Dog training can make remarkably fascinating television—typically, the more dramatic, the better. From the National Geographic channel to Netflix to YouTube, everywhere we turn, a variety of programs describe how to train the family dog. The methods portrayed in these programs may be outdated and based on effectiveness, which is not the only consideration when attempting to modify canine behavior. Ask yourself not only whether those techniques are evidence- and science-based but also whether they are humane and in the best interest of the dogs and clients.
A dog’s emotional side effects of outdated behavior modification techniques can go against the oath we take as veterinary technicians ([navta.net/veterinary-technician-oath](http://navta.net/veterinary-technician-oath)) that we will “dedicate ourselves to aiding animals and society by providing excellent care and services for animals, by alleviating animal suffering, and by promoting public health.” The information presented on television or online may provide quick fixes but does not necessarily lead to long-term behavior changes. Understanding the source of your training recommendations is crucial to optimal patient care.

The best source for behavior and training suggestions is the American College of Veterinary Behaviorists (ACVB, [dacvb.org](http://dacvb.org)). These board-certified veterinarians advance the behavioral health of animals through clinical practice, research, and science-based education. Their recommendations are based on up-to-date research, demonstrating that these techniques can help effect behavior change for the patient, improve the overall welfare of the patient, and strengthen the human-animal bond.

As with most fields in veterinary medicine, behavior and training methods are evolving. New research findings enlighten us and some older findings still hold true. This article describes the journey from some of the foundational principles on which training is based, to some that need to be followed with caution, and some that are debunked myths. After reading this article, you should have a better understanding of the science, not the hype, behind the various training philosophies. It should help you critically assess the techniques you see in the media and understand why board-certified veterinary behaviorists recommend methods rarely seen on these programs.

Hop aboard as we travel through the controversial topic of behavior “train”ing!

**PLAN YOUR ROUTE:**

**TYPES OF LEARNING**

Every living being is constantly learning through interaction with the environment. Before journeying through trends in training programs, it is essential to understand 2 types of associative learning: operant conditioning and classical (Pavlovian) conditioning.

**Operant Conditioning**

*Operant conditioning* is defined as learning in which a behavior is affected by its consequence. First described in 1938 by B.F. Skinner, this type of learning occurs when an animal associates performing a specific behavior with some sort of benefit or disadvantage. Skinner’s basic theories have withstood the test of time and are still a foundational principle of modern behavioral sciences.

Operant conditioning is trial-and-error learning. When a behavior is followed by something desirable (reinforcement), the behavior is more likely to be repeated. Conversely, when the behavior is followed by something the animal fears or dislikes (punishment), the behavior is more likely to weaken. Strengthening or increasing the likelihood of a behavior is *reinforcement* of the behavior; weakening or decreasing the likelihood of a behavior is *punishment*.

With regard to operant conditioning, the terms “positive” and “negative” are placed in front of the words “reinforcement” and “punishment.” In this context, positive does not mean good and negative does not mean bad; instead, we should think of them in more mathematical terms, such as adding something to the situation (positive) and taking something away (negative).

Some people, even veterinary professionals and trainers, misuse these words in a training context. However, we need to recognize the difference and use them correctly. **TABLE 1** shows how the 4 terms can be mixed to describe different processes and outcomes.

**Classical Conditioning**

The other type of learning, which occurs along with operant conditioning, is classical conditioning.

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**TABLE 1 Operant Conditioning Terms**

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<thead>
<tr>
<th>COMBINED TERMS</th>
<th>DEFINITION</th>
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<tr>
<td>Positive Reinforcement</td>
<td>Adding something to the situation to strengthen or increase the likelihood of behavior</td>
</tr>
<tr>
<td>Negative Reinforcement</td>
<td>Eliminating/taking something away to strengthen or increase the likelihood of behavior</td>
</tr>
<tr>
<td>Positive Punishment</td>
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This type of conditioning is also called Pavlovian conditioning, named after Ivan Pavlov, who in 1897 determined that stimuli can be associated with physiologic states, including emotions. A previously neutral person, place, or object can evoke a strong emotional response if closely associated with that emotion in the past. This conditioning explains why many canine patients start showing the body language of panting, whining, or avoidance when in veterinary clinic parking lots. The dog may strongly associate the smells, sights, and sounds with its last visit, when it was probably scared and experienced pain.

LEAVE THE STATION: AN UNRULY PASSENGER

Now that we have completed the foundation part of our journey, we will travel on to trends in dog training. We will use the example of Gator, a dog who displays aggression when guarding a coveted item. The trainer’s method has been used over time, but is it the best method? Does current research support another approach?

Gator is a 3-year-old castrated male, mixed-breed dog. He started to display aggressive behavior (hard staring, growling, and air snapping at family members) while resting and chewing on high-value items, such as rawhides and Kong toys. The trainer coached the owner to put an electronic collar on Gator and to have family members apply a shock or vibration when he exhibited any of the aggressive behaviors. The owner reported that the behavior improved after this technique was applied.

