

Horseback Riding Safety and the Use of Helmets

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Background Information and Statistics

Studies on equestrian related injuries

Helmet Design

Benefits of Wearing Helmets

Role Models

Some background data



Horseback riding is more dangerous than motorcycle riding or skiing.

Canadian study published in the American Journal of Surgery suggests that riding horses is riskier than riding motorcycles. The study found that horseback riders were hospitalized with injuries more than three-and-a-half times more often than those who were hurt riding motorcycles.

Everyone can get injured



ALL riding disciplines have a significant rate of head injuries

UNPREDICTABLE events (spooking, bucking) account for most head injuries

LEVEL of expertise does not protect

A FALL from above only 2 feet can cause brain damage

A skull fracture can occur from a fall of just 4 feet

Source: Troxel

Serious head injuries

“Head injury remains the predominant cause of death”.

A human skull can be shattered by an impact of 7-10 kph.
Horses can gallop at 65 kph.”

(American Medical Equestrian Association)

“Prevention of death from horse-related trauma is synonymous with prevention of head injury”

One wonders how many of the serious and fatal head injuries ... might have been prevented by the use of modern approved riding helmets”

(Kentucky Medical Center, Dept. of Surgery 1)

Some Key Statistics



Equestrian related injuries (requiring visit to Emergency Room)	70,000
Head injuries	12,000
Head injuries as percentage of all injuries	17%

Source: Troxel

Study in Alberta, Canada- Ten Year Study



Jan 1, 1995- July 1, 2005

Respondents

60% male

Typically Western riders, only 8% wore helmets

Results:

Injured patients hospitalized during period	7941
- Equestrian related injuries	151 (2% of total)
- Deaths (equestrian)	10 (7%)

Injuries

Chest	54%
Head	48%
Spinal fractures	17%

Cause of Injury

Thrown or fell	60%
Crushed by falling horse	16%
Kicked	8%
Stepped on	4%
Other	12%

Conclusions

ALL deaths were a result of head injuries

Most severe injuries are from the horse falling

Two thirds of the accidents were preventable

The riders in the study averaged 27 years of riding experience, and most of the accidents occurred in wide-open spaces on dry, flat land on sunny summer afternoons. (Not jumping in competitions)



The U.S. Pony Clubs has collected its own accident reports since 1979. Concussions range from 4%-8% of injuries, yet head injuries cause two-thirds of deaths.

. The 1998 Pony Club study reported **primary causes as the horse falling or slipping (19.8%)**, Doris Bixby Hammett, a board member for the AMEA, reported, **"The most hazardous activity involving horses is recreational pleasure riding."**

A study of all patients admitted at University of Kentucky Medical Center with equine-related trauma from July 1992 - January 1996 :

- 37% were professional riders
- 80% were head injuries
- 60% were caused by "ejection or fall from horse"
- 20% required brain surgery
- 17% patients died
- 80%patients **were not wearing helmets**, including all fatalities

Journal of Trauma 1997 July; 43(1):97-99

During 1992-93 in Oklahoma, **horseback riding was the leading cause of sports-related head injury,**

- 95%** involved riders who struck their heads on the ground or a nearby object after falling from the horse

Journal of the American Medical Association ***April 10, 1996, vol 275, no 14, p. 1072***

A rider who has one head injury has a 40% chance of suffering a second head injury.

Children, teens and young adults are most vulnerable to sudden death from second impact syndrome severe brain swelling as a result of suffering a second head injury before recovery from the first head injury.

The part of a riding helmet that does the work is the protective liner, made of a high grade polystyrene, (think of it as microscopic bubblewrap). This is protected in turn by a hard (fibre glass or plastic shell), which will be painted or covered.

On impact the helmet does two things. Firstly the shell diffuses the impact over a larger area, secondly the liner reduces bruising to the brain by increasing the length of time it takes for you to stop. The bigger the impact the more layers of bubbles will burst. Basically it is the hat liner that collapses, not your head.

Source: Charles Owen

Many of today's helmets conform to ASTM/SEI safety standards, meaning they have passed tests by the Safety Equipment Institute based on standards set by the American Society for Testing and Materials.

These tests are designed to emulate impacts that can occur in a fall from a horse.

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Benefits of Wearing Helmets



26% decrease in head injuries with the onset of the USPC standard helmet in 1983.

The American Medical Equestrian Association estimates that ASTM/SEI approved helmets have decreased riding-related head injuries by 50%. (Although there have been no official studies on this)

Most deaths from head injury can be prevented by wearing ASTM (American Society for Testing Materials), SEI (Safety Equipment Institute) approved helmets that fit correctly and have the harness firmly applied

"Bicycle helmets reduce traumatic brain injuries in bicyclists by 88 percent... The effectiveness of ASTM/SEI equestrian helmets is estimated to be comparable."
(National AG Safety Database)

Role models are needed for change to occur



Steffen Peters schooling

Role models are needed for change to occur



Courtney King-Dye -
apparently Courtney usually does wear a helmet

Role models are needed for change to occur



Olympian rider Jacqueline Brooks – wearing a helmet in competition

The Jersey Journal

Recommendation



Dover Saddlery recommends that dressage riders are provided with information on the dangers of horseback riding without a helmet and that the USDF and /or USEF considers recommending or requiring ASTM/SEI approved helmets be worn at all levels when riding on the grounds at an event.