Neck Laceration from a Skate Blade

Michael J. Stuart MD
Professor of Orthopedic Surgery, Mayo Clinic
Chief Medical Officer, USA Hockey
Thank You

- USA Hockey
- SPEC
- Mayo Clinic Sports Medicine Center
- Mayo Clinic Survey Research Center

Alan Ashare  Aynsley Smith
Rae Briggle  Andy Link
Harry Thompson  Dirk Larson
Matt Sorenson
Neck Laceration

- Caused by a skate blade
- Players standing or lying on the ice
- Rarely reported
- Potentially catastrophic

✓ proximity of nerves, arteries, veins, airway
Neck Laceration from a Skate Blade

Boston, MA
December 2, 1975

18 year old defenseman for New Preparatory School of Cambridge died after falling on a skate during a practice game.

Hockey fatality

BOSTON (AP) — Authorities say James Dragone Jr., 18, of Watertown, fell on a skate and apparently cut an artery in his neck during a practice hockey game. He died at St. Elizabeth Hospital after being given 20 units of blood.

Dragone was playing as a defenseman for the New Preparatory School of Cambridge in a Friday scrimmage.
Neck Laceration Protector

- Numerous brands & styles
- B.N.Q. Standard
- No injury studies
  - ✓ Prevalence
  - ✓ Incidence
  - ✓ Effectiveness
Neck Laceration Protector

- may not cover *vulnerable areas*
- may deflect the blade & cause a more serious injury
- do not prevent *throat injury* from a puck or stick
- do not prevent *cervical spine or spinal cord injury*

“*Heads Up Hockey*”
Neck Laceration Protector

- **mandatory** in Hockey Canada, Ontario Hockey League, IIHF (players under age 18), many European Leagues
- **recommended** by USA Hockey
- **not used** in NCAA, USA Junior Leagues, Professional Leagues
USA Hockey Position Statement

“USA Hockey is very concerned about neck lacerations and the potential catastrophic involvement of arteries, veins and nerves. To date there are no data to describe the prevalence of such an occurrence, the severity, or whether or not a neck laceration protector (‘neck guard’) reduces risk or severity.”
USA Hockey Position Statement

“Some teams/leagues/districts have mandatory use rules in place. All USA Hockey players can choose to wear one of several available designs, preferably those that cover as much of the neck area as possible.”

USA Hockey 2008
PREVALENCE OF NECK LACERATIONS FROM A SKATE BLADE IN USA ICE HOCKEY REGISTERED PLAYERS:

“Neck Lacerations from a Skate Blade Survey”

Michael J. Stuart MD
Aynsley M. Smith RN, PhD
David A. Krause DSc
Matthew Sorenson MA
Andrew Link BA
Neck Laceration Survey

1. Do you or your child wear a Neck Laceration Protector (neck guard) while playing Ice Hockey?
   ○ Yes ○ No

*If yes, please select the corresponding letter (A, B, or C) for the type of Protector:*
Neck Laceration Survey

328,821 registered USA Hockey players - 12 questions e-mail survey

26,589 responses (8.1%)
247 excluded (<1%)
Neck Laceration Survey

26,342 study population

88% male
12% female
Neck Laceration Survey

26,342 study population

88% male
12% female
Currently wear a Protector

- Yes: 45%
- No: 55%
Protector Usage by Age Group

Percent

Age Group

<7: 64
7-8: 68
9-10: 67
11-12: 62
13-14: 51
15-16: 35
17-18: 28
19-20+: 22
Current Protector Type

- 4%
- 12%
- 84%
Neck Laceration from a Skate Blade

- Yes: 485, 1.8%
- No: 98.2%

Total: 533
Protector at the Time of Injury

Yes: 27%
No: 73%
Protector Type at Time of Injury

5%  11%  84%
If Cut, *Currently* wear Protector

Yes: 53%
No: 47%
Follow-up Phone Interview

33 players cut on the neck by a skate blade were contacted by phone

- 32 male, 1 female
- 2 mite, 6 squirt, 5 peewee, 5 bantam, 14 midget or older, 1 U12
- Injury occurred 1-24 years ago
Position when Laceration Occurred

- Lying: 20
- Kneeling: 8
- Standing: 4
- Don't Know: 1

The chart above shows the number of instances for each position when a laceration occurred.
Neck Laceration from a Skate Blade

“slight scrape”
“just a red mark”
“not a cut, just an indentation”
“slight abrasion”
“very minor, returned to the game”
“deflected off the cuff”
“cut the neck guard in half”
“cut through the neck guard”
Neck Laceration from a Skate Blade

- Typically occur to the side of the neck while lying on the ice
- All lacerations were superficial
  - No neurovascular involvement
  - No serious or catastrophic injuries
  - No permanent deficits or symptoms
  - 1/2 treated with a bandage only
  - 1/3 required sutures
Summary

26,342 USA Hockey Players
Summary

26,342 USA Hockey Players

- 45% currently wear a neck laceration protector - 2/3rds of players 12 & under
- 485 players (1.8%) cut in the neck area by a skate blade while playing hockey
- 27% were wearing a neck laceration protector at the time of the injury
Survey Limitations

• **Selection Bias:** individuals with the condition may be more motivated to return the study (falsely elevating injury prevalence)
• **Attrition Bias:** missing date due to the 8.1% response rate
• **Sampling Error:** personally interviewing only 33 of the 285 injured players does not allow generalization of their responses
Conclusions

• A neck laceration from a skate blade while playing ice hockey is an uncommon occurrence.
• The reported injuries are mild, but the potential for serious consequences due to nerve, artery or vein involvement remain a concern.
Conclusions

• Current neck laceration protector designs do not eliminate the risk of a neck laceration.

• **Design enhancements** to maximize coverage of the vulnerable anatomic regions & better materials are necessary for improved effectiveness.
Conclusions

• Further research & improved standards testing will determine the effectiveness of these devices.
USA Hockey Position Statement

Revised version endorsed by the Safety and Protective Equipment Committee
USA Hockey Position Statement

“USA Hockey is very concerned about neck lacerations and the potential catastrophic involvement of arteries, veins and nerves. To date, there is sparse data to describe the prevalence of such an occurrence, the severity, or whether or not a neck laceration protector (neck guard) reduces risk or severity.”
“Based on a survey of USA Hockey players, neck lacerations from a skate blade are rarely serious, but the potential for severe consequences due to nerve, artery or vein involvement remain a concern. In addition, current neck laceration protector designs do not eliminate the risk of a neck laceration.”
“USA Hockey recommends that players wear a neck laceration protector, choosing a design that cover as much of the neck area as possible. Further research & improved standards testing will determine the effectiveness of these devices.”