to any entity or individual for any damage or loss that it or they may suffer or incur as a result of any recommendation or guideline set out in this agreement, including, without limitation, temporary, permanent, or catastrophic injury or death.

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## AGREEMENT ONE: CLINICAL MANAGEMENT OF CONCUSSION IN RODEO EVENTS

It is agreed that, with regard to the clinical management of concussion sustained in a Canadian Professional Rodeo Association (CPRA), Professional Rodeo Cowboys Association (PRCA), International Pro Rodeo Association (IPRA), National Intercollegiate Rodeo Association (NIRA), Professional Bull Riders (PBR), Professional Canadian Bull Riders (PCB), or National High School Rodeo Association (NHSRA) event, the following position has been taken by the rodeo and bull riding medical community, and we therefore recommend the following to the aforementioned rodeo and bull riding associations:

- a. The gold standard is to have a physician present at bull riding and rodeo events. This physician must be aware of current standards of care in the management of concussion. This physician will be responsible for concussion management and return to sport decisions. When such a physician is not present, then clause *b* is implemented.
- b. Any bull riding or rodeo athlete who sustains a concussion should be required to produce a letter of medical release from a licensed physician before returning to competition.
  - i. It should be recognized that concussion “typically results in a graded set of clinical syndromes that may or may not involve loss of consciousness. These acute

clinical symptoms typically reflect a functional, rather than a structural, disturbance, and resolution of these symptoms typically follows a sequential course.”<sup>1</sup>

- ii. The contestant *should* be symptom-free and have passed graded exercise testing prior to return to rodeo, as recommended by the Vienna Symposium on Concussion.<sup>1,2</sup>

In the event that no physician is present at the event, or the athlete is unable to find a physician that is able to provide a medical release, then clause *c* is implemented.

- c. Any bull riding or rodeo athlete who sustains a concussion with loss of consciousness should be restricted from bull riding or rodeo for a minimum of 1 week.
  - i. A loss of consciousness, however brief, will be considered a concussion.
  - ii. A week will be considered 6 full days immediately following the date of injury.
  - iii. The contestant *should* be symptom-free and have passed graded exercise testing prior to return to rodeo, as recommended by the Vienna Symposium on Concussion.<sup>1,2</sup>

## AGREEMENT TWO: PROTECTIVE HEAD GEAR IN BULL RIDING

It is agreed that with regard to protective head gear use in CPRA, PRCA, IPRA, PBR, or PCB bull riding or steer riding events, the following position has been taken by the rodeo and bull riding medical community, and we therefore recommend the following to the aforementioned rodeo and bull riding associations:

- a. Bull riders and steer riders 18 years and older at all levels of participation should be *encouraged* to wear head and facial protection (ie, protective head gear, helmets) while riding bulls or steers, whether in practice or competition.
- b. Bull riders and steer riders less than 18 years of age should be *required* by schools, organizations, and promoters to wear head and facial protection (ie, protective head gear, helmets) whenever they ride bulls or steers, whether in practice or competition.
- c. The decision of which helmet to use should be left to the discretion of the rider or, in the case of a child, the rider's parents or guardians, based upon personal experience, knowledge, and advice from others in the sport.

Judges should be encouraged to evaluate performance based on the merits of the cowboy's ride, regardless of helmet use.

### Background

This conference brought together North American rodeo and bull riding research and clinical medicine experts for the first time. Personnel involved have extensive experience in providing rodeo sport medicine care to the PRCA, IPRA, NIRA, CPRA, PBR, PCB, and NHSRA. In addition, at least 1 author was invited to speak from every research group with a proven rodeo interest.

The purpose of this gathering was to share research and clinical care strategies specific to bull riding and rodeo and to discuss the prevention of injury in these sports. The desire to improve safety in the rodeo sports included maximizing and

coordinating efforts to maintain the health of rodeo athletes while allowing maximal performance and simultaneously maintaining the cultural heritage and traditions, excitement, and beauty of North American rodeo. The conference covered a wide range of important health issues in various rodeo events.

