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Dental Injuries in High School Sports - The Case of the Missing Denominators

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Recently I helped care for a high school lacrosse player who developed mandibular osteomyelitis following wisdom tooth surgery. Once her condition was clearly headed for the better, her main focus was on when she could return to play, less so on protective equipment to prevent injury to that site.

Dr. Bud Wiedermann, MD, MA, Evidence eMended Editor, Grand Rounds

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Source: Collins CL, McKenzie LB, Ferketich AK, et al. Dental injuries sustained by high school athletes in the United States, from 2008/2009 through 2013/2014 academic years. [Dent Traumatol. 2016;32\(2\):121-127](#); doi:10.1111/edt.12228. See [AAP Grand Rounds commentary by Dr. Jeffrey Karp](#) (subscription required).

PICO Question: Among US high school athletes, what is the rate of dental injury and how common is mouthguard use?

Question type: Descriptive

Study design: Prospective surveillance



Lacrosse player with eye and mouth guards. From David.Monnaix via Wikimedia. The study utilized information contributed by high school athletic trainers to the National High School Sports-Related Injury Study via its [Reporting Information Online](#) system. The data covered 2008 - 2014 academic years and found 222 dental injuries occurring over 24,787,258 "athletic exposures," defined as 1 athlete participating in 1 practice, competition, or performance. These injuries comprised 0.5% of all injuries reported in this tracking system; girls' and boys' soccer had the highest rates of dental injuries. Of those 222 injuries, 161 (72%) occurred in athletes not wearing mouthpieces. So, wearing mouthguards prevents

dental injuries, correct?

One can't really conclude that from this study, a limitation that the authors themselves mentioned in their discussion. This database is a voluntary reporting system of injuries; thus, we are missing the denominators we'd need to focus on the role of mouthguards. How many athletes wearing mouthguards, and not wearing

mouthguards, didn't suffer a dental injury during that time period? This database can't show us these numbers, because it collects information only on injured players. Also, note this is a voluntary reporting system, entirely dependent on the willingness of these athletic trainers to report injuries thoroughly.

A good analogy to this voluntary reporting system would be the [Vaccine Adverse Events Reporting System](#), although in this situation we would at least have a good handle on the denominator, the number of doses of vaccines given nationally.

Voluntary reporting systems can serve to monitor trends in health, and perhaps serve as a sort of "early warning" alarm if increases in disease (like dental injuries) suddenly appears. However, we can't conclude from this 1 study how effective protective equipment truly is in preventing dental injuries.

My lacrosse-playing patient was cleared to play late this spring; she agreed to use a mouthguard, and I'm hoping she took my advice to wear a helmet with jaw guard as well!

Further Reading

- [Eye Protection and Risk of Eye Injuries in High School Field Hockey](#)
- [Emergency Department Visits Resulting From Intentional Injury In and Out of School](#)
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