

# Guard Your Grill

The Ins and Outs Of Mouthguards → By Charles A. Popkin, MD



**Q:** *My kid is moving up to 12U hockey. His coach is telling all the kids that mouthguards are required. Why is this? Do they only protect his teeth, or is it true that they decrease the risk of a concussion?*

— Andy H., Hopkins, Minnesota

**A:** Andy, the best way to answer to this question is with a quick history lesson on the role of mouthguards. In the early part of the 20th century, ice hockey players competed without helmets, face shields, basic padding or mouthguards. Injuries, particularly to the face and teeth, were commonplace, yet they were largely accepted as part of the game. Countless young hockey players filled the chairs of dentists, seeking treatment for their lost and broken teeth, often referred to as “bloody chiclets” in hockey circles.

Dentist Arthur Wood was dismayed by the large number of his hockey-playing patients who were missing teeth. This prompted Dr. Wood to develop a “teeth guard” in 1950 to protect players’ teeth from injury. This earned him the informal title, Father of the Mouthguard.

Over the next 20 years, mouthguards slowly increased in popularity, and their use in hockey became more widespread, particularly as injuries from high sticks, flying pucks, and on-ice collisions became more publicized. Boil-and-bite mouthguards, introduced in the 1970s, were easy-to-use, inexpensive and allowed players to customize their fit at home.

Youth hockey leagues started encouraging mouthguard use as part of a broader effort to promote player safety. However, use was designated as optional, leading many players and parents to view mouthguards as non-essential pieces of equipment. USA Hockey first required mouthguard use during the 1974-1975 season in the context of mounting evidence of their effectiveness in preventing dental injuries.



The initial mouthguard requirement has evolved and expanded over the last half century. Currently, USA Hockey rule 304(f) requires that all players, ages 12U through 18U (or 19U for female athletes), wear a colored (i.e. non-clear) mouthpiece that covers all the teeth of one jaw, customarily the upper. Furthermore, the rule strongly recommends that the mouthguard be fitted by a dentist. Any team found in violation of this rule will be issued a warning. Subsequent violations within the same game will trigger a misconduct penalty for the offending player or goalkeeper.

Ever since Dr. Woods’ invention of the teethguard, it has been consistently demonstrated that mouthguards are extremely effective in reducing dental, intraoral, and facial injuries. More recent studies have suggested that wearing a mouthguard may also help prevent concussions that result following a hit to the head. Mouthguards are designed to absorb impact forces during collisions by acting as a cushion to prevent the jaw from striking into the base of the skull during a hit. In theory, this should also reduce the transfer of force to the brain. Additionally, there is improved alignment of the head/neck area because

of the mouthguard pulling the mandible forward slightly. This improved alignment decreases the player’s susceptibility to rotational forces, which are known to be a significant factor causing concussions.

While these theories are encouraging, the truth is that there has been significant variability in the results of research studies examining the effects of mouthguard use on concussion risk. One recent study found that wearing a mouthguard lowered the concussion risk in youth hockey players. Many other studies, unfortunately, have failed to establish a definitive link between mouthguard use and concussion prevention. Ultimately, more research is needed to confirm whether the use of

a mouthguard can decrease concussion risk.

Despite rule 304(f) and decades-worth of strong evidence that mouthguards protect players from many types of dental and facial injuries, compliance is far from universal. Some players resist wearing mouthguards due to perceived discomfort or a lack of awareness about their importance. Ongoing education and outreach are essential to address these barriers and to ensure that all young players are adequately protected. ★



If you have questions for Dr. Hockey, please email [Justin.Felisko@usahockey.org](mailto:Justin.Felisko@usahockey.org)