During the 3-day event, there was a strong consensus in this group to address the prevention and the management of head injury in rodeo and bull riding. Group discussions increasingly focused on the issues surrounding the management and prevention of head injury in rodeo and bull riding events. Ultimately, 2 agreements pertaining to head injuries sustained by rodeo participants were developed in this meeting. The first agreement was related to the clinical management of concussion in the rodeo and bull riding athletes, while the second was related to protective head gear in bull riding.

### 1. The Clinical Management of Cerebral Concussion in Rodeo Athletes

In certain rodeo events, there is a very high incidence of head injury and cerebral concussion. Concussion in bull riders accounts for 10.6% of all bull riding injuries,<sup>3</sup> while concussion in bareback riders was the most frequent of all bareback injuries.<sup>4</sup> Concussion is well known to be a head injury severe enough to cause acute impairment of brain functions.

The Vienna symposium on concussion in sport presented the following definition of concussion:

Concussion is defined as a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces. Several common features that incorporate clinical, pathologic, and biomechanical injury constructs that may be used in defining the nature of a concussive head injury include:

1. Concussion may be caused by either a direct blow to the head, face, neck, or elsewhere on the body with an “impulsive” force transmitted to the head.
2. Concussion typically results in the rapid onset of short-lived impairment of neurologic function that resolves spontaneously.
3. Concussion may result in neuropathological changes, but the acute clinical symptoms largely reflect a functional disturbance rather than structural injury.
4. Concussion results in a graded set of clinical syndromes that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course.
5. Concussion is typically associated with grossly normal structural neuroimaging studies.

It is also well known that concussion can adversely affect an athlete's ability to perform physical and mental activities. The reader is referred to the Vienna Summary and Agreement Statement on Concussion in Sport<sup>1</sup> for a more complete discussion of signs and symptoms of acute concussion and postconcussion syndrome. Multiple concussions in an athlete, especially when close together in time, can cause permanent brain damage, disability, and even death to the athlete.

Despite these observations, on-site care and follow-up care of head injured rodeo athletes remain controversial. There are approximately 715 professional rodeos in Canada and the United States annually. Estimates of professional bull riding

events are less certain but would easily exceed 200 annually for both countries. Medical care at bull ridings and professional rodeo is inconsistent, ranging from a single bull riding or rodeo team physician to comprehensive sport medicine team coverage to EMS services alone. There is no central registry for catastrophic injury or head-injured patient registration or for medical follow-up. Currently there are no minimal standards of care for bull riding or rodeo contestants who suffer concussion.

There is worldwide acceptance by medical experts that a minimal standard of care should apply to the management of concussions in sports in which the athlete is at risk for high-impact injuries.<sup>1</sup> This standard includes being asymptomatic at rest, and then graduated return to exercise. Other investigations such as neuropsychological testing may be included.

A minimal standard of care for concussion management in bull riding and rodeo athletes is necessary for the protection of these athletes. Such standards will help to achieve some degree of parity with the standards of other professional sports in North America, such as exist in professional football, baseball, and basketball. Since these professional sports employ health care professionals full-time and have broad-based referral systems for additional health care, head injury and concussion care and monitoring is individualized. This model does not exist in the bull riding and professional rodeo world; thus, an alternative strategy is required. It is acknowledged that this agreement statement is proposed as a starting point and that future discussion and modification should evolve.

Rodeo research has included enough epidemiologic progress to recognize and publish the problem of head injuries in bull riding and rodeo and to begin equipment-related studies. Furthermore, initial efforts at preventing head injury in bull riding and rodeo<sup>5</sup> are being directed at acceptance and compliance by athletes and organizations. Thus, during the conference, speakers and delegates discussed both management and implementation issues surrounding this topic. The management strategies of concussions were unanimously supported.

The authors therefore recommend that the concussion management practices outlined above become accepted practice throughout rodeo and bull riding.

Implementation of these management practices may vary according to local, state, provincial, or organizational (PBR, PRCA, IPRA, NIRA, CPRA, PCB, NHSRA, and so forth) capabilities. Discussions regarding models of implementation of these agreements must occur with these rodeo and bull riding organizations to determine possible solutions. Once an implementation strategy is created for 1 organization, it is likely that other organizations will consider that strategy. Soon, a means of implementing these agreements that will work for all or most of these organizations should be found.

