

## NEWS

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### **Rating System Cannot Predict Helmets' Ability to Prevent Concussions** *Protecting Against Injury Does Not Start or End With Helmet Purchase*

**OVERLAND PARK, KANSAS (May 27, 2014)** – The National Operating Committee on Standards for Athletic Equipment (NOCSAE) applauds and encourages the growing research in the area of concussion protection for athletes, including the work released this month by Virginia Tech. Coaches, consumers and parents should be aware that while the STAR rating system suggests the purchase of specific football helmets, scientific evidence does not support the claim that a particular helmet brand or model is more effective in reducing the occurrence of concussive events.

"Helmets which meet the NOCSAE standard are extremely effective at doing what they are designed to do, limiting linear accelerations that result from impacts to the head and helmet," said Mike Oliver, NOCSAE executive director. "The STAR ratings are not standards. They are a theoretical method of comparing one helmet against another. Unfortunately many have misunderstood the purpose and limitations of the STAR ratings. A 5 STAR rating does not mean that the helmet is great at preventing concussions. It simply means that it might be better than another helmet with a lower rating. Because of this misunderstanding, the effectiveness of helmets in protecting against concussions has become exaggerated, taking focus away from steps known to have a more immediate and much greater effect on concussion reduction."

For concussion protection to be truly effective, actions must be taken on and off the field by student athletes, parents and coaches. According to the CDC Foundation's Heads Up to Parents program, making sure equipment fits properly, ensuring young athletes are taught proper blocking and tackling techniques and demanding enforcement of rules that prohibit players from leading with their helmets to hit other players are important ways to reduce concussion risk.

The University of Wisconsin recently completed the first large scale, prospective study in a field-based sports setting to examine if the rate of sport-related concussion is affected by the protective equipment that is worn by high school football players. The results show no difference in the rate of concussions or severity of concussions by helmet brand. The research concluded that well maintained and fitted football helmets remain important to reduce the risk of skull fracture and intracranial hemorrhage, but there is serious doubt to whether a helmet can ever be designed to prevent concussions. In addition, the research found a similar concussion risk regardless of the age of the helmet.

Dr. Alison Brooks, assistant professor at University of Wisconsin-Madison, spearheaded the study with Dr. Tim McGuine. Dr. Brooks would prefer to see emphasis on rule enforcement and coaching education on tackling technique to limit or avoid contact to the head. She also called out the increased risk among previously injured athletes.

"Players in this study who had a history of previous concussion were at higher risk of sustaining another concussion, regardless of the helmet brand worn," said Dr. Brooks. "Rather than focus on the belief that a specific helmet can 'prevent' concussions, which is not supported by the current scientific literature, our efforts may be better spent educating players, parents and coaches about the increased risk of concussion in these previously concussed young athletes."

A concussion in football is a very complex event involving different and changing forces, linear (straight motion or direct hit) and rotational (circular motion of head or torque) accelerations, helmet fit, player position, impact duration, player concussion history and overall health.

Schutt Sports has the two highest 5 STAR helmets in 2014, yet they admit that the ratings do not support a conclusion that the helmets will limit or prevent concussions. "Schutt Sports would never represent to somebody that they're not going to get a concussion if they wear one of our helmets," said Robert Erb, CEO of Schutt Sports. "As a manufacturer of a helmet considered by this rating system to be the best available, I believe telling people that an athlete is less likely to get a concussion if they use a 5 STAR helmet is irresponsible. The best helmet is the one that carries NOCSAE certification, fits the player, fits the position, is configured with the proper mask and the player is comfortable in it."

Consumers should also know that the rating applies only to size large adult helmets. According to the Virginia Tech website, "It is possible that the same helmet models of different size may produce different results; however, we do not have any data on this, and we only tested large helmets as a first step." No adult X-Large, Medium, Small, X-Small or any youth-size helmets were tested as part of this rating. Until other sizes are tested, the only helmet that can claim any STAR rating are adult large. The rating is based on a theoretical calculation from collegiate level data. When helmets receive a higher rating, it does not mean the helmet has met a safe level of concussion protection; instead it is an attempt to compare one helmet to another based on the results. According to an independent statistical review of the Virginia Tech test data there is no significant statistical difference between 5 STAR, 4 STAR and 3 STAR helmets.

"The Virginia Tech Helmet Ratings™ system approaches the very broad and complex issue of concussion protection from a narrow vantage point of linear accelerations only and does not address other biomechanical variables such as rotational accelerations," said Oliver. "Scientific experts agree that rotational accelerations are involved in most concussive events, but there is still no agreement on what level of rotational force can be considered safe or dangerous for athletes."

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#### *About NOCSAE*

*NOCSAE, the National Operating Committee on Standards for Athletic Equipment, is an independent and nonprofit standard-setting body with the sole mission to enhance athletic safety through scientific research and the creation of performance standards for protective equipment. Formed in 1969, NOCSAE is a leading force in the effort to improve athletic equipment and, as a result, reduce injuries. NOCSAE efforts include the development of performance and test standards for football helmets, gloves and facemasks, baseball and softball batter's and catcher's helmets, baseballs and softballs, ice hockey helmets, soccer shin guards, lacrosse helmets and facemasks and polo helmets. NOCSAE is comprised of a board of directors representing stakeholders from a number of groups – including consumer and end users, equipment manufacturers and reconditioners, athletic trainers, coaches, equipment managers, and academic and sports medicine associations. These diverse interests have joined forces in an attempt to arrive at a common goal of reducing sports-related injuries. NOCSAE is a nonprofit, charitable organization supported by individuals and organizations with an interest in athletics. For more information, please visit [www.nocsae.org](http://www.nocsae.org).*