



IMPACT

NOCSAE Summer_03

FAQs and Facts

It has been a while since the last newsletter, so here are some catch up items that may be of interest, based on the questions we get by phone and e-mail. As is always the case, we are happy to answer any questions that we can, so please don't resist the urge to call or write us.

How often must a helmet be reconditioned or recertified?

This is perhaps the most often asked question we get. The short answer is that there is no requirement in our helmet standards for the frequency of recertification or reconditioning. The NOCSAE seal on a new helmet means that the manufacturer has certified that the new helmet meets the standards when it was manufactured. That certification will continue until the helmet is recertified. It is recommended that each school or organization utilize a system to inspect their helmets on a regular basis, and make their reconditioning

decisions based on that schedule. Some will recondition all their helmets every year, some will do half every other year, and some will follow a three-year rotation plan. What is most important is that the programs identify those helmets that may need reconditioning and recertification every year, due to usage and wear. The second team punter's helmet likely will not receive the same impacts as the starting 250 lb middle linebacker, and so those helmets may be treated differently depending on their condition.

Isn't there a special standard for youth helmets?

Again the simple answer is no. The NOCSAE standard is the same for all helmets. The NOCSAE standard does not distinguish between youth and adult helmets. The same standard applies to all helmets. The helmets used by the junior high school players meet the same standard as those helmets used in the pros.

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Technical Advisor Standards Development

Progress had been made in the last six months regarding new NOCSAE standards. NOCSAE test methods have been used with polo helmets and is currently evaluating the feasibility of implementing a standard for head and face protection for polo helmets at the request of the US polo Federation. The proposed standard for hockey headgear is moving ahead and recently users and manufacturers of hockey headgear met to discuss the proposed standard. Modifications are being made and it is hoped that this standard will be implemented soon after the next meeting.

Modifications for the Lacrosse helmet standard have been made and NOCSAE is progressing well in the final development of this revision. Another area being evaluated for standard feasibility is the sport of high school bull riding. NOCSAE is currently investigating the sport and gathering information in order to determine if a standard is feasible. The area of focus is currently on epidemiological data to be evaluated. ■

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Research News

Dec 12, 2002

NOCSAE funds studies on a wide range of topics focused on the mechanism and epidemiology of sports injuries as related to athletic equipment. All institutions in the US are eligible and are solicited to submit grant proposals. The Board wishes to acknowledge the following external grant reviewers for their assistance over the past five years: **Scott A. Banks, PhD**, *The Biomotion Foundation*; **Bruce Beynon, PhD**, *University of Vermont*; **Christine Branche-Dorsey, PhD**, *Centers for Disease Control*; **Stefan Duma, PhD**, *Virginia Tech*; **Glenn S. Fleisig, PhD**, *American Sports Medicine Institute*; **Braden Fleming, PhD**, *University of Vermont*; **Richard M. Greenwald, PhD**, *Simbex, LLC*; **Mike Hulstyn, MD**, *Rhode Island Hospital, Providence, RI*; **Gopal Jayaraman, PhD**, *Michigan Technological University*; **Peter Jokl, MD**, *Yale University*; **Susan Kyle, PhD**, *Consumer Product Safety Commission*; **Mark S. Link, MD**, *Tufts/ New England Medical Center*; **Fred Mueller, PhD**, *University of North Carolina*; **Barry Meyers, MD, PhD**, *Duke University*; **Manohar Panjabi, PhD**, *Yale University*; **John Powell, PhD**, *Michigan State Univ*; **David Viano, PhD**, *General Motors*.

Since 1994, the NOCSAE Board has funded over 25 proposals with funds in excess of \$825,000.00. Recent and ongoing studies briefly described here have focused on concussions, commotio cordis, and the reaction time of youth.

Cerebral concussions are seen in male and female athletes at all levels of competition. Head injury can result in fatality via Second Impact Syndrome (SIS) if an athlete experiences another blow to the head before the symptoms of the first injury are resolved. Approximately 300,000 sport-related

concussions occur annually. The highest incidence rates have been reported in football, soccer, wrestling, and lacrosse, among others.