The Canadian Pro Rodeo Sport Medicine Team is currently exploring implementation strategies with the CPRA. In addition, members of this conference are currently seeking means of communicating between and among the stakeholder organizations to ensure the following:

Registration of head-injured bull riders and rodeo contestants is communicated between the respective professional organizations.

Eligibility to return to activity of previously head-injured bull riders and rodeo contestants is communicated between the respective professional organizations.

Health care professionals who are signatories to this document agree to pursue actively the implementation of these agreements with the appropriate bull riding and rodeo organizations. Further, they agree to communicate the results of such attempts to implement these agreements with the rodeo research and medical communities.

## 2. Protective Head Gear in Bull Riding

Research and clinical experience in the sport of bull riding has provided substantial evidence that there is a high incidence of head and facial injury in these athletes. In 1 study, the incidence was found to be 1.5 head and facial injuries per 100 rides.<sup>6</sup> This can be compared with Canadian intercollegiate ice hockey, in which the incidence of concussion was 1.55 per 1000 athlete exposures,<sup>7</sup> and high school football in the United States, in which as many as 5.6% of high school players will suffer a concussion per season.<sup>8</sup>

Various reports of concussion indicate that rates of occurrence vary between 11% and 13.9%<sup>3,4</sup> of all injury in bull riding and bareback riding, respectively. In addition, a 5-year study has shown that if one combines concussions with other head and neck injury, this group will account for 28.9% of all bull riding injury,<sup>3</sup> while head injury is reported as comprising almost 1/2 of severe injuries in a 20-year US study.<sup>9</sup> Serious head injuries and concussions occur frequently in bull riding athletes, while skull fractures and brain injury are not uncommon. Catastrophic head injury resulting in permanent brain damage, seizures, physical disability, and significant mental impairment can occur, although epidemiologic reports of the rate of these injuries in rodeo have not been published. In Oklahoma, however, a series of 31 bull riders suffering traumatic brain injuries over a 5-year period was reported.<sup>10</sup> In comparison, in high school football, serious injuries occur with an incidence of 0.60 per 100,000; in college football, the incidence is 0.81 per 100,000; and in professional football, the highest rate occurs, 5.8 per 100,000 players.<sup>11</sup>

In North America, it is standard practice to wear helmets while competing in organized events such as auto racing, baseball, bicycle racing, football, lacrosse, ice hockey, horse racing, motocross, skateboarding, and skiing, among others.

Some recent evidence has indicated that bull riders who wear protective head gear are much less likely to suffer head injuries.<sup>12</sup> The authors acknowledge that there is limited research on protective head gear in bull riding, that much has yet to be learned about the use of this equipment in the sport, and that further research is needed to gain a complete understanding of the safety and efficacy of helmets in the sport. In time, there will naturally be design changes to the various models of bull riding helmets in efforts to improve safety and efficacy. Because there is very little research on bull riding helmets currently being used, it is not the purpose of this agreement statement to recommend a particular model of helmet. However, given what is known about the safety and efficacy of bull riding helmets from research and clinical experience, the authors and signatories agree that the

risks of bull riding without head protection far outweigh the risks of bull riding with head protection. Therefore, the recommendations at the start of this agreement statement have been made.

### Limitations

It is recognized that all physicians are not equally comfortable and experienced in the ideal management of athletes who suffer concussion or head injury. In this document, a physician note is required; however, the ideal would be to have a physician with sport medicine qualifications experienced in concussion management coordinate care of these athletes.

It is further recognized that using loss of consciousness as a marker of concussion is not without limitations in that it is not a direct indicator of injury severity. However, it is presented as an easily recognizable event that, in the setting of rodeo and bull riding, can be used as a starting point in the sport appropriate management of concussion.

More research is required to define further concussion severity, management strategies, return to sport guidelines, and the reduction of risks associated with concussion. This information should lead to modification of these guidelines over time.

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