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January 8, 2011

## Soon, Helmet Data at a Keystroke

By **ALAN SCHWARZ**

When a parent or youth-sports official decides which helmet will protect the head of a young football player, hard information ducks for cover.

All results from manufacturers' laboratory testing are kept tightly confidential by industry agreement. The graphs and percentages that make it into marketing materials — and are often embellished by sales representatives — have become questionable enough that the Federal Trade Commission [has been asked to investigate](#) helmet companies for misleading safety claims.

An engineer at [Virginia Tech](#), [Stefan Duma](#), is working to pull back the curtain on the true performance properties of helmets. He is conducting tests and compiling an online database of results, through which one will be able to look up the protective qualities and star rating of every helmet model, much as one can for [cars](#) and child booster seats. But even people who applaud Duma's intent fear that such information could still impede the confounding process of concussion protection.

“We want qualified, independent researchers to scrutinize our helmets and everyone else's helmets,” said Dan Arment, the chief executive of [Riddell](#), a leading helmet manufacturer for players at all levels. “And if there is a way to determine which helmets are better suited for the level of play, the position, we'd love for those insights to be available to everybody. But we clearly recognize the complexities, and ways to misinterpret and spin results. It's a conundrum.”

Currently, new and refurbished football helmets for players of all ages and positions take the field with only [one objective safety statement](#) — they have passed the test required by the

National Operating Committee on Standards for Athletic Equipment (**Nocsae**), which since 1973 has ensured only that helmets protect against the high-level forces that had fractured young skulls. Regarding concussions, Nocsae officials and many independent experts insist that the forces that cause that injury are not yet understood enough to develop a trustworthy safety standard.

Nocsae, a trade group staffed partly and financed largely by the helmet industry, forbids the dissemination of test data, contending that the numbers can imply safety properties that may not exist. Duma said that his approach, which will use no industry data but incorporate ideas from helmet manufacturers and other experts, would generate the most meaningful information to date.

“When you buy a car, safety is a big issue,” said Duma, one of the nation’s primary independent helmet researchers. “You can go online, you can click on your exact vehicle — frontal crashes, side-impact crashes, pole crashes, offset-frontal crashes — every sort of impact you want, and with that is an associated risk of injury.”

He added: “You can look at the group of S.U.V.’s and see which ones do well and which ones don’t do well. It’s all public. It’s all out there. That sort of information is not available for any kind of helmet.”

Duma has more information than most: Virginia Tech’s database of 1.5 million on-field helmet impacts among Hokies players and those of other universities going back eight years. Derived from accelerometers placed inside a specific Riddell helmet, that data suggests, for example, that receivers sustain concussions from different types of hits — in strength and in direction — than linemen. So eventually, helmets for various positions can be tested for impacts thought to increase those players’ risk of head injury.

Perhaps most intriguingly, Duma says he first expects to supplement the single-level Nocsae test with the less-violent forces his findings suggest are more likely to cause concussion.

This is where matters become dicey, experts say. A helmet whose padding is not overwhelmed by a violent impact could be so stiff that lower concussion-threatening forces travel right through it. And a helmet that cushions medium blows well could be too giving for the potentially catastrophic hits.

In an e-mail, Mike Oliver, Nocsae's executive director and legal counsel, wrote: "There is a significant potential risk that misleading inferences and conclusions could be made about the ability of one helmet to prevent a particular injury as compared to another, when in fact those conclusions may be entirely wrong. While we certainly welcome additional research and information, an overreliance on any individual data point or single measurement could lead to inaccurate conclusions or even a false sense of security that one helmet guarantees a higher level of protection than another."

Scott Trulock, the head athletic trainer for [University of North Carolina](#) football, said he remained cautiously optimistic. He said that Duma's information — which could hit the Web as early as May — would not undergo the peer review it would typically warrant. And making it available to the public, without a full explanation that still could be ignored, might backfire.

Then again, Trulock said: "He's looking around and saying, Nobody's doing anything; we're going to do *something*. Is his audience college athletic trainers or Pop Warner parents? At Central High School in Wherever, U.S.A., the decision often has more to do with fashion than anything."

Duma said he was sympathetic to the skeptics, and had invited them to collaborate on the tests, data analysis and eventual Web presentation at a meeting next month in Blacksburg, Va. But he vowed that no matter what, the longtime silence on objective helmet test data would end by this summer.

"I understand the concerns and agree with them," Duma said. "We have to do our homework to make sure that what we present is useful."