Concussions account for 30 percent of all injuries in ice hockey, and in some sports, women have significantly higher injury rates than men. NOCSAE has recently supported a variety of studies focused on concussions and the management of the concussed athlete.

Dr. Ruben Echemendia, Pennsylvania State University, is evaluating the effectiveness of computer programs for detecting neurocognitive changes following cerebral concussion. Computer programs specifically designed to assess sports-related concussion may prove quite useful by providing an easily administered, reliable and efficient method of assessing concussion and criteria for return-to-play. If successful, these programs will then be used widely among high schools and colleges at minimal expense.

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Dr. Kevin Guskiewicz, University of North Carolina, is conducting a randomized controlled trial to evaluate an intervention designed to improve the detection and management of mild head injury in athletes. The intervention is comprised of applying two new, objective diagnostic tools: the Balance Error Scoring System (BESS), which assesses postural stability (balance) and the Standardized Assessment of Concussion (SAC) which assesses cognitive function. The study extends laboratory research and takes advantage of new technologies for testing. It is designed to validate a safe, practical and cost-effective method for

Highlights From the January NOCSAE Meeting

The NOCSAE board met in full in San Antonio on January 17, 18 and 19. Following are highlights from this meeting:

- **The board was pleased to receive a progress update** from Dr. David Viano M.D., PhD., concerning the mild traumatic brain injury research being sponsored by the National Football League. NOCSAE had asked to become involved with this project and the board is excited to do whatever it can to assist in this project. The board has also designated Dr. Bob Cantu as the NOCSAE liaison to the NFL Commissioner's MTBI committee.
- **The board approved a license fee increase** for all licensees to be implemented beginning January 1, 2004. This is the first license fee increase in ten years. The license agreements will also be standardized among all licensees.
- **The board agreed to fund two new research projects**, and to continue funding the United States Commotio Cordis Registry. Additionally, a study was approved to research the relationships between different football helmets, face masks, and face mask loop strap connections. The other research project involves the compilation and examination of catastrophic football injuries for the period 1987 through 2001. The board also agreed to continue the second year for ongoing grant projects.
- **NOCSAE is currently in the beta testing phase of an upgraded data acquisition system** for all licensees who perform their own testing. This new program called HITS (Helmet Impact Testing System) will soon be available for distribution to anyone wishing an upgraded data acquisition system.
- **A revised lacrosse helmet standard has been moved into final status form.** This revised standard includes improvements in standardizing the ball used for impact testing, as well as also testing specific locations of the face protector, and for including both high mass and low velocity impacts.
- **The board has voted to move the new hockey helmet standard into final status** and to move the soccer shin guard standard into proposed status for a one year comment.
- **The summer board meeting** is scheduled for St. Louis on June 20 and 21. ■

assessing concussion and preventing the serious effects of subsequent head injuries among high school athletes.

While the cause of concussion has been associated with the acceleration/ deceleration of the head, the exact mechanism and levels of acceleration that result in concussion are unknown. A recent study lead by Dr. Stephen E. Olvey, University of Miami, is aimed at developing the use of triaxial accelerometers to measure head motion and energy exposure in automotive racing. If successful, it is hoped that this technology could be applied to sports such as football and ice hockey.

Commotio Cordis is the phenomenon by which relatively innocent appearing chest blows produce instantaneous cardiac arrest without structural injury to the chest wall or heart. With NOCSAE funds, a national database has been developed and the actual cause of this tragic injury has been identified. The US Commotio Cordis Registry, developed and managed by Dr. Barry Maron of the Minneapolis Heart Institute Foundation has now compiled an extensive (128) case review of commotio cordis events, most which have occurred in young athletes aged three to 18.

