

Pheromones: How the Sense of Smell Influences Dog Behavior

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Researchers have been 'nosing around' for new ways to help alter unwanted behavior patterns in companion and farm animals, and found that the answer was right under their nose.

Animal behaviorists have started to have a larger variety of options to influence unwanted pet behaviors by using synthetic pheromones. Pheromones are chemical substances produced by an animal to serve as a stimulus for behavioral responses in others of the same species. Pheromones are secreted by glands (including anal sacs) and are found in saliva, feces, and urine. Their purpose is to induce specific reactions (behavioral and emotional), including sexual behaviors, aggression, fear-related behaviors, and avoidance reactions.



Olfactory information (smell) plays a much more important role in some species than we may imagine. For example, the sense of smell in companion animals is developed to a much higher degree than in humans - as much as 50 times greater in some dog breeds. For this reason, dogs can detect substances at concentrations between 1,000 to 100 million times lower than humans.

In addition, the vomeronasal organ (also called Jacobson's organ) plays an essential role in olfactory communication in all species. Located in the roof of the mouth, this organ consists of two, fluid filled sacs that connect to the nasal cavity via fine ducts. To facilitate the perception of pheromones, especially sexual odors, many species conduct a behavioral process called 'Flehmen' whereby they lift their upper lip and open their mouths to increase the opening of the ducts connecting the Jacobson's organ with the nasal cavity.

Research has focused on different applications of synthetic pheromones that may affect behavior of various species, including insects, farm animals, dogs, cats, and even humans. Examples include:

- The application of sexual attractants on insect traps to control pests
- The use of pheromones to facilitate artificial insemination in pigs, since the compounds contained in the saliva of boars induce a reflex in sows to stand still

Canine social behavior, especially greeting behavior like sniffing of the anal region and the area of the muzzle, implies that pheromones play a significant role in individual recognition in dogs as well.