STAY ON TRACK: PROS AND CONS OF PUNISHMENT AND AVERSIVE TRAINING

The trainer’s suggestion for Gator was positive punishment. Punishment is used to weaken or decrease a behavior. Training through positive punishment can change behavior quickly and is, therefore, often considered by many to be an easy training method. But not so fast! Positive punishment adds an aversive stimulus after a behavior, potentially leading to pain or fear, which can have serious adverse effects, typically when applied improperly and overused.

Some of the most common tools used to deliver positive punishment/aversive stimuli include collars that deliver an electric shock to the neck (which the trainer chose for Gator), put pressure on the airway (choke collars), or create pain with metal or plastic prongs. In addition to psychological distress, these tools can cause physical harm (e.g., severe ulcerations, damage to the neck/trachea, increased intraocular pressure, upper airway obstruction, nerve damage).

Positive punishment can absolutely change behavior, but it poses a significant amount of risk to the dog and is difficult to apply properly. It is too easy to apply punishment that is largely based on the emotional reaction of the person and, therefore, is overly harsh, poorly timed, or inconsistent. We will review the criteria for effective positive punishment (the pros) but will focus mainly on the reasons why this technique is not recommended (the cons).

Criteria for Effective Positive Punishment

The best-practice criteria for positive punishment are difficult to meet, thus rendering positive punishment unrealistic for most dog owners and leading to poor welfare for the dog.

- **The dog’s motivation to perform the behavior must not be too high.** The stronger the motivation to perform a behavior (e.g., chasing a rapidly moving object), the lower the likelihood that punishment will work and the higher intensity of punishment needed.
- **Consequence must be contingent on the behavior and associated only with the behavior.** The punishment must occur every time the behavior occurs. The dog should be able to understand that its behavior, not the presence of a certain handler, other people, or animals at the time of the punishment, controls whether the consequence will occur.
- **Punishment must be delivered with the proper intensity.** Finding the “perfect” level of punishment can be quite challenging. Punishment intensity must be high enough to interrupt the behavior immediately but not so high that it causes lasting fear, stress, or anxiety. Conversely, the level of punishment should not be so low that the animal ignores it or becomes habituated, rendering it no longer useful. Habituation can cause the owner or trainer to increase the punishment intensity to the point of abuse.
- **Timing of the punishment must be precise.** For punishment to be effectively associated with the behavior, it must be delivered within half a second (0.5 seconds) of the behavior. Unpredictable
punishment that does not allow the dog to understand how to avoid it leads to anxiety.

Consequences of Ineffective Positive Punishment
The American Veterinary Society of Animal Behavior (AVSAB, avsab.org) comprises veterinarians and doctorate-level animal behaviorists who are dedicated to improving the lives of animals and people through an understanding of animal behavior. The AVSAB position statement on punishment reviews the many side effects of using punishment when training animals. The position statement explains that for punishment to be effective, it must provoke a strong response from the learner to avoid the punishment. Unfortunately, this response can then be generalized to other stimuli in the environment. Generalization is a concept of learning in which the cue or situation means the same thing in multiple environments. Generalization can increase the dog's overall level of fear, stress, and anxiety in a variety of contexts.

The adverse effects of inappropriately applied positive punishment include:
- slower learning and cognition
- increased fear and fear-based aggression
- negative associations with the owner, environment, etc.
- confrontation and conflict-associated aggression
- damage to the human-animal bond

Did positive punishment work with Gator? According to the owner, the aversive stimulus (shock) weakened the aggressive behaviors. However, although the aggression may have been suppressed, Gator may have been showing other forms of distress such as lip licking, holding his ears back, and stiff posture, which would indicate that he is still anxious and conflicted. In other words, the noticeable aggression may have been suppressed through positive punishment, but the underlying negative emotions may have worsened through classical conditioning. The negative emotions could also be generalized to a family member approaching Gator in other situations.

This scenario is fairly typical. Behaviorists commonly get reports that the punishment technique worked for a while but then resurfaced “out of nowhere.” Rarely does punishment completely extinguish behavior. Gator learned that displaying his low-level stress with aggressive body language (hard stare, lunge, air snap) did not stop the human's behavior but rather elicited pain in the form of shocks. He learned that to avoid shocks, he was not to give this warning information any longer. However, his underlying anxiety may not only persist but may be increased by the shocks. Therefore, in the future, Gator may bypass the warning signs that indicate stress (as he learned to do) and instead just react by biting or worse.

The goal of veterinary behaviorists is to properly diagnose the source of the fear or negative association, not just suppress the behavior that expresses fear, anxiety, or stress. If a dog's unwanted behavior results from fear, use of punishment may make the dog even more fearful and cause internal conflict.

DON'T GET DERAILED: DOMINANCE THEORY
Instead of using positive punishment, should Gator's owners have attempted to convince him of their dominance? The answer is no. Dominance theory is one of the most perpetuated myths in dog training. Dominance can be defined as forcing control over an animal. When we attempt to forcefully show a dog that we are dominant, it increases the likelihood of suppressing the dog’s behavior, thereby increasing its fear and anxiety. Dominance attempts can also make owners and their actions seem conflicting to the dog, which can damage the human-animal bond and even increase the dog’s aggression toward the owner.