In 1998, with support from NOCSAE, Dr. Mark Link of the New England Medical Center discovered the cause of commotio cordis. Currently, with NOCSAE support, Dr. Link is evaluating whether and what type of chest wall protective devices will protect youths from commotio cordis. In addition, these researchers hope to ascertain whether automated external defibrillators (AEDs) may be appropriate for use in the pediatric population. This study will add much needed public health information regarding the utility of chest wall protectors and AEDs in pediatric sports.

Nationally, there is an ongoing dispute regarding the safety of wood versus metal baseball bats. A recent study by Dr. Mark Grabner, University of Illinois, and funded by NOCSAE, is designed to determine the maximum, safe ball exit velocity for the age group 8-16 years based on physiological criterion. Their approach to achieving this purpose is to experimentally determine the expected minimum response times of young athletes performing a simulated baseball fielding task. ■

Further details on these and other research studies supported by NOCSAE can be found at <http://www.nocsae.org>.

International Issues

It has been determined that equipment subject to the NOCSAE standards is being used and sold in Europe, Canada, and other nations around the world. In keeping with the expanding usage of such equipment and to insure as much as possible that imposters and counterfeiters are stopped from illegal and unauthorized use of the NOCSAE trademark, service mark, logos, and name, NOCSAE has undertaken international registration of these items in Europe, Canada, and elsewhere. If you know or suspect any piece of equipment improperly carries the NOCSAE logo or name or trademark, please contact us immediately. ■

FAQs and Facts

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Which helmet is the best for preventing concussions?

NOCSAE does not do comparison testing so there is no way for us to make such a decision. The NOCSAE standard was not created as a concussion prevention standard, although we believe it does substantially reduce the number and severity of concussions, along with injuries such as skull fractures and subdural bleeding. We continue to research and study the mechanisms of concussion in order to understand better how they occur and what may be done to reduce the likelihood of a concussion.

Who are the members of NOCSAE?

NOCSAE is comprised of a board of directors from all areas of sports, including sports medicine, school administration, athletic training, equipment reconditioning, and manufacturing. These directors serve without charge or pay, and receive only their expenses for attending meetings. Most of the directors are selected by their respective organizations, such as the American College Health Association, Orthopedic Society for Sports Medicine,

National Athletic Trainers Association, American Medical Society for Sports Medicine, American Football Coaches Association, Sporting Goods Manufacturing Association, Athletic Equipment Managers Association, and the National Athletic Equipment Reconditioner's Association.

How is NOCSAE funded and what happens to the money it receives?

NOCSAE is a charitable non-profit organization under IRS section 501(c) (3). It receives funding through gifts and grants, as well as from royalty fees paid from license agreements it has with manufacturers of equipment that meet the NOCSAE standard. These license agreements allow licensees to use our logos, seal, and name on their products in exchange for their agreement to follow our standards and certify their products to our standards. The fees received are used to fund research into the areas of sports injury and prevention, as well as to fund the day to day operations. NOCSAE does not underwrite the development of new products,

nor does it endorse any product. NOCSAE contracts with two individuals who serve as our Research Director and Technical Advisor. In addition, NOCSAE has an Executive Director/General Counsel who oversees the daily operations.

Since 1994, NOCSAE has committed more than \$800,000 in research grants and contracts. The results of this research can be found at the NOCSAE Web site, www.nocsae.org.

What's next for NOCSAE?

We are working on the details of a new liaison with the National Football League for research into football concussions and related standards. We are very excited about this opportunity. The NFL recently finished an extensive multi-year investigation into concussions in the NFL. They have generated some new and exciting impact data, and we are looking forward to investigating how this new information might best be utilized in our standards and testing protocol.

