

# Study identifies dog breeds, physical traits that pose highest risk of biting children

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New research at The Ohio State University College of Medicine and The Ohio State University Wexner Medical Center identifies dog breeds and physical traits that pose the highest risk of biting with severe injury.

Doctors want parents of young children to use this information when deciding which dog to own.

The study, published in the *International Journal of Pediatric Otorhinolaryngology*, explores the risks of dog bite injuries to the face in [children](#) and bite severity by breed, size and head structure. Researchers found pit bulls and mixed [breed dogs](#) have the highest risk of biting and cause the most damage per bite. The same goes for [dogs](#) with wide and short heads weighing between 66 and 100 pounds.

"The purpose of this study was to evaluate dog bites in children, and we specifically looked at how breed relates to bite frequency and bite severity," said Dr. Garth Essig, lead author and otolaryngologist at Ohio State's Wexner Medical Center. "Because mixed breed dogs account for a significant portion of dog bites, and we often didn't know what type of dog was involved in these incidents, we looked at additional factors that may help predict bite tendency when breed is unknown like weight and head shape."

To assess bite severity, researchers reviewed 15 years of dog-related facial trauma cases from Nationwide Children's Hospital and the University of Virginia Health System. They looked at wound size, tissue tearing, bone fractures and other injuries severe enough to warrant consultation by a facial trauma and reconstructive surgeon and created a damage severity scale.

Researchers also performed an extensive literature search from 1970 to current for dog bite papers that reported breed to determine relative risk of biting from a certain breed. This was combined with hospital data to determine relative risk of biting and average tissue damage of bites.

"There's an estimated 83 million owned dogs in the United States and that number continues to climb," said Dr. Essig. "We wanted to provide

families with data to help them determine the risk to their children and inform them on which types of dogs do well in households with kids."

According to the Centers for Disease Control and Prevention, 4.7 million people in the United State are bitten by dogs annually, and 20 percent of these victims require medical care for their injuries. Those who require treatment after dog bites are predominately children ages 5 to 9 years.

"Young children are especially vulnerable to [dog bites](#) because they may not notice subtle signs that a dog may bite," said Dr. Charles Elmaraghy, study co-author, associate professor of otolaryngology at Ohio State's College of Medicine and chief of otolaryngology at Nationwide Children's Hospital. "We see everything from simple lacerations to injuries in which there's significant tissue loss that needs grafting or other reconstructive surgery."

Dr. K. Craig Kent, dean of The Ohio State University College of Medicine said, "This research highlights a significant public health issue and provides a new decision-making framework for families considering dog ownership."

The circumstances that cause a dog to bite vary and may be influenced by [breed](#) behavior tendencies and the behavior of the victim, parents and dog owner.

"Children imitate their parents," said Meghan Herron, associate professor of veterinary clinical services at Ohio State's College of Veterinary Medicine. "Be a model for your child and avoid any confrontational or risky interactions that might trigger a fear or fear-aggression response if the child were to mimic it. This includes harsh reprimands, smacking, pushing off of furniture and forcibly taking away an item."

Herron offers the following tips for dog owners:

1. Most bites to children occur from a family dog when the dog is resting and the child approaches. Try to provide and encourage resting places away from where children run and play.
2. Many bites to children occur even when an adult is in the room. If you can't devote your attention to the interactions between the dog and child, it may be best to have a physical barrier between them, such as a baby gate or crate for the dog. This is especially important for toddlers whose behaviors may be more erratic, unpredictable or frightening to a dog.
3. Teach children to let resting dogs lie and to stay out of dog crates, beds and other resting places that are designated for the dog. If the dog's favorite spot is on the couch, put a towel or blanket down to clearly delineate the dog space versus child space.
4. Children should not approach, touch or otherwise interact with dogs while they are eating. Provide quiet areas for dogs to eat away from areas where children run and play. Rawhides and other flavored chews should only be given when dogs are separated from child play areas.
5. Teach children to find an adult if a dog takes one of their toys or snacks. Children should never attempt to retrieve these items themselves.

**More information:** Garth F. Essig et al. Dog bite injuries to the face: Is there risk with breed ownership? A systematic review with meta-analysis, *International Journal of Pediatric Otorhinolaryngology* (2018). [DOI: 10.1016/j.ijporl.2018.11.028](https://doi.org/10.1016/j.ijporl.2018.11.028)

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