Dominance theory originated in the early 1940s when wildlife biologist L. David Mech published articles claiming that the social hierarchy among dogs is comparable to that of wolves. However, as science has advanced, so has our understanding of canine behavior and detection of flaws in Mech’s original research. Mech has continued to perform research, which has led to his own modification of dominance theory.

Current research has concluded that forceful and aversive training methods can increase the likelihood of owner-directed aggression. When an owner forces the dog into a “submissive posture,” the person is actually being confrontational and aggressive, which can result in human injury and damage to any human-animal bond. Being able to explain to dog-owning clients the evolution of dominance theory and reasons why it is currently considered inappropriate is very important; however, the scope of this topic is too broad to cover in this article. BOX 1 lists resources for learning more information on dominance theory.
STAY ON TRACK: FOCUS ON POSITIVE REINFORCEMENT

Gator’s signs of aggression most likely resulted from stress, anxiety, or fear that someone may take away his coveted item. What can we do to eliminate this behavior while also helping alleviate his stress? The goal is to address the emotional state and environmental conditions causing the unwanted behavior. The ACVB and the AVSAB, as well as reputable trainers and human psychiatric practitioners, strongly recommend reinforcing desired behaviors (positive reinforcement) and removing reinforcers for undesirable behaviors (negative punishment). The following plan demonstrates use of these techniques for Gator and dogs with similar behavior, although the specifics can vary with each dog and family.

● Prevent the unwanted behavior by avoiding the items that provoke it. At a minimum, the owner should never give animal-based treats (e.g., bones, rawhides, bully sticks, nonconsumable food toy with meat-flavored food) that cannot be consumed in one bite. For certain dogs, any food toy (e.g., nut butter-stuffed Kong) or even certain nonfood toys must be removed from the environment due to severe resource guarding.

● If the owner wants to give the dog one of these toys, the dog should be behind a solid barrier, such as a crate, away from the family. The toy should be of low value or 100% consumable during that period away from the family. Therefore, when the dog is finished, he will have nothing to guard when he rejoins the family.

● If the owner wants to work on modifying this behavior with lower value items, an initial step that could be used is classical counterconditioning; that is, giving the dog something it considers highly desirable (e.g., small pieces of very tasty meat or cheese) when a family member takes a small step toward the dog. This approach changes the dog’s association with people from stressful to exciting. We want the dog to anticipate high-value treats when a family member approaches it. Providing the reward at the moment the dog is not showing any signs of stress or aggression is positive reinforcement of calm behavior. Not giving a treat if the dog displays any form of anxiety or aggression is negative punishment.

This approach is an example of how most veterinary behaviorists address a problem behavior to create a win/win for both owner and dog: setting up the environment for success by not putting the animal in a situation likely to trigger anxiety and aggression, using classical conditioning to change the underlying emotional association with people approaching the dog with item, and using operant conditioning to positively reinforce/negatively punish desired behavior in the situation.

THE CABOOSE: COUPLING BEHAVIOR TRAINING CONCEPTS

Gator is a hypothetical dog, but his resource-guarding behavior and the trainer’s “solution” are all too common. The concepts described in this article can apply to other types of behavior modification.

● Positive punishment/aversive stimuli: Positive
punishment and aversive stimuli techniques can potentially cause mental and emotional harm to a dog. When an animal no longer displays the undesired behavior (hard staring, growling, air snapping in Gator’s case) in response to positive punishment, owners often believe that they have solved the problem. Often, they have not, however, alleviated the dog’s underlying stress, anxiety, and/or fear, which could potentially culminate in more harmful forms of aggression, such as biting the owner.

- **Dominance theory:** This approach could have exacerbated Gator’s underlying stress, anxiety, and/or fear. Had Gator’s owners tried this approach, Gator’s behavior could potentially have switched to increased aggression.

- **Positive reinforcement:** This technique is most likely to be successful because it minimizes the dog’s anxiety, modifies his association with people approaching him with the item, and clearly shows him nonthreatening consequences for modifying his actions (positive reinforcement/negative punishment).

Jean Donaldson, author and dog trainer, reminds us to think of modifying a dog’s behavior in terms of leverage over dominance. Keep this concept in mind for future training discussions with clients or veterinary professionals. By reinforcing desired behaviors, we can achieve a well-trained dog that forms positive associations with the trainer and the process.

Providing clients with good information about behavior can help preserve the human-animal bond and help keep patients in their homes. Asking questions about the dog’s behavior and training concerns at each physical examination can help you steer clients in the right direction (even if that direction is referral to a veterinary behaviorist or trainer). Before recommending training classes, observe them to confirm that they are using techniques that follow evidence-based recommendations.

Although older dog training techniques shown in the media may be popular, remember that you are the veterinary professional and that your clients value your opinion and recommendations. Providing the most up-to-date information regarding behavioral training is as important as debunking myths. **TVN**

### Additional Resources

- American College of Veterinary Behaviorists. Find a Diplomate Near You. [dacvb.org/search/custom.asp?id=4709](http://dacvb.org/search/custom.asp?id=4709)

### References