We have published a proposed standard for soccer shinguards, hockey helmets, and a revision to the lacrosse helmet standard. ■

The NFL Commissioner's Committee On Mild Traumatic Brain Injury (MTBI)

Several years ago, National Football League Commissioner Paul Tagliabue established the Committee on Mild Traumatic Brain Injury (MTBI) to investigate the physics and biomechanics of player hits that resulted in concussions, and to determine what could be done to address this problem. Although this work is ongoing, a tremendous amount of data has been developed so far. NOCSAE is excited to work with the Committee, and its chairman Dr. Elliot Pellman, and with their consultant Dr. David Viano, to determine how best to utilize this data in further research, as well as in examining our own standards to see how this new data might be incorporated.

The precise cause of concussive injuries in sports, particularly in football, has not been well understood. The NFL studies have analyzed game impacts and defined conditions causing injury by laboratory reconstructions using Hybrid III dummies. This includes impacts on the facemask and side of the helmet at speeds above 20 mph, however many aspects of the injury remain unexplained. In order to address this concern through a standard, more needs to be known about the physics of the impacts. NOCSAE believes the new NFL data, and further research, will likely shed some bright light on this topic, and we hope to be able to contribute to the answer. ■

NOCSAE Welcomes New Licensees

Spalding Sports Worldwide

425 Meadow Street
PO Box 901
Chicopee, MA 01021-0901
James B. Lockwood, Assistant Category Manager
Tel: 413.536.1200 Fax: 413.536.1404
Baseball/Softball Catchers Helmet Manufacturers

Nike, USA

One Bowerman Drive
Beaverton, OR 97005-6453
Tel: 1.800.344.6453
ITEC

Data Acquisition

NOCSAE will soon release the Helmet Impact Test System (HITS) software for helmet testing. This represents a significant step forward in data acquisition technology, that should be of particular help to recertifiers and manufacturers while further improving the quality of helmet test data. Beta site testing and training has already begun. This new system will be made available to manufacturers and reconditioners in the next few months. NOCSAE licensees utilize the data collected from all reconditioners to assess helmets before they are reconditioned, and again after reconditioning and recertification. This collective data helps insure accurate statistical sampling is done for helmets being recertified. ■

NOCSAE Educational Efforts

NOCSAE recently participated in an invitation only symposium on Brain Injury at the Cleveland Clinic. The outcome of this meeting should serve as a springboard to further technical advancements in the understanding of Brain Injury as well as prevention methods and potential athlete screening to reduce injury rates.

Authorized Licensees

NOCSAE has undertaken an extensive campaign to identify the unauthorized use of its trademark, logo, and other registered property. In addition, the Board has authorized the Executive Director to pursue resolution of any license fee disputes with any or all licensees, including actions for non-payment, or inaccurate payment.

Because NOCSAE does not have the funds to maintain an investigation or enforcement staff, the Executive Director must rely on licensees in good standing to identify products in the market which may contain the unauthorized use or display of the NOCSAE logo or seal. All such reports will be treated confidentially, and will be completely and fully investigated. The board recognizes that its licensees conduct themselves with good faith and in compliance with their license agreements, and that unauthorized use of licensed properties, including the logo and NOCSAE seal, must be prevented or eliminated. The Executive Director has been given authorization to take legal action wherever necessary to enforce its license agreements and to protect its licensed properties whenever and wherever necessary.

In an attempt to further assist in this endeavor, and to provide a resource for all sports organizations, NOCSAE is preparing a list of all licensees and their licensed products, to be published and placed on our Web site for easy reference. As soon as we have an accurate list, that list will be available on the NOCSAE internet Web site at www.NOCSAE.org. ■





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Our mission: Commissioning research and establishing standards for athletic equipment, where feasible, and encouraging dissemination of research findings on athletic equipment and sports injuries.

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2003 Directory of NOCSAE Board Members and Affiliations

American College Health Association:

John Miller, M.D.
Kenneth Stephens, M.D., RPh.,
NOCSAE President

American College of Sports Medicine:

Robert C. Cantu, M.D.,
NOCSAE Vice President

Athletic Equipment Managers Association:

Ken Hart
Terry Schlatter

College Football Association: Doug Dickey

National Athletic Equipment Reconditioners Association:

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National Athletic Trainers Association:

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